

Course Section	Course Subject	Special Topic	Section Number	Section Title	Term	Description	Instructional Format	Delivery Mode	Scheduled Days	Scheduled Time
ANTH_O 100-101	ANTH_O		101	Introduction to Cultural Anthropology	W2	An overview of social and cultural anthropology, its origins, its distinctive methods and concepts, and its place in the contemporary world. A critical examination of human diversity and how social and cultural differences are produced and shaped by local and global patterns. [3-0-0]	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
BIOC_O 309-101	BIOC_O		101	Pharmacology II	W2	Continuation of Pharmacology I. Expands on topics including pharmacokinetics and pharmacodynamics of drug action, interaction of drugs with the autonomic nervous system (ANS), the inflammatory response, and the treatment of chronic diseases. [3-0-0] Prerequisite: BIOC 308.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
APSC_O 261-001	APSC_O		001	Theory of Structures	W2	Types of structures and structural elements. Loads and load path. Design objectives, philosophy and limit states. Static determinacy and stability. Analysis of statically determinate structures. Deflection using energy and geometrical methods. Influence lines. [3-0-2] Prerequisite: All of APSC 173, APSC 180, APSC 259. Corequisite: APSC 260.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
BIOC_O 402-001	BIOC_O		001	Proteins: Structure and Function	W2	Structural components of proteins; classification by primary, secondary, and tertiary structure; protein chemistry and purification; peptide and protein synthesis by chemical means; and three-dimensional structure determination using X-ray diffraction and NMR. [3-0-0] Prerequisite: One of BIOC 304, BIOL 311.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ANTH_O 100-102	ANTH_O		102	Introduction to Cultural Anthropology	W2	An overview of social and cultural anthropology, its origins, its distinctive methods and concepts, and its place in the contemporary world. A critical examination of human diversity and how social and cultural differences are produced and shaped by local and global patterns. [3-0-0]	Lecture	Online Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ANTH_O 100-103	ANTH_O		103	Introduction to Cultural Anthropology	W2	An overview of social and cultural anthropology, its origins, its distinctive methods and concepts, and its place in the contemporary world. A critical examination of human diversity and how social and cultural differences are produced and shaped by local and global patterns. [3-0-0]	Lecture	In Person Learning	Mon Wed Fri	9:00 a.m. - 10:00 a.m.
ANTH_O 205-101	ANTH_O		101	Gender, Sexuality, and the Body	W2	An anthropological exploration of how understandings of gender, sex, and the body are culturally and historically shaped, with a focus on theory as well as case studies. How globalization and transnationalism are changing norms of gender and sexuality is also explored. [3-0-0] Prerequisite: Second-year standing.	Lecture	Online Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
ANTH_O 277-101	ANTH_O		101	Anthropology of Reading and Writing	W2	Critical inquiry into the development and role of reading and writing in cross-cultural context. Emphasis on the origins of writing from archaeological evidence, the impact of writing systems on societies past and present, the social functions of writing, and innovations in new media. [3-0-0] Prerequisite: Second-year standing	Lecture	Online Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ANTH_O 319-101	ANTH_O		101	Settling Down: An Archaeology of Early State Societies	W2	Survey of archaeological evidence and theories for the origins and spread of settled village life, food production systems, and complex social and political organization. Begins with the Early Neolithic period and continues through to the appearance of the old world civilizations. [3-0-0] Prerequisite: ANTH 103. and third-year standing.	Lecture	Online Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
APSC_O 260-T2A	APSC_O		T2A	Mechanics of Materials I	W2	Concepts of stress and strain. Axial, shear forces and bending moment diagrams for statically determinate structures, torsion in shafts. Axial and shear stresses and deformations. Transformation of plane stress, Mohr's circle. [3-0-1] Prerequisite: APSC 173 and APSC 180.	Discussion	Online Learning	Wed	4:00 p.m. - 5:00 p.m.
APSC_O 260-T2B	APSC_O		T2B	Mechanics of Materials I	W2	Concepts of stress and strain. Axial, shear forces and bending moment diagrams for statically determinate structures, torsion in shafts. Axial and shear stresses and deformations. Transformation of plane stress, Mohr's circle. [3-0-1] Prerequisite: APSC 173 and APSC 180.	Discussion	Online Learning	Wed	11:00 a.m. - 12:00 p.m.
APSC_O 260-T2C	APSC_O		T2C	Mechanics of Materials I	W2	Concepts of stress and strain. Axial, shear forces and bending moment diagrams for statically determinate structures, torsion in shafts. Axial and shear stresses and deformations. Transformation of plane stress, Mohr's circle. [3-0-1] Prerequisite: APSC 173 and APSC 180.	Discussion	Online Learning	Mon	10:00 a.m. - 11:00 a.m.
APSC_O 260-T2D	APSC_O		T2D	Mechanics of Materials I	W2	Concepts of stress and strain. Axial, shear forces and bending moment diagrams for statically determinate structures, torsion in shafts. Axial and shear stresses and deformations. Transformation of plane stress, Mohr's circle. [3-0-1] Prerequisite: APSC 173 and APSC 180.	Discussion	Online Learning	Mon	10:00 a.m. - 11:00 a.m.
APSC_O 260-T2E	APSC_O		T2E	Mechanics of Materials I	W2	Concepts of stress and strain. Axial, shear forces and bending moment diagrams for statically determinate structures, torsion in shafts. Axial and shear stresses and deformations. Transformation of plane stress, Mohr's circle. [3-0-1] Prerequisite: APSC 173 and APSC 180.	Discussion	Online Learning	Tue	5:00 p.m. - 6:00 p.m.
APSC_O 260-T2F	APSC_O		T2F	Mechanics of Materials I	W2	Concepts of stress and strain. Axial, shear forces and bending moment diagrams for statically determinate structures, torsion in shafts. Axial and shear stresses and deformations. Transformation of plane stress, Mohr's circle. [3-0-1] Prerequisite: APSC 173 and APSC 180.	Discussion	Online Learning	Wed	10:00 a.m. - 11:00 a.m.
APSC_O 260-T2G	APSC_O		T2G	Mechanics of Materials I	W2	Concepts of stress and strain. Axial, shear forces and bending moment diagrams for statically determinate structures, torsion in shafts. Axial and shear stresses and deformations. Transformation of plane stress, Mohr's circle. [3-0-1] Prerequisite: APSC 173 and APSC 180.	Discussion	Online Learning	Wed	10:00 a.m. - 11:00 a.m.
APSC_O 260-T2H	APSC_O		T2H	Mechanics of Materials I	W2	Concepts of stress and strain. Axial, shear forces and bending moment diagrams for statically determinate structures, torsion in shafts. Axial and shear stresses and deformations. Transformation of plane stress, Mohr's circle. [3-0-1] Prerequisite: APSC 173 and APSC 180.	Discussion	Online Learning	Wed	8:00 a.m. - 9:00 a.m.
APSC_O 260-T2I	APSC_O		T2I	Mechanics of Materials I	W2	Concepts of stress and strain. Axial, shear forces and bending moment diagrams for statically determinate structures, torsion in shafts. Axial and shear stresses and deformations. Transformation of plane stress, Mohr's circle. [3-0-1] Prerequisite: APSC 173 and APSC 180.	Discussion	Online Learning	Tue	11:00 a.m. - 12:00 p.m.
APSC_O 260-T2J	APSC_O		T2J	Mechanics of Materials I	W2	Concepts of stress and strain. Axial, shear forces and bending moment diagrams for statically determinate structures, torsion in shafts. Axial and shear stresses and deformations. Transformation of plane stress, Mohr's circle. [3-0-1] Prerequisite: APSC 173 and APSC 180.	Discussion	Online Learning	Tue	6:00 p.m. - 7:00 p.m.
APSC_O 260-T2K	APSC_O		T2K	Mechanics of Materials I	W2	Concepts of stress and strain. Axial, shear forces and bending moment diagrams for statically determinate structures, torsion in shafts. Axial and shear stresses and deformations. Transformation of plane stress, Mohr's circle. [3-0-1] Prerequisite: APSC 173 and APSC 180.	Discussion	Online Learning	Wed	11:00 a.m. - 12:00 p.m.
APSC_O 261-T0A	APSC_O		T0A	Theory of Structures	W2	Types of structures and structural elements. Loads and load path. Design objectives, philosophy and limit states. Static determinacy and stability. Analysis of statically determinate structures. Deflection using energy and geometrical methods. Influence lines. [3-0-2] Prerequisite: All of APSC 173, APSC 180, APSC 259. Corequisite: APSC 260.	Discussion	Online Learning	Mon	8:00 a.m. - 10:00 a.m.

APSC_O 261-T0B	APSC_O	T0B	Theory of Structures	W2	Types of structures and structural elements. Loads and load path. Design objectives, philosophy and limit states. Static determinacy and stability. Analysis of statically determinate structures. Deflection using energy and geometrical methods. Influence lines. [3-0-2] Prerequisite: All of APSC 173, APSC 180, APSC 259. Corequisite: APSC 260.	Discussion	Online Learning	Thu	4:00 p.m. - 6:00 p.m.
APSC_O 261-T0C	APSC_O	T0C	Theory of Structures	W2	Types of structures and structural elements. Loads and load path. Design objectives, philosophy and limit states. Static determinacy and stability. Analysis of statically determinate structures. Deflection using energy and geometrical methods. Influence lines. [3-0-2] Prerequisite: All of APSC 173, APSC 180, APSC 259. Corequisite: APSC 260.	Discussion	Online Learning	Thu	6:00 p.m. - 8:00 p.m.
APSC_O 261-T0D	APSC_O	T0D	Theory of Structures	W2	Types of structures and structural elements. Loads and load path. Design objectives, philosophy and limit states. Static determinacy and stability. Analysis of statically determinate structures. Deflection using energy and geometrical methods. Influence lines. [3-0-2] Prerequisite: All of APSC 173, APSC 180, APSC 259. Corequisite: APSC 260.	Discussion	Online Learning	Tue	6:00 p.m. - 8:00 p.m.
APSC_O 261-T0E	APSC_O	T0E	Theory of Structures	W2	Types of structures and structural elements. Loads and load path. Design objectives, philosophy and limit states. Static determinacy and stability. Analysis of statically determinate structures. Deflection using energy and geometrical methods. Influence lines. [3-0-2] Prerequisite: All of APSC 173, APSC 180, APSC 259. Corequisite: APSC 260.	Discussion	Online Learning	Wed	12:00 p.m. - 2:00 p.m.
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 1985 to the present. Credit will be granted for only one of ARTH 203 or ARTH 302. [3-0-0]	Lecture	Online Learning	Tue 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	Fri	2:00 p.m. - 5:00 p.m.
APSC_O 173-202	APSC_O	202	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.	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*-1] Prerequisite: All of APSC 180, APSC 181, APSC 248.	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.
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 humankind 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	3:30 p.m. - 5:00 p.m.
ANTH_O 200-101	ANTH_O	101	Public Anthropology: Engagement and Advocacy	W2	Examines the range of approaches to public anthropology and how its methods and insights can be used to effect social change, encourage broader public conversation and debate, and respond to inequality, injustice, and human suffering. [3-0-0] Prerequisite: Either (a) one of ANTH 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	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. Second-year standing.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
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 experience 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	12:30 p.m. - 2:00 p.m.
APSC_O 181-T2I	APSC_O	T2I	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	12:00 p.m. - 2:00 p.m.
APSC_O 278-T2E	APSC_O	T2E	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 178, APSC 248.	Discussion	In Person 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, BIOL 311. Equivalency: CHEM403	Lecture	In Person Learning	Mon 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_O 201-202	APSC_O		202	Technical Communication	W2	Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
APSC_O 201-204	APSC_O		204	Technical Communication	W2	Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
ANTH_O 401-101	ANTH_O		101	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 300 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_O 181-T2B	APSC_O		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_O 181-T2C	APSC_O		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_O 418-101	ANTH_O		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 100. and third-year standing. ANTH 218 is recommended.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
ANTH_O 475-101	ANTH_O		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_O 181-T2E	APSC_O		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_O 181-T2F	APSC_O		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_O 278-T2B	APSC_O		T2B	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 178, APSC 248.	Discussion	In Person Learning	Thu	2:00 p.m. - 3:00 p.m.
ANTH_O 490-M_101	ANTH_O	M	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	Tue Thu	11:00 a.m. - 12:30 p.m.
APSC_O 181-T2A	APSC_O		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_O 110-72C	APSC_O		72C	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	Arranged
APSC_O 110-72E	APSC_O		72E	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	Arranged
APSC_O 110-72F	APSC_O		72F	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	Arranged
APSC_O 110-72M	APSC_O		72M	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	Arranged
APSC_O 178-T2A	APSC_O		T2A	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.	Discussion	Online Learning	Arranged	Arranged
APSC_O 178-T2B	APSC_O		T2B	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.	Discussion	Online Learning	Arranged	Arranged
APSC_O 178-T2C	APSC_O		T2C	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.	Discussion	Online Learning	Arranged	Arranged
APSC_O 178-T2D	APSC_O		T2D	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.	Discussion	Online Learning	Arranged	Arranged
APSC_O 178-T2E	APSC_O		T2E	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.	Discussion	Online Learning	Arranged	Arranged



APSC_O 410-72E	APSC_O	72E	Co-operative Education Work Term IV	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 310.	Experiential	In Person Learning	Arranged	Arranged	
APSC_O 410-72F	APSC_O	72F	Co-operative Education Work Term IV	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 310.	Experiential	In Person Learning	Arranged	Arranged	
APSC_O 410-72M	APSC_O	72M	Co-operative Education Work Term IV	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 310.	Experiential	In Person Learning	Arranged	Arranged	
APSC_O 411-72C	APSC_O	72C	Co-operative Education Work Term V	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 410.	Experiential	In Person Learning	Arranged	Arranged	
APSC_O 411-72E	APSC_O	72E	Co-operative Education Work Term V	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 410.	Experiential	In Person Learning	Arranged	Arranged	
APSC_O 411-72F	APSC_O	72F	Co-operative Education Work Term V	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 410.	Experiential	In Person Learning	Arranged	Arranged	
APSC_O 411-72M	APSC_O	72M	Co-operative Education Work Term V	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 410.	Experiential	In Person Learning	Arranged	Arranged	
APSC_O 412-72C	APSC_O	72C	Co-operative Education Work Term VI	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 411.	Experiential	In Person Learning	Arranged	Arranged	
APSC_O 412-72E	APSC_O	72E	Co-operative Education Work Term VI	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 411.	Experiential	In Person Learning	Arranged	Arranged	
APSC_O 412-72F	APSC_O	72F	Co-operative Education Work Term VI	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 411.	Experiential	In Person Learning	Arranged	Arranged	
APSC_O 412-72M	APSC_O	72M	Co-operative Education Work Term VI	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 411.	Experiential	In Person Learning	Arranged	Arranged	
APSC_O 510-002	APSC_O	002	Engineering Internship I	W2	Supervised, technical paid work experience with a public or private organization for a minimum of 12 weeks full-time. Internship assignment required. Restricted to graduate degree students meeting requirements of the Faculty of Applied Science and the Co-operative Education program. Prerequisite: APSC 107. and 30 credits M.Eng. coursework. Pass/Fail.	Experiential	In Person Learning	Arranged	Arranged	
APSC_O 511-001	APSC_O	001	Engineering Internship II	W2	Supervised, technical paid work experience with a public or private organization for a minimum of 12 weeks full-time. Internship assignment required. Restricted to graduate degree students meeting requirements of the Faculty of Applied Science and the Co-operative Education program. Prerequisite: APSC 510. Pass/Fail.	Experiential	In Person Learning	Arranged	Arranged	
BIOC_O 448-A_101	BIOC_O	A	A_101	Directed Studies in Biochemistry	W2	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_102	BIOC_O	A	A_102	Directed Studies in Biochemistry	W2	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_103	BIOC_O	A	A_103	Directed Studies in Biochemistry	W2	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_104	BIOC_O	A	A_104	Directed Studies in Biochemistry	W2	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_105	BIOC_O	A	A_105	Directed Studies in Biochemistry	W2	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_106	BIOC_O	A	A_106	Directed Studies in Biochemistry	W2	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-C_101	BIOC_O	C	C_101	Directed Studies in Biochemistry	W2	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-C_102	BIOC_O	C	C_102	Directed Studies in Biochemistry	W2	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-C_103	BIOC_O	C	C_103	Directed Studies in Biochemistry	W2	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-C_104	BIOC_O	C	C_104	Directed Studies in Biochemistry	W2	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-C_105	BIOC_O	C	C_105	Directed Studies in Biochemistry	W2	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-C_106	BIOC_O	C	C_106	Directed Studies in Biochemistry	W2	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-C_107	BIOC_O	C	C_107	Directed Studies in Biochemistry	W2	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-C_108	BIOC_O	C	C_108	Directed Studies in Biochemistry	W2	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-C_109	BIOC_O	C	C_109	Directed Studies in Biochemistry	W2	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 549-002	BIOC_O		002	M.Sc. Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
BIOC_O 649-002	BIOC_O		002	Ph.D. Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
APSC_O 171-101	APSC_O		101	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
APSC_O 173-201	APSC_O		201	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.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
APSC_O 177-201	APSC_O		201	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	Tue Thu	3:30 p.m. - 5:00 p.m.

APSC_O 253-201	APSC_O	201	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.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
APSC_O 255-102	APSC_O	102	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.	Lecture	In Person Learning	Tue Thu	6:30 p.m. - 8:00 p.m.
APSC_O 171-102	APSC_O	102	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
APSC_O 178-201	APSC_O	201	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	Wed Fri	12:30 p.m. - 2:00 p.m.
APSC_O 181-201	APSC_O	201	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.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
APSC_O 181-202	APSC_O	202	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.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
APSC_O 255-101	APSC_O	101	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.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
APSC_O 260-201	APSC_O	201	Mechanics of Materials I	W2	Concepts of stress and strain. Axial, shear forces and bending moment diagrams for statically determinate structures, torsion in shafts. Axial and shear stresses and deformations. Transformation of plane stress, Mohr's circle. [3-0-1] Prerequisite: APSC 173 and APSC 180.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
APSC_O 171-T1A	APSC_O	T1A	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Discussion	In Person Learning	Fri	6:00 p.m. - 8:00 p.m.
APSC_O 171-T1B	APSC_O	T1B	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Discussion	In Person Learning	Tue	4:00 p.m. - 6:00 p.m.
APSC_O 171-T1C	APSC_O	T1C	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Discussion	In Person Learning	Mon	12:00 p.m. - 2:00 p.m.
APSC_O 171-T1D	APSC_O	T1D	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Discussion	In Person Learning	Wed	8:00 a.m. - 10:00 a.m.
APSC_O 171-T1E	APSC_O	T1E	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Discussion	In Person Learning	Wed	12:00 p.m. - 2:00 p.m.
APSC_O 171-T1F	APSC_O	T1F	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Discussion	In Person Learning	Mon	6:00 p.m. - 8:00 p.m.
APSC_O 171-T1G	APSC_O	T1G	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Discussion	In Person Learning	Mon	2:00 p.m. - 4:00 p.m.
APSC_O 171-T1H	APSC_O	T1H	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Discussion	In Person Learning	Fri	4:00 p.m. - 6:00 p.m.
APSC_O 171-T1I	APSC_O	T1I	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Discussion	In Person Learning	Wed	6:00 p.m. - 8:00 p.m.
APSC_O 171-T1J	APSC_O	T1J	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Discussion	In Person Learning	Tue	8:00 a.m. - 10:00 a.m.
APSC_O 171-T1K	APSC_O	T1K	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Discussion	In Person Learning	Tue	6:00 p.m. - 8:00 p.m.
APSC_O 171-T1L	APSC_O	T1L	Engineering Drawing and CAD/CAM	W2	Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modelling, introduction to rapid prototyping, team-based design project. [3-0-2]	Discussion	In Person Learning	Thu	4:00 p.m. - 6:00 p.m.
APSC_O 177-L1A	APSC_O	L1A	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]	Laboratory	In Person Learning	Tue (Alternate weeks)	10:00 a.m. - 12:00 p.m.
APSC_O 177-L1B	APSC_O	L1B	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]	Laboratory	In Person Learning	Tue (Alternate weeks)	10:00 a.m. - 12:00 p.m.
APSC_O 177-L1C	APSC_O	L1C	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]	Laboratory	In Person Learning	Thu (Alternate weeks)	12:00 p.m. - 2:00 p.m.

APSC_O 177-L1D	APSC_O	L1D	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]	Laboratory	In Person Learning	Thu (Alternate weeks)	12:00 p.m. - 2:00 p.m.
APSC_O 177-L1E	APSC_O	L1E	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]	Laboratory	In Person Learning	Thu (Alternate weeks)	6:00 p.m. - 8:00 p.m.
APSC_O 177-L1F	APSC_O	L1F	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]	Laboratory	In Person Learning	Thu (Alternate weeks)	6:00 p.m. - 8:00 p.m.
APSC_O 177-L1G	APSC_O	L1G	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]	Laboratory	In Person Learning	Mon (Alternate weeks)	8:00 a.m. - 10:00 a.m.
APSC_O 177-L1H	APSC_O	L1H	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]	Laboratory	In Person Learning	Mon (Alternate weeks)	8:00 a.m. - 10:00 a.m.
APSC_O 177-L1I	APSC_O	L1I	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]	Laboratory	In Person Learning	Tue (Alternate weeks)	12:00 p.m. - 2:00 p.m.
APSC_O 177-L1J	APSC_O	L1J	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]	Laboratory	In Person Learning	Tue (Alternate weeks)	12:00 p.m. - 2:00 p.m.
APSC_O 177-L1K	APSC_O	L1K	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]	Laboratory	In Person Learning	Fri (Alternate weeks)	12:00 p.m. - 2:00 p.m.
APSC_O 177-L1L	APSC_O	L1L	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]	Laboratory	In Person Learning	Fri (Alternate weeks)	12:00 p.m. - 2:00 p.m.
APSC_O 172-201	APSC_O	201	Engineering Analysis I	W2	Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1]	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
APSC_O 173-T2B	APSC_O	T2B	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	Tue	1:00 p.m. - 2:00 p.m.
APSC_O 173-T2F	APSC_O	T2F	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_O 253-T0B	APSC_O	T0B	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	1:00 p.m. - 2:00 p.m.
APSC_O 253-T0F	APSC_O	T0F	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	Tue	4:00 p.m. - 5:00 p.m.
APSC_O 253-T0G	APSC_O	T0G	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	2:00 p.m. - 3:00 p.m.
APSC_O 253-T0H	APSC_O	T0H	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	Mon	12:00 p.m. - 1:00 p.m.
APSC_O 253-T0I	APSC_O	T0I	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	3:00 p.m. - 4:00 p.m.
APSC_O 255-T1A	APSC_O	T1A	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.	Discussion	In Person Learning	Fri	4:00 p.m. - 5:00 p.m.
APSC_O 255-T1G	APSC_O	T1G	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.	Discussion	In Person Learning	Mon	8:00 a.m. - 9:00 a.m.
APSC_O 172-T2A	APSC_O	T2A	Engineering Analysis I	W2	Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1]	Discussion	In Person Learning	Thu	1:00 p.m. - 2:00 p.m.
APSC_O 173-T2A	APSC_O	T2A	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_O 255-T1B	APSC_O	T1B	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.	Discussion	In Person Learning	Wed	1:00 p.m. - 2:00 p.m.
APSC_O 255-T1F	APSC_O	T1F	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.	Discussion	In Person Learning	Thu	5:00 p.m. - 6:00 p.m.



APSC_O 255-T1H	APSC_O	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 power 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_O 173-T2C	APSC_O	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_O 173-T2H	APSC_O	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_O 255-T1C	APSC_O	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 power 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_O 255-T1E	APSC_O	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 power 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_O 173-T2D	APSC_O	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_O 173-T2I	APSC_O	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_O 253-T0A	APSC_O	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*-1] Prerequisite: All of APSC 180, APSC 181, APSC 248.	Discussion	In Person Learning	Fri	11:00 a.m. - 12:00 p.m.
APSC_O 253-T0D	APSC_O	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*-1] Prerequisite: All of APSC 180, APSC 181, APSC 248.	Discussion	In Person Learning	Thu	12:00 p.m. - 1:00 p.m.
APSC_O 253-T0E	APSC_O	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*-1] Prerequisite: All of APSC 180, APSC 181, APSC 248.	Discussion	In Person Learning	Thu	2:00 p.m. - 3:00 p.m.
APSC_O 255-T1D	APSC_O	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 power 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_O 255-T1I	APSC_O	T1I	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.	Discussion	In Person Learning	Mon	2:00 p.m. - 3:00 p.m.
APSC_O 173-T2E	APSC_O	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_O 120-101	ASTR_O	101	Astrophysics II	W2	Modern stellar, galactic, and extragalactic astrophysics, emphasizing stars and stellar evolution from protostars to black holes; galaxies, clusters of galaxies, and quasars; large-scale Universe and cosmology structure; special and general relativity. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, 121, 122. [3-3*-1] Prerequisite: One of Foundations of Mathematics 12, Pre-Calculus 11, Principles of Mathematics 11; and Physics 11.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ASTR_O 121-101	ASTR_O	101	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	Tue Thu	11:00 a.m. - 12:30 p.m.
ASTR_O 122-101	ASTR_O	101	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	Tue Thu	11:00 a.m. - 12:30 p.m.
APSC_O 173-T2G	APSC_O	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_O 253-T0C	APSC_O	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_O 177-202	APSC_O	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	Tue Thu	2:00 p.m. - 3:30 p.m.

APSC_O 258-201	APSC_O	201	Applications of Engineering Design	W2	Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
BIOL_O 125-101	BIOL_O	101	Biology for Science Majors II	W2	Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioural 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.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
BIOL_O 125-102	BIOL_O	102	Biology for Science Majors II	W2	Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioural 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.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
APSC_O 201-203	APSC_O	203	Technical Communication	W2	Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
APSC_O 201-207	APSC_O	207	Technical Communication	W2	Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
APSC_O 201-208	APSC_O	208	Technical Communication	W2	Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
APSC_O 504-001	APSC_O	001	Solar Cell Engineering	W2	Climate change and renewable energy sources, operational principles of solar cells and review of leading technologies, deposition and characterization tools for thin film layers, environmental and economic considerations of solar energy, and latest developments in academic research.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
APSC_O 181-T2D	APSC_O	T2D	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	Fri	12:00 p.m. - 2:00 p.m.
APSC_O 181-T2H	APSC_O	T2H	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	Fri	2:00 p.m. - 4:00 p.m.
APSC_O 181-T2J	APSC_O	T2J	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	2:00 p.m. - 4:00 p.m.
APSC_O 201-206	APSC_O	206	Technical Communication	W2	Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176.	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.
APSC_O 278-T2A	APSC_O	T2A	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 178, APSC 248.	Discussion	In Person Learning	Thu	11:00 a.m. - 12:00 p.m.
APSC_O 201-209	APSC_O	209	Technical Communication	W2	Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
BIOC_O 310-001	BIOC_O	001	Plant Chemistry	W2	Chemical constituents of plants, their synthesis, their contribution to key metabolic processes, and the regulation of their biosynthesis. Synthesis of alkaloids, secondary metabolites, nutrients, and bioactive compounds. Discovery of new phytochemicals and human uses of plants. [3-0-0] Prerequisite: One of CHEM 204, CHEM 214 and one of BIOL 200, BIOL 210, BIOL 319, BIOC 305.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
APSC_O 181-T2K	APSC_O	T2K	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	4:00 p.m. - 6:00 p.m.
APSC_O 201-201	APSC_O	201	Technical Communication	W2	Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
APSC_O 201-205	APSC_O	205	Technical Communication	W2	Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
APSC_O 278-T2C	APSC_O	T2C	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 178, APSC 248.	Discussion	In Person Learning	Thu	11:00 a.m. - 12:00 p.m.
APSC_O 519-001	APSC_O	001	System Identification	W2	Identification of dynamical systems by considering input signals, sensor measurements, noise, and disturbance, as well as using parameter estimation, model selection and validation, and practical considerations. Credit will only be granted to one of ENGR 419 or APSC 519	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
APSC_O 181-T2G	APSC_O	T2G	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_O 201-210	APSC_O	210	Technical Communication	W2	Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
APSC_O 278-T2D	APSC_O	T2D	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 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; intersymbol 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 catabolism 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 BIOL 319. [3-0-0] Prerequisite: All of BIOC 304, BIOL 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 biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, 121, 122. [3-3*-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	W2	Examination of the visual arts of North America and Europe from 1900-1960; pivotal artists and artistic movements; theoretical and critical study of the interrelationship between art production and consumption since the advent of modernism; the changing role of the artist as the bearer of cultural values. [3-0-0] Prerequisite: Third-year standing.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ARTH_O 375-101	ARTH_O	101	Encountering India: The Age of the Mughals	W2	An examination of interrelated arts, visual cultures and texts in South Asia (15th to 19th C) within their historical and cultural contexts. Topics include the rise of the multicultural Mughal Empire, the roles of Hinduism, Islam, and Sikhism, and encounters with Renaissance and Colonial Europe. Digital art historical approaches will normally be used, though no computing experience is required. Credit will be granted for only one of ARTH 375, DIHU 375, or WRLD 375. Prerequisite: Third-year standing. Equivalency: DIHU 375, WRLD 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, transculturalism, 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 activism. Prerequisite: Third-year standing.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
APSC_O 253-L1A	APSC_O	L1A	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-L1B	APSC_O	L1B	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-L1C	APSC_O	L1C	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-L1D	APSC_O	L1D	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-L1E	APSC_O	L1E	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-L1F	APSC_O	L1F	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-L1G	APSC_O	L1G	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-L1H	APSC_O	L1H	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-L1I	APSC_O	L1I	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-L1J	APSC_O	L1J	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-L1K	APSC_O	L1K	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-L1L	APSC_O	L1L	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-L1M	APSC_O	L1M	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-L1N	APSC_O	L1N	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.





BIOL_O 125-L25	BIOL_O	L25	Biology for Science Majors II	W2	Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioural ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.	Laboratory	In Person Learning	Wed	12:30 p.m. - 3:30 p.m.
APSC_O 255-L1A	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	Tue (Alternate weeks)	5:00 p.m. - 7:00 p.m.
APSC_O 255-L1B	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_O 255-L1C	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_O 255-L1D	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_O 255-L1E	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_O 255-L1F	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_O 255-L1G	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_O 255-L1H	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_O 255-L1I	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_O 255-L1J	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	Mon (Alternate weeks)	10:00 a.m. - 12:00 p.m.
APSC_O 255-L1K	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_O 255-L1L	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_O 255-L1M	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_O 255-L1N	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.

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)	2:00 p.m. - 4:00 p.m.
APSC_O 262-L2C	APSC_O	L2C	Digital Logic Design	W2	Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, programmable logic devices (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-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)	6:00 p.m. - 8:00 p.m.
APSC_O 262-L2E	APSC_O	L2E	Digital Logic Design	W2	Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, programmable logic devices (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)	12:00 p.m. - 2:00 p.m.
APSC_O 262-L2G	APSC_O	L2G	Digital Logic Design	W2	Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, programmable logic devices (FPGAs), counters, finite state machines, digital system designs. [3-2*-0] Prerequisite: APSC 178.	Laboratory	In Person Learning	Mon (Alternate weeks)	12:00 p.m. - 2:00 p.m.
APSC_O 262-L2H	APSC_O	L2H	Digital Logic Design	W2	Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, programmable logic devices (FPGAs), counters, finite state machines, digital system designs. [3-2*-0] Prerequisite: APSC 178.	Laboratory	In Person Learning	Mon (Alternate weeks)	12:00 p.m. - 2:00 p.m.
APSC_O 258-L2A	APSC_O	L2A	Applications of Engineering Design	W2	Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254.	Laboratory	In Person Learning	Wed	3:30 p.m. - 4:30 p.m.
APSC_O 258-L2B	APSC_O	L2B	Applications of Engineering Design	W2	Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254.	Laboratory	In Person Learning	Wed	11:00 a.m. - 12:00 p.m.
APSC_O 258-L2C	APSC_O	L2C	Applications of Engineering Design	W2	Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254.	Laboratory	In Person Learning	Wed	10:00 a.m. - 11:00 a.m.
APSC_O 258-L2D	APSC_O	L2D	Applications of Engineering Design	W2	Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254.	Laboratory	In Person Learning	Tue	11:00 a.m. - 12:00 p.m.
APSC_O 258-L2E	APSC_O	L2E	Applications of Engineering Design	W2	Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254.	Laboratory	In Person Learning	Thu	2:00 p.m. - 3:00 p.m.
APSC_O 258-L2F	APSC_O	L2F	Applications of Engineering Design	W2	Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254.	Laboratory	In Person Learning	Tue	12:00 p.m. - 1:00 p.m.
APSC_O 258-L2G	APSC_O	L2G	Applications of Engineering Design	W2	Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254.	Laboratory	In Person Learning	Tue	8:00 a.m. - 9:00 a.m.
APSC_O 258-L2H	APSC_O	L2H	Applications of Engineering Design	W2	Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254.	Laboratory	In Person Learning	Tue	2:00 p.m. - 3:00 p.m.
APSC_O 258-L2I	APSC_O	L2I	Applications of Engineering Design	W2	Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254.	Laboratory	In Person Learning	Thu	11:00 a.m. - 12:00 p.m.
APSC_O 258-L2J	APSC_O	L2J	Applications of Engineering Design	W2	Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254.	Laboratory	In Person Learning	Tue	1:00 p.m. - 2:00 p.m.
APSC_O 258-L2K	APSC_O	L2K	Applications of Engineering Design	W2	Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254.	Laboratory	In Person Learning	Fri	11:00 a.m. - 12:00 p.m.
APSC_O 270-L1A	APSC_O	L1A	Signals and Communication Systems	W2	Fourier series and Fourier transform analysis of signals; sampling theorem; amplitude; phase; and frequency modulation; baseband digital transmission; pulse code modulation and quantization; Nyquist pulses; intersymbol interference. Credit will be granted for only one of APSC 270 or ENGR 361. [3-2*-0] Prerequisite: APSC 246.	Laboratory	In Person Learning	Fri (Alternate weeks)	2:30 p.m. - 4:30 p.m.
APSC_O 270-L1B	APSC_O	L1B	Signals and Communication Systems	W2	Fourier series and Fourier transform analysis of signals; sampling theorem; amplitude; phase; and frequency modulation; baseband digital transmission; pulse code modulation and quantization; Nyquist pulses; intersymbol interference. Credit will be granted for only one of APSC 270 or ENGR 361. [3-2*-0] Prerequisite: APSC 246.	Laboratory	In Person Learning	Fri (Alternate weeks)	2:30 p.m. - 4:30 p.m.



APSC_O 270-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	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 278-001	APSC_O	001	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 178, APSC 248.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ARTH_O 320-001	ARTH_O	001	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.
BIOL_O 122-101	BIOL_O	101	Physiology of Multicellular Organisms	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 BIOL 116/125 for those degree programs that require BIOL 116/125. Credit will be granted for either BIOL 117/122 or BIOL 116/125. Credit will be granted for only one of BIOL 122, both of HES 101 and HES 111, or both of HMKN 190 and HMKN 191. [3-0-0]	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ASTR_O 120-L01	ASTR_O	L01	Astrophysics II	W2	Modern stellar, galactic, and extragalactic astrophysics, emphasizing stars and stellar evolution from protostars to black holes; galaxies, clusters of galaxies, and quasars; large-scale Universe and cosmology structure; special and general relativity. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, 121, 122. [3-3*-1] Prerequisite: One of Foundations of Mathematics 12, Pre-Calculus 11, Principles of Mathematics 11; and Physics 11.	Laboratory	In Person Learning	Thu (Alternate weeks)	2:30 p.m. - 5:30 p.m.
ASTR_O 120-L02	ASTR_O	L02	Astrophysics II	W2	Modern stellar, galactic, and extragalactic astrophysics, emphasizing stars and stellar evolution from protostars to black holes; galaxies, clusters of galaxies, and quasars; large-scale Universe and cosmology structure; special and general relativity. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, 121, 122. [3-3*-1] Prerequisite: One of Foundations of Mathematics 12, Pre-Calculus 11, Principles of Mathematics 11; and Physics 11.	Laboratory	In Person Learning	Thu (Alternate weeks)	6:30 p.m. - 9:30 p.m.
ASTR_O 121-L01	ASTR_O	L01	Astronomy II	W2	Emphasizes modern stellar, galactic, and extragalactic astronomy; stars and stellar evolution from protostars to black holes; galaxies, clusters of galaxies, and quasars; large-scale structure of the Universe and cosmology. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, ASTR 121, ASTR 122. [3-3*-0] Prerequisite: Foundations of Mathematics 11 is strongly recommended.	Laboratory	In Person Learning	Thu (Alternate weeks)	2:30 p.m. - 5:30 p.m.
ASTR_O 121-L02	ASTR_O	L02	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.	Laboratory	In Person Learning	Thu (Alternate weeks)	6:30 p.m. - 9:30 p.m.
BIOC_O 393-L01	BIOC_O	L01	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOL 366. Equivalency: BIOL393	Laboratory	In Person Learning	Mon	2:30 p.m. - 6:30 p.m.
BIOC_O 393-L02	BIOC_O	L02	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOL 366. Equivalency: BIOL393	Laboratory	In Person Learning	Tue	2:30 p.m. - 6:30 p.m.
BIOC_O 393-L03	BIOC_O	L03	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOL 366. Equivalency: BIOL393	Laboratory	In Person Learning	Wed	2:30 p.m. - 6:30 p.m.
BIOC_O 393-L04	BIOC_O	L04	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOL 366. Equivalency: BIOL393	Laboratory	In Person Learning	Thu	2:30 p.m. - 6:30 p.m.
BIOC_O 393-L05	BIOC_O	L05	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOL 366. Equivalency: BIOL393	Laboratory	In Person Learning	Fri	2:30 p.m. - 6:30 p.m.
BIOC_O 393-L08	BIOC_O	L08	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOL 366. Equivalency: BIOL393	Laboratory	In Person Learning	Tue	8:30 a.m. - 12:30 p.m.

BIOC_O 393-L06	BIOC_O	L06	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOL 366. Equivalency: BIOL393	Laboratory	In Person Learning	Mon	2:30 p.m. - 6:30 p.m.
BIOC_O 393-L07	BIOC_O	L07	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOL 366. Equivalency: BIOL393	Laboratory	In Person Learning	Tue	2:30 p.m. - 6:30 p.m.
BIOC_O 495-L01	BIOC_O	L01	Biotechnology Laboratory II: Gene Expression	W2	Current methods in gene expression will be presented, relevant to such areas as molecular biology, microbiology, and biochemistry. Topics include extraction, handling and manipulation of RNA, analysis of gene expression (transcriptional), production of recombinant proteins, and genetic transformation of eukaryotes. [0-4-0] Prerequisite: BIOL 366 and one of BIOC 393, BIOL 393.	Laboratory	In Person Learning	Thu	9:30 a.m. - 1:30 p.m.
BIOC_O 495-L02	BIOC_O	L02	Biotechnology Laboratory II: Gene Expression	W2	Current methods in gene expression will be presented, relevant to such areas as molecular biology, microbiology, and biochemistry. Topics include extraction, handling and manipulation of RNA, analysis of gene expression (transcriptional), production of recombinant proteins, and genetic transformation of eukaryotes. [0-4-0] Prerequisite: BIOL 366 and one of BIOC 393, BIOL 393.	Laboratory	In Person Learning	Thu	3:30 p.m. - 7:30 p.m.
BIOC_O 495-L03	BIOC_O	L03	Biotechnology Laboratory II: Gene Expression	W2	Current methods in gene expression will be presented, relevant to such areas as molecular biology, microbiology, and biochemistry. Topics include extraction, handling and manipulation of RNA, analysis of gene expression (transcriptional), production of recombinant proteins, and genetic transformation of eukaryotes. [0-4-0] Prerequisite: BIOL 366 and one of BIOC 393, BIOL 393.	Laboratory	In Person Learning	Fri	9:30 a.m. - 1:30 p.m.
BIOC_O 407-101	BIOC_O	101	The Biochemical Basis of Disease	W2	Draws on foundational knowledge of normal biochemistry. Inborn errors of metabolism, abnormal growth and metabolism, neurodegeneration and inappropriate protein folding, deficiency diseases, endocrine disorders, and cardiovascular and hematological disorders. Credit will be granted for only one of BIOC 407 or BIOL 507. [3-0-0] Prerequisite: One of BIOC 305, BIOL 319.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
BIOL_O 125-L26	BIOL_O	L26	Biology for Science Majors II	W2	Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioural ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.	Laboratory	In Person Learning	Wed	3:30 p.m. - 6:30 p.m.
BIOL_O 125-L27	BIOL_O	L27	Biology for Science Majors II	W2	Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioural ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.	Laboratory	In Person Learning	Wed	6:30 p.m. - 9:30 p.m.
BIOL_O 125-L28	BIOL_O	L28	Biology for Science Majors II	W2	Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioural ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.	Laboratory	In Person Learning	Thu	9:30 a.m. - 12:30 p.m.
BIOL_O 125-L29	BIOL_O	L29	Biology for Science Majors II	W2	Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioural ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.	Laboratory	In Person Learning	Thu	12:30 p.m. - 3:30 p.m.
BIOL_O 125-L30	BIOL_O	L30	Biology for Science Majors II	W2	Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioural ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.	Laboratory	In Person Learning	Thu	3:30 p.m. - 6:30 p.m.
BIOL_O 125-L31	BIOL_O	L31	Biology for Science Majors II	W2	Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioural ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.	Laboratory	In Person Learning	Thu	6:30 p.m. - 9:30 p.m.
BIOL_O 125-L32	BIOL_O	L32	Biology for Science Majors II	W2	Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioural ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.	Laboratory	In Person Learning	Fri	9:30 a.m. - 12:30 p.m.
BIOL_O 125-XM2	BIOL_O	XM2	Biology for Science Majors II	W2	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 behavioural ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.	Laboratory	In Person Learning	Arranged	Arranged

BIOL_O 125-XMT	BIOL_O	XMT	Biology for Science Majors II	W2	Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioural ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.	Laboratory	In Person Learning	Arranged	Arranged
BIOL_O 133-101	BIOL_O	101	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Lecture	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
BIOL_O 133-L01	BIOL_O	L01	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
BIOL_O 133-L02	BIOL_O	L02	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Mon	5:00 p.m. - 8:00 p.m.
BIOL_O 133-L03	BIOL_O	L03	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Tue	8:00 a.m. - 11:00 a.m.
BIOL_O 133-L04	BIOL_O	L04	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Tue	12:30 p.m. - 3:30 p.m.
BIOL_O 133-L05	BIOL_O	L05	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Tue	5:00 p.m. - 8:00 p.m.
BIOL_O 133-L06	BIOL_O	L06	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Wed	8:00 a.m. - 11:00 a.m.
BIOL_O 133-L07	BIOL_O	L07	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Wed	12:30 p.m. - 3:30 p.m.
BIOL_O 133-L08	BIOL_O	L08	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Wed	5:00 p.m. - 8:00 p.m.
BIOL_O 133-L09	BIOL_O	L09	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Thu	8:00 a.m. - 11:00 a.m.
BIOL_O 133-L10	BIOL_O	L10	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Thu	12:30 p.m. - 3:30 p.m.
BIOL_O 133-L11	BIOL_O	L11	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Thu	5:00 p.m. - 8:00 p.m.
BIOL_O 133-L12	BIOL_O	L12	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Fri	8:00 a.m. - 11:00 a.m.
BIOL_O 133-L13	BIOL_O	L13	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Fri	12:30 p.m. - 3:30 p.m.
BIOL_O 133-XMT	BIOL_O	XMT	Human Anatomy and Physiology II	W2	Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131.	Laboratory	In Person Learning	Arranged	Arranged
BIOL_O 200-101	BIOL_O	101	Cell Biology	W2	Structure and function of plant and animal cells; membrane models, cytoplasmic organelles, biological information from gene to protein, the endomembrane system, secretion, intracellular digestion, endocytosis, transport processes, cytoskeleton and cell motility. [3-0-0] Prerequisite: BIOL 125 and one of CHEM 113, CHEM 123.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
BIOL_O 201-101	BIOL_O	101	Introduction to Evolution and Ecology	W2	Fundamental processes underlying adaptive evolution, speciation, and extinction. Methods used to reconstruct the evolutionary histories of, and relationships among, groups of organisms. Factors determining the distribution and abundance of organisms. Competition, predation, and an exploration of processes that promote species coexistence and lead to the maintenance of species diversity. [3-0-0] Prerequisite: BIOL 125.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
BIOL_O 210-001	BIOL_O	001	Land Plants	W2	Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
BIOL_O 210-L01	BIOL_O	L01	Land Plants	W2	Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Mon	9:30 a.m. - 12:30 p.m.
BIOL_O 210-L02	BIOL_O	L02	Land Plants	W2	Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
BIOL_O 210-L03	BIOL_O	L03	Land Plants	W2	Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Mon	6:30 p.m. - 9:30 p.m.
BIOL_O 210-L04	BIOL_O	L04	Land Plants	W2	Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Tue	9:30 a.m. - 12:30 p.m.

BIOL_O 232-101	BIOL_O	101	Human Infectious Disease	W2	Agents of infectious disease in humans. Physiology and structure, mechanisms of pathogenesis, immunological response, clinical disease caused, laboratory diagnosis, treatment, prevention, and control. Properties and uses of antimicrobial agents, resistance, vaccines, and bioterrorism. Credit will be granted for only one of BIOL 232 or BIOL 314. [3-0-0] Prerequisite: Either (a) BIOL 235 or (b) HINT 231.	Lecture	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
BIOL_O 265-101	BIOL_O	101	Principles of Genetics	W2	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. [3-0-0] Prerequisite: BIOL 125.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
BIOL_O 306-101	BIOL_O	101	Ecology of Animals	W2	Integrates recent advances in the study of animal ecology. Principles of animal community, population, and individual ecology are covered. [3-0-0] Prerequisite: BIOL 201 and BIOL 202.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
BIOL_O 312-101	BIOL_O	101	Virology	W2	Study of viral agents of infectious disease in eukaryotes. Viral pathogens investigated with respect to classification, structure, replication, mechanisms of pathogenesis, clinical disease caused, epidemiology, laboratory diagnosis, treatment, prevention, and control. Topics include properties and uses of antiviral agents, production and use of vaccines, and bioterrorism. [3-0-0] Prerequisite: BIOL 228.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
BIOL_O 318-002	BIOL_O	002	Immunology	W2	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.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
BIOL_O 319-101	BIOL_O	101	Biochemistry II	W2	Continuation of BIOL 311. Energy production via glycolysis, oxidative phosphorylation, and photosynthesis. Integration and control of carbohydrate, lipid, and protein metabolism. Synthesis, and metabolism of nucleic acids and the biochemistry of gene function. Credit will only be granted for one of BIOL 319 or BIOL 305. [3-0-0] Prerequisite: BIOL 311.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
BIOL_O 350-101	BIOL_O	101	Clinical Neuroscience	W2	The structural, biochemical, and functional changes that characterize clinically-important diseases of the nervous system, including: brain and spinal cord trauma; developmental disorders, memory, and memory dysfunction; neurodegenerative diseases; mood and anxiety disorders; epilepsy; and maintenance of homeostasis. [3-0-0] Prerequisite: One of BIOL 200, BIOL 341, PSYO 230, PSYO 331.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
BIOL_O 356-101	BIOL_O	101	Comparative Animal Physiology	W2	Comparative course concerning the evolution and advantage of systems design in a variety of animals. Two underlying themes include the principles of homeostasis - the regulation of a constant internal state - and the systems involved in maintaining a constant internal environment: cardiovascular, respiratory, osmoregulatory, and endocrine. [3-0-0] Prerequisite: BIOL 354.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
BIOL_O 363-101	BIOL_O	101	Developmental Biology	W2	Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates at the morphological, genetic, and epigenetic levels. Differential gene expression and cell signaling responsible for the specification of embryonic cell fates and pattern formation will be compared in various animals. Credit will be granted for only one of BIOL 363 or BIOL 263. [3-3-0] Prerequisite: BIOL 200.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
BIOL_O 363-L01	BIOL_O	L01	Developmental Biology	W2	Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates at the morphological, genetic, and epigenetic levels. Differential gene expression and cell signaling responsible for the specification of embryonic cell fates and pattern formation will be compared in various animals. Credit will be granted for only one of BIOL 363 or BIOL 263. [3-3-0] Prerequisite: BIOL 200.	Laboratory	In Person Learning	Wed	2:00 p.m. - 5:00 p.m.
BIOL_O 363-L02	BIOL_O	L02	Developmental Biology	W2	Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates at the morphological, genetic, and epigenetic levels. Differential gene expression and cell signaling responsible for the specification of embryonic cell fates and pattern formation will be compared in various animals. Credit will be granted for only one of BIOL 363 or BIOL 263. [3-3-0] Prerequisite: BIOL 200.	Laboratory	In Person Learning	Wed	6:30 p.m. - 9:30 p.m.
BIOL_O 363-L03	BIOL_O	L03	Developmental Biology	W2	Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates at the morphological, genetic, and epigenetic levels. Differential gene expression and cell signaling responsible for the specification of embryonic cell fates and pattern formation will be compared in various animals. Credit will be granted for only one of BIOL 363 or BIOL 263. [3-3-0] Prerequisite: BIOL 200.	Laboratory	In Person Learning	Thu	9:30 a.m. - 12:30 p.m.
BIOL_O 363-L04	BIOL_O	L04	Developmental Biology	W2	Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates at the morphological, genetic, and epigenetic levels. Differential gene expression and cell signaling responsible for the specification of embryonic cell fates and pattern formation will be compared in various animals. Credit will be granted for only one of BIOL 363 or BIOL 263. [3-3-0] Prerequisite: BIOL 200.	Laboratory	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
BIOL_O 363-L05	BIOL_O	L05	Developmental Biology	W2	Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates at the morphological, genetic, and epigenetic levels. Differential gene expression and cell signaling responsible for the specification of embryonic cell fates and pattern formation will be compared in various animals. Credit will be granted for only one of BIOL 363 or BIOL 263. [3-3-0] Prerequisite: BIOL 200.	Laboratory	In Person Learning	Thu	6:30 p.m. - 9:30 p.m.
BIOL_O 363-XMT	BIOL_O	XMT	Developmental Biology	W2	Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates at the morphological, genetic, and epigenetic levels. Differential gene expression and cell signaling responsible for the specification of embryonic cell fates and pattern formation will be compared in various animals. Credit will be granted for only one of BIOL 363 or BIOL 263. [3-3-0] Prerequisite: BIOL 200.	Laboratory	In Person Learning	Arranged	Arranged
BIOL_O 370-001	BIOL_O	001	African Savannah Biology	W2	Analysis of the ecological, developmental, and evolutionary mechanisms responsible for the diversity of African savannah life including early hominins. [3-0-0] Prerequisite: BIOL 201.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
BIOL_O 381-101	BIOL_O	101	Environmental Microbiology	W2	Introduction to the diverse roles of microbes in natural and artificial environments. Topics range from community interactions to biogeochemical cycles to biodegradation and will introduce principles, practical applications such as waste water treatment, and implications of environmental microbiology. [3-0-0] Prerequisite: BIOL 228 and one of CHEM 203, CHEM 213.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.

BIOL_O 382-101	BIOL_O	101	Prokaryotic Physiology	W2	Physiology and molecular biology of prokaryotic organisms. Molecular structure and functional aspects of prokaryotic cells including: bacterial and archaeal metabolism; energy production and use by aerobes and anaerobes; cellular growth and biosynthesis; and molecular genetics. Credit will be granted for only one of BIOL 382 or BIOL 420V when the subject matter is of the same nature. [3-0-0] Prerequisite: BIOL 228 and one of CHEM 204, CHEM 214.	Lecture	In Person Learning	Tue Thu	4:00 p.m. - 5:00 p.m.	
BIOL_O 393-L01	BIOL_O	L01	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOC 393. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOC393	Laboratory	In Person Learning	Mon	2:30 p.m. - 6:30 p.m.	
BIOL_O 393-L02	BIOL_O	L02	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOC 393. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOC393	Laboratory	In Person Learning	Tue	2:30 p.m. - 6:30 p.m.	
BIOL_O 393-L03	BIOL_O	L03	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOC 393. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOC393	Laboratory	In Person Learning	Wed	2:30 p.m. - 6:30 p.m.	
BIOL_O 393-L04	BIOL_O	L04	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOC 393. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOC393	Laboratory	In Person Learning	Thu	2:30 p.m. - 6:30 p.m.	
BIOL_O 393-L05	BIOL_O	L05	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOC 393. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOC393	Laboratory	In Person Learning	Fri	2:30 p.m. - 6:30 p.m.	
BIOL_O 393-L06	BIOL_O	L06	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 BIOC 393. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOC393	Laboratory	In Person Learning	Mon	2:30 p.m. - 6:30 p.m.	
BIOL_O 393-L07	BIOL_O	L07	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 BIOC 393. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOC393	Laboratory	In Person Learning	Tue	2:30 p.m. - 6:30 p.m.	
BIOL_O 393-L08	BIOL_O	L08	Biochemistry Laboratory	W2	Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOC 393. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOC393	Laboratory	In Person Learning	Tue	8:30 a.m. - 12:30 p.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 and one of BIOL 202, STAT 230.	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	Scientific basis of conservation biology. Analysis of demographic data, population models, and extinction risks. Examine complex habitat, landscape, genetic, and trophic interactions that affect populations. Conservation approaches including habitat planning, reserve design, surrogacy, and policy. Credit will be granted for only one of BIOL 422 or BIOL 513. [3-0-0] Prerequisite: 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, Sustaina	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 424 or MGMT 470. [3-0-0] Prerequisite: Third-year standing. Equivalency: MGMT 470	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.	
BIOL_O 426-101	BIOL_O	101	Cancer Biology	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, BIOC 304 and all of BIOL 200, BIOL 265, BIOL 318.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.	
BIOL_O 430-C_001	BIOL_O	C	C_001	Special Topics in Biology, Lecture Format	W2	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	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
BIOL_O 430-N_001	BIOL_O	N	N_001	Special Topics in Biology, Lecture Format	W2	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	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
BIOL_O 430-W_001	BIOL_O	W	W_001	Special Topics in Biology, Lecture Format	W2	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	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
BIOL_O 461-101	BIOL_O	101	Cell Signaling	W2	Signal transduction mechanisms of cells as mediators of responses to their environments. Interplay between signaling pathways, and relationships between signaling defects, disease, and therapeutic agents, with a focus on eukaryotic cells. Credit will be granted for only one of BIOL 461 or BIOL 420A when the subject matter is of the same nature. [3-0-0] Prerequisite: BIOL 200 and one of BIOL 311, BIOC 304.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.	
BIOL_O 468-001	BIOL_O	001	Molecular Approaches in Ecology and Evolution	W2	Techniques for collecting molecular and population genetic data. Applications in ecology, evolution, and conservation. Characteristics of molecular markers, associated analytical approaches, emerging genomic technologies, and case studies. Credit will be granted for only one of BIOL 468 or BIOL 568. [3-0-0] Prerequisite: BIOL 201.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.	
BIOL_O 513-101	BIOL_O	101	Conservation Biology	W2	Scientific basis of conservation biology. Obtain and analyze demographic data, develop population models, and project extinction risks. Complex habitat, landscape, genetic, and trophic interactions that affect population dynamics. Conservation approaches including habitat planning, reserve design, surrogacy, and policy. Credit will be granted for only one of BIOL 422 or BIOL 513. [3-0-0]	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.	

BIOL_O 517-001	BIOL_O	001	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]	Lecture	In Person Learning	Mon Wed Fri	8:00 a.m. - 9:00 a.m.
BIOL_O 568-001	BIOL_O	001	Molecular Approaches in Ecology and Evolution	W2	Techniques for collecting molecular and population genetic data. Applications in ecology, evolution, and conservation. Characteristics of molecular markers, associated analytical approaches, emerging genomic technologies, and case studies. Credit will be granted for only one of BIOL 568 or BIOL 468. [3-0-0]	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
BIOL_O 599-002	BIOL_O	002	M.Sc. Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
BIOL_O 699-002	BIOL_O	002	Ph.D. Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
CCS_O 150-001	CCS_O	001	Creative and Critical Art Theory I	W2	Introduction to Western, Indigenous, and global art practices and theoretical discourses through the discussion and examination of forms, context, 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.
CCS_O 507-001	CCS_O	001	M.F.A. Graduate Colloquium II	W2	Multi-disciplinary seminar dealing with various approaches and issues in contemporary creative research methods as relating to the disciplines of Visual Arts, Media Arts, Creative Writing, Performance, and Curation. Students will be expected to develop creative work and a thesis plan. Prerequisite: CCS 506. or permission of the Department of Creative Studies.	Seminar	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.
CCS_O 599-101	CCS_O	101	Master's Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
CHEM_O 123-001	CHEM_O	001	Physical and Organic Chemistry	W2	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.
CHEM_O 123-002	CHEM_O	002	Physical and Organic Chemistry	W2	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	8:00 a.m. - 9:30 a.m.
CHEM_O 123-L01	CHEM_O	L01	Physical and Organic Chemistry	W2	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.
CHEM_O 123-L02	CHEM_O	L02	Physical and Organic Chemistry	W2	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.
CHEM_O 123-L03	CHEM_O	L03	Physical and Organic Chemistry	W2	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.
CHEM_O 123-L04	CHEM_O	L04	Physical and Organic Chemistry	W2	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.
CHEM_O 123-L05	CHEM_O	L05	Physical and Organic Chemistry	W2	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.
CHEM_O 123-L06	CHEM_O	L06	Physical and Organic Chemistry	W2	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.
CHEM_O 123-L07	CHEM_O	L07	Physical and Organic Chemistry	W2	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	1:30 p.m. - 4:30 p.m.
CHEM_O 123-L08	CHEM_O	L08	Physical and Organic Chemistry	W2	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	1:30 p.m. - 4:30 p.m.
CHEM_O 123-L09	CHEM_O	L09	Physical and Organic Chemistry	W2	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	1:30 p.m. - 4:30 p.m.
CHEM_O 123-L10	CHEM_O	L10	Physical and Organic Chemistry	W2	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	5:30 p.m. - 8:30 p.m.
CHEM_O 123-L11	CHEM_O	L11	Physical and Organic Chemistry	W2	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	5:30 p.m. - 8:30 p.m.
CHEM_O 123-L12	CHEM_O	L12	Physical and Organic Chemistry	W2	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	5:30 p.m. - 8:30 p.m.
CHEM_O 123-L13	CHEM_O	L13	Physical and Organic Chemistry	W2	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	Wed	9:30 a.m. - 12:30 p.m.
CHEM_O 123-L14	CHEM_O	L14	Physical and Organic Chemistry	W2	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	Wed	9:30 a.m. - 12:30 p.m.
CHEM_O 123-L15	CHEM_O	L15	Physical and Organic Chemistry	W2	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	Wed	9:30 a.m. - 12:30 p.m.
CHEM_O 123-L16	CHEM_O	L16	Physical and Organic Chemistry	W2	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	Wed	1:30 p.m. - 4:30 p.m.
CHEM_O 123-L17	CHEM_O	L17	Physical and Organic Chemistry	W2	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	Wed	1:30 p.m. - 4:30 p.m.
CHEM_O 123-L18	CHEM_O	L18	Physical and Organic Chemistry	W2	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	Wed	1:30 p.m. - 4:30 p.m.



CHEM_O 201-L07	CHEM_O	L07	Introduction to Physical Chemistry	W2	Principles of chemical kinetics, reaction mechanisms, and chemical thermodynamics. 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.	Laboratory	In Person Learning	Thu	9:30 a.m. - 12:30 p.m.
CHEM_O 201-L08	CHEM_O	L08	Introduction to Physical Chemistry	W2	Principles of chemical kinetics, reaction mechanisms, and chemical thermodynamics. 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.	Laboratory	In Person Learning	Thu	1:30 p.m. - 4:30 p.m.
CHEM_O 201-L09	CHEM_O	L09	Introduction to Physical Chemistry	W2	Principles of chemical kinetics, reaction mechanisms, and chemical thermodynamics. 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.	Laboratory	In Person Learning	Thu	5:30 p.m. - 8:30 p.m.
CHEM_O 201-L10	CHEM_O	L10	Introduction to Physical Chemistry	W2	Principles of chemical kinetics, reaction mechanisms, and chemical thermodynamics. 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.	Laboratory	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.
CHEM_O 201-S01	CHEM_O	S01	Introduction to Physical Chemistry	W2	Principles of chemical kinetics, reaction mechanisms, and chemical thermodynamics. 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.	Seminar	In Person Learning	Mon (Alternate weeks)	9:00 a.m. - 10:00 a.m.
CHEM_O 201-S02	CHEM_O	S02	Introduction to Physical Chemistry	W2	Principles of chemical kinetics, reaction mechanisms, and chemical thermodynamics. 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.	Seminar	In Person Learning	Mon (Alternate weeks)	9:00 a.m. - 10:00 a.m.
CHEM_O 201-XMT	CHEM_O	XMT	Introduction to Physical Chemistry	W2	Principles of chemical kinetics, reaction mechanisms, and chemical thermodynamics. 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.	Laboratory	In Person Learning	Arranged	Arranged
CHEM_O 204-001	CHEM_O	001	Organic Chemistry	W2	Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbonyl 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 203. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.	Lecture	In Person Learning	Mon Wed Fri	3:00 p.m. - 4:00 p.m.
CHEM_O 204-L01	CHEM_O	L01	Organic Chemistry	W2	Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbonyl 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 203. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.	Laboratory	In Person Learning	Mon	12:00 p.m. - 3:00 p.m.
CHEM_O 204-L02	CHEM_O	L02	Organic Chemistry	W2	Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbonyl 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 203. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.	Laboratory	In Person Learning	Tue	9:30 a.m. - 12:30 p.m.
CHEM_O 204-L03	CHEM_O	L03	Organic Chemistry	W2	Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbonyl 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 203. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.	Laboratory	In Person Learning	Tue	1:30 p.m. - 4:30 p.m.
CHEM_O 204-L04	CHEM_O	L04	Organic Chemistry	W2	Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbonyl 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 203. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.	Laboratory	In Person Learning	Tue	5:30 p.m. - 8:30 p.m.
CHEM_O 204-L05	CHEM_O	L05	Organic Chemistry	W2	Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbonyl 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 203. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.	Laboratory	In Person Learning	Wed	9:30 a.m. - 12:30 p.m.
CHEM_O 204-L07	CHEM_O	L07	Organic Chemistry	W2	Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbonyl 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 203. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.	Laboratory	In Person Learning	Wed	4:30 p.m. - 7:30 p.m.
CHEM_O 204-XMT	CHEM_O	XMT	Organic Chemistry	W2	Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbonyl 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 203. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.	Laboratory	In Person Learning	Arranged	Arranged
CHEM_O 210-001	CHEM_O	001	Physical Chemistry for Earth, Environmental, and	W2	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.	Lecture	In Person Learning	Mon Wed Fri	1:00 p.m. - 2:00 p.m.



CHEM_O 210-L01	CHEM_O	L01	Physical Chemistry for Earth, Environmental, and	W2	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.	Laboratory	In Person Learning	Mon (Alternate weeks)	10:00 a.m. - 1:00 p.m.
CHEM_O 214-001	CHEM_O	001	Organic Chemistry for Biological Sciences II	W2	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 enrol in CHEM 204.	Lecture	In Person Learning	Mon Wed Fri	10:00 a.m. - 11:00 a.m.
CHEM_O 214-L01	CHEM_O	L01	Organic Chemistry for Biological Sciences II	W2	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 enrol in CHEM 204.	Laboratory	In Person Learning	Wed (Alternate weeks)	1:30 p.m. - 4:30 p.m.
CHEM_O 214-L02	CHEM_O	L02	Organic Chemistry for Biological Sciences II	W2	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 enrol in CHEM 204.	Laboratory	In Person Learning	Wed (Alternate weeks)	1:30 p.m. - 4:30 p.m.
CHEM_O 214-L03	CHEM_O	L03	Organic Chemistry for Biological Sciences II	W2	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 enrol in CHEM 204.	Laboratory	In Person Learning	Wed (Alternate weeks)	5:30 p.m. - 8:30 p.m.
CHEM_O 214-L04	CHEM_O	L04	Organic Chemistry for Biological Sciences II	W2	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 enrol in CHEM 204.	Laboratory	In Person Learning	Wed (Alternate weeks)	5:30 p.m. - 8:30 p.m.
CHEM_O 214-L05	CHEM_O	L05	Organic Chemistry for Biological Sciences II	W2	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 enrol in CHEM 204.	Laboratory	In Person Learning	Thu (Alternate weeks)	9:30 a.m. - 12:30 p.m.
CHEM_O 214-L06	CHEM_O	L06	Organic Chemistry for Biological Sciences II	W2	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 enrol in CHEM 204.	Laboratory	In Person Learning	Thu (Alternate weeks)	9:30 a.m. - 12:30 p.m.
CHEM_O 214-L07	CHEM_O	L07	Organic Chemistry for Biological Sciences II	W2	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 enrol in CHEM 204.	Laboratory	In Person Learning	Thu (Alternate weeks)	1:30 p.m. - 4:30 p.m.
CHEM_O 214-L08	CHEM_O	L08	Organic Chemistry for Biological Sciences II	W2	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 enrol in CHEM 204.	Laboratory	In Person Learning	Thu (Alternate weeks)	1:30 p.m. - 4:30 p.m.
CHEM_O 214-L09	CHEM_O	L09	Organic Chemistry for Biological Sciences II	W2	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 enrol in CHEM 204.	Laboratory	In Person Learning	Thu (Alternate weeks)	5:30 p.m. - 8:30 p.m.
CHEM_O 214-L10	CHEM_O	L10	Organic Chemistry for Biological Sciences II	W2	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 enrol in CHEM 204.	Laboratory	In Person Learning	Thu (Alternate weeks)	5:30 p.m. - 8:30 p.m.
CHEM_O 214-XMT	CHEM_O	XMT	Organic Chemistry for Biological Sciences II	W2	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 enrol in CHEM 204.	Laboratory	In Person Learning	Arranged	Arranged

CHEM_O 301-001	CHEM_O	001	Aqueous Environmental Chemistry	W2	Properties of natural waters, including gas and solid equilibria, pH, redox, complexation analysis, corrosion treatment, ion exchange, colloids, and microbial transformations. [3-0-0] Prerequisite: One of MATH 101, MATH 103 and one of CHEM 201, CHEM 210.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
CHEM_O 311-001	CHEM_O	001	Instrumental Analytical Chemistry	W2	Overview of instrumental methods of chemical analysis, including spectroscopic methods, mass spectrometry, electrophoresis and chromatography. [3-4-0] 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.
CHEM_O 311-L01	CHEM_O	L01	Instrumental Analytical Chemistry	W2	Overview of instrumental methods of chemical analysis, including spectroscopic 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.
CHEM_O 311-L02	CHEM_O	L02	Instrumental Analytical Chemistry	W2	Overview of instrumental methods of chemical analysis, including spectroscopic 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.
CHEM_O 311-L03	CHEM_O	L03	Instrumental Analytical Chemistry	W2	Overview of instrumental methods of chemical analysis, including spectroscopic 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.
CHEM_O 311-XMT	CHEM_O	XMT	Instrumental Analytical Chemistry	W2	Overview of instrumental methods of chemical analysis, including spectroscopic 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	Arranged	Arranged
CHEM_O 312-001	CHEM_O	001	Introduction to Quantum Mechanics and Spectr	W2	Principles of quantum mechanics, atomic wavefunctions, angular momentum, spin, atomic term symbols. [3-4*-0] Prerequisite: CHEM 201. Corequisite: MATH 200 is strongly recommended.	Lecture	In Person Learning	Mon Wed Fri	2:00 p.m. - 3:00 p.m.
CHEM_O 312-L01	CHEM_O	L01	Introduction to Quantum Mechanics and Spectr	W2	Principles of quantum mechanics, atomic wavefunctions, angular momentum, spin, atomic term symbols. [3-4*-0] Prerequisite: CHEM 201. Corequisite: MATH 200 is strongly recommended.	Laboratory	In Person Learning	Tue (Alternate weeks)	3:30 p.m. - 7:30 p.m.
CHEM_O 312-L02	CHEM_O	L02	Introduction to Quantum Mechanics and Spectr	W2	Principles of quantum mechanics, atomic wavefunctions, angular momentum, spin, atomic term symbols. [3-4*-0] Prerequisite: CHEM 201. Corequisite: MATH 200 is strongly recommended.	Laboratory	In Person Learning	Tue (Alternate weeks)	3:30 p.m. - 7:30 p.m.
CHEM_O 312-XMT	CHEM_O	XMT	Introduction to Quantum Mechanics and Spectr	W2	Principles of quantum mechanics, atomic wavefunctions, angular momentum, spin, atomic term symbols. [3-4*-0] Prerequisite: CHEM 201. Corequisite: MATH 200 is strongly recommended.	Laboratory	In Person Learning	Arranged	Arranged
CHEM_O 317-001	CHEM_O	001	Environmental Physical Organic Chemistry	W2	Basic physicochemical 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.
CHEM_O 317-L01	CHEM_O	L01	Environmental Physical Organic Chemistry	W2	Basic physicochemical 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.	Laboratory	In Person Learning	Arranged	Arranged
CHEM_O 319-101	CHEM_O	101	Topics in Computerized Instrumentation, Lectur	W2	Computerized data acquisition and analysis in chemistry instrumentation, development of new instruments to collect and analyze experimental data: Digital acquisition systems, optical systems, electrical circuits, and coding. [3-3-0] Prerequisite: All of CHEM 201, MATH 200.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
CHEM_O 319-L01	CHEM_O	L01	Topics in Computerized Instrumentation, Lectur	W2	Computerized data acquisition and analysis in chemistry instrumentation, development of new instruments to collect and analyze experimental data: Digital acquisition systems, optical systems, electrical circuits, and coding. [3-3-0] Prerequisite: All of CHEM 201, MATH 200.	Laboratory	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
CHEM_O 330-001	CHEM_O	001	Advanced Organic Chemistry	W2	Application of 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.
CHEM_O 330-L01	CHEM_O	L01	Advanced Organic Chemistry	W2	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.
CHEM_O 330-L02	CHEM_O	L02	Advanced Organic Chemistry	W2	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 (Alternate weeks)	11:00 a.m. - 3:00 p.m.
CHEM_O 330-L03	CHEM_O	L03	Advanced Organic Chemistry	W2	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)	4:00 p.m. - 8:00 p.m.
CHEM_O 335-001	CHEM_O	001	Bioinorganic Chemistry	W2	Examination of the involvement of inorganic chemistry in biological systems; structure and chemistry of metalloproteins and metalloenzymes. Nature of proteins, biomolecules, and simple bonding models of d-block compounds; iron and copper proteins involved with electron and oxygen transport and oxygen and nitrogen activation, various proteins of zinc and nickel. [3-0-0] Prerequisite: One of CHEM 204, CHEM 214 and one of CHEM 201, CHEM 210.	Lecture	In Person Learning	Mon Wed Fri	11:00 a.m. - 12:00 p.m.
CHEM_O 336-001	CHEM_O	001	Green Inorganic Chemistry	W2	Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, 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.
CHEM_O 336-L01	CHEM_O	L01	Green Inorganic Chemistry	W2	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.
CHEM_O 336-L02	CHEM_O	L02	Green Inorganic Chemistry	W2	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)	1:00 p.m. - 5:00 p.m.
CHEM_O 403-101	CHEM_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 CHEM 403, BIOG 403, CHEM 413 or CHEM 569. [3-0-0] Prerequisite: One of BIOG 304, BIOL 311. Equivalency: BIOG403	Lecture	In Person Learning	Mon Wed Fri	9:00 a.m. - 10:00 a.m.

CHEM_O 448-A_101	CHEM_O	A	A_101	Special Topics in Chemistry, Lecture Format	W2	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 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 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
CHEM_O 448-A_102	CHEM_O	A	A_102	Special Topics in Chemistry, Lecture Format	W2	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 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 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
CHEM_O 448-A_103	CHEM_O	A	A_103	Special Topics in Chemistry, Lecture Format	W2	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 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 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
CHEM_O 448-C_101	CHEM_O	C	C_101	Special Topics in Chemistry, Lecture Format	W2	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 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 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
CHEM_O 448-C_102	CHEM_O	C	C_102	Special Topics in Chemistry, Lecture Format	W2	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 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 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
CHEM_O 448-C_103	CHEM_O	C	C_103	Special Topics in Chemistry, Lecture Format	W2	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 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 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
CHEM_O 462-001	CHEM_O		001	Advanced Inorganic Chemistry Laboratory	W2	Integrated laboratory course designed to illustrate principles of modern inorganic chemistry. [0-6-0] Prerequisite: Two of CHEM 335, CHEM 336, CHEM 337, CHEM 338.	Laboratory	In Person Learning	Tue	8:00 a.m. - 2:00 p.m.
CHEM_O 463-001	CHEM_O		001	Advanced Organic Chemistry Laboratory	W2	Integrated laboratory course designed to illustrate principles of modern organic chemistry. [0-6-0] Prerequisite: CHEM 330 and one of CHEM 317, CHEM 333, CHEM 413.	Laboratory	In Person Learning	Thu	8:30 a.m. - 2:30 p.m.
CHEM_O 549-002	CHEM_O		002	M.Sc. Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
CHEM_O 569-101	CHEM_O		101	Advanced Mechanistic Enzymology	W2	The chemistry of enzyme active sites, cofactors, and inhibitors. Enzyme kinetics, thermodynamics, kinetic isotope effects, and other physical methods. Credit will be granted for only one of CHEM 569, CHEM 403, CHEM 413 or BIO 403. [3-0-0]	Lecture	In Person Learning	Mon Wed Fri	9:00 a.m. - 10:00 a.m.
CHEM_O 649-002	CHEM_O		002	Ph.D. Thesis	W2		Thesis	In Person Learning	Arranged	Arranged
CMPE_O 246-001	CMPE_O		001	Computer Engineering Design Studio	W2	Embedded systems programming, App development for Internet of Thing applications, Microprocessor Programming. [3-2-0] Prerequisite: One of APSC 177, COSC 111.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
CMPE_O 246-L2A	CMPE_O		L2A	Computer Engineering Design Studio	W2	Embedded systems programming, App development for Internet of Thing applications, Microprocessor Programming. [3-2-0] Prerequisite: One of APSC 177, COSC 111.	Laboratory	In Person Learning	Mon	10:00 a.m. - 12:00 p.m.
CMPE_O 246-L2B	CMPE_O		L2B	Computer Engineering Design Studio	W2	Embedded systems programming, App development for Internet of Thing applications, Microprocessor Programming. [3-2-0] Prerequisite: One of APSC 177, COSC 111.	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
CMPE_O 246-L2C	CMPE_O		L2C	Computer Engineering Design Studio	W2	Embedded systems programming, App development for Internet of Thing applications, Microprocessor Programming. [3-2-0] Prerequisite: One of APSC 177, COSC 111.	Laboratory	In Person Learning	Thu	12:00 p.m. - 2:00 p.m.
CMPE_O 401-001	CMPE_O		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	Wed Fri	9:30 a.m. - 11:00 a.m.
COOP_O 401-201	COOP_O		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	Arranged	Arranged
COOP_O 402-201	COOP_O		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'. Prerequisite: COOP 401.	Experiential	In Person Learning	Arranged	Arranged
COOP_O 403-201	COOP_O		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'. Prerequisite: COOP 402.	Experiential	In Person Learning	Arranged	Arranged
COOP_O 404-201	COOP_O		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'. Prerequisite: COOP 403.	Experiential	In Person Learning	Arranged	Arranged
COOP_O 405-201	COOP_O		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'. Prerequisite: COOP 404.	Experiential	In Person Learning	Arranged	Arranged

COOP_O 406-201	COOP_O	201	Co-op Education Work Experience VI	W2	Approved and supervised paid work experience with a public or private organization for a minimum of 455 hours full time. Pre-employment training workshops and co-op assignments are required. Course is restricted to students who have completed all third-year requirements and have secured a work-term with an appropriate employer either independently or through the 'Co-op Office'. Prerequisite: COOP 405.	Experiential	In Person Learning	Arranged	Arranged
CORH_O 203-101	CORH_O	101	Communication in the Sciences	W2	Practice-based course that develops intermediate level communication skills in the sciences. Emphasis on analysis of scientific literature and communicating science to experts in the discipline and lay audiences, in written, visual, oral, and digital modes. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 155, ENGL 156, APSC 176.	Lecture	Hybrid Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
CORH_O 203-102	CORH_O	102	Communication in the Sciences	W2	Practice-based course that develops intermediate level communication skills in the sciences. Emphasis on analysis of scientific literature and communicating science to experts in the discipline and lay audiences, in written, visual, oral, and digital modes. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 155, ENGL 156, APSC 176.	Lecture	Hybrid Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
CORH_O 203-103	CORH_O	103	Communication in the Sciences	W2	Practice-based course that develops intermediate level communication skills in the sciences. Emphasis on analysis of scientific literature and communicating science to experts in the discipline and lay audiences, in written, visual, oral, and digital modes. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 155, ENGL 156, APSC 176.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
CORH_O 204-101	CORH_O	101	Communications in the Humanities	W2	Practice-based course that develops intermediate level communication skills in the humanities. Emphasis on analysis of humanities literature and communicating the humanities to experts in the discipline and lay audiences, in written, visual, oral, and digital modes. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156, APSC 176.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
CORH_O 205-101	CORH_O	101	Communication in the Social Sciences	W2	Practice-based course that develops intermediate level communication in the social sciences. Emphasis on analysis of social science literature and communicating the social sciences to experts in the discipline and lay audiences, in written, visual, oral, and digital modes. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156, APSC 176.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
CORH_O 205-102	CORH_O	102	Communication in the Social Sciences	W2	Practice-based course that develops intermediate level communication in the social sciences. Emphasis on analysis of social science literature and communicating the social sciences to experts in the discipline and lay audiences, in written, visual, oral, and digital modes. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156, APSC 176.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
CORH_O 216-101	CORH_O	101	Communication and Media	W2	Theory and practice of communication about, in and for various media, including digital, textual, audio and/or visual forms. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156, APSC 176.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
CORH_O 304-001	CORH_O	001	Persuasive Rhetoric, Public Speaking, and Advoc	W2	Advanced public speaking, persuasive rhetoric, and advocacy to generate social and community change. Recommended prerequisite: THTR 104. [3-0-0] Prerequisite: Third-year standing or permission of the instructor.	Lecture	Hybrid Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
CORH_O 360-101	CORH_O	101	Public Memory, Commemoration, and Identity	W2	Critical examination of commemoration practices, including museums, monuments, and heritage sites, specifically in terms of the construction of place, community, and identity. Credit will be granted for only one of CORH 360 OR CULT 360. Prerequisite: 3 credits of 200 level CULT, CORH 204, or CORH 205. Equivalency: CULT360	Lecture	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
CORH_O 499-101	CORH_O	101	Communication Capstone	W2	Team-conducted project that identifies and addresses a professional, community, or academic topic, demonstrating an awareness of audience and context. Integrates knowledge and skills acquired throughout the certificate program. Prerequisite: 9 credits of CORH certificate courses and third-year standing.	Lecture	Multi-access Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
COSC_O 101-101	COSC_O	101	Digital Citizenship	W2	Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0]	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
COSC_O 101-L01	COSC_O	L01	Digital Citizenship	W2	Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0]	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
COSC_O 101-L02	COSC_O	L02	Digital Citizenship	W2	Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0]	Laboratory	In Person Learning	Fri	12:00 p.m. - 2:00 p.m.
COSC_O 101-L03	COSC_O	L03	Digital Citizenship	W2	Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0]	Laboratory	In Person Learning	Wed	12:00 p.m. - 2:00 p.m.
COSC_O 101-L04	COSC_O	L04	Digital Citizenship	W2	Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0]	Laboratory	In Person Learning	Tue	12:00 p.m. - 2:00 p.m.
COSC_O 101-L05	COSC_O	L05	Digital Citizenship	W2	Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0]	Laboratory	In Person Learning	Tue	8:00 a.m. - 10:00 a.m.
COSC_O 101-L06	COSC_O	L06	Digital Citizenship	W2	Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0]	Laboratory	In Person Learning	Tue	2:00 p.m. - 4:00 p.m.

COSC_O 101-L07	COSC_O	L07	Digital Citizenship	W2	Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0]	Laboratory	In Person Learning	Tue	4:00 p.m. - 6:00 p.m.
COSC_O 101-L08	COSC_O	L08	Digital Citizenship	W2	Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0]	Laboratory	In Person Learning	Fri	12:00 p.m. - 2:00 p.m.
COSC_O 101-L09	COSC_O	L09	Digital Citizenship	W2	Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0]	Laboratory	In Person Learning	Wed	10:00 a.m. - 12:00 p.m.
COSC_O 111-101	COSC_O	101	Computer Programming I	W2	Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.	Lecture	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
COSC_O 111-L2A	COSC_O	L2A	Computer Programming I	W2	Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.	Laboratory	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
COSC_O 111-L2B	COSC_O	L2B	Computer Programming I	W2	Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.	Laboratory	In Person Learning	Fri	2:00 p.m. - 4:00 p.m.
COSC_O 111-L2C	COSC_O	L2C	Computer Programming I	W2	Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.	Laboratory	In Person Learning	Fri	10:00 a.m. - 12:00 p.m.
COSC_O 111-L2D	COSC_O	L2D	Computer Programming I	W2	Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
COSC_O 111-L2E	COSC_O	L2E	Computer Programming I	W2	Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.	Laboratory	In Person Learning	Thu	4:00 p.m. - 6:00 p.m.
COSC_O 111-L2F	COSC_O	L2F	Computer Programming I	W2	Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.	Laboratory	In Person Learning	Tue	2:00 p.m. - 4:00 p.m.
COSC_O 121-101	COSC_O	101	Computer Programming II	W2	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	Tue Thu	2:00 p.m. - 3:30 p.m.
COSC_O 121-102	COSC_O	102	Computer Programming II	W2	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	Tue Thu	6:30 p.m. - 8:00 p.m.
COSC_O 121-L2A	COSC_O	L2A	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Thu	10:00 a.m. - 12:00 p.m.
COSC_O 121-L2B	COSC_O	L2B	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Mon	2:00 p.m. - 4:00 p.m.
COSC_O 121-L2C	COSC_O	L2C	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Thu	12:00 p.m. - 2:00 p.m.
COSC_O 121-L2D	COSC_O	L2D	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Wed	12:00 p.m. - 2:00 p.m.
COSC_O 121-L2E	COSC_O	L2E	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Fri	12:00 p.m. - 2:00 p.m.
COSC_O 121-L2F	COSC_O	L2F	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Mon	2:00 p.m. - 4:00 p.m.
COSC_O 121-L2G	COSC_O	L2G	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Wed	4:00 p.m. - 6:00 p.m.
COSC_O 121-L2H	COSC_O	L2H	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Wed	10:00 a.m. - 12:00 p.m.
COSC_O 121-L2I	COSC_O	L2I	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Mon	4:00 p.m. - 6:00 p.m.
COSC_O 121-L2J	COSC_O	L2J	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Thu	12:00 p.m. - 2:00 p.m.

COSC_O 121-L2K	COSC_O	L2K	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Fri	2:00 p.m. - 4:00 p.m.
COSC_O 121-L2L	COSC_O	L2L	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Wed	2:00 p.m. - 4:00 p.m.
COSC_O 121-L2M	COSC_O	L2M	Computer Programming II	W2	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	10:00 a.m. - 12:00 p.m.
COSC_O 121-L2N	COSC_O	L2N	Computer Programming II	W2	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	Tue	8:00 a.m. - 10:00 a.m.
COSC_O 121-L2O	COSC_O	L2O	Computer Programming II	W2	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	8:00 a.m. - 10:00 a.m.
COSC_O 121-L2P	COSC_O	L2P	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Wed	4:00 p.m. - 6:00 p.m.
COSC_O 121-L2Q	COSC_O	L2Q	Computer Programming II	W2	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Wed	4:00 p.m. - 6:00 p.m.
COSC_O 121-L2R	COSC_O	L2R	Computer Programming II	W2	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	4:00 p.m. - 6:00 p.m.
COSC_O 121-L2S	COSC_O	L2S	Computer Programming II	W2	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	4:00 p.m. - 6:00 p.m.
COSC_O 123-101	COSC_O	101	Computer Creativity	W2	A hands-on introduction to programming and computer-based problem solving and creativity. Experience with application development including storytelling, graphics, games, and networking. [3-0-2] Prerequisite: One of COSC 111, COSC 122.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
COSC_O 123-S01	COSC_O	S01	Computer Creativity	W2	A hands-on introduction to programming and computer-based problem solving and creativity. Experience with application development including storytelling, graphics, games, and networking. [3-0-2] Prerequisite: One of COSC 111, COSC 122.	Seminar	In Person Learning	Arranged	Arranged
COSC_O 221-101	COSC_O	101	Discrete Structures in Computing	W2	Discrete structures in computing and relevant mathematical techniques. Logic and applications in automated reasoning and programming; proof techniques and analysis of algorithms and computation models; graph theory and graph models in computing; counting principles and discrete probability. [3-0-1] Prerequisite: One of MATH 101, MATH 103, MATH 142, APSC 173. Corequisite: COSC 121.	Lecture	In Person Learning	Mon Wed Fri	8:00 a.m. - 9:00 a.m.
COSC_O 221-S1A	COSC_O	S1A	Discrete Structures in Computing	W2	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	Fri	2:00 p.m. - 3:00 p.m.
COSC_O 221-S1B	COSC_O	S1B	Discrete Structures in Computing	W2	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	Thu	4:00 p.m. - 5:00 p.m.
COSC_O 221-S1C	COSC_O	S1C	Discrete Structures in Computing	W2	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	4:00 p.m. - 5:00 p.m.
COSC_O 221-S1D	COSC_O	S1D	Discrete Structures in Computing	W2	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	Wed	4:00 p.m. - 5:00 p.m.
COSC_O 221-S1E	COSC_O	S1E	Discrete Structures in Computing	W2	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	Thu	11:00 a.m. - 12:00 p.m.
COSC_O 222-101	COSC_O	101	Data Structures	W2	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	8:00 a.m. - 9:30 a.m.
COSC_O 222-L2A	COSC_O	L2A	Data Structures	W2	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	4:00 p.m. - 6:00 p.m.
COSC_O 222-L2B	COSC_O	L2B	Data Structures	W2	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	Wed	6:00 p.m. - 8:00 p.m.
COSC_O 222-L2C	COSC_O	L2C	Data Structures	W2	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	12:00 p.m. - 2:00 p.m.

COSC_O 222-L2D	COSC_O	L2D	Data Structures	W2	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	8:00 a.m. - 10:00 a.m.
COSC_O 303-101	COSC_O	101	Numerical Analysis	W2	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 200, MATH 221 and either (a) COSC 111 or (b) DATA 301. Equivalency: MATH303	Lecture	In Person Learning	Mon Thu	9:30 a.m. - 11:00 a.m.
COSC_O 303-L01	COSC_O	L01	Numerical Analysis	W2	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 200, MATH 221 and either (a) COSC 111 or (b) DATA 301. Equivalency: MATH303	Laboratory	In Person Learning	Thu	11:00 a.m. - 12:00 p.m.
COSC_O 303-L02	COSC_O	L02	Numerical Analysis	W2	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 200, MATH 221 and either (a) COSC 111 or (b) DATA 301. Equivalency: MATH303	Laboratory	In Person Learning	Fri	11:00 a.m. - 12:00 p.m.
COSC_O 305-101	COSC_O	101	Project Management	W2	Examine tools and techniques to complete projects successfully, and within budget. Topics include Program Evaluation and Review Technique (PERT) and Critical Path Methods (CPM), and project management software. [3-2-0] Corequisite: COSC 310.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
COSC_O 305-L01	COSC_O	L01	Project Management	W2	Examine tools and techniques to complete projects successfully, and within budget. Topics include Program Evaluation and Review Technique (PERT) and Critical Path Methods (CPM), and project management software. [3-2-0] Corequisite: COSC 310.	Laboratory	In Person Learning	Wed	2:00 p.m. - 4:00 p.m.
COSC_O 305-L02	COSC_O	L02	Project Management	W2	Examine tools and techniques to complete projects successfully, and within budget. Topics include Program Evaluation and Review Technique (PERT) and Critical Path Methods (CPM), and project management software. [3-2-0] Corequisite: COSC 310.	Laboratory	In Person Learning	Thu	8:00 a.m. - 10:00 a.m.
COSC_O 305-L03	COSC_O	L03	Project Management	W2	Examine tools and techniques to complete projects successfully, and within budget. Topics include Program Evaluation and Review Technique (PERT) and Critical Path Methods (CPM), and project management software. [3-2-0] Corequisite: COSC 310.	Laboratory	In Person Learning	Tue	8:00 a.m. - 10:00 a.m.
COSC_O 305-L04	COSC_O	L04	Project Management	W2	Examine tools and techniques to complete projects successfully, and within budget. Topics include Program Evaluation and Review Technique (PERT) and Critical Path Methods (CPM), and project management software. [3-2-0] Corequisite: COSC 310.	Laboratory	In Person Learning	Thu	12:00 p.m. - 2:00 p.m.
COSC_O 310-101	COSC_O	101	Software Engineering	W2	Techniques to construct large systems using fundamental activities of specification, design, implementation, testing, and maintenance. Various life cycle models, exposure to software development tools, modelling techniques, good development practices, and project management. [3-2-0] Prerequisite: One of COSC 210, COSC 222, COSC 223. and third-year standing.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
COSC_O 310-L03	COSC_O	L03	Software Engineering	W2	Techniques to construct large systems using fundamental activities of specification, design, implementation, testing, and maintenance. Various life cycle models, exposure to software development tools, modelling techniques, good development practices, and project management. [3-2-0] Prerequisite: One of COSC 210, COSC 222, COSC 223. and third-year standing.	Laboratory	In Person Learning	Fri	12:00 p.m. - 2:00 p.m.
COSC_O 310-L04	COSC_O	L04	Software Engineering	W2	Techniques to construct large systems using fundamental activities of specification, design, implementation, testing, and maintenance. Various life cycle models, exposure to software development tools, modelling techniques, good development practices, and project management. [3-2-0] Prerequisite: One of COSC 210, COSC 222, COSC 223. and third-year standing.	Laboratory	In Person Learning	Wed	4:00 p.m. - 6:00 p.m.
COSC_O 320-101	COSC_O	101	Analysis of Algorithms	W2	Design and analysis of algorithms, illustrated from various problem areas. Models of computation, choice of data structures, space and time efficiency, computation complexity, algorithms for searching, sorting and graph-theoretic problems, NP-complete problems. [3-0-0] Prerequisite: All of COSC 221, COSC 222 and one of MATH 221, APSC 179.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
COSC_O 322-101	COSC_O	101	Introduction to Artificial Intelligence	W2	AI and intelligent agents; state space search; game playing agents; logic and knowledge-based agents; constraint programming; planning; reasoning and decision making under uncertainty; machine learning; natural language understanding. Credit will be granted for only one of COSC 322 or COSC 522. [3-2-0] Prerequisite: All of COSC 221, COSC 222.	Lecture	In Person Learning	Mon Wed Fri	2:00 p.m. - 3:00 p.m.
COSC_O 322-L01	COSC_O	L01	Introduction to Artificial Intelligence	W2	AI and intelligent agents; state space search; game playing agents; logic and knowledge-based agents; constraint programming; planning; reasoning and decision making under uncertainty; machine learning; natural language understanding. Credit will be granted for only one of COSC 322 or COSC 522. [3-2-0] Prerequisite: All of COSC 221, COSC 222.	Laboratory	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
COSC_O 322-L02	COSC_O	L02	Introduction to Artificial Intelligence	W2	AI and intelligent agents; state space search; game playing agents; logic and knowledge-based agents; constraint programming; planning; reasoning and decision making under uncertainty; machine learning; natural language understanding. Credit will be granted for only one of COSC 322 or COSC 522. [3-2-0] Prerequisite: All of COSC 221, COSC 222.	Laboratory	In Person Learning	Thu	4:00 p.m. - 6:00 p.m.
COSC_O 322-L03	COSC_O	L03	Introduction to Artificial Intelligence	W2	AI and intelligent agents; state space search; game playing agents; logic and knowledge-based agents; constraint programming; planning; reasoning and decision making under uncertainty; machine learning; natural language understanding. Credit will be granted for only one of COSC 322 or COSC 522. [3-2-0] Prerequisite: All of COSC 221, COSC 222.	Laboratory	In Person Learning	Tue	2:00 p.m. - 4:00 p.m.
COSC_O 322-L04	COSC_O	L04	Introduction to Artificial Intelligence	W2	AI and intelligent agents; state space search; game playing agents; logic and knowledge-based agents; constraint programming; planning; reasoning and decision making under uncertainty; machine learning; natural language understanding. Credit will be granted for only one of COSC 322 or COSC 522. [3-2-0] Prerequisite: All of COSC 221, COSC 222.	Laboratory	In Person Learning	Mon	12:00 p.m. - 2:00 p.m.
COSC_O 322-L05	COSC_O	L05	Introduction to Artificial Intelligence	W2	AI and intelligent agents; state space search; game playing agents; logic and knowledge-based agents; constraint programming; planning; reasoning and decision making under uncertainty; machine learning; natural language understanding. Credit will be granted for only one of COSC 322 or COSC 522. [3-2-0] Prerequisite: All of COSC 221, COSC 222.	Laboratory	In Person Learning	Thu	2:00 p.m. - 4:00 p.m.

COSC_O 328-001	COSC_O	001	Introduction to Networks	W2	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. [3-0-0] Prerequisite: All of COSC 211, COSC 222.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
COSC_O 341-101	COSC_O	101	Human Computer Interaction	W2	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.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
COSC_O 360-001	COSC_O	001	Web Programming	W2	Design and implementation of web-based information systems and app development. Rich user interfaces, asynchronous updates, client-side and server-side scripting using standard technologies such as HTML, CSS, SVG, JavaScript, PHP. Data manipulation with SQL, JSON, XML. Modern scripting frameworks and libraries. [3-2-0] Prerequisite: All of COSC 121, COSC 304. and third-year standing.	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.
COSC_O 360-L01	COSC_O	L01	Web Programming	W2	Design and implementation of web-based information systems and app development. Rich user interfaces, asynchronous updates, client-side and server-side scripting using standard technologies such as HTML, CSS, SVG, JavaScript, PHP. Data manipulation with SQL, JSON, XML. Modern scripting frameworks and libraries. [3-2-0] Prerequisite: All of COSC 121, COSC 304. and third-year standing.	Laboratory	In Person Learning	Fri	10:00 a.m. - 12:00 p.m.
COSC_O 360-L02	COSC_O	L02	Web Programming	W2	Design and implementation of web-based information systems and app development. Rich user interfaces, asynchronous updates, client-side and server-side scripting using standard technologies such as HTML, CSS, SVG, JavaScript, PHP. Data manipulation with SQL, JSON, XML. Modern scripting frameworks and libraries. [3-2-0] Prerequisite: All of COSC 121, COSC 304. and third-year standing.	Laboratory	In Person Learning	Tue	8:00 a.m. - 10:00 a.m.
COSC_O 360-L03	COSC_O	L03	Web Programming	W2	Design and implementation of web-based information systems and app development. Rich user interfaces, asynchronous updates, client-side and server-side scripting using standard technologies such as HTML, CSS, SVG, JavaScript, PHP. Data manipulation with SQL, JSON, XML. Modern scripting frameworks and libraries. [3-2-0] Prerequisite: All of COSC 121, COSC 304. and third-year standing.	Laboratory	In Person Learning	Wed	12:00 p.m. - 2:00 p.m.
COSC_O 360-L04	COSC_O	L04	Web Programming	W2	Design and implementation of web-based information systems and app development. Rich user interfaces, asynchronous updates, client-side and server-side scripting using standard technologies such as HTML, CSS, SVG, JavaScript, PHP. Data manipulation with SQL, JSON, XML. Modern scripting frameworks and libraries. [3-2-0] Prerequisite: All of COSC 121, COSC 304. and third-year standing.	Laboratory	In Person Learning	Fri	12:00 p.m. - 2:00 p.m.
COSC_O 360-L05	COSC_O	L05	Web Programming	W2	Design and implementation of web-based information systems and app development. Rich user interfaces, asynchronous updates, client-side and server-side scripting using standard technologies such as HTML, CSS, SVG, JavaScript, PHP. Data manipulation with SQL, JSON, XML. Modern scripting frameworks and libraries. [3-2-0] Prerequisite: All of COSC 121, COSC 304. and third-year standing.	Laboratory	In Person Learning	Mon	4:00 p.m. - 6:00 p.m.
COSC_O 360-L06	COSC_O	L06	Web Programming	W2	Design and implementation of web-based information systems and app development. Rich user interfaces, asynchronous updates, client-side and server-side scripting using standard technologies such as HTML, CSS, SVG, JavaScript, PHP. Data manipulation with SQL, JSON, XML. Modern scripting frameworks and libraries. [3-2-0] Prerequisite: All of COSC 121, COSC 304. and third-year standing.	Laboratory	In Person Learning	Mon	4:00 p.m. - 6:00 p.m.
COSC_O 360-L07	COSC_O	L07	Web Programming	W2	Design and implementation of web-based information systems and app development. Rich user interfaces, asynchronous updates, client-side and server-side scripting using standard technologies such as HTML, CSS, SVG, JavaScript, PHP. Data manipulation with SQL, JSON, XML. Modern scripting frameworks and libraries. [3-2-0] Prerequisite: All of COSC 121, COSC 304. and third-year standing.	Laboratory	In Person Learning	Thu	10:00 a.m. - 12:00 p.m.
COSC_O 360-L08	COSC_O	L08	Web Programming	W2	Design and implementation of web-based information systems and app development. Rich user interfaces, asynchronous updates, client-side and server-side scripting using standard technologies such as HTML, CSS, SVG, JavaScript, PHP. Data manipulation with SQL, JSON, XML. Modern scripting frameworks and libraries. [3-2-0] Prerequisite: All of COSC 121, COSC 304. and third-year standing.	Laboratory	In Person Learning	Thu	10:00 a.m. - 12:00 p.m.
COSC_O 360-L09	COSC_O	L09	Web Programming	W2	Design and implementation of web-based information systems and app development. Rich user interfaces, asynchronous updates, client-side and server-side scripting using standard technologies such as HTML, CSS, SVG, JavaScript, PHP. Data manipulation with SQL, JSON, XML. Modern scripting frameworks and libraries. [3-2-0] Prerequisite: All of COSC 121, COSC 304. and third-year standing.	Laboratory	In Person Learning	Wed	4:00 p.m. - 6:00 p.m.
COSC_O 404-101	COSC_O	101	Database System Implementation	W2	Fundamental concepts in constructing database systems including file organizations, storage management, system architectures, query processing/optimization, transaction management, recovery, and concurrency control. Additional topics may include distributed databases, mobile databases, and integration. Credit will be granted for only one of COSC 404 or COSC 504. [3-0-0] Prerequisite: COSC 304. and third-year standing.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
COSC_O 407-101	COSC_O	101	Introduction to Parallel Computing	W2	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. [3-2-0] Prerequisite: One of COSC 222, COSC 210.	Lecture	In Person Learning	Tue Thu	6:30 p.m. - 8:00 p.m.
COSC_O 407-L01	COSC_O	L01	Introduction to Parallel Computing	W2	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. [3-2-0] Prerequisite: One of COSC 222, COSC 210.	Laboratory	In Person Learning	Tue	10:00 a.m. - 12:00 p.m.
COSC_O 407-L02	COSC_O	L02	Introduction to Parallel Computing	W2	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. [3-2-0] Prerequisite: One of COSC 222, COSC 210.	Laboratory	In Person Learning	Wed	2:00 p.m. - 4:00 p.m.
COSC_O 407-L03	COSC_O	L03	Introduction to Parallel Computing	W2	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. [3-2-0] Prerequisite: One of COSC 222, COSC 210.	Laboratory	In Person Learning	Thu	12:00 p.m. - 2:00 p.m.



COSC_O 407-L04	COSC_O	L04	Introduction to Parallel Computing	W2	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. [3-2-0] Prerequisite: One of COSC 222, COSC 210.	Laboratory	In Person Learning	Wed	10:00 a.m. - 12:00 p.m.
COSC_O 407-L05	COSC_O	L05	Introduction to Parallel Computing	W2	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. [3-2-0] Prerequisite: One of COSC 222, COSC 210.	Laboratory	In Person Learning	Fri	12:00 p.m. - 2:00 p.m.
COSC_O 407-L06	COSC_O	L06	Introduction to Parallel Computing	W2	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. [3-2-0] Prerequisite: One of COSC 222, COSC 210.	Laboratory	In Person Learning	Tue	10:00 a.m. - 12:00 p.m.
COSC_O 414-001	COSC_O	001	Computer Graphics	W2	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.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
COSC_O 419-B_101	COSC_O	B	B_101	W2	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.	Experiential	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
COSC_O 419-O_101	COSC_O	O	O_101	W2	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.	Experiential	In Person Learning	Tue Thu	11:00 a.m. - 11:30 a.m.
COSC_O 444-101	COSC_O	101	Computer Vision	W2	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] Prerequisite: COSC 344.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
COSC_O 448-A_101	COSC_O	A	A_101	W2	Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head.	Independent Study	In Person Learning	Arranged	Arranged
COSC_O 448-A_102	COSC_O	A	A_102	W2	Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head.	Independent Study	In Person Learning	Arranged	Arranged
COSC_O 448-C_101	COSC_O	C	C_101	W2	Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head.	Independent Study	In Person Learning	Arranged	Arranged
COSC_O 448-C_102	COSC_O	C	C_102	W2	Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head.	Independent Study	In Person Learning	Arranged	Arranged
COSC_O 504-101	COSC_O	101	Database System Implementation	W2	Constructing database systems: file organizations, storage management, system architectures, query processing/optimization, transaction management, recovery, and concurrency control. Credit will be granted for only one of COSC 404 or COSC 504.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
COSC_O 519-B_101	COSC_O	B	B_101	W2	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	Tue Thu	12:30 p.m. - 2:00 p.m.
COSC_O 519-I_001	COSC_O	I	I_001	W2	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 Fri	3:30 p.m. - 5:00 p.m.
COSC_O 519-K_101	COSC_O	K	K_101	W2	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	Tue Thu	11:00 a.m. - 11:30 a.m.
COSC_O 519-L_101	COSC_O	L	L_101	W2	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 Fri	12:30 p.m. - 2:00 p.m.
COSC_O 520-001	COSC_O	001	Advanced Algorithms	W2	Algorithm design, analysis and application. Algorithmic graph theory, parameterization, approximation, and randomization techniques. Algorithms for computational-hard problems and problems involving large-scale networks and/or massive datasets. Credit will be granted for only one of COSC 320 or COSC 520.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
COSC_O 544-101	COSC_O	101	Computer Vision	W2	Computer vision methods and problem-solving techniques. 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.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
COSC_O 549-002	COSC_O	002	Master's Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
COSC_O 590-E_S01	COSC_O	E	E_S01	W2	Presentation and discussion of recent results in the Computer Science literature. Pass/Fail.	Seminar	In Person Learning	Fri	8:00 a.m. - 11:00 a.m.
COSC_O 649-002	COSC_O	002	Doctoral Dissertation	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
CRWR_O 150-002	CRWR_O	002	Introduction to Writing Poetry and Non-Fiction	W2	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 nonfiction, 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 [2-0-1]	Lecture	In Person Learning	Thu	5:30 p.m. - 8:30 p.m.
CRWR_O 160-101	CRWR_O	101	Introduction to Writing Fiction and Drama	W2	Introduction to composition and experimentation in the genres of fiction and drama. Students will develop a working knowledge of modern aesthetics in fiction and drama, 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 [2-0-1]	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
CRWR_O 216-001	CRWR_O	001	Intermediate Workshop in Creative Writing: Poe	W2	Intermediate creative writing course. Students are instructed and guided in the writing of poetry, are encouraged to pursue experimentation in poetry, and will participate in the feedback and critique sessions that constitute the workshop method. [3-0-0] Prerequisite: CRWR 150.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
CRWR_O 219-101	CRWR_O	101	Intermediate Workshop in Creative Writing: Nor	W2	Intermediate creative writing course. Students are instructed and guided in the writing of creative non-fiction, are encouraged to pursue experimentation in creative non-fiction, and will participate in the feedback and critique sessions that constitute the workshop method. [3-0-0] Prerequisite: One of CRWR 150, ENGL 113, ENGL 114.	Lecture	Online Learning	Mon Wed	3:30 p.m. - 5:00 p.m.

CRWR_O 260-001	CRWR_O		001	Theory and Practice of Creative Writing	W2	Recommended for students taking Creative Writing, English, Visual Arts, or Performance courses. Introduces students to the history of contemporary forms of creative writing. Students will write on problems of aesthetics and practice various forms. [3-0-0] Prerequisite: Two of ENGL 112, ENGL 113, ENGL 150, ENGL 151, ENGL 153, CRWR 150, CRWR 160.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
CRWR_O 384-101	CRWR_O		101	Spoken Word	W2	Advanced workshop in writing and performing Spoken Word texts. Restricted to students with at least third-year standing. Credit will be granted for only one of CULT 384, CRWR 384, THTR 384 or CULT 308. [3-0-0] Prerequisite: 6 credits of Creative Writing and/or Theatre. For students without prerequisites, portfolio submission is also required. Equivalency: THTR 384, CULT 384	Lecture	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.
CRWR_O 385-101	CRWR_O		101	Writing for Children	W2	Advanced workshop in writing for children and young adults. Restricted to students with at least third-year standing. Restricted to Creative Writing Majors and Minors except with permission of the department. Credit will be granted for only one of CRWR 385 and CRWR 382 when the subject matter is of the same nature. [3-0-0] Prerequisite: Either (a) two of CRWR 205, CRWR 216, CRWR 217, CRWR 218, CRWR 219, CRWR 250, CRWR 260 or (b) two of CRWR 210, CRWR 216, CRWR 217, CRWR 218, CRWR 219, CRWR 250, CRWR 260. For non-majors and non-minors portfolio submission is also required.	Lecture	In Person Learning	Wed	8:00 a.m. - 11:00 a.m.
CRWR_O 470-B_101	CRWR_O	B	B_101	Portfolio	W2	Intensive manuscript production in one or two major genres: fiction, poetry, drama, or creative non-fiction. As students begin to shape their portfolios, they will be asked to place their work in a contemporary aesthetic context. [3-0-0] or [1-0-2] Prerequisite: 6 credits from CRWR 380, CRWR 381, CRWR 382, or CRWR 471 with a minimum grade of 72% in each of these two courses. For non-majors and non-minors: portfolio submission also required.	Lecture	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
CRWR_O 472-101	CRWR_O		101	Editing and Publishing	W2	For Creative Writing majors. Develops specialized skills in editing and publishing for success in professional practice. Coursework includes experiential learning with solo and group projects. [0-2-2] Prerequisite: Third-year standing.	Lecture	In Person Learning	Tue Thu	12:00 p.m. - 2:00 p.m.
CRWR_O 473-001	CRWR_O		001	Writing and Community Learning	W2	Applied community learning aspects of creative writing. Develops specialized skills for success in professional practice by working in interdisciplinary and collaborative teams with community partners. Field trips will be required. [0-2-2] Prerequisite: Third-year standing.	Lecture	In Person Learning	Tue Thu	4:00 p.m. - 6:00 p.m.
CRWR_O 475-001	CRWR_O		001	Preparing for a Career as a Writer	W2	Developing professional skills such as sustainable writing practices, preparing work for submission, marketing and promotion. Careers that are within and adjacent to creative writing will also be discussed. Restricted to CRWR Majors except with permission from instructor. [2-2-0]	Lecture	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.
CULT_O 100-101	CULT_O		101	Media and Popular Cultures in Global Context	W2	Introduction to media and cultural studies in a global context, specifically the critical analysis of cultural texts, cultural industries, and media audiences. [3-0-0]	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
CULT_O 100-102	CULT_O		102	Media and Popular Cultures in Global Context	W2	Introduction to media and cultural studies in a global context, specifically the critical analysis of cultural texts, cultural industries, and media audiences. [3-0-0]	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
CULT_O 100-103	CULT_O		103	Media and Popular Cultures in Global Context	W2	Introduction to media and cultural studies in a global context, specifically the critical analysis of cultural texts, cultural industries, and media audiences. [3-0-0]	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
CULT_O 101-101	CULT_O		101	Cultural Studies Practices	W2	Key concepts and methods across the history of cultural studies including analysis of consumer society, identity, space, and memory. [3-0-0]	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
CULT_O 101-102	CULT_O		102	Cultural Studies Practices	W2	Key concepts and methods across the history of cultural studies including analysis of consumer society, identity, space, and memory. [3-0-0]	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
CULT_O 101-103	CULT_O		103	Cultural Studies Practices	W2	Key concepts and methods across the history of cultural studies including analysis of consumer society, identity, space, and memory. [3-0-0]	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
CULT_O 210-101	CULT_O		101	Reading Screens	W2	Introduction to 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 CULT 210 or ENGL 215. [3-0-3] Prerequisite: 3 credits of first-year CULT and 3 credits of first-year ENGL. Equivalency: ENGL215	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
CULT_O 272-001	CULT_O		001	Feminism and Environment	W2	Examines contributions of feminist theories and practice to understanding and addressing environmental change. Foregrounds the role of decolonial, anti-racist, disability justice and queer feminist perspectives in environmental justice, policy, art, and activism. Credit will be granted for only one of CULT 272 or GWST 272. [3-0-0] Prerequisite: 3 credits of first-year CULT or SUST 104. Equivalency: GWST272	Lecture	In Person Learning	Tue	2:00 p.m. - 3:30 p.m.
CULT_O 272-D01	CULT_O		D01	Feminism and Environment	W2	Examines contributions of feminist theories and practice to understanding and addressing environmental change. Foregrounds the role of decolonial, anti-racist, disability justice and queer feminist perspectives in environmental justice, policy, art, and activism. Credit will be granted for only one of CULT 272 or GWST 272. [3-0-0] Prerequisite: 3 credits of first-year CULT or SUST 104. Equivalency: GWST272	Discussion	In Person Learning	Thu	11:00 a.m. - 12:30 p.m.
CULT_O 275-101	CULT_O		101	Foundations: Interdisciplinary Theory and Meth	W2	Study of the major trends in critical theory. Attention will be given to applications of theory in literary research. Credit will be granted for only one of CULT 275 or ENGL 250. [3-0-0] Prerequisite: 3 credits of first-year CULT and 3 credits of first-year ENGL. Equivalency: ENGL250	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
CULT_O 312-A_002	CULT_O	A	A_002	Internet Culture	W2	A critical study of the cultural influence of the Internet on everyday life. With different topics, this course may be taken more than once for credit. No more than 9 credits in total will be granted for CULT 312, DIHU 312, or any combination thereof. Credit will be granted for only one of CULT 312 and DIHU 312 when the subject matter is of the same nature. Prerequisite: Third-year standing. Equivalency: DIHU312	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
CULT_O 317-001	CULT_O		001	Digital Documentary Production	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 CULT 317 or FILM 371. [2-2-0] Prerequisite: One of VISA 106, VISA 261, FILM 261. and third-year standing or permission of the instructor. Equivalency: FILM 371	Lecture	In Person Learning	Thu	8:00 a.m. - 12:00 p.m.
CULT_O 351-001	CULT_O		001	Settler Studies, Literature, and Culture	W2	Approaches to the interdisciplinary field of settler colonial studies in Canadian and comparative contexts in relation to literature, film, and other forms of cultural production. Examines the role of representation, narrative, and discourse in settlement, colonization, and decolonization. Credit will be granted for only one of ENGL 385 or CULT 351. Prerequisite: 3 credits of 200-level CULT. CULT 250 or ENGL 234 is recommended. Equivalency: ENGL 385	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
CULT_O 360-101	CULT_O		101	Public Memory, Commemoration, and Identity	W2	Critical examination of commemoration practices, including museums, monuments, and heritage sites, specifically in terms of the construction of place, community, and identity. Credit will be granted for only one of CULT 360 or CORH 360. Prerequisite: Third-year standing. CULT 215, CULT 230, CULT 250, or CULT 275 recommended. Equivalency: CORH360	Lecture	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.

CULT_O 362-B_002	CULT_O	B	B_002	Advanced Practice in Photography	W2	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	5:00 p.m. - 9:00 p.m.
CULT_O 382-B_002	CULT_O	B	B_002	Advanced Practice in Media Arts	W2	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 VISA 206, VISA 266, VISA 268, VISA 269, VISA 271. or permission of the instructor. Equivalency: VISA 382	Lecture	In Person Learning	Fri	10:00 a.m. - 2:00 p.m.
CULT_O 384-101	CULT_O		101	Spoken Word	W2	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. [0-3-0] 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.
CULT_O 400-L_101	CULT_O	L	L_101	Topics in Popular Culture	W2	Focus on media such as music, film, music video, television, advertising, and the Internet. No more than 9 credits in total will be granted for CULT 400, ENGL 493, or any combination thereof. [3-0-0] Prerequisite: 3 credits of 200-level CULT. CULT 210, CULT 211, and/or CULT 270 recommended. Equivalency: ENGL493	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
CULT_O 400-M_101	CULT_O	M	M_101	Topics in Popular Culture	W2	Focus on media such as music, film, music video, television, advertising, and the Internet. No more than 9 credits in total will be granted for CULT 400, ENGL 493, or any combination thereof. [3-0-0] Prerequisite: 3 credits of 200-level CULT. CULT 210, CULT 211, and/or CULT 270 recommended. Equivalency: ENGL493	Lecture	In Person Learning	Fri	8:00 a.m. - 11:00 a.m.
CULT_O 400-N_101	CULT_O	N	N_101	Topics in Popular Culture	W2	Focus on media such as music, film, music video, television, advertising, and the Internet. No more than 9 credits in total will be granted for CULT 400, ENGL 493, or any combination thereof. [3-0-0] Prerequisite: 3 credits of 200-level CULT. CULT 210, CULT 211, and/or CULT 270 recommended. Equivalency: ENGL493	Lecture	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.
CULT_O 401-A_101	CULT_O	A	A_101	Topics in Media Studies	W2	In-depth study of contemporary media phenomena and practices. With different topics, this course may be taken more than once for credit. Prerequisite: 3 credits of 200 level CULT.	Lecture	In Person Learning	Mon	5:00 p.m. - 8:00 p.m.
CULT_O 460-101	CULT_O		101	Posthumanism and Critical Animal Studies	W2	Contemporary theories in the field of critical animal studies via ecofeminism, literary studies, philosophy and history with the aim of considering the interconnectedness of speciesism, racism and sexism. Particular attention will be paid to ecofeminism and the ethics of care in regards to the treatment of animals. Credit will be granted for only one of CULT 460 or ENGL 457. [3-0-0] Prerequisite: Third-year standing. Equivalency: ENGL457	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
CULT_O 491-101	CULT_O		101	Black Intellectual Traditions	W2	Intellectual influences on, and responses to, Black experiences in our modern world. Credit will be granted for only one of CULT 491 or ENGL 491. Prerequisite: Third-year standing. Equivalency: ENGL 491	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
CULT_O 499-101	CULT_O		101	Community-Engaged Research in Cultural Studie	W2	Develops professional skills in research, collaboration, and communication. Students work in collaborative teams to complete projects that support the work of community partners. Projects vary from year to year. Students must arrange own transportation to/from Kelowna-area required off-campus meetings. 65 contact hours of class and community partner interaction. Prerequisite: Third-year standing; students must complete an application; permission granted by the Cultural Studies program. Preference will be given to students enrolled as Major, Combined Major, or Minor in CULT.	Independent Study	Hybrid Learning	Fri	2:00 p.m. - 5:00 p.m.
CUST_O 562-001	CUST_O		001	Curriculum Issues and Theories	W2	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 underpinning contemporary understandings and practices of curriculum.	Lecture	Online Learning	Mon (Alternate weeks)	4:00 p.m. - 5:00 p.m.
DATA_O 101-101	DATA_O		101	Making Predictions with Data	W2	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.
DATA_O 101-102	DATA_O		102	Making Predictions with Data	W2	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.
DATA_O 101-L2A	DATA_O		L2A	Making Predictions with Data	W2	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.
DATA_O 101-L2B	DATA_O		L2B	Making Predictions with Data	W2	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.
DATA_O 101-L2C	DATA_O		L2C	Making Predictions with Data	W2	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.
DATA_O 101-L2D	DATA_O		L2D	Making Predictions with Data	W2	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.
DATA_O 301-101	DATA_O		101	Introduction to Data Analytics	W2	Techniques for computation, analysis, and visualization of data using software. Manipulation of small and large data sets. Databases. Automation using scripting. Real-world applications from life sciences, physical sciences, economics, engineering, or psychology. No prior computing background is required. Cannot be used for credits toward a major in Computer Science, Data Science, Mathematics, or Statistics. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501. [3-2-0] Prerequisite: Third-year standing.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
DATA_O 301-L2A	DATA_O		L2A	Introduction to Data Analytics	W2	Techniques for computation, analysis, and visualization of data using software. Manipulation of small and large data sets. Databases. Automation using scripting. Real-world applications from life sciences, physical sciences, economics, engineering, or psychology. No prior computing background is required. Cannot be used for credits toward a major in Computer Science, Data Science, Mathematics, or Statistics. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501. [3-2-0] Prerequisite: Third-year standing.	Laboratory	In Person Learning	Fri	10:00 a.m. - 12:00 p.m.

DATA_O 301-L2B	DATA_O	L2B	Introduction to Data Analytics	W2	Techniques for computation, analysis, and visualization of data using software. Manipulation of small and large data sets. Databases. Automation using scripting. Real-world applications from life sciences, physical sciences, economics, engineering, or psychology. No prior computing background is required. Cannot be used for credits toward a major in Computer Science, Data Science, Mathematics, or Statistics. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501. [3-2-0] Prerequisite: Third-year standing.	Laboratory	In Person Learning	Tue	12:00 p.m. - 2:00 p.m.	
DATA_O 301-L2C	DATA_O	L2C	Introduction to Data Analytics	W2	Techniques for computation, analysis, and visualization of data using software. Manipulation of small and large data sets. Databases. Automation using scripting. Real-world applications from life sciences, physical sciences, economics, engineering, or psychology. No prior computing background is required. Cannot be used for credits toward a major in Computer Science, Data Science, Mathematics, or Statistics. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501. [3-2-0] Prerequisite: Third-year standing.	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.	
DATA_O 301-L2D	DATA_O	L2D	Introduction to Data Analytics	W2	Techniques for computation, analysis, and visualization of data using software. Manipulation of small and large data sets. Databases. Automation using scripting. Real-world applications from life sciences, physical sciences, economics, engineering, or psychology. No prior computing background is required. Cannot be used for credits toward a major in Computer Science, Data Science, Mathematics, or Statistics. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501. [3-2-0] Prerequisite: Third-year standing.	Laboratory	In Person Learning	Thu	8:00 a.m. - 10:00 a.m.	
DATA_O 315-101	DATA_O	101	Applied Time Series and Forecasting	W2	Trends, stationary and nonstationary time series models, forecasting, seasonal models. [3-0-0] Prerequisite: One of STAT 205, STAT 230.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.	
DATA_O 407-101	DATA_O	101	Sampling and Design	W2	Planning/practice of data collection. Pros/cons of both observational and experimental data. Survey samples: random sampling; bias and variance; unequal probability sampling; systematic, multistage, and stratified sampling; ratio and regression estimators. Experimental design: simple one-way comparisons; designs with randomization restrictions including blocking, split-plots, nested and repeated measures designs. Credit will be granted for only one of DATA 407 or STAT 507. [3-1-0] Prerequisite: One of STAT 205, STAT 230, PSYO 372, BIOL 202.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.	
DATA_O 407-L01	DATA_O	L01	Sampling and Design	W2	Planning/practice of data collection. Pros/cons of both observational and experimental data. Survey samples: random sampling; bias and variance; unequal probability sampling; systematic, multistage, and stratified sampling; ratio and regression estimators. Experimental design: simple one-way comparisons; designs with randomization restrictions including blocking, split-plots, nested and repeated measures designs. Credit will be granted for only one of DATA 407 or STAT 507. [3-1-0] Prerequisite: One of STAT 205, STAT 230, PSYO 372, BIOL 202.	Laboratory	In Person Learning	Mon	11:00 a.m. - 12:00 p.m.	
DATA_O 410-101	DATA_O	101	Regression and Generalized Linear Models	W2	Regression, linear models, generalized linear models, additive models, generalized additive models, mixed models, theory and numerical performance. Credit will be granted for only one of DATA 410 or STAT 538. [3-0-0] Prerequisite: DATA 310.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.	
DATA_O 448-A_102	DATA_O	A	A_102	Directed Studies in Data Science	W2	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_101	DATA_O	C	C_101	Directed Studies in Data Science	W2	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 534-101	DATA_O	101	Web and Cloud Computing	W2	Parallel and cloud computing architectures and program deployment. Restricted to students in the MDS program.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.	
DATA_O 534-L01	DATA_O	L01	Web and Cloud Computing	W2	Parallel and cloud computing architectures and program deployment. Restricted to students in the MDS program.	Laboratory	In Person Learning	Mon	12:30 p.m. - 4:30 p.m.	
DATA_O 534-T1A	DATA_O	T1A	Web and Cloud Computing	W2	Parallel and cloud computing architectures and program deployment. Restricted to students in the MDS program.	Discussion	In Person Learning	Mon	8:30 a.m. - 9:30 a.m.	
DATA_O 542-101	DATA_O	101	Data Wrangling	W2	Manipulation of data using software tools. Data conversion, filtering, sorting, grouping, cleaning, parsing, Automation. Restricted to students in the MDS program. Prerequisite: All of DATA 532, DATA 540, DATA 541.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.	
DATA_O 542-L01	DATA_O	L01	Data Wrangling	W2	Manipulation of data using software tools. Data conversion, filtering, sorting, grouping, cleaning, parsing, Automation. Restricted to students in the MDS program. Prerequisite: All of DATA 532, DATA 540, DATA 541.	Laboratory	In Person Learning	Thu	12:30 p.m. - 4:30 p.m.	
DATA_O 542-T1A	DATA_O	T1A	Data Wrangling	W2	Manipulation of data using software tools. Data conversion, filtering, sorting, grouping, cleaning, parsing, Automation. Restricted to students in the MDS program. Prerequisite: All of DATA 532, DATA 540, DATA 541.	Discussion	In Person Learning	Thu	8:30 a.m. - 9:30 a.m.	
DATA_O 550-001	DATA_O	001	Dataviz I	W2	Data visualization to produce graphs and images. Advanced data analysis on spreadsheets. Restricted to students in the MDS program. Prerequisite: All of DATA 530, DATA 531.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.	
DATA_O 550-L01	DATA_O	L01	Dataviz I	W2	Data visualization to produce graphs and images. Advanced data analysis on spreadsheets. Restricted to students in the MDS program. Prerequisite: All of DATA 530, DATA 531.	Laboratory	In Person Learning	Tue	12:30 p.m. - 4:30 p.m.	
DATA_O 550-T1A	DATA_O	T1A	Dataviz I	W2	Data visualization to produce graphs and images. Advanced data analysis on spreadsheets. Restricted to students in the MDS program. Prerequisite: All of DATA 530, DATA 531.	Discussion	In Person Learning	Tue	8:30 a.m. - 9:30 a.m.	
DATA_O 551-101	DATA_O	101	Dataviz II	W2	Data visualization using business intelligence and data analysis software. Interactive visualization. Production of visualizations for mobile and web. Restricted to students in the MDS program. Prerequisite: All of DATA 534, DATA 543, DATA 550.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.	
DATA_O 551-L01	DATA_O	L01	Dataviz II	W2	Data visualization using business intelligence and data analysis software. Interactive visualization. Production of visualizations for mobile and web. Restricted to students in the MDS program. Prerequisite: All of DATA 534, DATA 543, DATA 550.	Laboratory	In Person Learning	Wed	12:30 p.m. - 4:30 p.m.	
DATA_O 551-T1A	DATA_O	T1A	Dataviz II	W2	Data visualization using business intelligence and data analysis software. Interactive visualization. Production of visualizations for mobile and web. Restricted to students in the MDS program. Prerequisite: All of DATA 534, DATA 543, DATA 550.	Discussion	In Person Learning	Wed	8:30 a.m. - 9:30 a.m.	
DATA_O 552-001	DATA_O	001	Communication and Argumentation	W2	Interpretation of data. Argumentation: hypothesis, claim, evidence and inference. Model limitations: bias, validity, reliability, sensitive analysis. Communication of recommendations to decision-makers. Restricted to students in the MDS program.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.	
DATA_O 552-L01	DATA_O	L01	Communication and Argumentation	W2	Interpretation of data. Argumentation: hypothesis, claim, evidence and inference. Model limitations: bias, validity, reliability, sensitive analysis. Communication of recommendations to decision-makers. Restricted to students in the MDS program.	Laboratory	In Person Learning	Mon	12:30 p.m. - 4:30 p.m.	

DATA_O 552-T1A	DATA_O	T1A	Communication and Argumentation	W2	Interpretation of data. Argumentation: hypothesis, claim, evidence and inference. Model limitations: bias, validity, reliability, sensitive analysis. Communication of recommendations to decision-makers. Restricted to students in the MDS program.	Discussion	In Person Learning	Mon	8:30 a.m. - 9:30 a.m.
DATA_O 572-001	DATA_O	001	Supervised Learning	W2	Analysis of data with categorical responses. Logistic regression, k-nearest-neighbours classification, discriminant analysis, decision trees and random forests. Restricted to students in the MDS program. Prerequisite: DATA 571.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
DATA_O 572-L01	DATA_O	L01	Supervised Learning	W2	Analysis of data with categorical responses. Logistic regression, k-nearest-neighbours classification, discriminant analysis, decision trees and random forests. Restricted to students in the MDS program. Prerequisite: DATA 571.	Laboratory	In Person Learning	Wed	12:30 p.m. - 4:30 p.m.
DATA_O 572-T1A	DATA_O	T1A	Supervised Learning	W2	Analysis of data with categorical responses. Logistic regression, k-nearest-neighbours classification, discriminant analysis, decision trees and random forests. Restricted to students in the MDS program. Prerequisite: DATA 571.	Discussion	In Person Learning	Wed	8:30 a.m. - 9:30 a.m.
DATA_O 573-101	DATA_O	101	Unsupervised and Semi-supervised Learning	W2	Analyses for data with unknown responses. Distance measures, hierarchical clustering, k-means, mixture models. Restricted to students in the MDS program. Prerequisite: DATA 572.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
DATA_O 573-L01	DATA_O	L01	Unsupervised and Semi-supervised Learning	W2	Analyses for data with unknown responses. Distance measures, hierarchical clustering, k-means, mixture models. Restricted to students in the MDS program. Prerequisite: DATA 572.	Laboratory	In Person Learning	Tue	12:30 p.m. - 4:30 p.m.
DATA_O 573-T1A	DATA_O	T1A	Unsupervised and Semi-supervised Learning	W2	Analyses for data with unknown responses. Distance measures, hierarchical clustering, k-means, mixture models. Restricted to students in the MDS program. Prerequisite: DATA 572.	Discussion	In Person Learning	Tue	8:30 a.m. - 9:30 a.m.
DATA_O 582-101	DATA_O	101	Bayesian Inference	W2	Introduction to Bayesian paradigm and tools for Data Science. Topics include Bayes theorem, prior, likelihood and posterior. A detailed analysis of the cases of binomial, normal samples, normal linear regression models. A significant focus will be on computational aspects of Bayesian problems using software packages. Restricted to students in the MDS program. Prerequisite: All of DATA 572, DATA 581.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
DATA_O 582-L01	DATA_O	L01	Bayesian Inference	W2	Introduction to Bayesian paradigm and tools for Data Science. Topics include Bayes theorem, prior, likelihood and posterior. A detailed analysis of the cases of binomial, normal samples, normal linear regression models. A significant focus will be on computational aspects of Bayesian problems using software packages. Restricted to students in the MDS program. Prerequisite: All of DATA 572, DATA 581.	Laboratory	In Person Learning	Thu	12:30 p.m. - 4:30 p.m.
DATA_O 582-T1A	DATA_O	T1A	Bayesian Inference	W2	Introduction to Bayesian paradigm and tools for Data Science. Topics include Bayes theorem, prior, likelihood and posterior. A detailed analysis of the cases of binomial, normal samples, normal linear regression models. A significant focus will be on computational aspects of Bayesian problems using software packages. Restricted to students in the MDS program. Prerequisite: All of DATA 572, DATA 581.	Discussion	In Person Learning	Thu	8:30 a.m. - 9:30 a.m.
DATA_O 583-101	DATA_O	101	Advanced Predictive Modelling	W2	Splines. Smoothing. Generalized linear models. Generalized additive models. An introduction to mixed models. Restricted to students in the MDS program. Prerequisite: All of DATA 572, DATA 581.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
DATA_O 583-L01	DATA_O	L01	Advanced Predictive Modelling	W2	Splines. Smoothing. Generalized linear models. Generalized additive models. An introduction to mixed models. Restricted to students in the MDS program. Prerequisite: All of DATA 572, DATA 581.	Laboratory	In Person Learning	Thu	12:30 p.m. - 4:30 p.m.
DATA_O 583-T1A	DATA_O	T1A	Advanced Predictive Modelling	W2	Splines. Smoothing. Generalized linear models. Generalized additive models. An introduction to mixed models. Restricted to students in the MDS program. Prerequisite: All of DATA 572, DATA 581.	Discussion	In Person Learning	Thu	8:30 a.m. - 9:30 a.m.
DATA_O 585-101	DATA_O	101	Optimization	W2	Modelling using mathematical programming. Fundamental continuous and discrete optimization algorithms. Optimization software for small to medium scale problems. Optimization algorithms for data science. Restricted to students in the MDS program. Prerequisite: DATA 580.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
DATA_O 585-L01	DATA_O	L01	Optimization	W2	Modelling using mathematical programming. Fundamental continuous and discrete optimization algorithms. Optimization software for small to medium scale problems. Optimization algorithms for data science. Restricted to students in the MDS program. Prerequisite: DATA 580.	Laboratory	In Person Learning	Tue	12:30 p.m. - 4:30 p.m.
DATA_O 585-T1A	DATA_O	T1A	Optimization	W2	Modelling using mathematical programming. Fundamental continuous and discrete optimization algorithms. Optimization software for small to medium scale problems. Optimization algorithms for data science. Restricted to students in the MDS program. Prerequisite: DATA 580.	Discussion	In Person Learning	Tue	8:30 a.m. - 9:30 a.m.
DATA_O 586-101	DATA_O	101	Advanced Machine Learning	W2	Neural networks, backpropagation, deep learning. Restricted to students in the MDS program. Prerequisite: DATA 580.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
DATA_O 586-L01	DATA_O	L01	Advanced Machine Learning	W2	Neural networks, backpropagation, deep learning. Restricted to students in the MDS program. Prerequisite: DATA 580.	Laboratory	In Person Learning	Wed	12:30 p.m. - 4:30 p.m.
DATA_O 586-T1A	DATA_O	T1A	Advanced Machine Learning	W2	Neural networks, backpropagation, deep learning. Restricted to students in the MDS program. Prerequisite: DATA 580.	Discussion	In Person Learning	Wed	8:30 a.m. - 9:30 a.m.
DATA_O 589-101	DATA_O	101	Special Topic	W2	Advanced or specialized topic in Data Science with applications to specific data sets. Restricted to students in the MDS program. Prerequisite: DATA 543.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
DATA_O 589-L01	DATA_O	L01	Special Topic	W2	Advanced or specialized topic in Data Science with applications to specific data sets. Restricted to students in the MDS program. Prerequisite: DATA 543.	Laboratory	In Person Learning	Mon	12:30 p.m. - 4:30 p.m.
DATA_O 589-T1A	DATA_O	T1A	Special Topic	W2	Advanced or specialized topic in Data Science with applications to specific data sets. Restricted to students in the MDS program. Prerequisite: DATA 543.	Discussion	In Person Learning	Mon	8:30 a.m. - 9:30 a.m.
DIHU_O 155-101	DIHU_O	101	Writing and Making with Technology in the Hur	W2	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Lecture	In Person Learning	Fri	2:00 p.m. - 4:00 p.m.
DIHU_O 155-T2A	DIHU_O	T2A	Writing and Making with Technology in the Hur	W2	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Fri	10:00 a.m. - 11:00 a.m.

DIHU_O 155-T2B	DIHU_O	T2B	Writing and Making with Technology in the Hurr W2	ENGL 155	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Mon	8:00 a.m. - 9:00 a.m.	
DIHU_O 155-T2C	DIHU_O	T2C	Writing and Making with Technology in the Hurr W2	ENGL 155	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Wed	1:00 p.m. - 2:00 p.m.	
DIHU_O 155-T2D	DIHU_O	T2D	Writing and Making with Technology in the Hurr W2	ENGL 155	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Tue	5:00 p.m. - 6:00 p.m.	
DIHU_O 155-T2E	DIHU_O	T2E	Writing and Making with Technology in the Hurr W2	ENGL 155	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Fri	4:00 p.m. - 5:00 p.m.	
DIHU_O 155-T2F	DIHU_O	T2F	Writing and Making with Technology in the Hurr W2	ENGL 155	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Mon	9:00 a.m. - 10:00 a.m.	
DIHU_O 155-T2G	DIHU_O	T2G	Writing and Making with Technology in the Hurr W2	ENGL 155	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Wed	10:00 a.m. - 11:00 a.m.	
DIHU_O 155-T2H	DIHU_O	T2H	Writing and Making with Technology in the Hurr W2	ENGL 155	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Wed	5:00 p.m. - 6:00 p.m.	
DIHU_O 312-A_002	DIHU_O	A	A_002	Internet Culture	W2	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 of the same nature. Prerequisite: Third-year standing. Equivalency: CULT312	Lecture	Online Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
DIHU_O 375-001	DIHU_O	001	Encountering India: The Age of the Mughals	W2	An examination of interrelated arts, visual cultures and texts in South Asia (15th to 19th C) within their historical and cultural contexts. Topics include the rise of the multicultural Mughal Empire, the roles of Hinduism, Islam, and Sikhism, and encounters with Renaissance and Colonial Europe. Digital art historical approaches will normally be used, though no computing experience is required. Credit will be granted for only one of DIHU 375, ARTH 375, or WRLD 375. Prerequisite: Third-year standing. Equivalency: ARTH 375, WRLD 375	Lecture	In Person Learning	Mon Wed	6:00 p.m. - 7:30 p.m.	
DIHU_O 409-B_101	DIHU_O	B	B_101	Topics in Digital Humanities	W2	Study of a particular topic in digital humanities. With different topics this course may be taken more than once for credit. Credit will be granted for only one of DIHU 409, CULT 409 and ENGL 409 when the subject matter is of the same nature. Prerequisite: 3 credits of 100-level CULT, DIHU, ENGL, or FILM 100, and third-year standing. Equivalency: ENGL409, CULT409	Lecture	In Person Learning	Mon	5:00 p.m. - 8:00 p.m.
EAP_O 104-101	EAP_O	101	English for Academic Purposes Level IV	W2	Development of advanced academic communication and composition skills: writing and grammar; reading comprehension and proficiency; comprehension and oral fluency; intercultural communication. Students participate in a variety of complex academic activities and situations involving multiple purposes and participants. Twelve weeks (240 hours). Prerequisite: Successful completion of EAP 103 or minimum English language competence level (see English Language Proficiency Tests at <a href="https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs">https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs</a> ). Registration limited to students in the English Foundation Program.	Lecture	In Person Learning	Mon Tue Wed Thu Fri	8:00 a.m. - 11:00 a.m.	
ECON_O 101-101	ECON_O	101	Principles of Microeconomics	W2	Elements of theory and Canadian policy and institutions concerning the economics of markets and market behaviour, prices and costs, exchange and trade, competition and monopoly, distribution of income. [3-0-0]	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.	
ECON_O 102-101	ECON_O	101	Principles of Macroeconomics	W2	Elements of theory and Canadian policy and institutions concerning the economics of growth and business cycles, national income accounting, interest and exchange rates, money and banking, the balance of trade. [3-0-0]	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.	
ECON_O 102-102	ECON_O	102	Principles of Macroeconomics	W2	Elements of theory and Canadian policy and institutions concerning the economics of growth and business cycles, national income accounting, interest and exchange rates, money and banking, the balance of trade. [3-0-0]	Lecture	In Person Learning	Mon Wed	6:30 p.m. - 8:00 p.m.	
ECON_O 204-101	ECON_O	101	Intermediate Microeconomic Analysis	W2	Microtheory course at the post-principles level. Analysis of consumer behaviour, production, exchange, equilibrium of the firm under varying market structures, factor markets, economic efficiency, and welfare. [3-0-1] Prerequisite: ECON 101 and one of MATH 100, MATH 116.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.	
ECON_O 204-T2A	ECON_O	T2A	Intermediate Microeconomic Analysis	W2	Microtheory course at the post-principles level. Analysis of consumer behaviour, production, exchange, equilibrium of the firm under varying market structures, factor markets, economic efficiency, and welfare. [3-0-1] Prerequisite: ECON 101 and one of MATH 100, MATH 116.	Discussion	In Person Learning	Mon	9:00 a.m. - 10:00 a.m.	
ECON_O 204-T2B	ECON_O	T2B	Intermediate Microeconomic Analysis	W2	Microtheory course at the post-principles level. Analysis of consumer behaviour, production, exchange, equilibrium of the firm under varying market structures, factor markets, economic efficiency, and welfare. [3-0-1] Prerequisite: ECON 101 and one of MATH 100, MATH 116.	Discussion	In Person Learning	Mon	11:00 a.m. - 12:00 p.m.	
ECON_O 205-101	ECON_O	101	Intermediate Macroeconomic Analysis	W2	Macrotheory course at the post-principles level. Income and employment theory, monetary and fiscal policies, the impact of international trade and finance on the domestic economy, economic growth and fluctuations. [3-0-1] Prerequisite: ECON 102 and one of MATH 100, MATH 116.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.	
ECON_O 205-T2A	ECON_O	T2A	Intermediate Macroeconomic Analysis	W2	Macrotheory course at the post-principles level. Income and employment theory, monetary and fiscal policies, the impact of international trade and finance on the domestic economy, economic growth and fluctuations. [3-0-1] Prerequisite: ECON 102 and one of MATH 100, MATH 116.	Discussion	In Person Learning	Mon	10:00 a.m. - 11:00 a.m.	

ECON_O 205-T2B	ECON_O	T2B	Intermediate Macroeconomic Analysis	W2	Macrotheory course at the post-principles level. Income and employment theory, monetary and fiscal policies, the impact of international trade and finance on the domestic economy, economic growth and fluctuations. [3-0-1] Prerequisite: ECON 102 and one of MATH 100, MATH 116.	Discussion	In Person Learning	Tue	11:00 a.m. - 12:00 p.m.
ECON_O 221-101	ECON_O	101	Introduction to Strategic Thinking	W2	Game theory with applications drawn from many disciplines and the principles of strategic interactions. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
ECON_O 225-101	ECON_O	101	Data and Statistics for Economics	W2	Visualization and interpretation of economic data. Topics include descriptive statistics, graphical methods, and inference, and applying these methods to economic data. Credit will be granted for only one of ECON 225 or ECON 391M. [3-0-0] Prerequisite: One of ECON 101, ECON 102.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
ECON_O 295-101	ECON_O	101	Managerial Economics	W2	Economic foundations of managerial decision-making. Demand theory, cost and production, market structure, competitive strategy, organization of the firm, welfare-economic foundations of business regulation. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ECON_O 308-101	ECON_O	101	Intermediate Microeconomics II	W2	Factor markets, general equilibrium, uncertainty and information, contract theory, externalities, public goods, and welfare. [3-0-0] Prerequisite: ECON 204.	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.
ECON_O 320-101	ECON_O	101	Introduction to Mathematical Economics	W2	Application of single and multivariable calculus to economics. Includes comparative static analysis of household and firm behaviour as well as simple dynamic models. [3-0-0] Prerequisite: All of ECON 101, ECON 102 and one of MATH 101, MATH 142.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
ECON_O 328-101	ECON_O	101	Methods of Empirical Research	W2	Techniques of empirical economic research. Simple and multiple regression, time series analysis, and simultaneous equation estimation. Students are required to undertake applied work. [3-0-1] Prerequisite: ECON 327.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ECON_O 328-T2A	ECON_O	T2A	Methods of Empirical Research	W2	Techniques of empirical economic research. Simple and multiple regression, time series analysis, and simultaneous equation estimation. Students are required to undertake applied work. [3-0-1] Prerequisite: ECON 327.	Discussion	In Person Learning	Mon	4:00 p.m. - 5:00 p.m.
ECON_O 328-T2B	ECON_O	T2B	Methods of Empirical Research	W2	Techniques of empirical economic research. Simple and multiple regression, time series analysis, and simultaneous equation estimation. Students are required to undertake applied work. [3-0-1] Prerequisite: ECON 327.	Discussion	In Person Learning	Mon	10:00 a.m. - 11:00 a.m.
ECON_O 331-101	ECON_O	101	World Economy since 1800	W2	Development of the world economy, from the onset of the Industrial Revolution around 1800 to the present. Broad causes of world economic development, interaction between economic forces and social institutions, and development of particular national economies. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ECON_O 339-101	ECON_O	101	Economics of Technological Change	W2	Application of economic analysis to technological change; impact of technological change on the growth and distribution of income; economic influences on the invention and diffusion of technology; interaction between technology, work, skills, and education; public policy toward technological change. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ECON_O 345-101	ECON_O	101	Money and Banking	W2	Financial markets and financial institutions in theory and practice; structure and development of the Canadian financial system; development and theory of the regulation of the financial system; process of monetary control; theory and history of central banking and monetary policy. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
ECON_O 352-101	ECON_O	101	Public Sector Economics	W2	The government plays a pervasive role in the Canadian economy. The powerful tools of government policy - taxation, spending, borrowing, and regulation - affect the economic life of every Canadian. This course applies the tools of economic analysis to the study of some of the most important aspects of public policy in these areas. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
ECON_O 355-101	ECON_O	101	International Trade	W2	The determinants of trade patterns, trade policy, tariff and non-tariff barriers to trade, political economy of protectionism, bilateral and multilateral trade disputes, trade liberalization, trade and development. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Experiential	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
ECON_O 356-101	ECON_O	101	International Finance	W2	Exchange rate policy regimes; international financial organizations; the interaction between monetary policy and exchange rate regimes; financial crises. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ECON_O 360-101	ECON_O	101	Labour Economics	W2	Canadian labour market. Labour supply, allocation of time among work and non-market activity, labour force participation, education and training. Determination of and effect of unions on wages and employment. Wage structure and differentials. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ECON_O 363-101	ECON_O	101	Health Economics	W2	The role of economics in health, healthcare, and health policy. Topics include economic determinants of health, minority health and health equity, health economic evaluation, demand for healthcare and health insurance, health risk behaviours, and public policy and health outcomes. Credit will be granted for only one of ECON 363 or ECON 391V. [3-0-0] Prerequisite: All of ECON 101, ECON 225.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ECON_O 391-A 101	ECON_O	A	A 101 Topics in Economics	W2	Examination of selected topics in current economic theory and/or policy. Topics vary each time the course is offered. With different topics, the course can be taken more than once for credit. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ECON_O 391-C 101	ECON_O	C	C 101 Topics in Economics	W2	Examination of selected topics in current economic theory and/or policy. Topics vary each time the course is offered. With different topics, the course can be taken more than once for credit. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
EDLL_O 606-001	EDLL_O	001	Culturally Responsive Leadership in a Diverse So	W2	Theoretical underpinnings for education leaders to think more deeply and consider issues involved in implementing social justice education and to respond to societal pressures around issues of equity, diversity, and inclusion.	Seminar	Online Learning	Tue	5:00 p.m. - 8:00 p.m.
EDUC_O 100-101	EDUC_O	101	Controversial Issues in Education	W2	Students will examine basic and fundamental questions about educational policy and practice by critically examining a variety of controversial issues including, but not limited to, issues of equality, community, and individual rights and freedoms. [3-0-0] Prerequisite: Students must have one of a) 70% in English 12 or English 12 First Peoples; b) a 5 on the LPI; c) a passing grade in ENGL 009; d) or an acceptable equivalent. For a list of equivalency options consult the Current Students website at <a href="http://students.ok.ubc.ca/courses-money-enrolment/registration/first-year-english/">students.ok.ubc.ca/courses-money-enrolment/registration/first-year-english/</a> .	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.

EDUC_O 100-102	EDUC_O	102	Controversial Issues in Education	W2	Students will examine basic and fundamental questions about educational policy and practice by critically examining a variety of controversial issues including, but not limited to, issues of equality, community, and individual rights and freedoms. [3-0-0] Prerequisite: Students must have one of a) 70% in English 12 or English 12 First Peoples; b) a 5 on the LPI; c) a passing grade in ENGL 009; d) or an acceptable equivalent. For a list of equivalency options consult the Current Students website at students.ok.ubc.ca/courses-money-enrolment/registration/first-year-english/ .	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
EDUC_O 160-101	EDUC_O	101	Mathematical Reasoning for Arts and Education	W2	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.
EDUC_O 300-101	EDUC_O	101	Inquiry in Education	W2	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.
EDUC_O 436-001	EDUC_O	001	Developing Curricular Vision for a Democratic Sc	W2	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 431, EDUC 440.	Lecture	In Person Learning	Mon Tue Wed Thu Fri	8:00 a.m. - 5:30 p.m.
EDUC_O 438-001	EDUC_O	001	Educating for the Whole Person	W2	Teaching and learning theory and practice relating to a holistic approach to well-being. Examining and interpreting the research on philosophical, psychological, physiological and political aspects of well-being. Pass/Fail. Prerequisite: EDUC 441.	Lecture	In Person Learning	Mon Tue Wed Thu Fri	8:00 a.m. - 5:30 p.m.
EDUC_O 441-P01	EDUC_O	P01	Field Experience: Formative Practicum	W2	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 orients 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
EDUC_O 502-001	EDUC_O	001	Teacher as Researcher	W2	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
EDUC_O 528-001	EDUC_O	001	Theory and Practice in Inclusive Education	W2	An inquiry-oriented course designed for educators interested in inclusive aspects of special education. Participants will explore pedagogical, attitudinal, and systemic barriers to inclusion. Related theory and research-based inclusive approaches will serve as resources for individual and group inquiries.	Lecture	In Person Learning	Sat (Alternate weeks)	9:00 a.m. - 4:00 p.m.
EDUC_O 598-101	EDUC_O	101	M.Ed. Seminar with Project	W2	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
EDUC_O 599-101	EDUC_O	101	Senior Seminar with Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
EESC_O 101-101	EESC_O	101	Environmental Science	W2	A quantitative 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.
EESC_O 106-101	EESC_O	101	The Catastrophic Earth	W2	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.
EESC_O 112-001	EESC_O	001	Environmental Earth Science	W2	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. [3-3-0] Prerequisite: EESC 111 and one of CHEM 111, CHEM 121.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
EESC_O 112-101	EESC_O	L01	Environmental Earth Science	W2	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. [3-3-0] Prerequisite: EESC 111 and one of CHEM 111, CHEM 121.	Laboratory	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.
EESC_O 112-102	EESC_O	L02	Environmental Earth Science	W2	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. [3-3-0] Prerequisite: EESC 111 and one of CHEM 111, CHEM 121.	Laboratory	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.
EESC_O 112-103	EESC_O	L03	Environmental Earth Science	W2	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. [3-3-0] Prerequisite: EESC 111 and one of CHEM 111, CHEM 121.	Laboratory	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.
EESC_O 121-001	EESC_O	001	Earth History	W2	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. - 3:00 p.m.
EESC_O 121-101	EESC_O	L01	Earth History	W2	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.
EESC_O 121-102	EESC_O	L02	Earth History	W2	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.



EESC_O 201-001	EESC_O	001	Optical Mineralogy and Petrology	W2	Identification of common rock-forming minerals using the polarizing microscope. Use of minerals and rock textures as a means of determining the classification and petrogenesis of igneous and metamorphic rocks. [2-3-0] Prerequisite: One of EESC 111, EESC 200.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
EESC_O 201-L01	EESC_O	L01	Optical Mineralogy and Petrology	W2	Identification of common rock-forming minerals using the polarizing microscope. Use of minerals and rock textures as a means of determining the classification and petrogenesis of igneous and metamorphic rocks. [2-3-0] Prerequisite: One of EESC 111, EESC 200.	Laboratory	In Person Learning	Tue	8:00 a.m. - 11:00 a.m.
EESC_O 201-L02	EESC_O	L02	Optical Mineralogy and Petrology	W2	Identification of common rock-forming minerals using the polarizing microscope. Use of minerals and rock textures as a means of determining the classification and petrogenesis of igneous and metamorphic rocks. [2-3-0] Prerequisite: One of EESC 111, EESC 200.	Laboratory	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.
EESC_O 205-001	EESC_O	001	Introduction to Hydrology	W2	Principles of hydrology at site, watershed, and regional scales. Techniques of measurement and analysis. Emphasizes surface water hydrology of western North America. Credit will be granted for only one of EESC 205 or GEOG 205. [3-3-0] Prerequisite: Either (a) two of EESC 101, EESC 111, EESC 112, EESC 121 or (b) all of GEOG 108, GEOG 109 or (c) second-year standing in the Bachelor of Science. Equivalency: GEOG205	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
EESC_O 205-L01	EESC_O	L01	Introduction to Hydrology	W2	Principles of hydrology at site, watershed, and regional scales. Techniques of measurement and analysis. Emphasizes surface water hydrology of western North America. Credit will be granted for only one of EESC 205 or GEOG 205. [3-3-0] Prerequisite: Either (a) two of EESC 101, EESC 111, EESC 112, EESC 121 or (b) all of GEOG 108, GEOG 109 or (c) second-year standing in the Bachelor of Science. Equivalency: GEOG205	Laboratory	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.
EESC_O 205-L02	EESC_O	L02	Introduction to Hydrology	W2	Principles of hydrology at site, watershed, and regional scales. Techniques of measurement and analysis. Emphasizes surface water hydrology of western North America. Credit will be granted for only one of EESC 205 or GEOG 205. [3-3-0] Prerequisite: Either (a) two of EESC 101, EESC 111, EESC 112, EESC 121 or (b) all of GEOG 108, GEOG 109 or (c) second-year standing in the Bachelor of Science. Equivalency: GEOG205	Laboratory	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.
EESC_O 212-101	EESC_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 EESC 212 or GEOG 200. [3-3-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: GEOG200	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
EESC_O 212-L01	EESC_O	L01	Atmospheric Environments	W2	Physical principles underlying weather and climates. Thermal, moisture, and wind climates at scales from valleys to the globe. Daily weather, air pollution, global change. Credit will be granted for only one of EESC 212 or GEOG 200. [3-3-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: GEOG200	Laboratory	In Person Learning	Wed	6:30 p.m. - 9:30 p.m.
EESC_O 212-L02	EESC_O	L02	Atmospheric Environments	W2	Physical principles underlying weather and climates. Thermal, moisture, and wind climates at scales from valleys to the globe. Daily weather, air pollution, global change. Credit will be granted for only one of EESC 212 or GEOG 200. [3-3-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: GEOG200	Laboratory	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
EESC_O 213-001	EESC_O	001	Introductory Forest Science and Management	W2	Global forests, classification, silviculture, forest tenure systems, forest policy evolution, forest regulations, and the profession. Overview of forest disturbance impacts, eco-forestry, sustainable forest management, eco-certification, the role of information technologies and research. [3-0-0] Prerequisite: Either (a) two of BIOL 125, EESC 101, EESC 111, EESC 112, GEOG 108, GEOG 109 or (b) two of BIOL 125, EESC 111, EESC 112, GEOG 108, GEOG 109, SUST 100 or (c) one of BIOL 201, BIOL 210, GEOG 207.	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.
EESC_O 304-101	EESC_O	101	Anthropogenic Climate Change	W2	Mechanisms of anthropogenic climate change and its impact on the atmosphere, hydrosphere, cryosphere, and oceans since the Industrial Revolution. Use of computer models to forecast 21st century climate changes. Credit will be granted for only one of GEOG 304 or EESC 304. [3-0-0] Prerequisite: One of GEOG 108, GEOG 200, EESC 212. Third-year standing. Equivalency: GEOG 304	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
EESC_O 309-101	EESC_O	101	Global Biogeochemistry	W2	Functional processes and reactions of our living planet. Cycles of materials and energy among the atmosphere, lithosphere, and terrestrial and aquatic ecosystems. Case studies on the degradation of ecosystem function from anthropogenic alterations of natural cycles. [3-0-0] Prerequisite: One of CHEM 113, CHEM 123 and either (a) two of EESC 101, EESC 111, EESC 112, EESC 121 or (b) all of GEOG 108, GEOG 109 or (c) one of BIOL 201, BIOL 203 or (d) one of CHEM 301, CHEM 302.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
EESC_O 315-101	EESC_O	101	Environmental Impact Assessment: Techniques ; W2	W2	Practical techniques and methods for environmental impact assessment. Technical approaches, evaluation and estimation tools, and project management skills used for environmental assessment work. [3-2-0] Prerequisite: Either (a) 6 credits of EESC or (b) 6 credits of GEOG. Third-year standing. EESC/GEOG 314 is recommended.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
EESC_O 315-L01	EESC_O	L01	Environmental Impact Assessment: Techniques ; W2	W2	Practical techniques and methods for environmental impact assessment. Technical approaches, evaluation and estimation tools, and project management skills used for environmental assessment work. [3-2-0] Prerequisite: Either (a) 6 credits of EESC or (b) 6 credits of GEOG. Third-year standing. EESC/GEOG 314 is recommended.	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
EESC_O 315-L02	EESC_O	L02	Environmental Impact Assessment: Techniques ; W2	W2	Practical techniques and methods for environmental impact assessment. Technical approaches, evaluation and estimation tools, and project management skills used for environmental assessment work. [3-2-0] Prerequisite: Either (a) 6 credits of EESC or (b) 6 credits of GEOG. Third-year standing. EESC/GEOG 314 is recommended.	Laboratory	In Person Learning	Fri	2:00 p.m. - 4:00 p.m.
EESC_O 350-001	EESC_O	001	Geophysics	W2	Instrumentation, application, and limitations of gravity, magnetic, electromagnetic, electrical and seismic methods in the exploration for mineral and energy resources and in environmental and engineering applications. [3-3-0] Prerequisite: Either (a) one of MATH 101, MATH 103 and one of EESC 111, EESC 121 and one of PHYS 121, PHYS 122; or (b) ENGR 340. Third-year standing.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
EESC_O 350-L01	EESC_O	L01	Geophysics	W2	Instrumentation, application, and limitations of gravity, magnetic, electromagnetic, electrical and seismic methods in the exploration for mineral and energy resources and in environmental and engineering applications. [3-3-0] Prerequisite: Either (a) one of MATH 101, MATH 103 and one of EESC 111, EESC 121 and one of PHYS 121, PHYS 122; or (b) ENGR 340. Third-year standing.	Laboratory	In Person Learning	Wed	3:30 p.m. - 6:30 p.m.

EESC_O 356-001	EESC_O	001	Stratigraphy and Sedimentology	W2	Origin, classification and interpretation of sediments and sedimentary rocks. Weathering, erosion, transportation, sedimentation, and lithification of clastic materials. Non-clastic sediments. Sedimentary environments, facies and stratigraphic methods. Credit will be granted for only one of EESC 356 or GEOG 356. [3-3-0] Prerequisite: One of EESC 121, EESC 222, GEOG 222. Equivalency: GEOG356	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
EESC_O 356-L01	EESC_O	L01	Stratigraphy and Sedimentology	W2	Origin, classification and interpretation of sediments and sedimentary rocks. Weathering, erosion, transportation, sedimentation, and lithification of clastic materials. Non-clastic sediments. Sedimentary environments, facies and stratigraphic methods. Credit will be granted for only one of EESC 356 or GEOG 356. [3-3-0] Prerequisite: One of EESC 121, EESC 222, GEOG 222. Equivalency: GEOG356	Laboratory	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
EESC_O 356-L02	EESC_O	L02	Stratigraphy and Sedimentology	W2	Origin, classification and interpretation of sediments and sedimentary rocks. Weathering, erosion, transportation, sedimentation, and lithification of clastic materials. Non-clastic sediments. Sedimentary environments, facies and stratigraphic methods. Credit will be granted for only one of EESC 356 or GEOG 356. [3-3-0] Prerequisite: One of EESC 121, EESC 222, GEOG 222. Equivalency: GEOG356	Laboratory	In Person Learning	Mon	3:30 p.m. - 6:30 p.m.
EESC_O 360-101	EESC_O	101	Geologic Resources	W2	Mineral deposits, their geologic settings, genetic classification and models of formation. Metalliferous, non-metalliferous and industrial materials deposits. [3-3-0] Prerequisite: EESC 200 and EESC 201.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
EESC_O 360-L01	EESC_O	L01	Geologic Resources	W2	Mineral deposits, their geologic settings, genetic classification and models of formation. Metalliferous, non-metalliferous and industrial materials deposits. [3-3-0] Prerequisite: EESC 200 and EESC 201.	Laboratory	In Person Learning	Tue	5:00 p.m. - 8:00 p.m.
EESC_O 367-001	EESC_O	001	Energy Resources Management	W2	Key energy systems and resources management from both global and Canadian perspectives. Supplies, distribution, consumption, resilience and sustainability of energy resources. Alternative energy sources, conventional and unconventional fossil fuels, energy production and delivery systems. Credit will be granted for only one of EESC 367 or GEOG 367. [3-0-0] Prerequisite: One of GEOG 108, GEOG 129, EESC 101, EESC 111. Third-year standing Equivalency: GEOG367	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
EESC_O 402-101	EESC_O	101	Freshwater Resources	W2	Integrated approach to freshwater resources and their place in environmental science. Topical issues with emphasis on management options and consequences. Required field trips during lab times. [3-3-0] Prerequisite: 3 credits of 200-level courses in BIOL, CHEM, EESC or GEOG courses cross listed with EESC, and third-year standing.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
EESC_O 402-L01	EESC_O	L01	Freshwater Resources	W2	Integrated approach to freshwater resources and their place in environmental science. Topical issues with emphasis on management options and consequences. Required field trips during lab times. [3-3-0] Prerequisite: 3 credits of 200-level courses in BIOL, 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.
EESC_O 425-101	EESC_O	101	Tectonics and Orogenesis	W2	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.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
EESC_O 560-001	EESC_O	001	Graduate Seminar	W2	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.
EESC_O 599-101	EESC_O	101	M.Sc. Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
EESC_O 699-101	EESC_O	101	Ph.D. Dissertation	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
ENGL_O 112-101	ENGL_O	101	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	Online Learning	Arranged	Arranged
ENGL_O 112-102	ENGL_O	102	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	Online Learning	Arranged	Arranged
ENGL_O 112-103	ENGL_O	103	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	Online Learning	Arranged	Arranged
ENGL_O 112-104	ENGL_O	104	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
ENGL_O 112-105	ENGL_O	105	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ENGL_O 112-106	ENGL_O	106	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ENGL_O 112-107	ENGL_O	107	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
ENGL_O 112-108	ENGL_O	108	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
ENGL_O 112-109	ENGL_O	109	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
ENGL_O 112-110	ENGL_O	110	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
ENGL_O 112-111	ENGL_O	111	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.

ENGL_O 112-112	ENGL_O	112	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
ENGL_O 112-113	ENGL_O	113	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.
ENGL_O 112-114	ENGL_O	114	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ENGL_O 112-115	ENGL_O	115	Studies in Composition	W2	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
ENGL_O 114-101	ENGL_O	101	Studies in Composition: Indigenous Perspectives	W2	Practice-based approach to writing at the university level in relation to Indigenous perspectives. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 114, ENGL 109, or ENGL 112.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
ENGL_O 150-101	ENGL_O	101	Introduction to Literary Genre	W2	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Mon Wed Fri	1:00 p.m. - 2:00 p.m.
ENGL_O 150-102	ENGL_O	102	Introduction to Literary Genre	W2	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Mon Wed Fri	2:00 p.m. - 3:00 p.m.
ENGL_O 150-103	ENGL_O	103	Introduction to Literary Genre	W2	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
ENGL_O 150-104	ENGL_O	104	Introduction to Literary Genre	W2	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
ENGL_O 150-105	ENGL_O	105	Introduction to Literary Genre	W2	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
ENGL_O 150-106	ENGL_O	106	Introduction to Literary Genre	W2	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
ENGL_O 150-107	ENGL_O	107	Introduction to Literary Genre	W2	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
ENGL_O 150-108	ENGL_O	108	Introduction to Literary Genre	W2	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
ENGL_O 153-101	ENGL_O	101	Readings in Narrative	W2	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Fri	12:00 p.m. - 2:00 p.m.
ENGL_O 153-T21	ENGL_O	T21	Readings in Narrative	W2	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Thu	12:00 p.m. - 1:00 p.m.
ENGL_O 153-T22	ENGL_O	T22	Readings in Narrative	W2	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Mon	10:00 a.m. - 11:00 a.m.
ENGL_O 153-T23	ENGL_O	T23	Readings in Narrative	W2	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Thu	5:00 p.m. - 6:00 p.m.
ENGL_O 153-T24	ENGL_O	T24	Readings in Narrative	W2	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Tue	10:00 a.m. - 11:00 a.m.
ENGL_O 153-T25	ENGL_O	T25	Readings in Narrative	W2	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Thu	10:00 a.m. - 11:00 a.m.
ENGL_O 153-T26	ENGL_O	T26	Readings in Narrative	W2	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Tue	1:00 p.m. - 2:00 p.m.
ENGL_O 153-T28	ENGL_O	T28	Readings in Narrative	W2	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Tue	8:00 a.m. - 9:00 a.m.
ENGL_O 153-T30	ENGL_O	T30	Readings in Narrative	W2	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Wed	10:00 a.m. - 11:00 a.m.
ENGL_O 153-T31	ENGL_O	T31	Readings in Narrative	W2	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Mon	8:00 a.m. - 9:00 a.m.
ENGL_O 153-T33	ENGL_O	T33	Readings in Narrative	W2	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Thu	11:00 a.m. - 12:00 p.m.
ENGL_O 153-T34	ENGL_O	T34	Readings in Narrative	W2	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Wed	2:00 p.m. - 3:00 p.m.

ENGL_O 153-T38	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_O 155-101	ENGL_O		101	Writing and Making Technology in the Humaniti	W2	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155	Lecture	In Person Learning	Fri	2:00 p.m. - 4:00 p.m.
ENGL_O 155-T2A	ENGL_O		T2A	Writing and Making Technology in the Humaniti	W2	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155	Discussion	In Person Learning	Fri	10:00 a.m. - 11:00 a.m.
ENGL_O 155-T2B	ENGL_O		T2B	Writing and Making Technology in the Humaniti	W2	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155	Discussion	In Person Learning	Mon	8:00 a.m. - 9:00 a.m.
ENGL_O 155-T2C	ENGL_O		T2C	Writing and Making Technology in the Humaniti	W2	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155	Discussion	In Person Learning	Wed	1:00 p.m. - 2:00 p.m.
ENGL_O 155-T2D	ENGL_O		T2D	Writing and Making Technology in the Humaniti	W2	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155	Discussion	In Person Learning	Tue	5:00 p.m. - 6:00 p.m.
ENGL_O 155-T2E	ENGL_O		T2E	Writing and Making Technology in the Humaniti	W2	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155	Discussion	In Person Learning	Fri	4:00 p.m. - 5:00 p.m.
ENGL_O 155-T2F	ENGL_O		T2F	Writing and Making Technology in the Humaniti	W2	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155	Discussion	In Person Learning	Mon	9:00 a.m. - 10:00 a.m.
ENGL_O 155-T2G	ENGL_O		T2G	Writing and Making Technology in the Humaniti	W2	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155	Discussion	In Person Learning	Wed	10:00 a.m. - 11:00 a.m.
ENGL_O 155-T2H	ENGL_O		T2H	Writing and Making Technology in the Humaniti	W2	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155	Discussion	In Person Learning	Wed	5:00 p.m. - 6:00 p.m.
ENGL_O 202-101	ENGL_O		101	Okanagan Sylix Literatures: Concepts and Frame	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_O 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	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ENGL_O 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	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
ENGL_O 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	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
ENGL_O 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_O 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_O 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_O 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.

ENGL_O 239-101	ENGL_O	101		The Bible in English Literature	W2	Biblical themes, figures, and images in English literature, with attention to English versions of the Bible. At least 35% of class time involves practice-based instruction in critical analysis, essay writing and research. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ENGL_O 250-101	ENGL_O	101		Foundations: Interdisciplinary Theory and Meth	W2	Major trends in critical theory, with attention to the applications of theory in literary research. Credit will be granted for only one of ENGL 250 or CULT 275. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Equivalency: CULT275	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
ENGL_O 291-101	ENGL_O	101		African Literary Canon	W2	Significant texts and authors in modern African literature (in English) covering various regions, histories and cultures of the continent. At least 35% of class time involves practice-based instruction in critical analysis, essay writing and research. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ENGL_O 333-E_101	ENGL_O	E	E_101	Canadian Fiction	W2	One or more major themes and/or movements in Canadian fiction. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
ENGL_O 337-101	ENGL_O	101		American Literature between the Wars	W2	Major movements and writers. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Recommended: One of ENGL 221 or ENGL 233.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
ENGL_O 344-B_101	ENGL_O	B	B_101	Topics in Medieval Studies	W2	Addresses a range of topics in medieval texts, from genres in medieval literature (such as lyric poetry, romance, and fabliaux) to topics dealing with cultural issues. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ENGL_O 352-001	ENGL_O	001		Shakespeare: Earlier Works	W2	Examines Shakespeare's works before 1599. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
ENGL_O 357-101	ENGL_O	101		Restoration Drama and Culture	W2	Examines the religious, social, and political crises of the Restoration period, 1660-1700, and innovations in dramatic form and style on the page and stage. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing.	Lecture	In Person Learning	Tue	5:00 p.m. - 8:00 p.m.
ENGL_O 385-001	ENGL_O	001		Settler Studies, Literature, and Culture	W2	Approaches to the interdisciplinary field of settler colonial studies in Canadian and comparative contexts in relation to literature, film, and other forms of cultural production. Examines the role of representation, narrative, and discourse in settlement, colonization, and decolonization. Credit will be granted for only one of ENGL 385 or CULT 351. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Recommended: ENGL 234. Equivalency: CULT 351	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
ENGL_O 394-J_101	ENGL_O	J	J_101	Interdisciplinary Studies in English Literature	W2	Addresses English literature through interdisciplinary perspectives and practices, ranging from performance, to visual arts, to creative writing and comparative literature. This course may involve cross-discipline pedagogies, experiential learning, community-based learning and/or undergraduate research opportunities. With different topics, this course may be taken three times for credit. ENGL 394 and ENGL 395 must have different topics in order for students to receive credit for both courses. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing.	Experiential	Hybrid Learning	Fri	2:00 p.m. - 5:00 p.m.
ENGL_O 395-H_101	ENGL_O	H	H_101	Popular Literature	W2	An examination 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, honours or combined major, or the English concentration in the BA, General Studies. With different topics, this course may be taken three times for credit, but it cannot be used as a prerequisite for 400-level ENGL courses. ENGL 395 and ENGL 394 must have different topics in order for students to receive credit for both courses. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156, APSC 176. and third-year standing.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ENGL_O 423-A_101	ENGL_O	A	A_101	Approaches to 16th- and/or 17th-Century Litera	W2	Advanced topics in sixteenth- and/or seventeenth-century literature and culture. Prerequisite: 3 credits of 300-level ENGL.	Seminar	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
ENGL_O 457-101	ENGL_O	101		Posthumanism and Critical Animal Studies	W2	Contemporary theories in the field of critical animal studies via ecofeminism, literary studies, philosophy and history with the aim of considering the interconnectedness of speciesism, racism and sexism. Particular attention will be paid to ecofeminism and the ethics of care in regards to the treatment of animals. Credit will be granted for only one of ENGL 457 or CULT 460. [3-0-0] Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT460	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
ENGL_O 491-101	ENGL_O	101		Black Intellectual Traditions	W2	Intellectual influences on, and responses to, Black experiences in our modern world. Credit will be granted for only one of ENGL 491 or CULT 491. Prerequisite: Third-year standing. Equivalency: CULT 491	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ENGL_O 493-G_101	ENGL_O	G	G_101	Topics in Popular Culture	W2	Focus on media such as music, film, music video, television, advertising, and the Internet. No more than 9 credits in total will be granted for ENGL 493, CULT 400, or any combination thereof. [3-0-0] Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT400	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ENGL_O 493-M_101	ENGL_O	M	M_101	Topics in Popular Culture	W2	Focus on media such as music, film, music video, television, advertising, and the Internet. No more than 9 credits in total will be granted for ENGL 493, CULT 400, or any combination thereof. [3-0-0] Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT400	Lecture	In Person Learning	Fri	8:00 a.m. - 11:00 a.m.
ENGL_O 493-N_101	ENGL_O	N	N_101	Topics in Popular Culture	W2	Focus on media such as music, film, music video, television, advertising, and the Internet. No more than 9 credits in total will be granted for ENGL 493, CULT 400, or any combination thereof. [3-0-0] Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT400	Lecture	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.
ENGL_O 521-V_101	ENGL_O	V	V_101	Topics in Historical Periods and Movements	W2		Independent Study	In Person Learning	Arranged	Arranged
ENGL_O 521-V_102	ENGL_O	V	V_102	Topics in Historical Periods and Movements	W2		Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
ENGL_O 524-G_101	ENGL_O	G	G_101	Individual Author Studies	W2		Lecture	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
ENGL_O 525-J_101	ENGL_O	J	J_101	Studies in Diversity and Identity	W2		Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ENGR_O 305-201	ENGR_O	201		Engineering Economic Analysis	W2	Cost concepts, accounting, time value of money; depreciation and taxes; public sector projects; economic evaluation techniques; handling uncertainty; sustainability in economic evaluation; societal context; infrastructure management needs; project impacts, mitigating risk. Case studies. [3-0-0] Prerequisite: Second-year B.A.Sc. standing.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.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-L2I	ENGR_O	L2I	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-L2J	ENGR_O	L2J	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-L2K	ENGR_O	L2K	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-L2L	ENGR_O	L2L	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 Thu	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 Thu	11:00 a.m. - 12:30 p.m.
ENGR_O 332-201	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 332-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 332-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 332-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 332-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 335-201	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 Thu	2:00 p.m. - 3:30 p.m.

ENGR_O 335-L2A	ENGR_O	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 335-L2B	ENGR_O	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 335-L2C	ENGR_O	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	Mon (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 335-L2D	ENGR_O	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	Mon (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 340-101	ENGR_O	101	Soil Mechanics	W2	Geological processes, soil classification, principle of effective stress, seepage analysis, shear strength, soil compaction, consolidation, and slope stability analysis. [3-2*-0] Prerequisite: All of APSC 253, APSC 260.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
ENGR_O 340-L1A	ENGR_O	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 340-L1B	ENGR_O	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 340-L1C	ENGR_O	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 340-L1D	ENGR_O	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 340-L1E	ENGR_O	L1E	Soil Mechanics	W2	Geological processes, soil classification, principle of effective stress, seepage analysis, shear strength, soil compaction, consolidation, and slope stability analysis. [3-2*-0] Prerequisite: All of APSC 253, APSC 260.	Laboratory	In Person Learning	Wed (Alternate weeks)	3:00 p.m. - 5:00 p.m.
ENGR_O 340-L1F	ENGR_O	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 340-L1G	ENGR_O	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	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-L2A	ENGR_O	L2A	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-L2B	ENGR_O	L2B	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-L2C	ENGR_O	L2C	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-L2D	ENGR_O	L2D	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-L2E	ENGR_O	L2E	Microelectronics II	W2	Building blocks of integrated-circuit amplifiers; differential multistage amplifiers; frequency response; feedback; output stages and power amplifiers; and operational amplifier circuitry. Credit will be granted for only one of ENGR 352 or ENGR 451. [3-2*-0] Prerequisite: ENGR 351.	Laboratory	In Person Learning	Wed (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 362-102	ENGR_O	102	Digital Signal Processing I	W2	Discrete-time signals and systems, difference equations, sampling and aliasing, decimation and interpolation, quantization errors, z-transform, discrete Fourier transform, fast Fourier transform, implementation of discrete-time systems, finite and infinite impulse response filter design. [3-0-1] Prerequisite: APSC 246.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
ENGR_O 362-T2A	ENGR_O	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: APSC 246.	Discussion	In Person Learning	Fri	11:00 a.m. - 12:00 p.m.
ENGR_O 362-T2B	ENGR_O	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: APSC 246.	Discussion	In Person Learning	Mon	11:00 a.m. - 12:00 p.m.
ENGR_O 362-T2C	ENGR_O	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: APSC 246.	Discussion	In Person Learning	Thu	2:00 p.m. - 3:00 p.m.
ENGR_O 362-T2D	ENGR_O	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: APSC 246.	Discussion	In Person Learning	Thu	11:00 a.m. - 12:00 p.m.



ENGR_O 375-201	ENGR_O	201	Energy System Design	W2	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.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
ENGR_O 375-T2A	ENGR_O	T2A	Energy System Design	W2	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.	Discussion	In Person Learning	Tue	12:00 p.m. - 1:00 p.m.
ENGR_O 375-T2B	ENGR_O	T2B	Energy System Design	W2	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.	Discussion	In Person Learning	Mon	1:00 p.m. - 2:00 p.m.
ENGR_O 375-T2C	ENGR_O	T2C	Energy System Design	W2	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.	Discussion	In Person Learning	Thu	5:00 p.m. - 6:00 p.m.
ENGR_O 375-T2D	ENGR_O	T2D	Energy System Design	W2	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.	Discussion	In Person Learning	Tue	11:00 a.m. - 12:00 p.m.
ENGR_O 375-T2E	ENGR_O	T2E	Energy System Design	W2	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.	Discussion	In Person Learning	Tue	11:00 a.m. - 12:00 p.m.
ENGR_O 375-T2F	ENGR_O	T2F	Energy System Design	W2	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.	Discussion	In Person Learning	Thu	2:00 p.m. - 3:00 p.m.
ENGR_O 378-001	ENGR_O	001	Electromagnetics for Engineers	W2	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.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
ENGR_O 378-T2A	ENGR_O	T2A	Electromagnetics for Engineers	W2	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.	Discussion	In Person Learning	Thu	8:00 a.m. - 9:00 a.m.
ENGR_O 378-T2B	ENGR_O	T2B	Electromagnetics for Engineers	W2	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.	Discussion	In Person Learning	Fri	8:00 a.m. - 9:00 a.m.
ENGR_O 378-T2C	ENGR_O	T2C	Electromagnetics for Engineers	W2	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.	Discussion	In Person Learning	Tue	2:00 p.m. - 3:00 p.m.
ENGR_O 380-201	ENGR_O	201	Design of Machine Elements	W2	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.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
ENGR_O 380-T2A	ENGR_O	T2A	Design of Machine Elements	W2	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.	Discussion	Online Learning	Mon	10:00 a.m. - 11:00 a.m.
ENGR_O 380-T2B	ENGR_O	T2B	Design of Machine Elements	W2	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.	Discussion	Online Learning	Thu	2:00 p.m. - 3:00 p.m.
ENGR_O 380-T2C	ENGR_O	T2C	Design of Machine Elements	W2	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.	Discussion	Online Learning	Tue	11:00 a.m. - 12:00 p.m.
ENGR_O 380-T2D	ENGR_O	T2D	Design of Machine Elements	W2	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.	Discussion	Online Learning	Fri	3:00 p.m. - 4:00 p.m.
ENGR_O 380-T2E	ENGR_O	T2E	Design of Machine Elements	W2	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.	Discussion	Online Learning	Wed	2:00 p.m. - 3:00 p.m.
ENGR_O 380-T2F	ENGR_O	T2F	Design of Machine Elements	W2	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.	Discussion	Online Learning	Wed	12:00 p.m. - 1:00 p.m.
ENGR_O 385-102	ENGR_O	102	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.	Lecture	In Person Learning	Tue Thu	6:30 p.m. - 8:00 p.m.
ENGR_O 385-L2A	ENGR_O	L2A	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)	8:00 a.m. - 10:00 a.m.
ENGR_O 385-L2B	ENGR_O	L2B	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)	8:00 a.m. - 10:00 a.m.
ENGR_O 385-L2C	ENGR_O	L2C	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	Wed (Alternate weeks)	3:30 p.m. - 5:30 p.m.
ENGR_O 385-L2D	ENGR_O	L2D	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	Wed (Alternate weeks)	3:30 p.m. - 5:30 p.m.
ENGR_O 385-L2E	ENGR_O	L2E	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	Wed (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 385-L2F	ENGR_O	L2F	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	Wed (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 385-L2G	ENGR_O	L2G	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-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. COSC or B.Sc. COSC standing.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ENGR_O 413-201	ENGR_O	201	Law and Ethics for Engineers	W2	Ethical theories and their application. The Canadian legal system. Companies, partnerships, independent contractors. Contract documents, specifications, liability, torts and liens. Intellectual property. Agency; evidence; role of an expert witness. Employment law. Professional Governance Act, Code of Ethics, consultation and engagement with Indigenous communities. [3-0-0] Prerequisite: Third-year B.A.Sc. standing.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
ENGR_O 424-001	ENGR_O	001	Smart Cities	W2	Smart city concept, smart city standardization, smart grid and energy management, Internet of Things and cloud computing for smart city, smart city lighting, intelligent transportation, technology enhanced infrastructure, water solutions, smart buildings and technology, data analytics in smart cities. [3-0-0] Prerequisite: Fourth-year B.A.Sc. standing.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
ENGR_O 425-001	ENGR_O	001	Design of Steel and Timber Structures	W2	Introduction to limit states design of steel and timber structures: material properties, design of tension and compression members, beams, columns, and connections. [3-0-0] Prerequisite: All of ENGR 325, ENGR 327.	Lecture	In Person Learning	Tue 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	Tue Thu	2:00 p.m. - 3:30 p.m.
ENGR_O 441-101	ENGR_O	101	Advanced Water Treatment Processes	W2	Theory and design of advanced drinking water treatment processes used for challenging source water conditions including advanced oxidation, membrane filtration, ultraviolet disinfection, and adsorption processes. Discussion of removal of emerging contaminants (e.g. pharmaceuticals), regulated and unregulated disinfection by-products, and current issues in potable water treatment and quality. [3-0-0] Prerequisite: ENGR 447.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
ENGR_O 445-201	ENGR_O	201	Design of Water and Wastewater Conveyance S	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 341.	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	Mon Wed	12:30 p.m. - 2:00 p.m.
ENGR_O 453-L1A	ENGR_O	L1A	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.	Laboratory	In Person Learning	Mon (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 453-L1B	ENGR_O	L1B	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.	Laboratory	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/qd 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-L2A	ENGR_O	L2A	Motor Drive Systems	W2	Three-phase AC/DC PWM inverter, converter modulation techniques, abc/qd 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.	Laboratory	In Person Learning	Fri (Alternate weeks)	8:00 a.m. - 10:00 a.m.
ENGR_O 454-L2B	ENGR_O	L2B	Motor Drive Systems	W2	Three-phase AC/DC PWM inverter, converter modulation techniques, abc/qd 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.	Laboratory	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.

ENGR_O 469-101	ENGR_O	101	Polymer Engineering	W2	Introduction to polymer science and technology, molecular structure of polymers, polymer synthesis, structure-property relationship in polymers, physical properties of polymers, reinforced polymers, polymer composites and nanocomposites, polymer characterization, polymer processing, and forming. [3-0-0] Prerequisite: All of APSC 259, APSC 260.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.	
ENGR_O 470-001	ENGR_O	001	Microwave Engineering	W2	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.	
ENGR_O 470-L2A	ENGR_O	L2A	Microwave Engineering	W2	Review of electromagnetic principles, waveguides, transmission lines, impedance matching, Smith charts, network characterization, and microwave engineering applications. [3-2*-0] Prerequisite: ENGR 378.	Laboratory	In Person Learning	Mon (Alternate weeks)	4:00 p.m. - 6:00 p.m.	
ENGR_O 474-001	ENGR_O	001	Analog Integrated Circuits	W2	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.	
ENGR_O 475-201	ENGR_O	201	Materials Selection and Design	W2	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.	
ENGR_O 475-T2A	ENGR_O	T2A	Materials Selection and Design	W2	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.	Discussion	In Person Learning	Thu (Alternate weeks)	8:00 a.m. - 9:00 a.m.	
ENGR_O 478-001	ENGR_O	001	Alternative Energy Systems	W2	Description of alternative sources of energy, electric vehicles, thermosolar 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.	
ENGR_O 482-001	ENGR_O	001	Biomedical Engineering I	W2	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.	
ENGR_O 487-001	ENGR_O	001	Digital Control	W2	Digital control theory and a brief review of classical control and its relationship to discrete systems. Discrete time systems, sampling, z-transform, pulse transfer function, stability in z-domain, pole-placement control design and state estimation, discrete linear quadratic optimal control, introduction to system identification and Kalman filter. Credit will be granted for only one of ENGR 487 or ENGR 587. [3-0-0] Prerequisite: ENGR 315.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.	
ENGR_O 491-101	ENGR_O	101	Computational Fluid Dynamics	W2	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	9:30 a.m. - 11:00 a.m.	
ENGR_O 494-201	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. [3-1-0] Prerequisite: ENGR 480.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.	
ENGR_O 494-L2A	ENGR_O	L2A	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. [3-1-0] Prerequisite: ENGR 480.	Laboratory	In Person Learning	Arranged	Arranged	
ENGR_O 495-001	ENGR_O	001	Tissue Engineering	W2	Fundamentals of cell biology; extracellular matrix, receptors, and cell-cell and cell-matrix interactions at both the theoretical and experimental levels; effects of physical, chemical, and electrical stimuli on cell function; tissue structure and function and the clinical need for tissue repair; scaffold design and processing for tissue engineering. Credit will be granted for only one of ENGR 495 or ENGR 519. [3-0-0] Prerequisite: Fourth-year standing.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.	
ENGR_O 498-Q_001	ENGR_O	Q	Q_001	Special Topics in Engineering	W2	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.
ENGR_O 498-R_001	ENGR_O	R	R_001	Special Topics in Engineering	W2	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	Tue Thu	12:30 p.m. - 2:00 p.m.
ENGR_O 501-001	ENGR_O	001	Deep and Reinforcement Learning for Engineers	W2	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.	
ENGR_O 502-002	ENGR_O	002	Technical Communication for Engineering Resea	W2	Strategies for clear, effective, and ethical technical communication (both written and oral). Tools and formatting for graphics, technical reports, proposals, journal papers, theses. Pass/Fail.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.	
ENGR_O 511-101	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 511 or ENGR 411. [3-0-0]	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.	
ENGR_O 512-001	ENGR_O	001	Signals, Systems, and Inference	W2	Review of signals and systems basics; LTI state-space methods; probabilistic models and estimation of random variable; hypothesis testing rules; random processes and power spectral density; signal estimation based on linear minimum mean square error principle; signal detection in i.i.d. Gaussian noise and colored noise. Credit will be granted for only one of ENGR 412 or ENGR 512.	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.	

ENGR_O 519-001	ENGR_O	001	Tissue Engineering	W2	Fundamentals of cell biology; extracellular matrix, receptors, and cell-cell and cell-matrix interactions at both the theoretical and experimental levels; effects of physical, chemical, and electrical stimuli on cell function; tissue structure and function and the clinical need for tissue repair; scaffold design and processing for tissue engineering. Credit will be granted for only one of ENGR 495 or ENGR 519. [3-0-0]	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ENGR_O 522-101	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 using simplified code procedures and computer tools.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
ENGR_O 529-101	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.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
ENGR_O 532-001	ENGR_O	001	Project Planning and Control	W2	Project planning and alignment, project control standards and deliverables, project selection process, project definition rating index, and risk management. Analytical hierarchical processes, and Monte-Carlo simulation in scheduling and costing.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
ENGR_O 535-201	ENGR_O	201	Autonomous Vehicle Technology	W2	Autonomous navigation: perception, localization and mapping, motion planning, and motion control; and applications to unmanned aerial vehicles (UAVs), automated vehicles and self-driving cars. Credit will be granted for only one of ENGR 494 or ENGR 535.	Lecture	In Person Learning	Wed 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, multicomponent 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 z-domain, pole-placement control design and state estimation, discrete linear quadratic optimal control, introduction to system identification and Kalman filter. Credit will be granted for only one of ENGR 587 or ENGR 487. [3-0-0]	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
ENGR_O 597-101	ENGR_O	101	Engineering Project	W2	Project on assigned topic of specialization. This course is restricted to M.Eng. students.	Independent Study	In Person Learning	Arranged	Arranged
ENGR_O 598-Q_001	ENGR_O	Q	Q_001	W2	Topics in Engineering	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
ENGR_O 598-R_001	ENGR_O	R	R_001	W2	Topics in Engineering	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ENGR_O 599-201	ENGR_O	201	Thesis	W2	For M.A.Sc. Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
ENGR_O 699-201	ENGR_O	201	Thesis	W2	For Ph.D. Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
EPSE_O 470-G_001	EPSE_O	G	G_001	W2	Course content focuses upon a single topic or competency in inclusive education (e.g., autism, gifted students, ADHD). Topics may differ in each offering to respond to new research or current needs in the field. This course may be repeated with new content. Restricted to students with at least third-year standing. Pass/Fail. [3-0-0]	Lecture	Online Learning	Arranged	Arranged
EXCH_O 380-201	EXCH_O	201	Student Exchange Program, Undergraduate	W2		Experiential	In Person Learning	Arranged	Arranged
EXCH_O 380-212	EXCH_O	212	Student Exchange Program, Undergraduate	W2		Experiential	In Person Learning	Arranged	Arranged
EXCH_O 380-311	EXCH_O	311	Student Exchange Program, Undergraduate	W2		Experiential	In Person Learning	Arranged	Arranged
EXCH_O 380-312	EXCH_O	312	Student Exchange Program, Undergraduate	W2		Experiential	In Person Learning	Arranged	Arranged
EXCH_O 380-412	EXCH_O	412	Student Exchange Program, Undergraduate	W2		Experiential	In Person Learning	Arranged	Arranged
EXCH_O 381-201	EXCH_O	201	Study Abroad Program, Undergraduate	W2		Experiential	In Person Learning	Arranged	Arranged
EXCH_O 580-201	EXCH_O	201	Student Exchange Program, Graduate	W2		Experiential	In Person Learning	Arranged	Arranged
FILM_O 100-001	FILM_O	001	Introduction to Film Studies	W2	Basic aesthetic, economic, sociological, and technological aspects of film. An introduction to acting techniques pertaining to the style of psychological realism for stage and screen. Credit will be granted for only one of FILM 103 or THTR 103. [5 hours/week studio] [5 hours/week studio] Equivalency: THTR 103	Lecture	In Person Learning	Fri	8:00 a.m. - 11:00 a.m.
FILM_O 103-101	FILM_O	101	Acting for Stage and Screen	W2		Studio	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
FILM_O 271-101	FILM_O	101	Video II	W2	Continuation of 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	Fri	1:00 p.m. - 5:00 p.m.
FILM_O 371-001	FILM_O	001	Digital Documentary Production	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 317. [2-2-0] Prerequisite: One of VISA 106, VISA 261, FILM 261. and third-year standing or permission of the instructor. Equivalency: CULT 317	Studio	In Person Learning	Thu	8:00 a.m. - 12:00 p.m.
FREN_O 102-102	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 Fri	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	Arranged
FREN_O 104-101	FREN_O	101	Upper Elementary French II	W2	Continuation of Upper Elementary French I. Completes level A2 of the Common European Framework of Reference for Languages (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 Fri	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	Arranged

FREN_O 123-101	FREN_O	101	Intermediate French II	W2	Continuation of FREN 122. Not available to students who have completed Français Immersion 12 and/or students who have a CEFR level B1 or higher. The next level course series available is FREN 222-223. Prerequisite: FREN 122., or prior introductory French course at CEFR Level B1.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
FREN_O 215-001	FREN_O	001	Oral French Practice II	W2	Consists of conversational and listening comprehension activities, review of grammar, and vocabulary expansion exercises. Students will be expected to participate actively in group activities and to give frequent oral presentations. Not available to students who have completed Français 12 in a Francophone school and/or students who have a CEFR level B2 or higher. The next level courses available are FREN 344 or FREN 345. [3-1-0] Prerequisite: One of FREN 115, FREN 123. or French 12 Immersion.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
FREN_O 215-L01	FREN_O	L01	Oral French Practice II	W2	Consists of conversational and listening comprehension activities, review of grammar, and vocabulary expansion exercises. Students will be expected to participate actively in group activities and to give frequent oral presentations. Not available to students who have completed Français 12 in a Francophone school and/or students who have a CEFR level B2 or higher. The next level courses available are FREN 344 or FREN 345. [3-1-0] Prerequisite: One of FREN 115, FREN 123. or French 12 Immersion.	Laboratory	In Person Learning	Fri	10:00 a.m. - 11:00 a.m.
FREN_O 215-L02	FREN_O	L02	Oral French Practice II	W2	Consists of conversational and listening comprehension activities, review of grammar, and vocabulary expansion exercises. Students will be expected to participate actively in group activities and to give frequent oral presentations. Not available to students who have completed Français 12 in a Francophone school and/or students who have a CEFR level B2 or higher. The next level courses available are FREN 344 or FREN 345. [3-1-0] Prerequisite: One of FREN 115, FREN 123. or French 12 Immersion.	Laboratory	In Person Learning	Fri	1:00 p.m. - 2:00 p.m.
FREN_O 223-001	FREN_O	001	French Language and Style II	W2	Grammar, vocabulary, composition, language in context. Not available to students who have completed Français 12 in a Francophone school and/or students who have a CEFR level B2 or higher. To join a FREN 300-level section, contact the instructor on record. Prerequisite: FREN 222.	Lecture	In Person Learning	Mon Wed Fri	12:00 p.m. - 1:00 p.m.
FREN_O 355-001	FREN_O	001	Advanced Composition	W2	Development of essay writing skills in French. Prerequisite: FREN 353.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
FREN_O 430-101	FREN_O	101	Quebecois Poetry	W2	Examines works from selected Quebecois poets from the nineteenth century to the present. Prerequisite: FREN 353 and one of FREN 327, FREN 330, FREN 338, FREN 360, FREN 362, FREN 390.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
FREN_O 444-001	FREN_O	001	French for Work: Professional Oral Performance	W2	Oral expressions, such as academic and professional presentations, debates, and public speaking. Exposure to regional and foreign French accents through a selection of audiovisual 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 FREN 327, FREN 330, FREN 338, FREN 360, FREN 362, FREN 390.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
FREN_O 461-101	FREN_O	101	17th- and 18th-Century French Comedy	W2	Explores French comedies through a selection of works by authors such as Moliere, Lesage, Marivaux, and Beaumarchais. Examines the aesthetic and political forces that shaped these plays, as well as the relationships between comedy and the representation of class and gender. Plays will be studied in their socio-historical context and approached using current literary criticism. Prerequisite: FREN 353 and one of FREN 327, FREN 330, FREN 338, FREN 360, FREN 362, FREN 390.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
GEOG_O 109-101	GEOG_O	101	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]	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
GEOG_O 109-L01	GEOG_O	L01	Earth Systems: Landscape Dynamics	W2	Principles and processes that govern the functions of the Earth's lithosphere and terrestrial geomorphology. Interactions between the lithospheric system and human activity. [3-2-0]	Laboratory	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
GEOG_O 109-L02	GEOG_O	L02	Earth Systems: Landscape Dynamics	W2	Principles and processes that govern the functions of the Earth's lithosphere and terrestrial geomorphology. Interactions between the lithospheric system and human activity. [3-2-0]	Laboratory	In Person Learning	Wed	12:00 p.m. - 2:00 p.m.
GEOG_O 109-L03	GEOG_O	L03	Earth Systems: Landscape Dynamics	W2	Principles and processes that govern the functions of the Earth's lithosphere and terrestrial geomorphology. Interactions between the lithospheric system and human activity. [3-2-0]	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
GEOG_O 109-L04	GEOG_O	L04	Earth Systems: Landscape Dynamics	W2	Principles and processes that govern the functions of the Earth's lithosphere and terrestrial geomorphology. Interactions between the lithospheric system and human activity. [3-2-0]	Laboratory	In Person Learning	Fri	12:00 p.m. - 2:00 p.m.
GEOG_O 109-L05	GEOG_O	L05	Earth Systems: Landscape Dynamics	W2	Principles and processes that govern the functions of the Earth's lithosphere and terrestrial geomorphology. Interactions between the lithospheric system and human activity. [3-2-0]	Laboratory	In Person Learning	Thu	10:00 a.m. - 12:00 p.m.
GEOG_O 109-L06	GEOG_O	L06	Earth Systems: Landscape Dynamics	W2	Principles and processes that govern the functions of the Earth's lithosphere and terrestrial geomorphology. Interactions between the lithospheric system and human activity. [3-2-0]	Laboratory	In Person Learning	Mon	12:00 p.m. - 2:00 p.m.
GEOG_O 109-XMT	GEOG_O	XMT	Earth Systems: Landscape Dynamics	W2	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	Arranged	Arranged
GEOG_O 128-101	GEOG_O	101	Human Geography: Space, Place, and Community	W2	Critical introduction to the study and application of the major themes of human geography, including historical, regional, urban, social, and cultural geographies. Draws upon a range of geographic research methods to investigate geographic phenomena, especially human-environment relations. Not for Science credit. [3-0-0]	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
GEOG_O 129-101	GEOG_O	101	Human Geography: Resources, Development, and Environment	W2	Introduction to concepts, methods, modes of explanation, and recent critical changes in the study of human geography. Interpretation and explanation of geographic variations arising within contexts of rapidly changing cultural, demographic, economic, political, and social phenomena and their relationship to the environment. Not for Science credit. [3-0-0]	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
GEOG_O 129-102	GEOG_O	102	Human Geography: Resources, Development, and Environment	W2	Introduction to concepts, methods, modes of explanation, and recent critical changes in the study of human geography. Interpretation and explanation of geographic variations arising within contexts of rapidly changing cultural, demographic, economic, political, and social phenomena and their relationship to the environment. Not for Science credit. [3-0-0]	Lecture	Online Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
GEOG_O 200-101	GEOG_O	101	Atmospheric Environments	W2	Physical principles underlying weather and climates. Thermal, moisture, and wind climates at scales from valleys to the globe. Daily weather, air pollution, global change. Credit will be granted for only one of GEOG 200 or EESC 212. [3-3-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC212	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
GEOG_O 200-L01	GEOG_O	L01	Atmospheric Environments	W2	Physical principles underlying weather and climates. Thermal, moisture, and wind climates at scales from valleys to the globe. Daily weather, air pollution, global change. Credit will be granted for only one of GEOG 200 or EESC 212. [3-3-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC212	Laboratory	In Person Learning	Wed	6:30 p.m. - 9:30 p.m.

GEOG_O 200-L02	GEOG_O	L02	Atmospheric Environments	W2	Physical principles underlying weather and climates. Thermal, moisture, and wind climates at scales from valleys to the globe. Daily weather, air pollution, global change. Credit will be granted for only one of GEOG 200 or EESC 212. [3-3-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC212	Laboratory	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
GEOG_O 205-001	GEOG_O	001	Introduction to Hydrology	W2	Principles of hydrology at site, watershed, and regional scales. Techniques of measurement and analysis. Emphasizes surface water hydrology of western North America. Credit will be granted for only one of GEOG 205 or EESC 205. [3-3-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC205	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
GEOG_O 205-L01	GEOG_O	L01	Introduction to Hydrology	W2	Principles of hydrology at site, watershed, and regional scales. Techniques of measurement and analysis. Emphasizes surface water hydrology of western North America. Credit will be granted for only one of GEOG 205 or EESC 205. [3-3-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC205	Laboratory	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.
GEOG_O 205-L02	GEOG_O	L02	Introduction to Hydrology	W2	Principles of hydrology at site, watershed, and regional scales. Techniques of measurement and analysis. Emphasizes surface water hydrology of western North America. Credit will be granted for only one of GEOG 205 or EESC 205. [3-3-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC205	Laboratory	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.
GEOG_O 270-101	GEOG_O	101	Introduction to Cartography and Mapmaking	W2	The theory and practice of cartography and map making; thematic map design techniques; cartographic conventions; spatial data acquisition; cartographic communication; critical cartographies; historical and Indigenous mapping; participatory and cognitive mapping. [3-0-0] Prerequisite: One of GEOG 108, GEOG 109, GEOG 128, GEOG 129.	Lecture	In Person Learning	Tue	9:30 a.m. - 11:00 a.m.
GEOG_O 270-L01	GEOG_O	L01	Introduction to Cartography and Mapmaking	W2	The theory and practice of cartography and map making; thematic map design techniques; cartographic conventions; spatial data acquisition; cartographic communication; critical cartographies; historical and Indigenous mapping; participatory and cognitive mapping. [3-0-0] Prerequisite: One of GEOG 108, GEOG 109, GEOG 128, GEOG 129.	Laboratory	In Person Learning	Tue	2:00 p.m. - 3:30 p.m.
GEOG_O 304-101	GEOG_O	101	Anthropogenic Climate Change	W2	Mechanisms of anthropogenic climate change and its impact on the atmosphere, hydrosphere, cryosphere, and oceans since the Industrial Revolution. Use of computer models to forecast 21st century climate changes. Credit will be granted for only one of GEOG 304 or EESC 304. [3-0-0] Prerequisite: One of GEOG 108, GEOG 200, EESC 212. Third-year standing. Equivalency: EESC304	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
GEOG_O 316-001	GEOG_O	001	Geography of Natural Hazards	W2	The role of physical and biological hazards, human ecology, environmental perception and world social and political order in explaining the risk of natural disasters. Assessment of acceptable risk, disaster relief and reconstruction, and contrasts between developed and developing nations. [3-0-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 111, EESC 205, EESC 212, EESC 222, GEOG 200, GEOG 205, GEOG 222. Third-year standing.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
GEOG_O 317-101	GEOG_O	101	The Physical Environment of British Columbia	W2	The biophysical processes that are shaping and have shaped B.C. Characteristic associations between landforms, climate, soil, and vegetation; biophysical constraints on air, land, and water use. [3-0-0] Prerequisite: One of EESC 205, EESC 212, EESC 222, GEOG 200, GEOG 205, GEOG 222. Third-year standing.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
GEOG_O 318-101	GEOG_O	101	Rural Geographies	W2	Geographic perspectives in contemporary rural geography. Specific attention is given to social and environmental change, conflict and sustainability in Canadian and global contexts. Themes include transformations in the use of rural resources in agricultural, food, migration, and tourism production and consumption. Students are required to participate in short field trips and must arrange own transportation to/from sites within the Okanagan. [3-0-0] Prerequisite: Two of GEOG 128, GEOG 129, SUST 104.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
GEOG_O 351-101	GEOG_O	101	Urban Social Geography	W2	Introduction to the social geographies of cities. Draws on critical social and cultural theories. Gentrification, racialization in the city, gendered spaces, class segregation, urban form, and cultural geographies of urban life. [3-0-0] Prerequisite: All of GEOG 128, GEOG 129. and third-year standing.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
GEOG_O 356-001	GEOG_O	001	Stratigraphy and Sedimentology	W2	Origin, classification and interpretation of sediments and sedimentary rocks. Weathering, erosion, transportation, sedimentation, and lithification of clastic materials. Non-clastic sediments. Sedimentary environments, facies and stratigraphic methods. Credit will be granted for only one of GEOG 356 or EESC 356. [3-3-0] Prerequisite: One of EESC 121, EESC 222, GEOG 222. Equivalency: EESC356	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
GEOG_O 356-L01	GEOG_O	L01	Stratigraphy and Sedimentology	W2	Origin, classification and interpretation of sediments and sedimentary rocks. Weathering, erosion, transportation, sedimentation, and lithification of clastic materials. Non-clastic sediments. Sedimentary environments, facies and stratigraphic methods. Credit will be granted for only one of GEOG 356 or EESC 356. [3-3-0] Prerequisite: One of EESC 121, EESC 222, GEOG 222. Equivalency: EESC356	Laboratory	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
GEOG_O 356-L02	GEOG_O	L02	Stratigraphy and Sedimentology	W2	Origin, classification and interpretation of sediments and sedimentary rocks. Weathering, erosion, transportation, sedimentation, and lithification of clastic materials. Non-clastic sediments. Sedimentary environments, facies and stratigraphic methods. Credit will be granted for only one of GEOG 356 or EESC 356. [3-3-0] Prerequisite: One of EESC 121, EESC 222, GEOG 222. Equivalency: EESC356	Laboratory	In Person Learning	Mon	3:30 p.m. - 6:30 p.m.
GEOG_O 367-001	GEOG_O	001	Energy Resources Management	W2	Key energy systems and resources management from both global and Canadian perspectives. Supplies, distribution, consumption, resilience and sustainability of energy resources. Alternative energy sources, conventional and unconventional fossil fuels, energy production and delivery systems. Credit will be granted for only one of GEOG 367 or EESC 367. [3-0-0] Prerequisite: One of GEOG 108, GEOG 129, EESC 101, EESC 111. Third-year standing Equivalency: EESC367	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
GEOG_O 423-101	GEOG_O	101	Development of Environmental Thought	W2	An examination of attitudes that have influenced land use and environmental change in the past and present. [3-0-0] Prerequisite: Two of GEOG 128, GEOG 129, SUST 104.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.

GEOG_O 426-101	GEOG_O	101	Queer Geographies	W2	Expands from a singular focus of sexuality and gender to consider how space is also racialized, ableized, and normalized according to hierarchies of power and privilege. Builds a foundational understanding of how queer geographies has emerged, possibilities for 'queering' geographical themes, and queer futurities. Credit will be granted for only one of GEOG 426, GWST 426, GEOG 491 and GWST 495 when the subject matter is of the same nature. Prerequisite: Either (a) Two of GEOG 128, GEOG 129, SUST 104, or (b) 6 credits of GWST. Third-year standing. Equivalency: GWST426	Lecture	Hybrid Learning	Fri	2:00 p.m. - 5:00 p.m.
GISC_O 381-101	GISC_O	101	Fundamentals of Geographic Information Scienc	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 workflow 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.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
GISC_O 381-L01	GISC_O	L01	Fundamentals of Geographic Information Scienc	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 workflow 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.	Laboratory	In Person Learning	Thu	8:00 a.m. - 11:00 a.m.
GISC_O 381-L02	GISC_O	L02	Fundamentals of Geographic Information Scienc	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 workflow 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.	Laboratory	In Person Learning	Tue	8:00 a.m. - 11:00 a.m.
GISC_O 381-L03	GISC_O	L03	Fundamentals of Geographic Information Scienc	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 workflow 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.	Laboratory	In Person Learning	Fri	8:00 a.m. - 11:00 a.m.
GISC_O 480-101	GISC_O	101	Practical Applications in GIS	W2	Application of GIS principles and tools in a problem solving context. Case studies are used as the basis for student projects, emphasising data sourcing, data analysis, decision-support, and project management skills. Laboratory and term projects require ArcGIS. [3-3-0] Prerequisite: One of GISC 381, EESC 381, GEOG 381.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
GISC_O 480-L01	GISC_O	L01	Practical Applications in GIS	W2	Application of GIS principles and tools in a problem solving context. Case studies are used as the basis for student projects, emphasising data sourcing, data analysis, decision-support, and project management skills. Laboratory and term projects require ArcGIS. [3-3-0] Prerequisite: One of GISC 381, EESC 381, GEOG 381.	Laboratory	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
GWST_O 100-101	GWST_O	101	Gender, Race, Sexuality, and Power I: An Introduct	W2	Cross-cultural and historical antecedents to gender studies and feminist thought. The social construction of knowledge and inequality through gender, race, sexuality, and class; the cultural and structural forces that create the dynamic for change and resistance in the personal and political realms of gendered lives. [3-0-0]	Lecture	Online Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
GWST_O 110-101	GWST_O	101	Gender, Race, Sexuality, and Power II: Everyday	W2	Applying the conceptual frameworks learned in GWST 100, considers how gender, race, sexuality and power shape social inequalities in such realms as health, violence, poverty, and work. GWST 100 recommended. [3-0-0]	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
GWST_O 240-101	GWST_O	101	Communication in Gender, Women and Sexualit	W2	Practice-based writing course designed to further develop communication skills in genres and media integral to Gender, Women and Sexuality Studies. Attentive to the dynamic relationship between knowledge and power, the course will focus on analysis and communication in written, visual, oral, mixed media, and digital modes. [3-0-0] Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
GWST_O 272-101	GWST_O	101	Feminism and Environment	W2	Feminist theories and practice to understand and address environmental change. Role of decolonial, antiracist, disability justice and queer feminist perspectives in environmental justice, policy, art, and activism. Credit will be granted for only one of GWST 272 or CULT 272. [3-0-0] Prerequisite: 6 credits of GWST, CULT, SUST 104. Equivalency: CULT 272	Lecture	In Person Learning	Tue	2:00 p.m. - 3:30 p.m.
GWST_O 272-D01	GWST_O	D01	Feminism and Environment	W2	Feminist theories and practice to understand and address environmental change. Role of decolonial, antiracist, disability justice and queer feminist perspectives in environmental justice, policy, art, and activism. Credit will be granted for only one of GWST 272 or CULT 272. [3-0-0] Prerequisite: 6 credits of GWST, CULT, SUST 104. Equivalency: CULT 272	Discussion	In Person Learning	Thu	11:00 a.m. - 12:30 p.m.
GWST_O 335-101	GWST_O	101	Feminist Theory in the Humanities	W2	Examines feminist critiques of the history of Western thought and surveys the development of feminist cultural theory. 6 credits of 100-level GWST recommended. [3-0-0] Prerequisite: Third-year standing.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
GWST_O 415-A_101	GWST_O	A	A_101	W2	Topics in Gender, Sexuality and Popular Culture. Explores the intersections of gender, sexuality, race, and class in popular culture, through a range of genre and media including, but not limited to, film, music, television, genre fiction, advertising, and the internet. [3-0-0] Prerequisite: Third-year standing.	Lecture	Online Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
GWST_O 426-101	GWST_O	101	Queer Geographies	W2	Expands from a singular focus of sexuality and gender to consider how space is also racialized, ableized, and normalized according to hierarchies of power and privilege. Builds a foundational understanding of how queer geographies has emerged, possibilities for 'queering' geographical themes, and queer futurities. Credit will be granted for only one of GWST 426, GEOG 426, GEOG 491 and GWST 495 when the subject matter is of the same nature. Prerequisite: Either (a) 6 credits of GWST, or (b) Two of GEOG 128, GEOG 129, SUST 104. Third-year standing. Equivalency: GEOG426	Lecture	Hybrid Learning	Fri	2:00 p.m. - 5:00 p.m.
HEAL_O 100-001	HEAL_O	001	Introduction and Principles of Health and Wellbe	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]	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
HEAL_O 101-001	HEAL_O	001	Mental Health in Social Contexts	W2	Social frameworks used to understand mental health and wellbeing of individuals, families and communities. [3-0-0]	Lecture	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.

HES_O 102-001	HES_O	001	Biomechanics	W2	Application of the elementary principles of physics and math to quantitative analysis of human movement. Analysis will also focus on the development of forces within muscles and their effect on initiating and controlling human movement (pertaining to exercise, physical activity, and rehabilitation). Formerly offered as HMKN 101. Credit will be granted for only one of HES 102 or HMKN 101. [3-0-0] Prerequisite: Registration limited to students in the B.H.E.S. program.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
HES_O 105-002	HES_O	002	Exercise Physiology I	W2	Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200. [3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
HES_O 105-L01	HES_O	L01	Exercise Physiology I	W2	Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200. [3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.	Laboratory	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
HES_O 105-L02	HES_O	L02	Exercise Physiology I	W2	Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200. [3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.	Laboratory	In Person Learning	Mon	10:00 a.m. - 12:00 p.m.
HES_O 105-L03	HES_O	L03	Exercise Physiology I	W2	Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200. [3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.	Laboratory	In Person Learning	Mon	12:00 p.m. - 2:00 p.m.
HES_O 105-L04	HES_O	L04	Exercise Physiology I	W2	Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200. [3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.	Laboratory	In Person Learning	Mon	2:00 p.m. - 4:00 p.m.
HES_O 105-L05	HES_O	L05	Exercise Physiology I	W2	Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200. [3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.	Laboratory	In Person Learning	Mon	4:00 p.m. - 6:00 p.m.
HES_O 105-L06	HES_O	L06	Exercise Physiology I	W2	Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200. [3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.	Laboratory	In Person Learning	Tue	1:00 p.m. - 3:00 p.m.
HES_O 105-L07	HES_O	L07	Exercise Physiology I	W2	Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200. [3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.	Laboratory	In Person Learning	Tue	5:00 p.m. - 7:00 p.m.
HES_O 105-L08	HES_O	L08	Exercise Physiology I	W2	Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200. [3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.	Laboratory	In Person Learning	Wed	11:00 a.m. - 1:00 p.m.
HES_O 105-L09	HES_O	L09	Exercise Physiology I	W2	Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200. [3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.	Laboratory	In Person Learning	Wed	1:00 p.m. - 3:00 p.m.
HES_O 105-L10	HES_O	L10	Exercise Physiology I	W2	Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200. [3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.	Laboratory	In Person Learning	Wed	3:00 p.m. - 5:00 p.m.
HES_O 105-L11	HES_O	L11	Exercise Physiology I	W2	Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200. [3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.	Laboratory	In Person Learning	Thu	1:00 p.m. - 3:00 p.m.
HES_O 105-L12	HES_O	L12	Exercise Physiology I	W2	Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200. [3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.	Laboratory	In Person Learning	Thu	5:00 p.m. - 7:00 p.m.
HES_O 111-001	HES_O	001	Human Physiology II	W2	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.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.



HES_O 111-L01	HES_O	L01	Human Physiology II	W2	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.	Laboratory	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
HES_O 111-L02	HES_O	L02	Human Physiology II	W2	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.	Laboratory	In Person Learning	Mon	10:00 a.m. - 12:00 p.m.
HES_O 111-L03	HES_O	L03	Human Physiology II	W2	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.	Laboratory	In Person Learning	Mon	12:00 p.m. - 2:00 p.m.
HES_O 111-L04	HES_O	L04	Human Physiology II	W2	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.	Laboratory	In Person Learning	Mon	2:00 p.m. - 4:00 p.m.
HES_O 111-L05	HES_O	L05	Human Physiology II	W2	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.	Laboratory	In Person Learning	Mon	4:00 p.m. - 6:00 p.m.
HES_O 111-L06	HES_O	L06	Human Physiology II	W2	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.	Laboratory	In Person Learning	Tue	12:30 p.m. - 2:30 p.m.
HES_O 111-L07	HES_O	L07	Human Physiology II	W2	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.	Laboratory	In Person Learning	Fri	2:00 p.m. - 4:00 p.m.
HES_O 111-L08	HES_O	L08	Human Physiology II	W2	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.	Laboratory	In Person Learning	Wed	11:00 a.m. - 1:00 p.m.
HES_O 111-L09	HES_O	L09	Human Physiology II	W2	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.	Laboratory	In Person Learning	Wed	1:00 p.m. - 3:00 p.m.
HES_O 111-L10	HES_O	L10	Human Physiology II	W2	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.	Laboratory	In Person Learning	Wed	3:00 p.m. - 5:00 p.m.
HES_O 111-L11	HES_O	L11	Human Physiology II	W2	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.	Laboratory	In Person Learning	Wed	5:00 p.m. - 7:00 p.m.
HES_O 111-L12	HES_O	L12	Human Physiology II	W2	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.	Laboratory	In Person Learning	Thu	12:30 p.m. - 2:30 p.m.
HES_O 131-001	HES_O	001	Exercise Psychology	W2	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.	Lecture	In Person Learning	Tue Fri	12:30 p.m. - 2:00 p.m.
HES_O 131-002	HES_O	002	Exercise Psychology	W2	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.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
HES_O 202-001	HES_O	001	Human Motor Behaviour I	W2	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 190; and either (a) HES 102 or (b) HMKN 101; and either (a) HES 111 or (b) HMKN 191.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
HES_O 203-001	HES_O	001	Lifespan Physical and Motor Development	W2	Principles governing physical growth and motor development related to physical activity. Lifespan changes, including aging, and their impact on physical activity participation and performance. Formerly offered as HMKN 203. Credit will be granted for only one of HES 203 or HMKN 203. [3-0-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190; and either (a) HES 111 or (b) HMKN 191.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
HES_O 212-001	HES_O	001	Exercise Training, Conditioning and Rehabilitatio	W2	The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
HES_O 212-L01	HES_O	L01	Exercise Training, Conditioning and Rehabilitatio	W2	The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Mon	2:00 p.m. - 4:00 p.m.
HES_O 212-L02	HES_O	L02	Exercise Training, Conditioning and Rehabilitatio	W2	The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Mon	4:00 p.m. - 6:00 p.m.

HES_O 212-L03	HES_O	L03	Exercise Training, Conditioning and Rehabilitation W2	The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Tue	10:00 a.m. - 12:00 p.m.
HES_O 212-L04	HES_O	L04	Exercise Training, Conditioning and Rehabilitation W2	The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Tue	12:00 p.m. - 2:00 p.m.
HES_O 212-L05	HES_O	L05	Exercise Training, Conditioning and Rehabilitation W2	The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Wed	8:00 a.m. - 10:00 a.m.
HES_O 212-L06	HES_O	L06	Exercise Training, Conditioning and Rehabilitation W2	The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Wed	2:00 p.m. - 4:00 p.m.
HES_O 212-L07	HES_O	L07	Exercise Training, Conditioning and Rehabilitation W2	The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Wed	4:00 p.m. - 6:00 p.m.
HES_O 212-L08	HES_O	L08	Exercise Training, Conditioning and Rehabilitation W2	The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Thu	10:00 a.m. - 12:00 p.m.
HES_O 212-L09	HES_O	L09	Exercise Training, Conditioning and Rehabilitation W2	The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Thu	12:00 p.m. - 2:00 p.m.
HES_O 212-L10	HES_O	L10	Exercise Training, Conditioning and Rehabilitation W2	The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Mon	6:00 p.m. - 8:00 p.m.
HES_O 212-L11	HES_O	L11	Exercise Training, Conditioning and Rehabilitation W2	The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Wed	6:00 p.m. - 8:00 p.m.
HES_O 212-L12	HES_O	L12	Exercise Training, Conditioning and Rehabilitation W2	The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
HES_O 231-001	HES_O	001	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.	Lecture	In Person Learning	Mon	9:30 a.m. - 11:00 a.m.
HES_O 231-L01	HES_O	L01	Exercise Counseling and Behaviour Modification W2	Application of evidence-informed behavior change techniques to help individuals adopt and adhere to health behaviors. Credit will only be granted for one of HES 231 or HMKN 316. [3-2-0] Prerequisite: Either (a) HES 131 or (b) HMKN 201.	Laboratory	Online Learning	Arranged	Arranged
HES_O 311-002	HES_O	002	Pathophysiology W2	The physiological basis of selected cardiovascular, muscular, respiratory, and nervous system disorders, and their effects on health and exercise. Formerly offered as HMKN 335. Credit will be granted for only one of HES 311 or HMKN 335, BIOL 231, BIOL 235 or HINT 231. [3-0-0] Prerequisite: All of HES 101, 105 and HES 111.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
HES_O 312-001	HES_O	001	Introduction to Athletic Injury Management W2	Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
HES_O 312-L01	HES_O	L01	Introduction to Athletic Injury Management W2	Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Tue	8:00 a.m. - 10:00 a.m.
HES_O 312-L02	HES_O	L02	Introduction to Athletic Injury Management W2	Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Tue	2:30 p.m. - 4:30 p.m.
HES_O 312-L03	HES_O	L03	Introduction to Athletic Injury Management W2	Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Thu	8:00 a.m. - 10:00 a.m.
HES_O 312-L04	HES_O	L04	Introduction to Athletic Injury Management W2	Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Thu	10:00 a.m. - 12:00 p.m.
HES_O 312-L05	HES_O	L05	Introduction to Athletic Injury Management W2	Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
HES_O 312-L06	HES_O	L06	Introduction to Athletic Injury Management W2	Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Fri	10:00 a.m. - 12:00 p.m.
HES_O 321-001	HES_O	001	Laboratory Techniques in Exercise Science W2	Current methods in exercise science will be demonstrated via modules presented by faculty in their areas of specialization including electrophysiological techniques and methods of assessing blood-flow, respiratory capacity, and muscle function. Formerly offered as HMKN 312. Credit will be granted for only one of HES 321 or HMKN 312. [2-3-0] Prerequisite: One of HES 305, HMKN 310.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.

HES_O 321-L01	HES_O	L01	Laboratory Techniques in Exercise Science	W2	Current methods in exercise science will be demonstrated via modules presented by faculty in their areas of specialization including electrophysiological techniques and methods of assessing blood-flow, respiratory capacity, and muscle function. Formerly offered as HMKN 312. Credit will be granted for only one of HES 321 or HMKN 312. [2-3-0] Prerequisite: One of HES 305, HMKN 310.	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
HES_O 321-L02	HES_O	L02	Laboratory Techniques in Exercise Science	W2	Current methods in exercise science will be demonstrated via modules presented by faculty in their areas of specialization including electrophysiological techniques and methods of assessing blood-flow, respiratory capacity, and muscle function. Formerly offered as HMKN 312. Credit will be granted for only one of HES 321 or HMKN 312. [2-3-0] Prerequisite: One of HES 305, HMKN 310.	Laboratory	In Person Learning	Fri	10:00 a.m. - 12:00 p.m.
HES_O 321-L03	HES_O	L03	Laboratory Techniques in Exercise Science	W2	Current methods in exercise science will be demonstrated via modules presented by faculty in their areas of specialization including electrophysiological techniques and methods of assessing blood-flow, respiratory capacity, and muscle function. Formerly offered as HMKN 312. Credit will be granted for only one of HES 321 or HMKN 312. [2-3-0] Prerequisite: One of HES 305, HMKN 310.	Laboratory	In Person Learning	Fri	12:00 p.m. - 2:00 p.m.
HES_O 321-L04	HES_O	L04	Laboratory Techniques in Exercise Science	W2	Current methods in exercise science will be demonstrated via modules presented by faculty in their areas of specialization including electrophysiological techniques and methods of assessing blood-flow, respiratory capacity, and muscle function. Formerly offered as HMKN 312. Credit will be granted for only one of HES 321 or HMKN 312. [2-3-0] Prerequisite: One of HES 305, HMKN 310.	Laboratory	In Person Learning	Fri	2:00 p.m. - 4:00 p.m.
HES_O 321-L05	HES_O	L05	Laboratory Techniques in Exercise Science	W2	Current methods in exercise science will be demonstrated via modules presented by faculty in their areas of specialization including electrophysiological techniques and methods of assessing blood-flow, respiratory capacity, and muscle function. Formerly offered as HMKN 312. Credit will be granted for only one of HES 321 or HMKN 312. [2-3-0] Prerequisite: One of HES 305, HMKN 310.	Laboratory	In Person Learning	Thu	8:00 a.m. - 10:00 a.m.
HES_O 331-001	HES_O	001	Motivational Interviewing	W2	Study of behaviour change techniques with a particular focus on motivational interviewing, used in one-to-one behavioural support interactions. The course will instill knowledge of theory as well as applied skills in behaviour change counselling. Credit will be only be granted for one of HES 331 or HMKN 495N. [1.5-1.5-0] Prerequisite: HES 231.	Lecture	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
HES_O 332-001	HES_O	001	Advanced Theories of Health Behaviour Change	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 330. Registration is limited to students in the Health Behavior Change Concentration in the B.H.E.S. Program.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
HES_O 333-001	HES_O	001	Health Program Evaluation	W2	Introduction to the key concepts and methods used in evaluation of health programs. Formerly offered as HMKN 303. Credit will be granted for only one of HMKN 303 or HES 333. [3-0-0] Prerequisite: HES 231 and HES 330. Registration is limited to students in the Health Behavior Change Concentration in the B.H.E.S. Program.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
HES_O 352-001	HES_O	001	Exercise Testing for Clinical Populations	W2	Analysis of standard and specialized protocols, recommendations, equipment, personnel and parameters of exercise assessments for individuals living with clinical populations. [3-2-0] Prerequisite: HES 250 and either (a) HES 311 or (b) HMKN 335. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S. program.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
HES_O 352-L01	HES_O	L01	Exercise Testing for Clinical Populations	W2	Analysis of standard and specialized protocols, recommendations, equipment, personnel and parameters of exercise assessments for individuals living with clinical populations. [3-2-0] Prerequisite: HES 250 and either (a) HES 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	10:00 a.m. - 12:00 p.m.
HES_O 353-001	HES_O	001	Clinical Exercise Prescription	W2	Advanced exercise prescription considerations for individuals with chronic conditions and special populations (e.g., pediatric, aging). [3-2-0] Prerequisite: HES 352. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S. program.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
HES_O 353-L01	HES_O	L01	Clinical Exercise Prescription	W2	Advanced exercise prescription considerations for individuals with chronic conditions and special populations (e.g., pediatric, aging). [3-2-0] 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.
HES_O 354-001	HES_O	001	Clinical Exercise Physiology Applications in Chror	W2	Clinical considerations of cardiovascular conditions and treatment for safe and effective implementation of exercise programs for people with 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.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
HES_O 355-001	HES_O	001	Clinical Exercise Physiology Applications in Chror	W2	An overview of the clinical considerations of metabolic and endocrine pathologies and treatment for the safe and effective design and implementation of exercise programs for people with metabolic and/or endocrine disease. Students will critically review evidence and current standards and recommendations for the use of exercise in the management and prevention of metabolic and endocrine diseases 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.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
HES_O 381-001	HES_O	001	Body Composition	W2	Body composition, with particular emphasis on the influence of physical (in)activity. Techniques for measuring the amounts of adipose tissue, muscle, and bone in the body. Formerly offered as HMKN 314. Credit will be granted for only one of HES 381 or HMKN 314. [3-0-0] Prerequisite: Either (a) HMKN 190 or (b) HES 120.	Lecture	In Person Learning	Tue	8:00 a.m. - 11:00 a.m.
HES_O 401-002	HES_O	002	Community Placement Experience	W2	Practical work experience in a supervised health/human kinetics related work setting with a cooperating agency, private business, or industry. No more than 9 credits in total will be granted for any combination of HMKN 401, HMKN 402, HMKN 499. Formerly offered as HMKN 401. Credit will be granted for only one of HES 401 or HMKN 401. Pass/Fail. Prerequisite: One of HMKN 205, HES 240 and one of HMKN 206, HES 340. and fourth-year standing in Human Kinetics and permission of the Undergraduate Chair.	Lecture	In Person Learning	Arranged	Arranged

HES_O 402-002	HES_O	002	Advanced Community Placement Experience	W2	Advanced 'hands-on' practical work experience in a supervised health-related work setting with a partnered organization. Formerly offered as HMKN 402. Credit will be granted for only one of HES 402 or HMKN 402. Prerequisite: One of HMKN 401, HES 401, and permission of both the Practicum Coordinator and the Undergraduate Chair.	Lecture	In Person Learning	Arranged	Arranged	
HES_O 480-001	HES_O	001	Concussion	W2	Investigation of the diagnosis, deficits and treatment of concussion, and the neurocognitive, biomechanical, cerebrovascular, and sensorimotor effects of the injury. Formerly offered as HMKN 404. Credit will be granted for only one of HES 480 or HMKN 404. [3-0-0] Prerequisite: Either (a) HES 240 or (b) HMKN 206; and either (a) HES 311 or (b) HMKN 335; and either (a) HES 340 or (b) HMKN 205.	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.	
HES_O 481-001	HES_O	001	Pediatric Exercise Physiology	W2	Investigation into the physiological responses of children and adolescents to exercise. Formerly offered as HMKN 406. Credit will be granted for only one of HES 481 or HMKN 406. [3-0-0] Prerequisite: Either (a) HES 105 or (b) HMKN 200; and either (a) HES 305 or (b) HMKN 310.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.	
HES_O 483-001	HES_O	001	Environmental Physiology	W2	Regulation and adaptation of the cardiovascular, circulatory, and respiratory systems during environmental extremes. Formerly offered as HMKN 411. Credit will be granted for only one of HES 483 or HMKN 411. [3-0-0] Prerequisite: One of HES 305, HMKN 310.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.	
HES_O 490-C_101	HES_O	C	C_101	Project in Health and Exercise Sciences	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) HMKN 206; and either (a) HES 340 or (b) HMKN 205. Permission of the School of Health and Exercise Sciences. Formerly offered as HMKN 495. Credit will be granted for only one of HES 495 or HMKN 495. [3-0-0] 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.	Independent Study	In Person Learning	Arranged	Arranged
HES_O 495-D_001	HES_O	D	D_001	Special Topics 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	6:30 p.m. - 9:30 p.m.
HES_O 506-001	HES_O	001	Research Methods in Health and Exercise Scienc	W2	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	Thu	2:00 p.m. - 5:00 p.m.	
HES_O 545-I_001	HES_O	I	I_001	Special Topics in Health and Exercise Sciences	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
HES_O 549-002	HES_O	002	M.Sc. Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged	
HES_O 649-002	HES_O	002	Ph.D. Dissertation	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged	
HINT_O 320-003	HINT_O	003	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 NRS 320 or HEAL 307. [3-0-0] Prerequisite: Third-year standing	Lecture	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.	
HINT_O 320-004	HINT_O	004	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 NRS 320 or HEAL 307. [3-0-0] Prerequisite: Third-year standing	Lecture	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.	
HINT_O 525-001	HINT_O	001	Disabilities Studies and Interprofessional 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.	
HIST_O 119-101	HIST_O	101	Medieval Europe	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.	
HIST_O 126-101	HIST_O	101	Europe from the French Revolution	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.	
HIST_O 145-101	HIST_O	101	Contemporary World History	W2	Events and forces shaping the world since the mid-twentieth century. [3-0-0]	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.	
HIST_O 160-001	HIST_O	001	Introduction to Asian 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.	
HIST_O 211-101	HIST_O	101	The United States to 1865	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. [3-0-0]	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.	
HIST_O 222-001	HIST_O	001	Canadian State and Economy	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 or HIST 122. [3-0-0]	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.	
HIST_O 240-101	HIST_O	101	Pre-Contact and Colonial Latin American History	W2	Study of themes of Latin American history from emergence of indigenous civilizations to the end of Spanish and Portuguese colonialism in the nineteenth century. [3-0-0]	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.	
HIST_O 301-101	HIST_O	101	History of Indigenous Peoples of Canada Since 1:	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. [3-0-0] Prerequisite: 6 credits of HIST and third-year standing; or 3 credits of HIST, INDO 100, and third-year standing.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.	
HIST_O 304-001	HIST_O	001	The Rise and Fall of the Roman Republic	W2	Roman political, social, and economic history from the eighth century B.C.E. to the end of the Republic in 27 B.C.E.. Credit will be granted for only one of HIST 304 or HIST 382G. [3-0-0] Prerequisite: HIST 110.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.	
HIST_O 308-101	HIST_O	101	The Scientific Revolution	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 objectivity; the social role of the scientist; the intellectual authority of science. [3-0-0] 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.	
HIST_O 320-001	HIST_O	001	Iran: From the Safavid Empire to the Islamic Rev	W2	The social, economic, political, and religious history of Iran from the Safavid revolution in 1501 to the Islamic revolution of 1979. [3-0-0] Prerequisite: 6 credits of HIST; or one of HIST 115, HIST 145, HIST 160, HIST 220 and third-year standing.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.	
HIST_O 328-101	HIST_O	101	The American Revolution and the Formation of t	W2	Study of the revolutionary origins of the United States of America and the establishment of the American republic. [3-0-0] 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.	
HIST_O 354-101	HIST_O	101	Social Movements in 20th-Century Latin Americ:	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. [3-0-0] 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.	

HIST_O 384-101	HIST_O	101	Commodities in Africa	W2	Examines the history of commodity production (agricultural, mineral, oil, and other resources) on the African continent from the late nineteenth century to the present day with attention to how commodities have shaped and continue to influence the development of the continent and inform its political, social and economic encounters. [3-0-0] Prerequisite: 6 credits of HIST; or one of HIST 115, HIST 145 and third-year standing.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.	
HIST_O 414-101	HIST_O	101	Medieval England	W2	Study of selected themes in the history of England from the eleventh to the fifteenth centuries. [1.5-0-1.5] Prerequisite: 6 credits of HIST; or HIST 119 and third-year standing.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.	
HIST_O 430-A_101	HIST_O	A	A_101	Topics in the History of Migration	W2	[3-0-0] Prerequisite: 6 credits of HIST and third-year standing.	Lecture	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
HIST_O 469-101	HIST_O	101	International Relations of the Great Powers of t	W2	International relations of Britain, France, Germany, Russia, and the United States since 1939. Emphasis upon the emergence, course, and end of the Cold War. Great Powers in decolonization and the end of empires. [3-0-0] Prerequisite: 6 credits of HIST; or one of HIST 145, HIST 126 and third-year standing.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.	
HIST_O 495-A_101	HIST_O	A	A_101	Special Topics in History	W2	Examination of selected topics and issues in history. With different topics, this course may be taken more than once for credit. [3-0-0] Prerequisite: 12 credits of HIST.	Lecture	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.
HIST_O 495-B_101	HIST_O	B	B_101	Special Topics in History	W2	Examination of selected topics and issues in history. With different topics, this course may be taken more than once for credit. [3-0-0] Prerequisite: 12 credits of HIST.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
IGS_O 501-C_001	IGS_O	C	C_001	Interdisciplinary Topics in Research Methods and	W2		Lecture	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.
IGS_O 501-D_001	IGS_O	D	D_001	Interdisciplinary Topics in Research Methods and	W2		Lecture	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
IGS_O 503-S_001	IGS_O	S	S_001	Indigenous Research Methods	W2		Lecture	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
IGS_O 515-B_001	IGS_O	B	B_001	Advanced Qualitative Methods	W2		Seminar	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.
IGS_O 539-L_101	IGS_O	L	L_101	Directed Studies in Creative and Critical Studies	W2		Independent Study	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
IGS_O 550-Q_001	IGS_O	Q	Q_001	Special Topics in Social Science Research	W2		Seminar	In Person Learning	Fri	8:00 a.m. - 11:00 a.m.
IGS_O 585-101	IGS_O	101	Knowledge Mobilization and Sustainability Polic	W2	Exploration of opportunities and constraints to translating interdisciplinary sustainability research into effective social action. Approaches to implementing sustainability to be considered include: political and legal frameworks; federal and provincial policy forums; corporate social responsibility; First Nations environmental stewardship challenges; and sustainability in education and the arts.	Seminar	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.	
IGS_O 588-101	IGS_O	101	Global Studies Panorama	W2	Introduction to interdisciplinary and collaborative approaches to the field of Global Studies.	Seminar	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.	
IGS_O 591-101	IGS_O	101	Society and Conflict	W2	Utilizing social theory to analyze conflict and inequality. [0-0-3]	Seminar	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.	
IGS_O 593-001	IGS_O	001	Decolonizing the 'Global': Contemporary Ethnog	W2	An examination and close reading of global issues drawing on ethnography and postcolonial theory. [0-0-3]	Lecture	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.	
IGS_O 596-001	IGS_O	001	Voice, Justice & Change	W2	Engage in current and shifting discussions, theories, and praxis related to justice-oriented research and community initiatives for social change. The power of voice, representation, and systemic 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 550D. [0-0-3] Prerequisite: IGS 586.	Lecture	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.	
IGS_O 599-B_002	IGS_O	B	B_002	Master's Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
IGS_O 599-C_002	IGS_O	C	C_002	Master's Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
IGS_O 699-002	IGS_O	002	Doctoral Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged	
IMTC_O 507-001	IMTC_O	001	Immersive Technology Design Studio	W2	Application of immersive technologies design skills; interactive immersive technology production; reflection on practice and critical thinking; art in contemporary XR production. Prerequisite: All of IMTC 505, IMTC 506.	Lecture	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.	
INDG_O 100-101	INDG_O	101	Introduction to Decolonization: Indigenous Stud	W2	Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]	Lecture	Online Learning	Mon Wed	1:00 p.m. - 2:00 p.m.	
INDG_O 100-D03	INDG_O	D03	Introduction to Decolonization: Indigenous Stud	W2	Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]	Discussion	Online Learning	Wed	2:00 p.m. - 3:00 p.m.	
INDG_O 102-101	INDG_O	101	Introduction to Indigeneity: Ways of Knowing	W2	Introduces students to the concept of Indigenous Knowledge through a holistic and relational approach to land and people. Provides a foundation to key perspectives and traditions in the arts, health, social justice and governance. [3-0-0]	Lecture	Online Learning	Tue Thu	3:30 p.m. - 5:00 p.m.	
INDG_O 201-101	INDG_O	101	Okanagan Indigenous Peoples' Historical Perspe	W2	Indigenous historiography as demonstrated through Okanagan traditional oral techniques for documentation of knowledge; an Indigenous peoples' approach to orality and the maintenance of social, ecological, and land-based practice. Offered in relationship with the En'owkin Centre. [3-0-0] Prerequisite: One of INDG 100, INDG 102.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.	
INDG_O 202-101	INDG_O	101	Interior Salishan Literatures: Concepts and Fram	W2	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 202 or ENGL 202. [3-0-0] Prerequisite: One of INDG 100, INDG 102. Equivalency: ENGL202	Lecture	Online Learning	Arranged	Arranged	
INDG_O 203-101	INDG_O	101	Indigenous Peoples' Historical Perspectives	W2	Overview of the historical and contemporary socio-economic, political, cultural, and ecological perspectives of Indigenous Peoples. [3-0-0] Prerequisite: One of INDG 100, INDG 102.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.	
INDG_O 301-002	INDG_O	002	Examining an Indigenous Methodology: En'owki	W2	Understanding an Indigenous strategy of community discourse as a methodology for inquiry, a technique of examination employing sequential stages of critical analysis in a whole-systems approach. Offered in relationship with the En'owkin Centre. [3-0-0] Prerequisite: One of INDG 100, INDG 102. And third-year standing.	Lecture	Online Learning	Arranged	Arranged	
INDG_O 304-101	INDG_O	101	Indigenous Studies Field Methods	W2	Research strategies and research techniques used in Indigenous studies and related disciplines. These elements will be applied to various topical issues including intellectual property rights, research ethics, oral histories, ethnographic research, and the use of statistics (both descriptive and inferential). [3-0-0] Prerequisite: One of INDG 100, INDG 102. Third-year standing.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.	
INDG_O 306-101	INDG_O	101	Indigenous Land Rights	W2	Legal theories under British Law or its historical derivations that have been used to justify the colonization of Indigenous peoples. Legal arguments and anthropological evidence raised by Indigenous groups to challenge those theories. Particular reference is paid to Canada, Australia, New Zealand, and the United States. [3-0-0] Prerequisite: One of INDG 100, INDG 102. Third-year standing.	Lecture	Online Learning	Tue Thu	3:30 p.m. - 5:00 p.m.	

INDG_O 308-101	INDG_O	101	Indigenous Culture, Heritage, and Intellectual Pr	W2	Indigenous Peoples' cultural heritage in the Americas and other continents. Many manifestations of Indigenous cultures will be discussed, as well as the many complex issues that have arisen regarding Indigenous heritage in the colonial and neo-colonial periods such as, customary laws, misappropriation, misrepresentation, repatriation, and legal protection and regulation. [3-0-0] Prerequisite: One of INDG 100, INDG 102. Third-year standing.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
INDG_O 310-101	INDG_O	101	Indigenous Women's Perspectives: Gender, Nati	W2	Historical realities of the salience of states and nations in the lives of Indigenous women. Indigenous methods, de-colonial historical analysis, and gender theory are used to analyze Indigenous women's and peoples' resistances to invasion, colonization, occupation, settler states, and dispossession. [3-0-0] Prerequisite: One of INDG 100, INDG 102. GWST 100 recommended.	Lecture	Online Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
INDG_O 319-101	INDG_O	101	Indigenous Perspectives on Health and Physical	W2	Focuses on Indigenous worldviews and perspectives to frame Indigenous Peoples' health opportunities, issues, and challenges, with an emphasis on physical activity contexts. Restricted to students in the Bachelor of Health and Exercise Sciences program. [3-0-0] Prerequisite: One of HEAL 200, HES 130. Third-year standing.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
INDG_O 401-101	INDG_O	101	Research Applications	W2	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. [0-0-3] Prerequisite: One of INDG 301, INDG 303, INDG 304.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
INDG_O 440-101	INDG_O	101	Residential Schools and Reconciliation	W2	The history of the Indian 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.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
INDG_O 460-001	INDG_O	001	Indigenous Studies Internship	W2	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]	Lecture	Online Learning	Arranged	Arranged
INDG_O 460-002	INDG_O	002	Indigenous Studies Internship	W2	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]	Lecture	Online Learning	Arranged	Arranged
INDG_O 460-003	INDG_O	003	Indigenous Studies Internship	W2	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]	Lecture	Online Learning	Arranged	Arranged
INDG_O 495-H_101	INDG_O	H	H_101	W2	Advanced Topics in Indigenous Studies	Experimental	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
INLG_O 282-101	INLG_O	101	Structures of Endangered Languages: Conservati	W2	Documentation, transcription and analysis of grammatical structures in endangered languages, focusing on the diversity within B.C. Indigenous languages. Applied techniques in documentation, workflow and multi-media digital annotation, guided by community-based ethical protocols and conservation/revitalization goals. [3-0-0] Prerequisite: INLG 281.	Lecture	Online Learning	Arranged	Arranged
INLG_O 380-101	INLG_O	101	Technologies for Endangered Language Docume	W2	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.	Lecture	Online Learning	Arranged	Arranged
JPST_O 101-002	JPST_O	002	Beginning Japanese Language II	W2	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%.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
JPST_O 101-L01	JPST_O	L01	Beginning Japanese Language II	W2	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%.	Laboratory	Online Learning	Mon	10:00 a.m. - 11:00 a.m.
JPST_O 354-001	JPST_O	001	Introduction to Japanese Cinema	W2	Historical and thematic survey of major directors, genres, and traditions in Japanese film from 1950 to the present. In English. Prerequisite: Third-year standing.	Lecture	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
KORN_O 100-101	KORN_O	101	Basic Korean I	W2	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	11:00 a.m. - 12:00 p.m.
LLED_O 494-001	LLED_O	001	Introduction to Additional Language Teaching ar	W2	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. [3-0-0]	Lecture	Online Learning	Arranged	Arranged
MANF_O 270-201	MANF_O	201	Production Systems Management I	W2	Introduction to production systems management and operations. Focus on the impact of operations in increasing productivity, reducing waste in manufacturing facilities. [3-0-0] Prerequisite: Second-year standing.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
MANF_O 277-001	MANF_O	001	Fundamentals of Design for Manufacturing	W2	Engineering drawing for manufacturing, part and process drawings, quality control, metrology. Design for manufacturing and assembly. Integrated Manufacturing Systems. [3-2-0] Prerequisite: APSC 171. and second-year B.A.Sc. standing	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
MANF_O 277-L1A	MANF_O	L1A	Fundamentals of Design for Manufacturing	W2	Engineering drawing for manufacturing, part and process drawings, quality control, metrology. Design for manufacturing and assembly. Integrated Manufacturing Systems. [3-2-0] Prerequisite: APSC 171. and second-year B.A.Sc. standing	Laboratory	In Person Learning	Mon	10:00 a.m. - 12:00 p.m.
MANF_O 378-001	MANF_O	001	Advanced Manufacturing	W2	Materials fabrication, forming, and joining: casting, rolling, forging, extrusion, and welding. Powder metallurgy and manufacture of metal alloys, metal matrix composites, and ceramics. Effect of fabrication process on evolution of crystallographic texture, residual stress, mechanical and service properties of materials. Process selection and technology development. [3-0-0] Prerequisite: MANF 377.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
MANF_O 450-001	MANF_O	001	Life Cycle Analysis and Sustainability	W2	Practical and theoretical applications of life cycle thinking in engineering projects, products, and processes. Understand international standards and methods in life cycle assessment (LCA), life cycle costing (LCC). Interpret and provide critical feedback on LCA/LCC studies and analyze claims on sustainability. Credit will be granted for only one of MANF450 or ENGR 544. [3-0-0] Prerequisite: Fourth-year standing.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
MANF_O 465-001	MANF_O	001	Digital Enterprise	W2	Systems integration and data analytics for engineering processes in a digital enterprise with industrial automation systems, production and operation, information fusion, performance monitoring and learning, and software and simulation platforms for manufacturing applications. [3-2-0] Prerequisite: MANF 386.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.

MANF_O 465-L1A	MANF_O	L1A	Digital Enterprise	W2	Systems integration and data analytics for engineering processes in a digital enterprise with industrial automation systems, production and operation, information fusion, performance monitoring and learning, and software and simulation platforms for manufacturing applications. [3-2-0] Prerequisite: MANF 386.	Laboratory	In Person Learning	Mon	12:00 p.m. - 2:00 p.m.
MANF_O 465-L1B	MANF_O	L1B	Digital Enterprise	W2	Systems integration and data analytics for engineering processes in a digital enterprise with industrial automation systems, production and operation, information fusion, performance monitoring and learning, and software and simulation platforms for manufacturing applications. [3-2-0] Prerequisite: MANF 386.	Laboratory	In Person Learning	Tue	1:00 p.m. - 3:00 p.m.
MATH_O 100-101	MATH_O	101	Differential Calculus with Applications to Physics	W2	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	11:00 a.m. - 12:30 p.m.
MATH_O 101-101	MATH_O	101	Integral Calculus with Applications to Physical Sc	W2	Definite integral, integration techniques, applications, modelling, linear ODE's. Credit will be granted for only one of MATH 101 or MATH 142. [3-0-0] Prerequisite: One of MATH 100, MATH 116.	Lecture	In Person Learning	Tue Fri	11:00 a.m. - 12:30 p.m.
MATH_O 101-102	MATH_O	102	Integral Calculus with Applications to Physical Sc	W2	Definite integral, integration techniques, applications, modelling, linear ODE's. Credit will be granted for only one of MATH 101 or MATH 142. [3-0-0] Prerequisite: One of MATH 100, MATH 116.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
MATH_O 101-103	MATH_O	103	Integral Calculus with Applications to Physical Sc	W2	Definite integral, integration techniques, applications, modelling, linear ODE's. Credit will be granted for only one of MATH 101 or MATH 142. [3-0-0] Prerequisite: One of MATH 100, MATH 116.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
MATH_O 101-104	MATH_O	104	Integral Calculus with Applications to Physical Sc	W2	Definite integral, integration techniques, applications, modelling, linear ODE's. Credit will be granted for only one of MATH 101 or MATH 142. [3-0-0] Prerequisite: One of MATH 100, MATH 116.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
MATH_O 103-101	MATH_O	101	Integral Calculus with Applications to Life Scienc	W2	Antiderivatives, the definite integral, integration techniques, numerical integration, infinite series, applications of integration to differential equations and probability, linear algebra. Credit will be granted for only one of MATH 101, MATH 103, or MATH 142. [3-1-0] Prerequisite: One of MATH 100, MATH 116.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
MATH_O 103-L01	MATH_O	L01	Integral Calculus with Applications to Life Scienc	W2	Antiderivatives, the definite integral, integration techniques, numerical integration, infinite series, applications of integration to differential equations and probability, linear algebra. Credit will be granted for only one of MATH 101, MATH 103, or MATH 142. [3-1-0] Prerequisite: One of MATH 100, MATH 116.	Laboratory	In Person Learning	Mon	12:00 p.m. - 1:00 p.m.
MATH_O 103-L02	MATH_O	L02	Integral Calculus with Applications to Life Scienc	W2	Antiderivatives, the definite integral, integration techniques, numerical integration, infinite series, applications of integration to differential equations and probability, linear algebra. Credit will be granted for only one of MATH 101, MATH 103, or MATH 142. [3-1-0] Prerequisite: One of MATH 100, MATH 116.	Laboratory	In Person Learning	Wed	11:00 a.m. - 12:00 p.m.
MATH_O 103-L03	MATH_O	L03	Integral Calculus with Applications to Life Scienc	W2	Antiderivatives, the definite integral, integration techniques, numerical integration, infinite series, applications of integration to differential equations and probability, linear algebra. Credit will be granted for only one of MATH 101, MATH 103, or MATH 142. [3-1-0] Prerequisite: One of MATH 100, MATH 116.	Laboratory	In Person Learning	Thu	8:00 a.m. - 9:00 a.m.
MATH_O 103-L04	MATH_O	L04	Integral Calculus with Applications to Life Scienc	W2	Antiderivatives, the definite integral, integration techniques, numerical integration, infinite series, applications of integration to differential equations and probability, linear algebra. Credit will be granted for only one of MATH 101, MATH 103, or MATH 142. [3-1-0] Prerequisite: One of MATH 100, MATH 116.	Laboratory	In Person Learning	Thu	2:00 p.m. - 3:00 p.m.
MATH_O 116-101	MATH_O	101	Calculus I for Management and Economics	W2	The derivative; limits; rate of change; derivatives of algebraic, logarithmic, trigonometric and exponential functions; applications to marginal analysis; elasticity of demand; optimization and curve-sketching, Newtons Method and Taylor polynomials. Credit will be granted for only one of MATH 116 or MATH 100. [3-0-0] Prerequisite: Either (a) a score of 67% or higher in one of MATH 12, PREC 12 or (b) a score of 60% or higher in one of MATH 125, MATH 126. Equivalency: MATH100	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
MATH_O 125-101	MATH_O	101	Pre-Calculus	W2	Prepares students for a calculus course. Functions and their graphs; inverse functions; algebraic, exponential, logarithmic, trigonometric functions; trigonometric identities. Cannot be counted for credit toward the B.Sc. or B.Sust. degree. Credit will be granted for only one of MATH 125 or MATH 126. Students with credit for MATH 100 or 116 may not take MATH 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	12:30 p.m. - 2:00 p.m.
MATH_O 126-101	MATH_O	101	Basic Mathematics: An Indigenous Perspective	W2	Prepares students for calculus. Functions; graphs; inverse, algebraic, exponential, logarithmic, trigonometric functions; trigonometric identities. Uses cyclical analysis common in some Indigenous cultures. Cannot be counted for credit toward the B.Sc. or B.Sust. degree. Credit will be granted for only one of MATH 126 or 125. Students with credit for MATH 100 or 116 may not take MATH 126 for credit. [3-0-1] Prerequisite: One of Principles of Mathematics 11, Pre-Calculus 11, Foundations of Mathematics 12, or permission of the Department.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
MATH_O 126-T01	MATH_O	T01	Basic Mathematics: An Indigenous Perspective	W2	Prepares students for calculus. Functions; graphs; inverse, algebraic, exponential, logarithmic, trigonometric functions; trigonometric identities. Uses cyclical analysis common in some Indigenous cultures. Cannot be counted for credit toward the B.Sc. or B.Sust. degree. Credit will be granted for only one of MATH 126 or 125. Students with credit for MATH 100 or 116 may not take MATH 126 for credit. [3-0-1] Prerequisite: One of Principles of Mathematics 11, Pre-Calculus 11, Foundations of Mathematics 12, or permission of the Department.	Discussion	In Person Learning	Fri	2:00 p.m. - 3:00 p.m.
MATH_O 221-101	MATH_O	101	Matrix Algebra	W2	Systems of linear equations, operations on matrices, determinants, eigenvalues and eigenvectors, diagonalization of symmetric matrices, and vector geometry. [3-0-0] Prerequisite: One of MATH 100, MATH 116.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
MATH_O 222-101	MATH_O	101	Linear Algebra	W2	Vector spaces, linear maps, change of basis, eigenvalues and eigenvectors, Jordan canonical forms, matrix decomposition, inner product spaces, orthogonality, linear operators. [3-0-0] Prerequisite: MATH 221.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.

MATH_O 225-101	MATH_O	101	Introduction to Differential Equations	W2	First-order equations, initial value problems, existence and uniqueness theorems, second-order linear equations, superposition of solutions, independence, general solutions, non-homogeneous equations, phaseplane analysis, numerical methods, matrix methods for linear systems, and applications of differential equations to the physical, biological, and social sciences. [3-0-1] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Corequisite: MATH 221 is recommended.	Lecture	In Person Learning	Mon Wed Fri	8:00 a.m. - 9:00 a.m.
MATH_O 225-T01	MATH_O	T01	Introduction to Differential Equations	W2	First-order equations, initial value problems, existence and uniqueness theorems, second-order linear equations, superposition of solutions, independence, general solutions, non-homogeneous equations, phaseplane analysis, numerical methods, matrix methods for linear systems, and applications of differential equations to the physical, biological, and social sciences. [3-0-1] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Corequisite: MATH 221 is recommended.	Discussion	In Person Learning	Thu	11:00 a.m. - 12:00 p.m.
MATH_O 225-T02	MATH_O	T02	Introduction to Differential Equations	W2	First-order equations, initial value problems, existence and uniqueness theorems, second-order linear equations, superposition of solutions, independence, general solutions, non-homogeneous equations, phaseplane analysis, numerical methods, matrix methods for linear systems, and applications of differential equations to the physical, biological, and social sciences. [3-0-1] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Corequisite: MATH 221 is recommended.	Discussion	In Person Learning	Wed	5:00 p.m. - 6:00 p.m.
MATH_O 225-T03	MATH_O	T03	Introduction to Differential Equations	W2	First-order equations, initial value problems, existence and uniqueness theorems, second-order linear equations, superposition of solutions, independence, general solutions, non-homogeneous equations, phaseplane analysis, numerical methods, matrix methods for linear systems, and applications of differential equations to the physical, biological, and social sciences. [3-0-1] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Corequisite: MATH 221 is recommended.	Discussion	In Person Learning	Wed	1:00 p.m. - 2:00 p.m.
MATH_O 303-101	MATH_O	101	Numerical Analysis	W2	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 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.
MATH_O 303-L01	MATH_O	L01	Numerical Analysis	W2	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 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.
MATH_O 303-L02	MATH_O	L02	Numerical Analysis	W2	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 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	Fri	11:00 a.m. - 12:00 p.m.
MATH_O 312-101	MATH_O	101	Introduction to Number Theory	W2	Divisibility of integers, congruences, Euler's Theorem, primitive roots, quadratic reciprocity, special Diophantine equations, distributions of primes. [3-0-0] Prerequisite: One of MATH 220, COSC 221.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
MATH_O 317-001	MATH_O	001	Calculus IV	W2	Parametrizations, inverse and implicit functions, integrals with respect to length and area; grad, div, and curl, and theorems of Green, Gauss, and Stokes. [3-0-0] Prerequisite: MATH 200.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
MATH_O 340-001	MATH_O	001	Introduction to Linear Programming	W2	Linear programming problems, dual problems, the simplex algorithm, solution of primal and dual problems, sensitivity analysis. Additional topics chosen from: Karmarkar's algorithm, 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.
MATH_O 350-001	MATH_O	001	Complex Variables and Applications	W2	Covers analytic functions, Cauchy-Riemann equations, power series, Laurent series, elementary functions, contour integrals, and poles and residues. Introduction to conformal mapping and applications of analysis to problems in physics and engineering. [3-0-0] Prerequisite: MATH 200.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
MATH_O 432-I_101	MATH_O	I	I_101	W2	Special Topics in Algebra and Number Theory	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
MATH_O 448-A_101	MATH_O	A	A_101	W2	Directed Studies in Mathematics	Independent Study	In Person Learning	Arranged	Arranged
MATH_O 448-C_101	MATH_O	C	C_101	W2	Directed Studies in Mathematics	Independent Study	In Person Learning	Arranged	Arranged
MATH_O 459-101	MATH_O	101	Mathematical Biology	W2	Investigation of a specific topic as agreed upon by the student and the faculty supervisor. Students will be expected to complete a project and make an oral presentation. Prerequisite: 15 credits of 300- or 400-level MATH and STAT courses and permission of the department head and faculty supervisor.	Lecture	In Person Learning	Mon Wed Fri	12:00 p.m. - 1:00 p.m.
MATH_O 464-101	MATH_O	101	Nonconvex Optimization	W2	Mathematical modelling in biological disciplines such as population dynamics, ecology, pattern formation, tumour growth, immune response, biomechanics, and epidemiology. Theory of such models formulated as difference equations, ordinary differential equations, and partial differential equations. [3-0-0] Prerequisite: MATH 225, MATH 319 is recommended.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
MATH_O 559-101	MATH_O	101	Mathematical Biology	W2	Nonconvex analysis, semi-continuous functions, Lipschitz functions, tangent cone, normal cone, subdifferentials, optimality conditions, regularizations, algorithms for nonconvex optimization. Credit will be granted for only one of MATH 464 or MATH 564. [3-0-0] Prerequisite: MATH 327.	Lecture	In Person Learning	Mon Wed Fri	12:00 p.m. - 1:00 p.m.
MATH_O 564-101	MATH_O	101	Nonconvex Optimization	W2	Mathematical methods in modelling biological processes at levels from cell biochemistry to community ecology. [3-0-0]	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
MATH_O 590-E_S01	MATH_O	E	E_S01	W2	Graduate Seminar	Seminar	In Person Learning	Tue	5:00 p.m. - 8:00 p.m.



MATH_O 600-J_101	MATH_O	J	J_101	Topics in Algebra	W2	Topics chosen from group theory, rings and modules, Galois theory, commutative rings, categorical algebra, representations of finite groups, and other topics. The credit value for this course will be determined in consultation with the student prior to the registration	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
MATH_O 649-002	MATH_O		002	Ph.D. Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
MDST_O 101-101	MDST_O		101	Digital Media Theory	W2	Contemporary issues in media studies. Notions of copyright, intellectual property, and information privacy and globalization in relation to digital media, identity, and creativity. Analysis of the digital culture, professionalism and ethics. [2-2-0]	Lecture	In Person Learning	Wed	2:00 p.m. - 5:00 p.m.
MDST_O 120-001	MDST_O		001	Introduction to Computational Art and Design II	W2	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.	Studio	In Person Learning	Tue	5:00 p.m. - 8:00 p.m.
MDST_O 220-001	MDST_O		001	Computational Creativity	W2	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.	Studio	In Person Learning	Thu	1:00 p.m. - 5:00 p.m.
MDST_O 330-001	MDST_O		001	Immersive Environments	W2	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.	Studio	In Person Learning	Thu	9:00 a.m. - 1:00 p.m.
MGCO_O 401-201	MGCO_O		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. Restricted to students accepted to the Management Co-operative Education Program.	Experiential	In Person Learning	Arranged	Arranged
MGCO_O 402-201	MGCO_O		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. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 401.	Experiential	In Person Learning	Arranged	Arranged
MGCO_O 403-201	MGCO_O		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. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 402.	Experiential	In Person Learning	Arranged	Arranged
MGCO_O 404-201	MGCO_O		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. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 403.	Experiential	In Person Learning	Arranged	Arranged
MGCO_O 405-201	MGCO_O		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'. Prerequisite: MGCO 404.	Experiential	In Person Learning	Arranged	Arranged
MGCO_O 406-201	MGCO_O		201	Co-op Education Work Experience VI	W2	Approved and supervised paid work experience with a public or private organization for a minimum of 455 hours full time. Pre-employment training workshops and co-op assignments are required. Course is restricted to students who have completed all third-year requirements and have secured a work-term with an appropriate employer either independently or through the 'Co-op Office'. Prerequisite: MGCO 405.	Experiential	In Person Learning	Arranged	Arranged
MGMT_O 100-101	MGMT_O		101	Introduction to Business	W2	Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0]	Lecture	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
MGMT_O 100-L08	MGMT_O		L08	Introduction to Business	W2	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	Fri	9:00 a.m. - 10:00 a.m.
MGMT_O 100-L09	MGMT_O		L09	Introduction to Business	W2	Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0]	Laboratory	In Person Learning	Mon	4:00 p.m. - 5:00 p.m.
MGMT_O 100-L10	MGMT_O		L10	Introduction to Business	W2	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	Fri	2:00 p.m. - 3:00 p.m.

MGMT_O 100-L11	MGMT_O	L11	Introduction to Business	W2	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.
MGMT_O 100-W1A	MGMT_O	W1A	Introduction to Business	W2	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.
MGMT_O 110-102	MGMT_O	102	Introduction to Management Thought and Socia	W2	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.
MGMT_O 202-101	MGMT_O	101	Introduction to Managerial Accounting	W2	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	Tue Thu	12:30 p.m. - 2:00 p.m.
MGMT_O 220-101	MGMT_O	101	Introduction to Marketing	W2	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.
MGMT_O 240-001	MGMT_O	001	Introduction to Management Communications	W2	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.
MGMT_O 250-101	MGMT_O	101	Introduction to Information Technology Manage	W2	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.
MGMT_O 250-102	MGMT_O	102	Introduction to Information Technology Manage	W2	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.
MGMT_O 250-L01	MGMT_O	L01	Introduction to Information Technology Manage	W2	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.
MGMT_O 250-L02	MGMT_O	L02	Introduction to Information Technology Manage	W2	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	10:00 a.m. - 11:00 a.m.
MGMT_O 250-L03	MGMT_O	L03	Introduction to Information Technology Manage	W2	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	Thu	10:00 a.m. - 11:00 a.m.
MGMT_O 250-L04	MGMT_O	L04	Introduction to Information Technology Manage	W2	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	Thu	2:00 p.m. - 3:00 p.m.
MGMT_O 250-L05	MGMT_O	L05	Introduction to Information Technology Manage	W2	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	Mon	1:00 p.m. - 2:00 p.m.
MGMT_O 250-L06	MGMT_O	L06	Introduction to Information Technology Manage	W2	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	2:00 p.m. - 3:00 p.m.
MGMT_O 250-L07	MGMT_O	L07	Introduction to Information Technology Manage	W2	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	9:00 a.m. - 10:00 a.m.
MGMT_O 250-L08	MGMT_O	L08	Introduction to Information Technology Manage	W2	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	Thu	3:00 p.m. - 4:00 p.m.
MGMT_O 250-L09	MGMT_O	L09	Introduction to Information Technology Manage	W2	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	4:00 p.m. - 5:00 p.m.
MGMT_O 304-001	MGMT_O	001	Intermediate Financial Accounting II	W2	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.
MGMT_O 360-001	MGMT_O	001	Business Conditions Analysis	W2	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.
MGMT_O 360-W01	MGMT_O	W01	Business Conditions Analysis	W2	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.	Workshop	In Person Learning	Mon	9:00 a.m. - 10:00 a.m.
MGMT_O 380-101	MGMT_O	101	Sustainability and Business	W2	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.
MGMT_O 380-W01	MGMT_O	W01	Sustainability and Business	W2	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	Thu	11:00 a.m. - 12:00 p.m.
MGMT_O 380-W02	MGMT_O	W02	Sustainability and Business	W2	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	Fri	8:00 a.m. - 9:00 a.m.
MGMT_O 380-W03	MGMT_O	W03	Sustainability and Business	W2	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	4:00 p.m. - 5:00 p.m.
MGMT_O 380-W04	MGMT_O	W04	Sustainability and Business	W2	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.
MGMT_O 380-W05	MGMT_O	W05	Sustainability and Business	W2	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	Examinations of theoretical and practical approaches to leadership and conflict resolution. Topics covered include distinguishing between authority and leadership, technical problems and adaptive challenges, power and progress, diagnostic frameworks for assessment and strategies, and tactics of intervention to mobilize progress. Also explored is the nature of conflict, its role in human social systems, and ways to address its negative impacts and harness its positive possibilities. [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	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 Wed	11:00 a.m. - 12:30 p.m.
MGMT_O 421-101	MGMT_O	101	Globalization, Offshoring and Outsourcing	W2	Explores, from a strategic perspective, Canadian and global businesses and their wider economic environment. Special emphasis on the impact of information technology used to enable outsourcing, offshoring and joint ventures in the conduct of global trade. Topics further include: government policy, global value chain analysis, and the benefits and downsides of outsourcing and/or offshoring. [3-0-0] Prerequisite: MGMT 290 and MGMT 355. Third-year standing.	Lecture	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
MGMT_O 422-001	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.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
MGMT_O 422-L01	MGMT_O	L01	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	Thu	5:00 p.m. - 6:00 p.m.
MGMT_O 422-L02	MGMT_O	L02	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 422-L03	MGMT_O	L03	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 220. 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	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 220. and third-year standing.	Workshop	Online Learning	Arranged	Arranged
MGMT_O 442-001	MGMT_O	001	Consumer Behaviour	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 220. and third-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	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	Mon	3:30 p.m. - 5:00 p.m.
MGMT_O 449-A_W01	MGMT_O	A	A_W01	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_O 449-A_W02	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 349 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_O 449-A_W03	MGMT_O	A	A_W03	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	Mon	9:30 a.m. - 11:00 a.m.
MGMT_O 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_O 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_O 470-101	MGMT_O		101	Global Food Systems: Society, Ecology, Sustaina	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 424 or MGMT 470. [3-0-0] Prerequisite: Third-year standing. Equivalency: BIOL 424	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
MGMT_O 480-001	MGMT_O		001	Law and Business	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_O 490-101	MGMT_O		101	Capstone Service Learning and Consulting	W2	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	11:00 a.m. - 2:00 p.m.
NLEK_O 331-001	NLEK_O		001	Language Practice and Pedagogy: Praxis in Diffe	W2	Language acquisition pedagogies in and through practice. The language of instruction is Nle?kepmx Language. Restricted to students in the Bachelor of Nle?kepmx Language Fluency program. [1-0-4] Corequisite: NLEK 351.	Lecture	Online Learning	Arranged	Arranged
NLEK_O 331-101	NLEK_O		101	Language Practice and Pedagogy: Praxis in Diffe	W2	Language acquisition pedagogies in and through practice. The language of instruction is Nle?kepmx Language. Restricted to students in the Bachelor of Nle?kepmx Language Fluency program. [1-0-4] Corequisite: NLEK 351.	Laboratory	Online Learning	Arranged	Arranged
NLEK_O 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. [1-0-4] Corequisite: NLEK 331.	Lecture	Online Learning	Arranged	Arranged
NLEK_O 351-101	NLEK_O		101	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. [1-0-4] Corequisite: NLEK 331.	Laboratory	Online Learning	Arranged	Arranged
NLEK_O 433-001	NLEK_O		001	Special Topics in Language Practice and Pedagog	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 333.	Lecture	Online Learning	Arranged	Arranged
NRSO 101-001	NRSO		001	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 NRSO 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSO 111, NRSO 112, NRSO 113, BIOL 131. Corequisite: All of NRSO 126, NRSO 136.	Seminar	In Person Learning	Tue	12:30 p.m. - 2:00 p.m.
NRSO 101-002	NRSO		002	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 NRSO 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSO 111, NRSO 112, NRSO 113, BIOL 131. Corequisite: All of NRSO 126, NRSO 136.	Seminar	In Person Learning	Wed	12:30 p.m. - 2:00 p.m.
NRSO 101-003	NRSO		003	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 NRSO 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSO 111, NRSO 112, NRSO 113, BIOL 131. Corequisite: All of NRSO 126, NRSO 136.	Seminar	In Person Learning	Thu	12:30 p.m. - 2:00 p.m.
NRSO 101-004	NRSO		004	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 NRSO 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSO 111, NRSO 112, NRSO 113, BIOL 131. Corequisite: All of NRSO 126, NRSO 136.	Seminar	In Person Learning	Fri	12:30 p.m. - 2:00 p.m.
NRSO 101-L01	NRSO		L01	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 NRSO 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSO 111, NRSO 112, NRSO 113, BIOL 131. Corequisite: All of NRSO 126, NRSO 136.	Laboratory	In Person Learning	Tue	2:30 p.m. - 5:30 p.m.

NRSG_O 101-L02	NRSG_O	L02	Nursing Lab Practice I	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136.	Laboratory	In Person Learning	Tue	2:30 p.m. - 5:30 p.m.
NRSG_O 101-L03	NRSG_O	L03	Nursing Lab Practice I	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136.	Laboratory	In Person Learning	Wed	2:30 p.m. - 5:30 p.m.
NRSG_O 101-L04	NRSG_O	L04	Nursing Lab Practice I	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136.	Laboratory	In Person Learning	Wed	2:30 p.m. - 5:30 p.m.
NRSG_O 101-L05	NRSG_O	L05	Nursing Lab Practice I	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136.	Laboratory	In Person Learning	Thu	2:30 p.m. - 5:30 p.m.
NRSG_O 101-L06	NRSG_O	L06	Nursing Lab Practice I	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136.	Laboratory	In Person Learning	Thu	2:30 p.m. - 5:30 p.m.
NRSG_O 101-L07	NRSG_O	L07	Nursing Lab Practice I	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136.	Laboratory	In Person Learning	Fri	2:30 p.m. - 5:30 p.m.
NRSG_O 101-L08	NRSG_O	L08	Nursing Lab Practice I	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136.	Laboratory	In Person Learning	Fri	2:30 p.m. - 5:30 p.m.
NRSG_O 101-L09	NRSG_O	L09	Nursing Lab Practice I	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136.	Laboratory	In Person Learning	Tue	2:30 p.m. - 5:30 p.m.
NRSG_O 101-L10	NRSG_O	L10	Nursing Lab Practice I	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136.	Laboratory	In Person Learning	Wed	2:30 p.m. - 5:30 p.m.
NRSG_O 101-L11	NRSG_O	L11	Nursing Lab Practice I	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136.	Laboratory	In Person Learning	Thu	2:30 p.m. - 5:30 p.m.
NRSG_O 101-L12	NRSG_O	L12	Nursing Lab Practice I	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136.	Laboratory	In Person Learning	Fri	2:30 p.m. - 5:30 p.m.
NRSG_O 120-001	NRSG_O	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. [3-0-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112. and English (3 credits) Corequisite: All of NRSG 101, NRSG 122, NRSG 123, NRSG 126, NRSG 136.	Lecture	In Person Learning	Tue	8:00 a.m. - 11:00 a.m.
NRSG_O 120-002	NRSG_O	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. [3-0-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112. and English (3 credits) Corequisite: All of NRSG 101, NRSG 122, NRSG 123, NRSG 126, NRSG 136.	Lecture	In Person Learning	Thu	8:00 a.m. - 11:00 a.m.
NRSG_O 122-001	NRSG_O	001	Introduction to the Profession of Nursing II	W2	Explores the historical 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. [1.5-0-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 123, NRSG 126, NRSG 136.	Lecture	In Person Learning	Wed	8:00 a.m. - 9:30 a.m.
NRSG_O 122-002	NRSG_O	002	Introduction to the Profession of Nursing II	W2	Explores the historical 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. [1.5-0-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 123, NRSG 126, NRSG 136.	Lecture	In Person Learning	Fri	8:00 a.m. - 9:30 a.m.

NRSG_O 123-001	NRSG_O	001	Relational Practice II	W2	Understanding relational care and relational ethics to build knowledge, skills, and abilities to engage in relational practice with diverse individuals, families, and groups. Explore concepts and evidence for caring, therapeutic communication, and relational identity. Pass/Fail. [1.5-0-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, BIOL 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_O 123-002	NRSG_O	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, BIOL 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_O 126-001	NRSG_O	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, BIOL 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_O 126-002	NRSG_O	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, BIOL 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_O 136-P01	NRSG_O	P01	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, BIOL 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_O 136-P02	NRSG_O	P02	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, BIOL 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_O 136-P03	NRSG_O	P03	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, BIOL 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_O 136-P04	NRSG_O	P04	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, BIOL 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_O 136-P05	NRSG_O	P05	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, BIOL 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_O 136-P06	NRSG_O	P06	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, BIOL 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_O 136-P07	NRSG_O	P07	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, BIOL 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_O 136-P08	NRSG_O	P08	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, BIOL 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_O 136-P09	NRSG_O	P09	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, BIOL 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_O 228-002	NRSG_O	002	Community Health	W2	Theories, ethics and evidence-informed approaches to community health nursing including primary health care, population health, health maintenance and promotion, disease and injury prevention. Exploration of concepts of community-based assessment, planning, intervention and evaluation with community-as-client. [1.5-0-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSG 238.	Lecture	In Person Learning	Mon	11:00 a.m. - 12:30 p.m.
NRSG_O 229-002	NRSG_O	002	Mental Health in Nursing	W2	Evidence-informed promotion of mental well-being, assessment and management of episodic and chronic mental health challenges across the life span. Concepts will align with NRSG 239 intentional learning activities. [1.5-0-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSG 239.	Lecture	In Person Learning	Mon	11:00 a.m. - 12:30 p.m.
NRSG_O 237-P01	NRSG_O	P01	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSG 236. Develops advancing knowledge, skills, and abilities to provide safe ethical nursing care for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 202 and NRSG 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.	Experiential	In Person Learning	Tue	9:00 a.m. - 3:00 p.m.
NRSG_O 237-P02	NRSG_O	P02	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSG 236. Develops advancing knowledge, skills, and abilities to provide safe ethical nursing care for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 202 and NRSG 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.	Experiential	In Person Learning	Tue	9:00 a.m. - 3:00 p.m.
NRSG_O 237-P03	NRSG_O	P03	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSG 236. Develops advancing knowledge, skills, and abilities to provide safe ethical nursing care for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 202 and NRSG 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.	Experiential	In Person Learning	Tue	9:00 a.m. - 3:00 p.m.
NRSG_O 237-P04	NRSG_O	P04	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSG 236. Develops advancing knowledge, skills, and abilities to provide safe ethical nursing care for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 202 and NRSG 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.	Experiential	In Person Learning	Tue	9:00 a.m. - 3:00 p.m.
NRSG_O 237-P05	NRSG_O	P05	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSG 236. Develops advancing knowledge, skills, and abilities to provide safe ethical nursing care for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 202 and NRSG 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.	Experiential	In Person Learning	Tue	9:00 a.m. - 3:00 p.m.
NRSG_O 237-P06	NRSG_O	P06	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSG 236. Develops advancing knowledge, skills, and abilities to provide safe ethical nursing care for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 202 and NRSG 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.	Experiential	In Person Learning	Wed	9:00 a.m. - 3:00 p.m.
NRSG_O 237-P07	NRSG_O	P07	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSG 236. Develops advancing knowledge, skills, and abilities to provide safe ethical nursing care for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 202 and NRSG 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.	Experiential	In Person Learning	Wed	9:00 a.m. - 3:00 p.m.
NRSG_O 237-P08	NRSG_O	P08	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSG 236. Develops advancing knowledge, skills, and abilities to provide safe ethical nursing care for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 202 and NRSG 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.	Experiential	In Person Learning	Wed	9:00 a.m. - 3:00 p.m.
NRSG_O 237-P09	NRSG_O	P09	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSG 236. Develops advancing knowledge, skills, and abilities to provide safe ethical nursing care for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 202 and NRSG 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.	Experiential	In Person Learning	Wed	9:00 a.m. - 3:00 p.m.
NRSG_O 237-P10	NRSG_O	P10	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSG 236. Develops advancing knowledge, skills, and abilities to provide safe ethical nursing care for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 202 and NRSG 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.	Experiential	In Person Learning	Wed	9:00 a.m. - 3:00 p.m.
NRSG_O 237-P11	NRSG_O	P11	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSG 236. Develops advancing knowledge, skills, and abilities to provide safe ethical nursing care for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 202 and NRSG 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.	Experiential	In Person Learning	Thu	9:00 a.m. - 3:00 p.m.

NRSO 237-P12	NRSO	P12	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSO 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 NRSO 202 and NRSO 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSO 201, NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231. Corequisite: All of NRSO 202, NRSO 220, NRSO 223, NRSO 227, BIOL 232.	Experiential	In Person Learning	Thu	9:00 a.m. - 3:00 p.m.
NRSO 237-P13	NRSO	P13	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSO 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 NRSO 202 and NRSO 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSO 201, NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231. Corequisite: All of NRSO 202, NRSO 220, NRSO 223, NRSO 227, BIOL 232.	Experiential	In Person Learning	Thu	9:00 a.m. - 3:00 p.m.
NRSO 237-P14	NRSO	P14	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSO 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 NRSO 202 and NRSO 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSO 201, NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231. Corequisite: All of NRSO 202, NRSO 220, NRSO 223, NRSO 227, BIOL 232.	Experiential	In Person Learning	Thu	9:00 a.m. - 3:00 p.m.
NRSO 237-P15	NRSO	P15	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSO 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 NRSO 202 and NRSO 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSO 201, NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231. Corequisite: All of NRSO 202, NRSO 220, NRSO 223, NRSO 227, BIOL 232.	Experiential	In Person Learning	Thu	9:00 a.m. - 3:00 p.m.
NRSO 237-P16	NRSO	P16	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSO 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 NRSO 202 and NRSO 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSO 201, NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231. Corequisite: All of NRSO 202, NRSO 220, NRSO 223, NRSO 227, BIOL 232.	Experiential	In Person Learning	Fri	9:00 a.m. - 3:00 p.m.
NRSO 237-P17	NRSO	P17	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSO 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 NRSO 202 and NRSO 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSO 201, NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231. Corequisite: All of NRSO 202, NRSO 220, NRSO 223, NRSO 227, BIOL 232.	Experiential	In Person Learning	Fri	9:00 a.m. - 3:00 p.m.
NRSO 237-P18	NRSO	P18	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSO 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 NRSO 202 and NRSO 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSO 201, NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231. Corequisite: All of NRSO 202, NRSO 220, NRSO 223, NRSO 227, BIOL 232.	Experiential	In Person Learning	Fri	9:00 a.m. - 3:00 p.m.
NRSO 237-P19	NRSO	P19	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSO 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 NRSO 202 and NRSO 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSO 201, NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231. Corequisite: All of NRSO 202, NRSO 220, NRSO 223, NRSO 227, BIOL 232.	Experiential	In Person Learning	Fri	9:00 a.m. - 3:00 p.m.
NRSO 237-P20	NRSO	P20	Nursing Practice III	W2	This second acute care practicum is a continuation of NRSO 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 NRSO 202 and NRSO 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSO 201, NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231. Corequisite: All of NRSO 202, NRSO 220, NRSO 223, NRSO 227, BIOL 232.	Experiential	In Person Learning	Fri	9:00 a.m. - 3:00 p.m.
NRSO 238-P11	NRSO	P11	Nursing Practice in Community	W2	Practicum in community health nursing develops knowledge, skills, and abilities needed to provide to provide safe ethical nursing care 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: NRSO 228.	Experiential	In Person Learning	Tue	8:00 a.m. - 12:00 p.m.
NRSO 238-P12	NRSO	P12	Nursing Practice in Community	W2	Practicum in community health nursing develops knowledge, skills, and abilities needed to provide to provide safe ethical nursing care 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: NRSO 228.	Experiential	In Person Learning	Tue	8:00 a.m. - 12:00 p.m.
NRSO 238-P13	NRSO	P13	Nursing Practice in Community	W2	Practicum in community health nursing develops knowledge, skills, and abilities needed to provide to provide safe ethical nursing care 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: NRSO 228.	Experiential	In Person Learning	Wed	8:00 a.m. - 12:00 p.m.

NRSO 238-P15	NRSO	P15	Nursing Practice in Community	W2	Practicum in community health nursing develops knowledge, skills, and abilities needed to provide to provide safe ethical nursing care 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: NRSO 228.	Experiential	In Person Learning	Thu	8:00 a.m. - 12:00 p.m.
NRSO 238-P17	NRSO	P17	Nursing Practice in Community	W2	Practicum in community health nursing develops knowledge, skills, and abilities needed to provide to provide safe ethical nursing care 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: NRSO 228.	Experiential	In Person Learning	Fri	8:00 a.m. - 12:00 p.m.
NRSO 238-P18	NRSO	P18	Nursing Practice in Community	W2	Practicum in community health nursing develops knowledge, skills, and abilities needed to provide to provide safe ethical nursing care 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: NRSO 228.	Experiential	In Person Learning	Fri	8:00 a.m. - 12:00 p.m.
NRSO 239-P11	NRSO	P11	Nursing Practice in Mental Health	W2	Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSU 229. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 229.	Experiential	In Person Learning	Tue	8:00 a.m. - 12:00 p.m.
NRSO 239-P12	NRSO	P12	Nursing Practice in Mental Health	W2	Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSU 229. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 229.	Experiential	In Person Learning	Tue	8:00 a.m. - 12:00 p.m.
NRSO 239-P13	NRSO	P13	Nursing Practice in Mental Health	W2	Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSU 229. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 229.	Experiential	In Person Learning	Wed	8:00 a.m. - 12:00 p.m.
NRSO 239-P14	NRSO	P14	Nursing Practice in Mental Health	W2	Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSU 229. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 229.	Experiential	In Person Learning	Wed	8:00 a.m. - 12:00 p.m.
NRSO 239-P15	NRSO	P15	Nursing Practice in Mental Health	W2	Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSU 229. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 229.	Experiential	In Person Learning	Thu	8:00 a.m. - 12:00 p.m.
NRSO 239-P17	NRSO	P17	Nursing Practice in Mental Health	W2	Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSU 229. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 229.	Experiential	In Person Learning	Fri	8:00 a.m. - 12:00 p.m.
NRSO 239-P18	NRSO	P18	Nursing Practice in Mental Health	W2	Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSU 229. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 229.	Experiential	In Person Learning	Fri	8:00 a.m. - 12:00 p.m.
NRSO 302-002	NRSO	002	Nursing Lab Practice V	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSO 301, NRSO 326, NRSO 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSO 327, NRSO 337.	Seminar	In Person Learning	Mon	11:00 a.m. - 12:30 p.m.
NRSO 302-003	NRSO	003	Nursing Lab Practice V	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSO 301, NRSO 326, NRSO 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSO 327, NRSO 337.	Seminar	In Person Learning	Mon	11:00 a.m. - 12:30 p.m.
NRSO 302-L05	NRSO	L05	Nursing Lab Practice V	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSO 301, NRSO 326, NRSO 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSO 327, NRSO 337.	Laboratory	In Person Learning	Mon	1:00 p.m. - 3:00 p.m.
NRSO 302-L06	NRSO	L06	Nursing Lab Practice V	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSO 301, NRSO 326, NRSO 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSO 327, NRSO 337.	Laboratory	In Person Learning	Mon	1:00 p.m. - 3:00 p.m.

NRSG_O 302-L07	NRSG_O	L07	Nursing Lab Practice V	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSG 327, NRSG 337.	Laboratory	In Person Learning	Mon	3:30 p.m. - 5:30 p.m.
NRSG_O 302-L08	NRSG_O	L08	Nursing Lab Practice V	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSG 327, NRSG 337.	Laboratory	In Person Learning	Mon	3:30 p.m. - 5:30 p.m.
NRSG_O 302-L09	NRSG_O	L09	Nursing Lab Practice V	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSG 327, NRSG 337.	Laboratory	In Person Learning	Mon	1:00 p.m. - 3:00 p.m.
NRSG_O 302-L10	NRSG_O	L10	Nursing Lab Practice V	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSG 327, NRSG 337.	Laboratory	In Person Learning	Mon	1:00 p.m. - 3:00 p.m.
NRSG_O 302-L11	NRSG_O	L11	Nursing Lab Practice V	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSG 327, NRSG 337.	Laboratory	In Person Learning	Mon	3:30 p.m. - 5:30 p.m.
NRSG_O 302-L12	NRSG_O	L12	Nursing Lab Practice V	W2	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSG 327, NRSG 337.	Laboratory	In Person Learning	Mon	3:30 p.m. - 5:30 p.m.
NRSG_O 313-003	NRSG_O	003	Relational Practice V	W2	Understanding and respecting the complexities of difference and diversity with clients in nursing practice. A critical exploration of cultural identities and racism from an Indigenous perspective, facilitates development of evidence-informed practice for culturally safe care for all peoples in a variety of contexts (health care, research, institutions, and society). Pass/Fail. [3-0-0] Prerequisite: Third-Year BSN-O Standing	Lecture	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.
NRSG_O 313-004	NRSG_O	004	Relational Practice V	W2	Understanding and respecting the complexities of difference and diversity with clients in nursing practice. A critical exploration of cultural identities and racism from an Indigenous perspective, facilitates development of evidence-informed practice for culturally safe care for all peoples in a variety of contexts (health care, research, institutions, and society). Pass/Fail. [3-0-0] Prerequisite: Third-Year BSN-O Standing	Lecture	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.
NRSG_O 313-005	NRSG_O	005	Relational Practice V	W2	Understanding and respecting the complexities of difference and diversity with clients in nursing practice. A critical exploration of cultural identities and racism from an Indigenous perspective, facilitates development of evidence-informed practice for culturally safe care for all peoples in a variety of contexts (health care, research, institutions, and society). Pass/Fail. [3-0-0] Prerequisite: Third-Year BSN-O Standing	Lecture	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.
NRSG_O 313-006	NRSG_O	006	Relational Practice V	W2	Understanding and respecting the complexities of difference and diversity with clients in nursing practice. A critical exploration of cultural identities and racism from an Indigenous perspective, facilitates development of evidence-informed practice for culturally safe care for all peoples in a variety of contexts (health care, research, institutions, and society). Pass/Fail. [3-0-0] Prerequisite: Third-Year BSN-O Standing	Lecture	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.
NRSG_O 327-002	NRSG_O	002	Health & Healing V	W2	Continuation of NRSG 326. Evidence-informed assessment and management of complex health challenges in both episodic and chronic illness utilizing a case study approach. [3-0-0 (over 6 weeks)] Prerequisite: All of NRSG 301, NRSG 310, NRSG 326, NRSG 336, HINT 331. Corequisite: All of NRSG 302, NRSG 337.	Lecture	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
NRSG_O 327-003	NRSG_O	003	Health & Healing V	W2	Continuation of NRSG 326. Evidence-informed assessment and management of complex health challenges in both episodic and chronic illness utilizing a case study approach. [3-0-0 (over 6 weeks)] Prerequisite: All of NRSG 301, NRSG 310, NRSG 326, NRSG 336, HINT 331. Corequisite: All of NRSG 302, NRSG 337.	Lecture	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
NRSG_O 328-003	NRSG_O	003	Health of the Childbearing Family	W2	Nursing within a health promotion framework in both community and acute care settings. Evidence-informed guidelines for care of the childbearing family during pregnancy, labour, birth, and postpartum will be drawn on to inform assessment and management of holistic, ethical care. Concepts will align with NRSG 338 intentional learning activities. Restricted to students in the Bachelor of Science in Nursing. [3-0-0 (over 6 weeks)] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 338.	Lecture	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
NRSG_O 328-004	NRSG_O	004	Health of the Childbearing Family	W2	Nursing within a health promotion framework in both community and acute care settings. Evidence-informed guidelines for care of the childbearing family during pregnancy, labour, birth, and postpartum will be drawn on to inform assessment and management of holistic, ethical care. Concepts will align with NRSG 338 intentional learning activities. Restricted to students in the Bachelor of Science in Nursing. [3-0-0 (over 6 weeks)] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 338.	Lecture	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
NRSG_O 329-003	NRSG_O	003	Child Health	W2	Child health nursing within a health promotion framework in both community and acute care settings. Family-centered care and interprofessional collaboration will be examined with a focus on understanding the diversity and unique needs of both children and families to inform holistic, ethical care. Concepts will align with NRSG 339 intentional learning activities. Restricted to students in the Bachelor of Science in Nursing. [3-0-0 (over 6 weeks)] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 339.	Lecture	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
NRSG_O 329-004	NRSG_O	004	Child Health	W2	Child health nursing within a health promotion framework in both community and acute care settings. Family-centered care and interprofessional collaboration will be examined with a focus on understanding the diversity and unique needs of both children and families to inform holistic, ethical care. Concepts will align with NRSG 339 intentional learning activities. Restricted to students in the Bachelor of Science in Nursing. [3-0-0 (over 6 weeks)] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 339.	Lecture	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.





NRSG_O 338-P17	NRSG_O	P17	Nursing Practice with Childbearing Families	W2	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in newborn family health contexts. Intentional learning activities integrate knowledge from NRSG 328. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 328.	Experiential	In Person Learning	Thu	7:00 a.m. - 3:00 p.m.
NRSG_O 338-P18	NRSG_O	P18	Nursing Practice with Childbearing Families	W2	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in newborn family health contexts. Intentional learning activities integrate knowledge from NRSG 328. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 328.	Experiential	In Person Learning	Fri	7:00 a.m. - 3:00 p.m.
NRSG_O 339-P09	NRSG_O	P09	Nursing Practice in Child Health	W2	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329.	Experiential	In Person Learning	Tue	7:00 a.m. - 3:00 p.m.
NRSG_O 339-P10	NRSG_O	P10	Nursing Practice in Child Health	W2	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329.	Experiential	In Person Learning	Wed	7:00 a.m. - 3:00 p.m.
NRSG_O 339-P11	NRSG_O	P11	Nursing Practice in Child Health	W2	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329.	Experiential	In Person Learning	Thu	7:00 a.m. - 3:00 p.m.
NRSG_O 339-P12	NRSG_O	P12	Nursing Practice in Child Health	W2	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329.	Experiential	In Person Learning	Thu	8:00 a.m. - 4:00 p.m.
NRSG_O 339-P13	NRSG_O	P13	Nursing Practice in Child Health	W2	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329.	Experiential	In Person Learning	Fri	7:00 a.m. - 3:00 p.m.
NRSG_O 339-P14	NRSG_O	P14	Nursing Practice in Child Health	W2	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329.	Experiential	In Person Learning	Tue	7:00 a.m. - 3:00 p.m.
NRSG_O 339-P15	NRSG_O	P15	Nursing Practice in Child Health	W2	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329.	Experiential	In Person Learning	Wed	7:00 a.m. - 3:00 p.m.
NRSG_O 339-P16	NRSG_O	P16	Nursing Practice in Child Health	W2	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329.	Experiential	In Person Learning	Thu	7:00 a.m. - 3:00 p.m.
NRSG_O 339-P17	NRSG_O	P17	Nursing Practice in Child Health	W2	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329.	Experiential	In Person Learning	Thu	7:00 a.m. - 3:00 p.m.
NRSG_O 339-P18	NRSG_O	P18	Nursing Practice in Child Health	W2	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329.	Experiential	In Person Learning	Fri	7:00 a.m. - 3:00 p.m.
NRSG_O 421-002	NRSG_O	002	Capstone Review	W2	A comprehensive review of entry-level nursing knowledge, skills, and abilities in preparation for writing the nursing entry to practice regulatory examination. Through simulation and interactive case studies participants will have opportunities to apply previous learning and clinical reasoning to situations commonly seen in the first year of registered nursing practice. [3-0-0] Prerequisite: Fourth-Year BSN-O Standing Corequisite: All of NRSG 422, NRSG 432.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 2:00 p.m.
NRSG_O 422-002	NRSG_O	002	Leadership	W2	Nursing leadership at various levels of the healthcare system with an emphasis on leadership, decision-making, and change theories. Consider the impact of trends, issues, and ethics on leadership in nursing. [3-0-0] Prerequisite: Fourth-Year BSN-O Standing Corequisite: All of NRSG 421, NRSG 432.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 2:00 p.m.
NRSG_O 423-002	NRSG_O	002	Advanced Clinical Reasoning for Care of the Cor	W2	Theory and research for evidence-informed practice for the assessment and care of the complex, unstable, acutely ill patient. Understanding challenging etiology, pathophysiology, manifestations, diagnostics and intervention to inform advanced clinical reasoning. [3-0-0] Prerequisite: NRSG 421. Fourth-year BSN-O Standing	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 2:00 p.m.

NRSG_O 424-001	NRSG_O	001	Primary Care Nursing I	W2	Exploring concepts and frameworks foundational to the role of the primary care nurse in serving diverse populations, reducing health disparities, and promoting equity. Examine competencies including assessment approaches, care planning, and evaluation of care, and build evidence informed knowledge of disease prevention, health promotion, and management of health conditions across the life span. Interprofessional collaborative care delivery models and modes of care will be examined. Credit will be granted for only one of NRSG 424 or NRSG 524. Prerequisite: Student in final year of a BSN, BScN, or BSN program in Canada in good standing; or Registered Nurse/ Registered Psychiatric Nurse with Baccalaureate Degree in Canada in good 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	Theory and research for ethical, evidence-informed practice for mental health nursing. Develops advanced knowledge of the pathophysiology, etiology, manifestations, diagnostics and intervention to inform care of patients experiencing acute mental health challenges. [3-0-0] Prerequisite: All of NRSG 229, NRSG 239. Fourth-year BSN-O Standing	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 2:00 p.m.	
NRSG_O 431-P07	NRSG_O	P07	Capstone Acute Care Preceptorship	W2	Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged	
NRSG_O 431-P08	NRSG_O	P08	Capstone Acute Care Preceptorship	W2	Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged	
NRSG_O 431-P09	NRSG_O	P09	Capstone Acute Care Preceptorship	W2	Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged	
NRSG_O 431-P10	NRSG_O	P10	Capstone Acute Care Preceptorship	W2	Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged	
NRSG_O 431-P11	NRSG_O	P11	Capstone Acute Care Preceptorship	W2	Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged	
NRSG_O 431-P12	NRSG_O	P12	Capstone Acute Care Preceptorship	W2	Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged	
NRSG_O 432-P03	NRSG_O	P03	Capstone Community Project	W2	This practice course provides opportunity to experience evidenced-informed leadership through application of concepts such as influencing and managing change within the context of emerging global health issues and trends. (72 hours of practice and 24 hours of seminar). Pass/Fail. [0-6-2] Prerequisite: Fourth-Year BSN-O Standing Corequisite: NRSG 422.	Experiential	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.	
NRSG_O 432-P04	NRSG_O	P04	Capstone Community Project	W2	This practice course provides opportunity to experience evidenced-informed leadership through application of concepts such as influencing and managing change within the context of emerging global health issues and trends. (72 hours of practice and 24 hours of seminar). Pass/Fail. [0-6-2] Prerequisite: Fourth-Year BSN-O Standing Corequisite: NRSG 422.	Experiential	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.	
NRSG_O 432-P05	NRSG_O	P05	Capstone Community Project	W2	This practice course provides opportunity to experience evidenced-informed leadership through application of concepts such as influencing and managing change within the context of emerging global health issues and trends. (72 hours of practice and 24 hours of seminar). Pass/Fail. [0-6-2] Prerequisite: Fourth-Year BSN-O Standing Corequisite: NRSG 422.	Experiential	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.	
NRSG_O 434-B_P08	NRSG_O	B	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. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSG_O 434-B_P09	NRSG_O	B	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. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSG_O 434-B_P10	NRSG_O	B	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. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSG_O 434-B_P11	NRSG_O	B	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. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged



NRSO 434-B_P12	NRSO	B	B_P12	Practice Electives	W2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO 437-B_P07	NRSO	B	B_P07	Mental Health Preceptorship	W2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432, NRSO 427.	Experiential	In Person Learning	Arranged	Arranged
NRSO 437-B_P08	NRSO	B	B_P08	Mental Health Preceptorship	W2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432, NRSO 427.	Experiential	In Person Learning	Arranged	Arranged
NRSO 437-B_P09	NRSO	B	B_P09	Mental Health Preceptorship	W2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432, NRSO 427.	Experiential	In Person Learning	Arranged	Arranged
NRSO 437-B_P10	NRSO	B	B_P10	Mental Health Preceptorship	W2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432, NRSO 427.	Experiential	In Person Learning	Arranged	Arranged
NRSO 437-B_P11	NRSO	B	B_P11	Mental Health Preceptorship	W2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432, NRSO 427.	Experiential	In Person Learning	Arranged	Arranged
NRSO 437-B_P12	NRSO	B	B_P12	Mental Health Preceptorship	W2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432, NRSO 427.	Experiential	In Person Learning	Arranged	Arranged
NRSO 438-B_P07	NRSO	B	B_P07	Community Health Nursing Preceptorship	W2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with individuals, families and populations in the community context*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams. Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 428, NRSO 432. and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO 438-B_P08	NRSO	B	B_P08	Community Health Nursing Preceptorship	W2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with individuals, families and populations in the community context*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams. Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 428, NRSO 432. and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO 438-B_P09	NRSO	B	B_P09	Community Health Nursing Preceptorship	W2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with individuals, families and populations in the community context*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams. Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 428, NRSO 432. and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO 438-B_P10	NRSO	B	B_P10	Community Health Nursing Preceptorship	W2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with individuals, families and populations in the community context*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams. Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 428, NRSO 432. and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO 438-B_P11	NRSO	B	B_P11	Community Health Nursing Preceptorship	W2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with individuals, families and populations in the community context*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams. Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 428, NRSO 432. and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO 438-B_P12	NRSO	B	B_P12	Community Health Nursing Preceptorship	W2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with individuals, families and populations in the community context*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams. Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 428, NRSO 432. and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO 439-P03	NRSO		P03	Global Health Practicum	W2	Advanced practicum provides opportunities to engage in an immersive global health experience in a variety of settings*. Students will practice in collaboration with global health partners. The focus is on application of global health and cultural safety competencies. Pass/Fail. *Dependent on availability and cost of travel is in addition to course tuition. Prerequisite: All of NRSO 421, NRSO 422, NRSO 432 and one of NRSO 429, HINT 429. and approval of application.	Experiential	In Person Learning	Arranged	Arranged

NRSG_O 439-P04	NRSG_O	P04	Global Health Practicum	W2	Advanced practicum provides opportunities to engage in an immersive global health experience in a variety of settings*. Students will practice in collaboration with global health partners. The focus is on application of global health and cultural safety competencies. Pass/Fail. *Dependent on availability and cost of travel is in addition to course tuition. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432 and one of NRSG 429, HINT 429. and approval of application.	Experiential	In Person Learning	Arranged	Arranged	
NRSG_O 439-P14	NRSG_O	P14	Global Health Practicum	W2	Advanced practicum provides opportunities to engage in an immersive global health experience in a variety of settings*. Students will practice in collaboration with global health partners. The focus is on application of global health and cultural safety competencies. Pass/Fail. *Dependent on availability and cost of travel is in addition to course tuition. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432 and one of NRSG 429, HINT 429. and approval of application.	Experiential	In Person Learning	Arranged	Arranged	
NRSG_O 440-B_P02	NRSG_O	B	B_P02	Research Preceptorship	W2	Preceptored advanced practice course provides the opportunity to engage in research with a faculty supervisor. Application of knowledge, skills, and abilities in nursing and health related research. Pass/Fail. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: securement of a faculty supervisor and research elective (3/6) as determined by faculty supervisor	Experiential	In Person Learning	Arranged	Arranged
NRSG_O 507-001	NRSG_O	001	Quantitative Research	W2	Focused on developing knowledge and application of core concepts, methods and statistical procedures related to quantitative research design and data analysis in health disciplines. [3-0-0] Prerequisite: Undergraduate university or graduate university statistics course in the past five years, or approval of the School of Nursing Graduate Coordinator. Corequisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.	Lecture	Online Learning	Arranged	Arranged	
NRSG_O 523-001	NRSG_O	001	Teaching and Learning in Nursing Practice	W2	Examines theory, research, and best practices for teaching and learning in the laboratory and nursing practice courses in acute and community settings. [3-0-0] Corequisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.	Lecture	Online Learning	Arranged	Arranged	
NRSG_O 524-001	NRSG_O	001	Primary Care Nursing I	W2	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	Lecture	Online Learning	Tue Thu	2:00 p.m. - 5:00 p.m.	
NRSG_O 543-001	NRSG_O	001	Nursing Leadership and Management in Practice	W2	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.	Lecture	Online Learning	Arranged	Arranged	
NRSG_O 554-001	NRSG_O	001	Advanced Research Methods	W2	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, NRS) unless permission is given by the program coordinator Prerequisite: All of NRSG 506, NRSG 507. Or equivalent graduate level quantitative and qualitative methods courses.	Lecture	Online Learning	Arranged	Arranged	
NRSG_O 597-001	NRSG_O	001	Healthcare Capstone Practicum	W2	Integrative practicum in a student's chosen area of practice. Students will critically analyze, synthesize, and apply advanced knowledge to promote change and contribute to knowledge development. [6-0-0]	Experiential	Online Learning	Arranged	Arranged	
NRSG_O 598-003	NRSG_O	003	Scholarly Project	W2	Pass/Fail. Prerequisite: All of NRSG 500, NRSG 504.	Independent Study	Online Learning	Arranged	Arranged	
NRSG_O 599-201	NRSG_O	201	Research Thesis	W2	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	
NSYL_O 331-001	NSYL_O	001	Language Practice and Pedagogy: Praxis in Diffe	W2	Language acquisition pedagogies in and through practice. The language of instruction is Nsyilxcn. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. [1-0-4] Corequisite: NSYL 351.	Lecture	In Person Learning	Arranged	Arranged	
NSYL_O 331-101	NSYL_O	101	Language Practice and Pedagogy: Praxis in Diffe	W2	Language acquisition pedagogies in and through practice. The language of instruction is Nsyilxcn. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. [1-0-4] Corequisite: NSYL 351.	Laboratory	In Person Learning	Arranged	Arranged	
NSYL_O 351-001	NSYL_O	001	Language Applications: Numeracy and Math	W2	Numeracy and math frameworks from a Syilx perspective towards increased proficiency in functional numeracy. The language of instruction is Nsyilxcn. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program [1-0-4] Corequisite: NSYL 331.	Lecture	In Person Learning	Arranged	Arranged	
NSYL_O 351-101	NSYL_O	101	Language Applications: Numeracy and Math	W2	Numeracy and math frameworks from a Syilx perspective towards increased proficiency in functional numeracy. The language of instruction is Nsyilxcn. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program [1-0-4] Corequisite: NSYL 331.	Laboratory	In Person Learning	Arranged	Arranged	
NSYL_O 433-001	NSYL_O	001	Special Topics in Language Practice and Pedagog	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 Nsyilxcn. May be offered on the land. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. [0-2-3] Prerequisite: NSYL 333.	Lecture	In Person Learning	Arranged	Arranged	
NSYL_O 433-101	NSYL_O	101	Special Topics in Language Practice and Pedagog	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 Nsyilxcn. May be offered on the land. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. [0-2-3] Prerequisite: NSYL 333.	Laboratory	In Person Learning	Arranged	Arranged	
PHIL_O 111-101	PHIL_O	101	Introduction to Philosophy I	W2	Introduction to outstanding philosophers and their systems. Ethics, political philosophy, metaphysics, and philosophy of religion. [3-0-0]	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.	
PHIL_O 120-101	PHIL_O	101	Introduction to Logic and Critical Thinking	W2	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]	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.	
PHIL_O 120-102	PHIL_O	102	Introduction to Logic and Critical Thinking	W2	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]	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.	
PHIL_O 121-101	PHIL_O	101	Introduction to Philosophy II	W2	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.	

PHIL_O 210-101	PHIL_O	101	Introduction to Social and Political Philosophy	W2	Introduction to philosophical issues concerning society, its fundamental institutions, and their nature. Lectures will also address philosophical questions concerning legal reasoning. The approach will be mainly systematic, although some reference to the history of certain philosophical views may be included. [3-0-0] Prerequisite: Second-year standing.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
PHIL_O 230-101	PHIL_O	101	Ethics	W2	Theories of obligation and value; moral reasoning; normative ethics, descriptive ethics, and metaethics. Readings in classic and contemporary texts. [3-0-0] Prerequisite: Second-year standing.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
PHIL_O 233-101	PHIL_O	101	Biomedical Ethics	W2	Moral problems arising in the health sciences. Topics may include abortion, death and euthanasia, genetic engineering, behaviour modification, compulsory treatment, experimentation with human beings and animals, and/or the relationship between professionals and their patients, subjects, or clients. Credit will be granted for only one of PHIL 233 or PHIL 433. [3-0-0] Prerequisite: Second-year standing.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
PHIL_O 245-101	PHIL_O	101	Introduction to Metaphysics	W2	Familiarizes students with fundamental issues such as time, causality, personal identity, and the mind-body problem. [3-0-0] Prerequisite: Second-year standing and 6 credits of PHIL.	Lecture	In Person Learning	Mon Wed	6:30 p.m. - 8:00 p.m.
PHIL_O 310-101	PHIL_O	101	The Philosophy of Plato	W2	A study of Plato's writings and his influence on subsequent philosophy. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
PHIL_O 315-101	PHIL_O	101	Philosophy in the 18th Century	W2	Survey of eighteenth-century philosophy from Locke to Kant, including the writings of Berkeley, Rousseau, and Hume. The influence of science and religion on philosophy. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
PHIL_O 331-101	PHIL_O	101	Computer Ethics	W2	Ethical and professional issues facing those who work with computers. Piracy, hacking, responsibility, and liability for the use of software; cyberpornography and freedom of information; computerized invasion of privacy; computers in the workplace; the use of artificial intelligence; and expert systems. [3-0-0] Prerequisite: Third-year standing in an Arts program and 3 credits of PHIL, or third-year standing in a Science program.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
PHIL_O 338-101	PHIL_O	101	Philosophy of Law	W2	Concepts of law, constitution, and sovereignty; law and morality; natural law theories and legal positivism; obligation, responsibility, and punishment. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
PHIL_O 391-F_101	PHIL_O	F	F_101	W2	Examination of selected topics in Philosophy. Topics may vary each time the course is offered. Repeatable for up to 6 credits with different topics. [3-0-0] Prerequisite: Third-year standing and 3-credits of PHIL.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
PHIL_O 391-I_101	PHIL_O	I	I_101	W2	Examination of selected topics in Philosophy. Topics may vary each time the course is offered. Repeatable for up to 6 credits with different topics. [3-0-0] Prerequisite: Third-year standing and 3-credits of PHIL.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
PHIL_O 418-I_102	PHIL_O	I	I_102	W2	Intensive study of a major philosopher such as Wittgenstein, Russell, or Heidegger, or school such as pragmatism or logical empiricism. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
PHIL_O 451-101	PHIL_O	101	Philosophy of Mind	W2	The nature of the mental and physical; the relation between minds and bodies; the character of psychological explanation. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
PHIL_O 460-001	PHIL_O	001	Philosophy of Science	W2	Issues common to all sciences. Philosophical questions including the character of scientific laws, theories and revolutions, the nature of scientific confirmation, causality, explanation and prediction, and the use of logic and probability. Difficulties in the interpretation of atomic physics and questions about relationships between biology and psychology. No philosophical background is assumed. [3-0-0] Prerequisite: Third-year standing in Arts and 3 credits of PHIL; or third-year standing in Science.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
PHYS_O 121-101	PHYS_O	101	Introductory Physics for the Physical Sciences II	W2	Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.	Lecture	In Person Learning	Mon Wed Fri	10:00 a.m. - 11:00 a.m.
PHYS_O 121-101	PHYS_O	L01	Introductory Physics for the Physical Sciences II	W2	Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.	Laboratory	In Person Learning	Mon	1:00 p.m. - 4:00 p.m.
PHYS_O 121-102	PHYS_O	L02	Introductory Physics for the Physical Sciences II	W2	Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.	Laboratory	In Person Learning	Mon	6:30 p.m. - 9:30 p.m.
PHYS_O 121-103	PHYS_O	L03	Introductory Physics for the Physical Sciences II	W2	Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.	Laboratory	In Person Learning	Tue	9:30 a.m. - 12:30 p.m.







PHYS_O 122-TOB	PHYS_O	TOB	Introductory Physics for the Life Sciences II	W2	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. Corequisite: One of MATH 101, MATH 103.	Discussion	In Person Learning	Fri	4:00 p.m. - 5:00 p.m.
PHYS_O 122-TOC	PHYS_O	TOC	Introductory Physics for the Life Sciences II	W2	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. Corequisite: One of MATH 101, MATH 103.	Discussion	In Person Learning	Fri	9:00 a.m. - 10:00 a.m.
PHYS_O 122-TOD	PHYS_O	TOD	Introductory Physics for the Life Sciences II	W2	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. Corequisite: One of MATH 101, MATH 103.	Discussion	In Person Learning	Thu	1:00 p.m. - 2:00 p.m.
PHYS_O 122-TOE	PHYS_O	TOE	Introductory Physics for the Life Sciences II	W2	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. Corequisite: One of MATH 101, MATH 103.	Discussion	In Person Learning	Mon	11:00 a.m. - 12:00 p.m.
PHYS_O 122-TOF	PHYS_O	TOF	Introductory Physics for the Life Sciences II	W2	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. Corequisite: One of MATH 101, MATH 103.	Discussion	In Person Learning	Thu	4:00 p.m. - 5:00 p.m.
PHYS_O 122-TOG	PHYS_O	TOG	Introductory Physics for the Life Sciences II	W2	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. Corequisite: One of MATH 101, MATH 103.	Discussion	In Person Learning	Tue	2:00 p.m. - 3:00 p.m.
PHYS_O 122-TOH	PHYS_O	TOH	Introductory Physics for the Life Sciences II	W2	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. Corequisite: One of MATH 101, MATH 103.	Discussion	In Person Learning	Fri	4:00 p.m. - 5:00 p.m.
PHYS_O 122-XM1	PHYS_O	XM1	Introductory Physics for the Life Sciences II	W2	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. Corequisite: One of MATH 101, MATH 103.	Laboratory	In Person Learning	Arranged	Arranged
PHYS_O 122-XM2	PHYS_O	XM2	Introductory Physics for the Life Sciences II	W2	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. Corequisite: One of MATH 101, MATH 103.	Discussion	In Person Learning	Arranged	Arranged
PHYS_O 200-001	PHYS_O	001	Relativity and Quanta	W2	Special relativity: Lorentz transformation, dynamics, and conservation laws. Quantum physics: the experimental evidence for quantization; a qualitative discussion of the concepts of quantum mechanics and their application to simple systems of atoms and nuclei. [3-0-1] Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
PHYS_O 200-S01	PHYS_O	S01	Relativity and Quanta	W2	Special relativity: Lorentz transformation, dynamics, and conservation laws. Quantum physics: the experimental evidence for quantization; a qualitative discussion of the concepts of quantum mechanics and their application to simple systems of atoms and nuclei. [3-0-1] Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122.	Seminar	In Person Learning	Fri	10:00 a.m. - 11:00 a.m.
PHYS_O 216-101	PHYS_O	101	Mechanics I	W2	Review of kinematics, Newton's laws, angular momentum, and fixed axis rotation. Rigid body motion, central forces, non-inertial frames of reference. [3-0-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.	Lecture	In Person Learning	Mon Thu	3:30 p.m. - 5:00 p.m.
PHYS_O 216-S01	PHYS_O	S01	Mechanics I	W2	Review of kinematics, Newton's laws, angular momentum, and fixed axis rotation. Rigid body motion, central forces, non-inertial frames of reference. [3-0-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.	Seminar	In Person Learning	Tue	11:00 a.m. - 12:00 p.m.
PHYS_O 232-101	PHYS_O	101	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.	Lecture	In Person Learning	Wed Fri	9:00 a.m. - 10:00 a.m.
PHYS_O 232-L01	PHYS_O	L01	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	Mon	11:30 a.m. - 2:30 p.m.

PHYS_O 232-102	PHYS_O	L02	Modern Physics Laboratory	W2	Selected experiments in relativity, quantum mechanics, thermodynamics, particle physics or nuclear physics. Quantitative analysis of data, methods of measurement, formal presentation of laboratory results. [2-3-0] Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122.	Laboratory	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.
PHYS_O 305-101	PHYS_O	101	Introduction to Biophysics	W2	Analysis of biological systems from a physicist's perspective. Introduction to physics underlying biological phenomena, and range of applicability of simple physical principles. Form and size in animals, strength and energy storage in structural elements, thermal regulation, fluid motion within organisms, life in fluids, and molecular physics topics. [3-0-0] Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122. Third-year standing in Science or a 200-level PHYS course taken concurrently.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
PHYS_O 328-101	PHYS_O	101	Advanced Mechanics	W2	Variational calculus, the Lagrangian Method applied to a variety of problems, weak anharmonic perturbations of normal-mode systems, Hamilton's equations of motion, phase space, Liouville's theorem, chaos in Hamiltonian systems, rigid-body rotations in three dimensions, Lagrangian formulation of relativistic mechanics, and the Virial theorem. [3-0-0] Prerequisite: All of MATH 200, MATH 221, MATH 225, PHYS 216.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
PHYS_O 400-001	PHYS_O	001	Introduction to Elementary Particles	W2	Standard model, classification of elementary particles and forces of nature, symmetries, conservation laws, quark model, quantum electrodynamics, quantum chromodynamics, and the theory of weak interactions. [3-0-0] Prerequisite: PHYS 304.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
PHYS_O 401-101	PHYS_O	101	Electromagnetic Theory	W2	The application of Maxwell's theory to the propagation of electromagnetic waves. [3-0-0] Prerequisite: PHYS 301.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
PHYS_O 441-101	PHYS_O	101	Experimental Physics II	W2	Student designs and constructs a single experiment in solid-state physics, fluid dynamics, particle physics, astrophysics, optics or electromagnetism. Emphasis on experimental design, construction, and formal presentation of results. [0-3-1.5] Prerequisite: PHYS 331.	Lecture	In Person Learning	Thu	11:00 a.m. - 12:30 p.m.
PHYS_O 441-101	PHYS_O	L01	Experimental Physics II	W2	Student designs and constructs a single experiment in solid-state physics, fluid dynamics, particle physics, astrophysics, optics or electromagnetism. Emphasis on experimental design, construction, and formal presentation of results. [0-3-1.5] Prerequisite: PHYS 331.	Laboratory	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
PHYS_O 448-A_101	PHYS_O	A	A_101 Directed Studies in Physics	W2	The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration	Independent Study	In Person Learning	Arranged	Arranged
PHYS_O 448-A_102	PHYS_O	A	A_102 Directed Studies in Physics	W2	The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration	Independent Study	In Person Learning	Arranged	Arranged
PHYS_O 448-C_101	PHYS_O	C	C_101 Directed Studies in Physics	W2	The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration	Independent Study	In Person Learning	Arranged	Arranged
PHYS_O 448-C_102	PHYS_O	C	C_102 Directed Studies in Physics	W2	The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration	Independent Study	In Person Learning	Arranged	Arranged
PHYS_O 535-101	PHYS_O	101	Radiotherapy Physics II	W2	A continuation of Physics 534. Covers the physics and applied dosimetry of current external and internal irradiation treatment techniques. Photon and electron beam radiation treatment planning. Brachytherapy and special techniques. Errors in radiation therapy. Prerequisite: PHYS 534.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
PHYS_O 539-101	PHYS_O	101	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.
PHYS_O 544-001	PHYS_O	001	Radiation Biophysics	W2	Topics in radiation biophysics including DNA strand breaks, cell survival curves, fractionation and dose rate effects, oxygen effect, relative biological effectiveness, tumour radiobiology, radiation pathology, radiobiological modelling, stochastic and deterministic effects, and molecular techniques in radiobiology.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
PHYS_O 549-101	PHYS_O	101	Master's Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
PHYS_O 649-101	PHYS_O	101	Doctoral Dissertation	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
POLI_O 100-101	POLI_O	101	Introduction to Politics	W2	Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0-1.5]	Lecture	In Person Learning	Fri	11:00 a.m. - 12:30 p.m.
POLI_O 100-T2A	POLI_O	T2A	Introduction to Politics	W2	Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0-1.5]	Discussion	In Person Learning	Thu	12:30 p.m. - 2:00 p.m.
POLI_O 100-T2B	POLI_O	T2B	Introduction to Politics	W2	Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0-1.5]	Discussion	In Person Learning	Thu	11:00 a.m. - 12:30 p.m.
POLI_O 100-T2C	POLI_O	T2C	Introduction to Politics	W2	Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0-1.5]	Discussion	In Person Learning	Mon	8:00 a.m. - 9:30 a.m.
POLI_O 100-T2D	POLI_O	T2D	Introduction to Politics	W2	Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0-1.5]	Discussion	In Person Learning	Wed	5:00 p.m. - 6:30 p.m.
POLI_O 100-T2E	POLI_O	T2E	Introduction to Politics	W2	Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0-1.5]	Discussion	In Person Learning	Wed	8:00 a.m. - 9:30 a.m.
POLI_O 210-101	POLI_O	101	Introduction to Comparative Politics	W2	Comparative analysis of domestic politics and institutions of foreign countries. Specific countries to be covered will vary according to section. Credit will be granted for only one of POLI 220 or POLI 210. [3-0-0] Equivalency: POLI 220.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.



POLI_O 230-101	POLI_O	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	POLI_O	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 319-101	POLI_O	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	POLI_O	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 327 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	POLI_O	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 303 or POLI 331. [3-0-0] Prerequisite: One of POLI 202 or POLI 230. Equivalency: POLI 303.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
POLI_O 356-101	POLI_O	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	POLI_O	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	Tue Thu	11:00 a.m. - 12:30 p.m.
POLI_O 360-101	POLI_O	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	POLI_O	101	Politics and Pop Culture	W2	Examination of various genres of pop culture in relationship to the political and philosophic messages that are contained within. This course will also look at critics of pop culture and philosophic arguments for the place of art and beauty in democratic life. [3-0-0] Prerequisites: One of POLI 240 or POLI 250.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
POLI_O 372-101	POLI_O	101	Gender and International Relations	W2	The role of ordinary men and women in the national and international arena. Themes include: war and violence, 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	3:30 p.m. - 5:00 p.m.
POLI_O 383-101	POLI_O	101	Crimes Against Humanity	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 270 or POLI 221.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
POLI_O 386-101	POLI_O	101	International Development	W2	Lecture course examining established and critical theories of Development, and the ways that these link to larger issues and practices in international politics. Credit will be granted for only one of POLI 464-H or POLI 386 when the subject matter is of the same nature. [3-0-0] Pre-requisites: POLI 221 or POLI 270.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
POLI_O 400-101	POLI_O	101	Quantitative Methods in Political Science	W2	Introduction to the logic of quantitative research designs in political science: theory and practical applications. Students will pursue their research interests using the methodology learned in class. Credit will be granted for only one of POLI 441 or POLI 400 [3-0-0] Prerequisite: Third-year standing. Equivalency: POLI 441.	Lecture	In Person Learning	Fri	8:00 a.m. - 11:00 a.m.
POLI_O 430-101	POLI_O	101	The Canadian Constitution: Powers and Structure	W2	Seminar examining the politics of Canadian civil liberties and the Canadian Charter of Rights and Freedoms. [0-0-3] Prerequisite: 3 credits of 300-level POLI.	Seminar	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
POLI_O 470-101	POLI_O	101	Advanced International Relations Theory	W2	Seminar on major theoretical approaches to the study of international relations. Credit will be granted for only one of POLI 462 or POLI 470. [0-0-3] Prerequisite: POLI 370.	Seminar	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
PSYO_O 111-101	PSYO_O	101	Introduction to Psychology: Basic Processes	W2	Survey of topics in psychology which relate to basic processes. Methods and statistics, the nervous system and physiological processes, sensation and perception, learning, cognition and memory. [3-0-0]	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
PSYO_O 121-101	PSYO_O	101	Introduction to Psychology: Personal Functioning	W2	Survey of topics in psychology which relate to personal functioning. Methods and statistics, motivation and emotion, life span development, social processes, personality, psychopathology, and psychotherapy. [3-0-0] Prerequisite: PSYO 111.	Lecture	Online Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
PSYO_O 121-103	PSYO_O	103	Introduction to Psychology: Personal Functioning	W2	Survey of topics in psychology which relate to personal functioning. Methods and statistics, motivation and emotion, life span development, social processes, personality, psychopathology, and psychotherapy. [3-0-0] Prerequisite: PSYO 111.	Lecture	In Person Learning	Fri	6:30 p.m. - 9:30 p.m.
PSYO_O 220-102	PSYO_O	102	Lifespan Development	W2	Introduction to the field of lifespan developmental psychology. Examination of the physical, cognitive, and psychosocial development of the individual from conception through later adulthood. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
PSYO_O 230-001	PSYO_O	001	Biopsychology of Behaviour	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	PSYO_O	101	Personality	W2	Focuses on a variety of personality theories including psychoanalytic, behaviouristic, 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 PSYC 101, PSYC 102, or PSYC 100.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
PSYO_O 252-101	PSYO_O	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 PSYC 101, PSYC 102, or PSYC 100.	Lecture	Online Learning	Tue	2:00 p.m. - 5:00 p.m.
PSYO_O 271-101	PSYO_O	101	Introduction to Data Analysis	W2	Introduction to behavioural data analysis focusing on the use of inferential statistics in psychology and the conceptual interpretation of data as related to basic experimental designs (laboratory, field research methods). A required course for students majoring in Psychology: restricted to students majoring in Psychology. [3-2-0] Prerequisite: PSYO 270.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
PSYO_O 271-102	PSYO_O	102	Introduction to Data Analysis	W2	Introduction to behavioural data analysis focusing on the use of inferential statistics in psychology and the conceptual interpretation of data as related to basic experimental designs (laboratory, field research methods). A required course for students majoring in Psychology: restricted to students majoring in Psychology. [3-2-0] Prerequisite: PSYO 270.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.

PSYO_O 311-001	PSYO_O	001	Memory	W2	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 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	12:30 p.m. - 2:00 p.m.	
PSYO_O 314-001	PSYO_O	001	Non-Visual Perception	W2	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 allow 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 Fri	8:00 a.m. - 9:00 a.m.	
PSYO_O 316-001	PSYO_O	001	Psychology of Touch II	W2	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 Fri	10:00 a.m. - 11:00 a.m.	
PSYO_O 321-001	PSYO_O	001	Child Development	W2	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 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 3 credits of 200-level Psychology.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.	
PSYO_O 334-001	PSYO_O	001	Neuroscience of Cognition	W2	Modern imaging techniques provide new insights into where and how thinking occurs in the brain. This course examines how these techniques have led to a new understanding of topics in cognition 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.	
PSYO_O 335-001	PSYO_O	001	Drugs and Behaviour	W2	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	Tue Thu	3:30 p.m. - 5:00 p.m.	
PSYO_O 348-101	PSYO_O	101	Health Psychology	W2	Critical survey of research and theory on relation between psychological factors (behaviour, emotion, cognition, personality, and interpersonal relationships) and health. Topics include: stress and health, coping with stress, social support, health behaviours (e.g., physical activity), and psychosocial aspects of chronic illness. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 6 credits of 200-level Psychology.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.	
PSYO_O 349-102	PSYO_O	102	Positive Psychology	W2	The psychology of happiness and well-being. Current research designs, techniques, empirical findings, and theories in positive psychology. Practical experience with some of the interventions and strategies used in positive psychology. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 6 credits of 200-level Psychology.	Lecture	Online Learning	Mon Wed	11:00 a.m. - 12:30 p.m.	
PSYO_O 354-101	PSYO_O	101	Psychological Aspects of Human Sexuality II	W2	Academic overview of human sexuality from a biological, psychosocial, and behavioural perspective. Sexual behaviour, sexual complications and their treatment, attraction and love, sexual orientation, and problematic sexual behaviour. [3-0-0] Prerequisite: PSYO 353.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.	
PSYO_O 356-001	PSYO_O	001	Forensic Psychology II	W2	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.	
PSYO_O 362-101	PSYO_O	101	Psychology of Humour	W2	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	Tue Thu	9:30 a.m. - 11:00 a.m.	
PSYO_O 373-001	PSYO_O	001	Advanced Research Methods and Statistics	W2	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. [3-3-0] 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	Tue Thu	2:00 p.m. - 3:30 p.m.	
PSYO_O 373-101	PSYO_O	101	Advanced Research Methods and Statistics	W2	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. [3-3-0] 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.	Laboratory	In Person Learning	Thu	8:00 a.m. - 11:00 a.m.	
PSYO_O 420-A_002	PSYO_O	A	A_002	Advanced Topics in Developmental Psychology	W2	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.
PSYO_O 480-A_001	PSYO_O	A	A_001	Advanced Special Topics in Psychology	W2	Intensive examination of selected advanced topics and issues in psychology. May be repeated on a different topic for a maximum of 9 credits during complete program of study. [1-9 hours/week lecture] Prerequisite: Third-year standing and permission of the department head.	Lecture	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
PSYO_O 480-E_001	PSYO_O	E	E_001	Advanced Special Topics in Psychology	W2	Intensive examination of selected advanced topics and issues in psychology. May be repeated on a different topic for a maximum of 9 credits during complete program of study. [1-9 hours/week lecture] Prerequisite: Third-year standing and permission of the department head.	Lecture	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.
PSYO_O 480-N_101	PSYO_O	N	N_101	Advanced Special Topics in Psychology	W2	Intensive examination of selected advanced topics and issues in psychology. May be repeated on a different topic for a maximum of 9 credits during complete program of study. [1-9 hours/week lecture] Prerequisite: Third-year standing and permission of the department head.	Lecture	Online Learning	Tue	2:00 p.m. - 5:00 p.m.
PSYO_O 480-P_001	PSYO_O	P	P_001	Advanced Special Topics in Psychology	W2	Intensive examination of selected advanced topics and issues in psychology. May be repeated on a different topic for a maximum of 9 credits during complete program of study. [1-9 hours/week lecture] Prerequisite: Third-year standing and permission of the department head.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
PSYO_O 508-A_101	PSYO_O	A	A_101	Advanced Topics	W2		Lecture	Online Learning	Tue	2:00 p.m. - 5:00 p.m.
PSYO_O 508-R_001	PSYO_O	R	R_001	Advanced Topics	W2		Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.

PSYO_O 511-101	PSYO_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.
PSYO_O 515-101	PSYO_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.
PSYO_O 517-101	PSYO_O	101	Psychological Intervention II: Advanced Topics in	W2	Evidence-based treatments in Cognitive Behavioural Therapy. Content will focus on cognitive behavioural 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.
PSYO_O 599-101	PSYO_O	101	Master's Thesis	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
PSYO_O 699-101	PSYO_O	101	Doctoral Dissertation	W2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
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.	Lecture	In Person Learning	Tue 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 behaviour, and public channels of communication such as print media, advertising, television, film, and popular literature. [3-0-0] Prerequisite: SOCI 111.	Lecture	In Person Learning	Tue 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.	Lecture	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 criminology; institutional responses to criminal behaviour by the justice system. [3-0-0] Prerequisite: SOCI 111.	Lecture	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 115, HIST 145.	Lecture	In Person Learning	Tue 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 (re)produce 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 217. 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 115, HIST 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 for 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.

SOCW_O 553-001	SOCW_O	001	Research Knowledge and Evidence in Clinical Soc	W2	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	5:00 p.m. - 8:00 p.m.
SOCW_O 555-001	SOCW_O	001	Organizations and Leadership	W2	Knowledge of human service organizations and tools for effective leadership. Restricted to students in the M.S.W. program.	Lecture	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
SOCW_O 555-002	SOCW_O	002	Organizations and Leadership	W2	Knowledge of human service organizations and tools for effective leadership. Restricted to students in the M.S.W. program.	Lecture	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
SOCW_O 558-001	SOCW_O	001	Advanced Integrative Seminar for Field Educatio	W2	Integrates theoretical knowledge and practice experience in direct/clinical settings. This course is graded on a pass/fail basis. 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 558-002	SOCW_O	002	Advanced Integrative Seminar for Field Educatio	W2	Integrates theoretical knowledge and practice experience in direct/clinical settings. This course is graded on a pass/fail basis. 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 598-002	SOCW_O	002	Graduating Paper	W2	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 599-002	SOCW_O	002	Thesis	W2	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 102-001	SPAN_O	001	Beginners' Spanish II	W2	Development of listening, speaking, reading, and writing in Spanish. Completes level A1 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: Either (a) a score of 70% or higher in Spanish 11 or (b) SPAN 101.	Lecture	In Person Learning	Mon Wed Fri	9:00 a.m. - 10:00 a.m.
SPAN_O 102-002	SPAN_O	002	Beginners' Spanish II	W2	Development of listening, speaking, reading, and writing in Spanish. Completes level A1 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: Either (a) a score of 70% or higher in Spanish 11 or (b) SPAN 101.	Lecture	In Person Learning	Mon Wed Fri	10:00 a.m. - 11:00 a.m.
SPAN_O 102-003	SPAN_O	003	Beginners' Spanish II	W2	Development of listening, speaking, reading, and writing in Spanish. Completes level A1 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: Either (a) a score of 70% or higher in Spanish 11 or (b) SPAN 101.	Lecture	In Person Learning	Mon Wed Fri	1:00 p.m. - 2:00 p.m.
SPAN_O 102-004	SPAN_O	004	Beginners' Spanish II	W2	Development of listening, speaking, reading, and writing in Spanish. Completes level A1 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: Either (a) a score of 70% or higher in Spanish 11 or (b) SPAN 101.	Lecture	In Person Learning	Mon Wed Fri	2:00 p.m. - 3:00 p.m.
SPAN_O 202-001	SPAN_O	001	Advanced Beginners' Spanish II	W2	A continuation of SPAN 201. Grammar, composition, oral practice, and reading. Completes level A2 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: SPAN 201.	Lecture	In Person Learning	Mon Wed Fri	11:00 a.m. - 12:00 p.m.
SPAN_O 202-002	SPAN_O	002	Advanced Beginners' Spanish II	W2	A continuation of SPAN 201. Grammar, composition, oral practice, and reading. Completes level A2 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: SPAN 201.	Lecture	In Person Learning	Mon Wed Fri	12:00 p.m. - 1:00 p.m.
SPAN_O 302-001	SPAN_O	001	Intermediate Spanish II	W2	A continuation of SPAN 301. Intermediate grammar, composition, oral practice, and reading. Completes level B1 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: SPAN 301.	Lecture	In Person Learning	Mon Wed Fri	11:00 a.m. - 12:00 p.m.
SPAN_O 402-001	SPAN_O	001	Advanced Spanish II	W2	Advanced grammar, composition, oral practice, and reading. Corresponds to level B2 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: SPAN 401.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
STAT_O 121-101	STAT_O	101	Elementary Statistics	W2	Descriptive and inferential statistics, elementary probability, probability distributions, estimation of parameters, hypotheses testing, correlation, linear regression. Credit will be granted for only one of STAT 121 or STAT 124. [3-0-0] Prerequisite: Either (a) a score of 60% or higher in one of MATH 125, MATH 126 or (b) a score of 67% or higher in one of MATH 12, PREC 12.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
STAT_O 124-101	STAT_O	101	Business Statistics	W2	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	12:30 p.m. - 2:00 p.m.
STAT_O 205-101	STAT_O	101	Introduction to Mathematical Statistics	W2	Sampling distribution theory. Likelihood. Parameter 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 230. [3-0-0] Prerequisite: STAT 203.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
STAT_O 230-101	STAT_O	101	Introductory Statistics	W2	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	Mon Wed	2:00 p.m. - 3:30 p.m.
STAT_O 401-101	STAT_O	101	Probability and Statistical Inference	W2	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. [3-0-0] Prerequisite: STAT 303.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
STAT_O 403-001	STAT_O	001	Stochastic Processes	W2	Random walks, Markov chains, Poisson processes, continuous time Markov chains, birth and death processes, exponential models, and applications of Markov chains. [3-0-0] Prerequisite: STAT 303.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
STAT_O 507-101	STAT_O	101	Sampling and Design	W2	Collection of data using either designed experiments or survey samples. Planning and practice of data collection. Observational and experimental data pros and cons. Standard methods in survey samples. Experimental design review. Credit will be granted for only one of DATA 407, or STAT 507.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
STAT_O 538-101	STAT_O	101	Advanced Statistical Modelling	W2	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 410, or STAT 538. [3-2-0]	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
STAT_O 547-J_101	STAT_O	J_101	Topics in Statistics	W2	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. 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	Wed Fri	12:30 p.m. - 2:00 p.m.

STAT_O 560-001	STAT_O	001	Probability and Stochastic Processes	W2	Theory of probability, including random variables, expectation, conditional expectation, generating functions, modes of convergence of random variables and their distributions. Applications to random models such as Markov, Poisson, birth-death, Gaussian and diffusion processes. [3-0-0]	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
SUST_O 100-101	SUST_O	101	Sustainability: People, Place, and Process	W2	The concept of sustainability and its relationship to people and communities, the management and conservation of natural resources, land and food systems, and the built environment. Guest speakers and in-class discussions covering topics which address local and global contexts. May include community service learning project. [3-0-0]	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
SUST_O 204-001	SUST_O	001	Creative Communication and Engagement	W2	Using experiential and collaborative learning, students of sustainability improve their communication skills as speakers, listeners, collaborators, leaders and problem solvers. Credit will be granted for only one of SUST 204 or THTR 204. [3-0-0] Prerequisite: SUST 104 recommended. Equivalency: THTR 204	Studio	In Person Learning	Tue	5:00 p.m. - 8:00 p.m.
SUST_O 205-001	SUST_O	001	Sustainability Economics	W2	Explores and contrasts approaches and tools from mainstream economics and heterodox economics that may contribute to sustainability decision making. Identification and evaluation of trade-offs associated with choices made in the name of sustainability. Restricted to students in the Bachelor of Sustainability program. [3-0-0] Prerequisite: SUST 200 recommended.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
SUST_O 300-101	SUST_O	101	Achieving Sustainability at the Regional Scale	W2	Advanced analysis of regional-scale challenges and solutions to sustainability in developed and developing nations. Ecosystem services and relationships to human well-being. Social and ecological resilience of landscapes. [3-0-0] Prerequisite: SUST 200.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
THTR_O 103-101	THTR_O	101	Acting for Stage and Screen	W2	An introduction to acting techniques pertaining to the style of psychological realism for stage and screen. Credit will be granted for only one of THTR 103 or FILM 103. [3 hours/week studio] Equivalency: FILM 103	Studio	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
THTR_O 104-101	THTR_O	101	The Art of Public Speaking	W2	Verbal and nonverbal communication skills as well as knowledge of basic communications technologies. Well-suited to students who wish to build skill and confidence in public presentation.	Studio	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
THTR_O 204-001	THTR_O	001	Creative Communication and Engagement	W2	Using experiential and collaborative learning, students of sustainability improve their communication skills as speakers, listeners, collaborators, leaders and problem solvers. Credit will be granted for only one of THTR 204 or SUST 204. Prerequisite: SUST 104 recommended. Equivalency: SUST 204	Studio	In Person Learning	Tue	5:00 p.m. - 8:00 p.m.
THTR_O 212-101	THTR_O	101	Creativity as Source & Resource	W2	Process-oriented exploration of creativity as a source of personal growth and expressive freedom, and a resource for the cultivation of self-confidence, resilience, and well-being. Prerequisite: Second year standing.	Studio	In Person Learning	Wed	2:00 p.m. - 5:00 p.m.
THTR_O 304-001	THTR_O	001	World Theatre and Cultural Performance	W2	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: WRLD 304	Lecture	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.
THTR_O 384-101	THTR_O	101	Spoken Word	W2	Advanced workshop in writing and performing Spoken Word texts. Credit will be granted for only one of THTR 384 or CRWR 384, CULT 384 or CULT 308. [0-3-0] Prerequisite: 6 credits of Creative Writing and/or Theatre. Third-year standing. Equivalency: CRWR 384, CULT 384	Studio	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.
VGRS_O 599-002	VGRS_O	002	Visiting Graduate Research Students	W2	Visiting Graduate Research Students	Independent Study	In Person Learning	Arranged	Arranged
VISA_O 090-010	VISA_O	010	Safety Training	W2	Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.	Lecture	In Person Learning	Mon	9:00 a.m. - 1:00 p.m.
VISA_O 103-001	VISA_O	001	Drawing and Two-Dimensional Art Practices II	W2	Continuation of VISA 102. [2-2-0] Prerequisite: VISA 102.	Studio	In Person Learning	Tue	2:00 p.m. - 6:00 p.m.
VISA_O 103-101	VISA_O	101	Drawing and Two-Dimensional Art Practices II	W2	Continuation of VISA 102. [2-2-0] Prerequisite: VISA 102.	Studio	In Person Learning	Thu	2:00 p.m. - 6:00 p.m.
VISA_O 105-001	VISA_O	001	Three-Dimensional Art Practices II	W2	Continuation of VISA 104. [2-2-0] Prerequisite: VISA 104.	Studio	In Person Learning	Wed	9:00 a.m. - 1:00 p.m.
VISA_O 105-002	VISA_O	002	Three-Dimensional Art Practices II	W2	Continuation of VISA 104. [2-2-0] Prerequisite: VISA 104.	Studio	In Person Learning	Fri	9:00 a.m. - 1:00 p.m.
VISA_O 108-001	VISA_O	001	Introduction to Digital Media II	W2	Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0] Prerequisite: VISA 106.	Lecture	In Person Learning	Thu	8:30 a.m. - 9:30 a.m.
VISA_O 108-101	VISA_O	L01	Introduction to Digital Media II	W2	Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0] Prerequisite: VISA 106.	Laboratory	In Person Learning	Wed	2:00 p.m. - 5:00 p.m.
VISA_O 108-102	VISA_O	L02	Introduction to Digital Media II	W2	Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0] Prerequisite: VISA 106.	Laboratory	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
VISA_O 108-103	VISA_O	L03	Introduction to Digital Media II	W2	Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0] Prerequisite: VISA 106.	Laboratory	In Person Learning	Thu	5:00 p.m. - 8:00 p.m.
VISA_O 225-001	VISA_O	001	Painting II	W2	Continuation of VISA 215. [2-2-0] Prerequisite: VISA 215.	Studio	In Person Learning	Fri	2:00 p.m. - 6:00 p.m.
VISA_O 245-001	VISA_O	001	Sculpture II	W2	For the student who wishes to specialize in sculpture. Students will work with the concepts of space and materials to create personal solutions to problems set by the instructor. [2-2-0] Prerequisite: VISA 235.	Studio	In Person Learning	Tue	12:30 p.m. - 4:30 p.m.
VISA_O 253-001	VISA_O	001	Printmaking: Screenprinting II	W2	Provides opportunities for students to continue their exploration of the medium of screenprinting. More advanced processes will be introduced, with continued focus on the development of each student's personal imagery. [2-2-0] Prerequisite: VISA 233.	Studio	In Person Learning	Tue	4:30 p.m. - 8:30 p.m.
VISA_O 254-001	VISA_O	001	Introduction to Printmaking: Etching and Lithogr	W2	Introduction to drawing-based printmaking processes - line etching and stone lithography. Focus is on gaining familiarity with these processes and on personal imagery. Basic drawing skills are an asset. [2-2-0] Prerequisite: Either (a) VISA 103 or (b) VISA 147. or permission of the instructor.	Studio	In Person Learning	Thu	2:00 p.m. - 6:00 p.m.
VISA_O 256-001	VISA_O	001	Photography II	W2	A further refinement of photographic and darkroom processing skills emphasizing creative, conceptual, and experimental approaches. A 35mm SLR film camera and tripod are required. [2-2-0] Prerequisite: VISA 244.	Studio	In Person Learning	Wed	2:00 p.m. - 6:00 p.m.
VISA_O 266-001	VISA_O	001	2D Animation	W2	Introduces core principles and techniques required for the creation of two-dimensional digital animation projects. [1-3-0] Prerequisite: VISA 108.	Studio	In Person Learning	Mon	1:00 p.m. - 5:00 p.m.
VISA_O 266-002	VISA_O	002	2D Animation	W2	Introduces core principles and techniques required for the creation of two-dimensional digital animation projects. [1-3-0] Prerequisite: VISA 108.	Studio	In Person Learning	Wed	8:00 a.m. - 12:00 p.m.
VISA_O 269-001	VISA_O	001	Strategies in Digital Art: Virtual Worlds	W2	Critical understanding and research-creation of virtual environments employing non-linear storytelling, media aesthetics, modelling, animation, interaction design and coding using 3D modelling software. [1-3-0] Prerequisite: VISA 108.	Studio	In Person Learning	Fri	8:00 a.m. - 12:00 p.m.

VISA_O 271-101	VISA_O	101	Video II	W2	Continuation of VISA 261. Further work on organizational, technical, creative, and critical skills required in video production. Provides experience in all stages of the production process, including pre-production, production, and post-production. Considers a variety of approaches to video, such as artist videos, music videos, and television productions. Credit will be granted for only one of VISA 271 or FILM 271. [2-2-0] Prerequisite: One of VISA 261, FILM 261. Equivalency: FILM 271	Studio	In Person Learning	Fri	1:00 p.m. - 5:00 p.m.	
VISA_O 283-001	VISA_O	001	Drawing IV	W2	Continuation of VISA 282. Extended exploration of various drawing approaches, material applications, and image manipulation practices. [2-2-0] Prerequisite: VISA 282.	Studio	In Person Learning	Mon	9:00 a.m. - 1:00 p.m.	
VISA_O 300-X_101	VISA_O	X	X_101	Advanced Practice in Drawing	W2	To extend students' abilities in mark-making, image production, and expression of meaning through drawing. Emphasis on developing personal visual languages. [2-2-0] Prerequisite: VISA 283.	Studio	In Person Learning	Fri	2:00 p.m. - 6:00 p.m.
VISA_O 312-C_101	VISA_O	C	C_101	Advanced Practice in Painting	W2	Advanced studio course to increase the student's exploration and understanding of painting. [2-2-0] Prerequisite: VISA 225.	Studio	In Person Learning	Wed	9:30 a.m. - 1:30 p.m.
VISA_O 312-D_101	VISA_O	D	D_101	Advanced Practice in Painting	W2	Advanced studio course to increase the student's exploration and understanding of painting. [2-2-0] Prerequisite: VISA 225.	Studio	In Person Learning	Thu	2:00 p.m. - 6:00 p.m.
VISA_O 322-C_101	VISA_O	C	C_101	Advanced Practice in Sculpture	W2	Advanced studio course to explore contemporary practices in sculpture. [2-2-0] Prerequisite: VISA 245.	Studio	In Person Learning	Thu	8:30 a.m. - 12:30 p.m.
VISA_O 336-C_101	VISA_O	C	C_101	Advanced Practice in Printmaking	W2	Opportunity for students to continue their exploration of select media in printmaking (intaglio, relief, lithography, and screenprinting) within the context of contemporary art practice. Interdisciplinary crossover, evolving processes, and new materials will be encouraged. [2-2-0] Prerequisite: One of VISA 253, VISA 254, VISA 255.	Studio	In Person Learning	Wed	2:00 p.m. - 6:00 p.m.
VISA_O 362-X_001	VISA_O	X	X_001	Advanced Practice in Photography	W2	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 362, CULT 362, or any combination thereof. Prerequisite: VISA 256. or permission of the instructor. Equivalency: CULT362	Studio	In Person Learning	Tue	5:00 p.m. - 9:00 p.m.
VISA_O 382-A_101	VISA_O	A	A_101	Advanced Practice in Media Arts	W2	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	Studio	In Person Learning	Tue	8:00 a.m. - 12:00 p.m.
VISA_O 382-X_001	VISA_O	X	X_001	Advanced Practice in Media Arts	W2	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	Studio	In Person Learning	Fri	10:00 a.m. - 2:00 p.m.
VISA_O 483-001	VISA_O	001	Advanced Art Practices II	W2	Continuation of VISA 482. As part of the course requirements, students must participate in a graduating exhibition. [2-4-0] Prerequisite: VISA 482.	Studio	In Person Learning	Mon	10:00 a.m. - 5:00 p.m.	
VURS_O 499-002	VURS_O	002	Visiting Undergraduate Research Students	W2	Visiting Undergraduate Research Students	Independent Study	In Person Learning	Arranged	Arranged	
WRLD_O 150-101	WRLD_O	101	Introduction to Intercultural Communication	W2	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.	Lecture	Online Learning	Mon Wed Fri	10:00 a.m. - 11:00 a.m.	
WRLD_O 158-101	WRLD_O	101	Introduction to Language and Culture: Modern J	W2	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.	Lecture	Online Learning	Mon Wed Fri	2:00 p.m. - 3:00 p.m.	
WRLD_O 200-001	WRLD_O	001	Introduction to World Literatures	W2	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	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.	
WRLD_O 304-001	WRLD_O	001	World Theatre and Cultural Performance	W2	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	Lecture	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.	
WRLD_O 310-001	WRLD_O	001	Mythologies in Motion	W2	Literary study of a selection of transcultural myths and their influence across time. [3-0-0] Prerequisite: Third-year standing.	Lecture	In Person Learning	Tue Thu	6:30 p.m. - 8:00 p.m.	
WRLD_O 375-001	WRLD_O	001	Encountering India: The Age of the Mughals	W2	An examination of interrelated arts, visual cultures and texts in South Asia (15th to 19th C) within their historical and cultural contexts. Topics include the rise of the multicultural Mughal Empire, the roles of Hinduism, Islam, and Sikhism, and encounters with Renaissance and Colonial Europe. Digital art historical approaches will normally be used, though no computing experience is required. Credit will be granted for only one of ARTH 375, DIHU 375, or WRLD 375. Prerequisite: Third-year standing. Equivalency: ARTH 375, DIHU 375	Lecture	In Person Learning	Mon Wed	6:00 p.m. - 7:30 p.m.	
WRLD_O 382-001	WRLD_O	001	Cross-cultural Travel Narratives	W2	Experiential learning course combining introduction to intercultural communication theory and the literary study of cross-cultural migration narratives. Prerequisite: Third-year standing.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.	
WRLD_O 428-101	WRLD_O	101	Anti-Semitism: Then and Now	W2	Roots, developments and transformations of anti-Semitism in literature, and culture. Prerequisite: Third-year standing.	Lecture	Online Learning	Wed Fri	11:00 a.m. - 12:30 p.m.	
ANTH_O 100-001	ANTH_O	001	Introduction to Cultural Anthropology	W1	An overview of social and cultural anthropology, its origins, its distinctive methods and concepts, and its place in the contemporary world. A critical examination of human diversity and how social and cultural differences are produced and shaped by local and global patterns. [3-0-0]	Lecture	Online Learning	Tue Thu	2:00 p.m. - 3:30 p.m.	
ANTH_O 100-002	ANTH_O	002	Introduction to Cultural Anthropology	W1	An overview of social and cultural anthropology, its origins, its distinctive methods and concepts, and its place in the contemporary world. A critical examination of human diversity and how social and cultural differences are produced and shaped by local and global patterns. [3-0-0]	Lecture	Online Learning	Mon Wed	12:30 p.m. - 2:00 p.m.	
ANTH_O 100-003	ANTH_O	003	Introduction to Cultural Anthropology	W1	An overview of social and cultural anthropology, its origins, its distinctive methods and concepts, and its place in the contemporary world. A critical examination of human diversity and how social and cultural differences are produced and shaped by local and global patterns. [3-0-0]	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.	
ANTH_O 103-001	ANTH_O	001	Introduction to World Archaeology	W1	Peoples and cultures of prehistory. Examines archaeologists and their work in archaeological sites around the world, from the earliest evidence of humankind and hunting and gathering culture, to the emergence of civilization and state-level societies. [3-0-0]	Lecture	Online Learning	Tue Thu	9:30 a.m. - 11:00 a.m.	
ANTH_O 170-001	ANTH_O	001	Introduction to Linguistic Anthropology	W1	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	Mon Wed	5:00 p.m. - 6:30 p.m.	

ANTH_O 210-001	ANTH_O	001	Archaeological Inquiry and Practice	W1	Examines challenges and opportunities for archaeologists in the 21st century, including tensions in the discipline, the composition and differing interests of the archaeological community, the impact of the digitization of archaeology and ownership of the past and historical perspectives in archaeological thinking. [3-0-0] Prerequisite: ANTH 103.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
ANTH_O 218-001	ANTH_O	001	Tourism, Desire and Difference	W1	Anthropological approaches to tourism, the politics of cultural encounters, and how the desire for difference shapes peoples' everyday lives and pleasure travel. [3-0-0] Prerequisite: Second-year standing.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ANTH_O 227-001	ANTH_O	001	Introduction to Medical Anthropology	W1	Overview of how social, cultural, historical, biological, and political-economic forces intersect to affect human health and disease. Biomedicine will be treated as only one among many efficacious systems of medical knowledge and how it is embedded in local and global forms of social inequalities will be explored in depth. [3-0-0] Prerequisite: Second-year standing.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ANTH_O 245-001	ANTH_O	001	Culture and Environment	W1	Introduction to environmental anthropology with an emphasis on the relationship of cultural systems to contemporary environmental issues. Includes material from the Okanagan region and diverse societies around the world. May include one or more local field trips. [3-0-0] Prerequisite: One of ANTH 100, SUST 104.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
ANTH_O 252-001	ANTH_O	001	Visual Anthropology and New Media	W1	Provides an introduction to visual anthropology and the history of film in anthropological research. Students critically evaluate how anthropologists and documentary filmmakers represent other peoples and cultures through film and new media. [3-0-0]	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ANTH_O 270-001	ANTH_O	001	Phonology	W1	Cross-cultural exploration of how sounds of language are produced (articulatory phonetics) and organized into the sound systems of individual languages (phonemics), the history of phonological theory, and the method for discovering the phonemic system of individual languages (phonological analysis). [3-0-0] Prerequisite: ANTH 170.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ANTH_O 307-001	ANTH_O	001	Ethnographic Methods: Acquiring Research Skill: W1	W1	What are ethnographic methods and how is anthropological research conducted? Topics include research design, relationships with study participants, field techniques, ethical debates, data analysis and presentation. The emphasis is on interactive, workshop-style group learning. Credit will be granted for only one of ANTH 307 or ANTH 407. [3-0-0] Prerequisite: One of ANTH 100, ANTH 170, ANTH 200, ANTH 252. Third-year standing.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
ANTH_O 313-001	ANTH_O	001	Anthropology of Gender	W1	Nature of gender relations, their social and cultural expression, and theories of gender inequality drawn from anthropological research. [3-0-0] Prerequisite: ANTH 100.	Lecture	Online Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
ANTH_O 345-001	ANTH_O	001	Living in the Anthropocene	W1	The human impact on the environment is now so far-reaching that the term Anthropocene is being used to refer to the current 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 490H. [3-0-0] Prerequisite: One of ANTH 100, SUST 104. Third-year standing.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ANTH_O 373-001	ANTH_O	001	The Acquisition of Language and Cultural Practic	W1	Foundations, theories, and methods of language socialization. The cultural basis of language learning across the human lifespan with emphasis on the role of family, schooling, heritage, and endangerment. Prerequisite: One of ANTH 100, ANTH 170. Third-year standing. ANTH 170 is preferred.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ANTH_O 400-001	ANTH_O	001	History of Anthropology	W1	Review of anthropological theory and practice beginning with the origin of the discipline in the late nineteenth century and ending with the contemporary period. [3-0-0] Prerequisite: ANTH 100. and third-year standing.	Lecture	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.
ANTH_O 409-D_001	ANTH_O	D	D_001	W1	Advanced study of the theory and practice of applied, action, and consultancy anthropology; application of anthropology to questions of Aboriginal rights and title, education, medicine, development, women and development, tourism, and other social issues. [3-0-0] Prerequisite: ANTH 100. and third-year standing.	Lecture	Multi-access Learning	Tue	6:30 p.m. - 9:30 p.m.
ANTH_O 429-001	ANTH_O	001	Global Health and International Development	W1	Global health and international development from the perspective of critical medical anthropology. Consideration of ethnographic critiques of contemporary global health and development as humanitarian, security, and political-economic projects, as well as how applied medical anthropologists work to translate public health knowledge and policy into effective action in specific social and cultural contexts. ANTH 227 is strongly recommended. [3-0-0] Prerequisite: ANTH 100. and third-year standing.	Lecture	Online Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ANTH_O 445-101	ANTH_O	101	Political Ecology	W1	Study of the ways in which political processes shape the relationships of human societies to other species and the physical environment. Resource conflict, environmental degradation, inequality, marginalization, environmental movements, environmental discourse and other topics are analyzed using a combination of ethnographic case studies and theoretical materials. Credit will be granted for only one of ANTH 445 or GEOG 445. [3-0-0] Prerequisite: One of ANTH 100, GEOG 128, GEOG 129, SUST 104. Third-year standing.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ANTH_O 473-001	ANTH_O	001	Endangered Language Documentation and Revit	W1	Study of language shift, including local and global influences of historical, social, cultural, political, and economic factors impacting on language loss, endangerment, retention, and revival. Practical strategies for sustaining and reviving languages, including language documentation and revitalization. Credit will only be granted for one of ANTH 473 and INLG 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.	Lecture	Multi-access Learning	Thu	5:00 p.m. - 8:00 p.m.
APSC_O 107-001	APSC_O	001	Introduction to Applied Science Co-op	W1-2	An introduction to Applied Science Co-op including: completion of preemployment workshops, career skills toolkits, 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.	Workshop	In Person Learning	Arranged	Arranged
APSC_O 110-71C	APSC_O	71C	Co-operative Education Work Term I	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 107.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 110-71E	APSC_O	71E	Co-operative Education Work Term I	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 107.	Experiential	In Person Learning	Arranged	Arranged

APSC_O 110-71F	APSC_O	71F	Co-operative Education Work Term I	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 107.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 110-71M	APSC_O	71M	Co-operative Education Work Term I	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 107.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 169-201	APSC_O	201	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
APSC_O 169-202	APSC_O	202	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
APSC_O 169-L2A	APSC_O	L2A	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Laboratory	In Person Learning	Tue	8:00 a.m. - 10:00 a.m.
APSC_O 169-L2B	APSC_O	L2B	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Laboratory	In Person Learning	Thu	8:00 a.m. - 10:00 a.m.
APSC_O 169-L2C	APSC_O	L2C	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Laboratory	In Person Learning	Thu	8:00 a.m. - 10:00 a.m.
APSC_O 169-L2D	APSC_O	L2D	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Laboratory	In Person Learning	Fri	10:00 a.m. - 12:00 p.m.
APSC_O 169-L2E	APSC_O	L2E	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Laboratory	In Person Learning	Mon	2:00 p.m. - 4:00 p.m.
APSC_O 169-L2F	APSC_O	L2F	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Laboratory	In Person Learning	Wed	4:00 p.m. - 6:00 p.m.
APSC_O 169-L2G	APSC_O	L2G	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
APSC_O 169-L2H	APSC_O	L2H	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Laboratory	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
APSC_O 169-L2I	APSC_O	L2I	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
APSC_O 169-L2J	APSC_O	L2J	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Laboratory	In Person Learning	Wed	4:00 p.m. - 6:00 p.m.
APSC_O 169-L2K	APSC_O	L2K	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Laboratory	In Person Learning	Thu	4:00 p.m. - 6:00 p.m.
APSC_O 169-L2L	APSC_O	L2L	Fundamentals of Sustainable Engineering Desigr W1		Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]	Laboratory	In Person Learning	Tue	10:00 a.m. - 12:00 p.m.
APSC_O 172-101	APSC_O	101	Engineering Analysis I	W1	Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1]	Lecture	In Person Learning	Tue Thu	6:30 p.m. - 8:00 p.m.
APSC_O 172-102	APSC_O	102	Engineering Analysis I	W1	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-T1A	APSC_O	T1A	Engineering Analysis I	W1	Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1]	Discussion	In Person Learning	Tue	4:00 p.m. - 5:00 p.m.
APSC_O 172-T1B	APSC_O	T1B	Engineering Analysis I	W1	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-T1C	APSC_O	T1C	Engineering Analysis I	W1	Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1]	Discussion	In Person Learning	Wed	2:00 p.m. - 3:00 p.m.
APSC_O 172-T1D	APSC_O	T1D	Engineering Analysis I	W1	Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1]	Discussion	In Person Learning	Mon	12:00 p.m. - 1:00 p.m.
APSC_O 172-T1E	APSC_O	T1E	Engineering Analysis I	W1	Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1]	Discussion	In Person Learning	Mon	4:00 p.m. - 5:00 p.m.
APSC_O 172-T1F	APSC_O	T1F	Engineering Analysis I	W1	Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1]	Discussion	In Person Learning	Tue	4:00 p.m. - 5:00 p.m.
APSC_O 172-T1G	APSC_O	T1G	Engineering Analysis I	W1	Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1]	Discussion	In Person Learning	Mon	9:00 a.m. - 10:00 a.m.
APSC_O 172-T1H	APSC_O	T1H	Engineering Analysis I	W1	Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1]	Discussion	In Person Learning	Fri	8:00 a.m. - 9:00 a.m.
APSC_O 172-T1I	APSC_O	T1I	Engineering Analysis I	W1	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 176-101	APSC_O	101	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_O 176-102	APSC_O	102	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	2:00 p.m. - 3:30 p.m.



APSC_O 176-103	APSC_O	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_O 176-104	APSC_O	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_O 176-105	APSC_O	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_O 176-106	APSC_O	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_O 176-107	APSC_O	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_O 176-108	APSC_O	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_O 176-109	APSC_O	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_O 176-110	APSC_O	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_O 176-111	APSC_O	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_O 176-112	APSC_O	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_O 179-101	APSC_O	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_O 179-102	APSC_O	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_O 180-201	APSC_O	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_O 180-202	APSC_O	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_O 180-T1A	APSC_O	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_O 180-T1B	APSC_O	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_O 180-T1C	APSC_O	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_O 180-T1D	APSC_O	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_O 180-T1E	APSC_O	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_O 180-T1F	APSC_O	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_O 180-T1G	APSC_O	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_O 180-T1H	APSC_O	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_O 180-T1I	APSC_O	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_O 180-T1J	APSC_O	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.

APSC_O 180-T1K	APSC_O	T1K	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	4:00 p.m. - 6:00 p.m.
APSC_O 182-101	APSC_O	101	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Lecture	In Person Learning	Tue Thu	10:00 a.m. - 11:00 a.m.
APSC_O 182-102	APSC_O	102	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:00 p.m.
APSC_O 182-L1A	APSC_O	L1A	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Laboratory	In Person Learning	Wed (Alternate weeks)	2:00 p.m. - 4:00 p.m.
APSC_O 182-L1B	APSC_O	L1B	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Laboratory	In Person Learning	Wed (Alternate weeks)	2:00 p.m. - 4:00 p.m.
APSC_O 182-L1C	APSC_O	L1C	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Laboratory	In Person Learning	Wed (Alternate weeks)	10:00 a.m. - 12:00 p.m.
APSC_O 182-L1D	APSC_O	L1D	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Laboratory	In Person Learning	Wed (Alternate weeks)	10:00 a.m. - 12:00 p.m.
APSC_O 182-L1E	APSC_O	L1E	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Laboratory	In Person Learning	Tue (Alternate weeks)	2:00 p.m. - 4:00 p.m.
APSC_O 182-L1F	APSC_O	L1F	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Laboratory	In Person Learning	Tue (Alternate weeks)	2:00 p.m. - 4:00 p.m.
APSC_O 182-L1G	APSC_O	L1G	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Laboratory	In Person Learning	Fri (Alternate weeks)	10:00 a.m. - 12:00 p.m.
APSC_O 182-L1H	APSC_O	L1H	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Laboratory	In Person Learning	Fri (Alternate weeks)	10:00 a.m. - 12:00 p.m.
APSC_O 182-L1I	APSC_O	L1I	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Laboratory	In Person Learning	Tue (Alternate weeks)	10:00 a.m. - 12:00 p.m.
APSC_O 182-L1J	APSC_O	L1J	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Laboratory	In Person Learning	Tue (Alternate weeks)	10:00 a.m. - 12:00 p.m.
APSC_O 182-L1K	APSC_O	L1K	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Laboratory	In Person Learning	Thu (Alternate weeks)	12:00 p.m. - 2:00 p.m.
APSC_O 182-L1L	APSC_O	L1L	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Laboratory	In Person Learning	Thu (Alternate weeks)	12:00 p.m. - 2:00 p.m.
APSC_O 182-T1A	APSC_O	T1A	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Discussion	Online Learning	Arranged	Arranged
APSC_O 182-T1B	APSC_O	T1B	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Discussion	Online Learning	Arranged	Arranged
APSC_O 182-T1C	APSC_O	T1C	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Discussion	Online Learning	Arranged	Arranged
APSC_O 182-T1D	APSC_O	T1D	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Discussion	Online Learning	Arranged	Arranged
APSC_O 182-T1E	APSC_O	T1E	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Discussion	Online Learning	Arranged	Arranged
APSC_O 182-T1F	APSC_O	T1F	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Discussion	Online Learning	Arranged	Arranged
APSC_O 182-T1G	APSC_O	T1G	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Discussion	Online Learning	Arranged	Arranged
APSC_O 182-T1H	APSC_O	T1H	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Discussion	Online Learning	Arranged	Arranged
APSC_O 182-T1I	APSC_O	T1I	Matter and Energy I	W1	Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*]	Discussion	Online Learning	Arranged	Arranged
APSC_O 210-71C	APSC_O	71C	Co-operative Education Work Term II	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 110.	Experiential	In Person Learning	Arranged	Arranged

APSC_O 210-71E	APSC_O	71E	Co-operative Education Work Term II	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 110.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 210-71F	APSC_O	71F	Co-operative Education Work Term II	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 110.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 210-71M	APSC_O	71M	Co-operative Education Work Term II	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 110.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 246-101	APSC_O	101	System Dynamics	W1	Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: All of APSC 173, APSC 179, APSC 181.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
APSC_O 246-102	APSC_O	102	System Dynamics	W1	Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: All of APSC 173, APSC 179, APSC 181.	Lecture	In Person Learning	Tue Thu	6:30 p.m. - 8:00 p.m.
APSC_O 246-T1A	APSC_O	T1A	System Dynamics	W1	Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: All of APSC 173, APSC 179, APSC 181.	Discussion	In Person Learning	Wed	1:00 p.m. - 2:00 p.m.
APSC_O 246-T1B	APSC_O	T1B	System Dynamics	W1	Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: All of APSC 173, APSC 179, APSC 181.	Discussion	In Person Learning	Fri	10:00 a.m. - 11:00 a.m.
APSC_O 246-T1C	APSC_O	T1C	System Dynamics	W1	Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: All of APSC 173, APSC 179, APSC 181.	Discussion	In Person Learning	Fri	11:00 a.m. - 12:00 p.m.
APSC_O 246-T1D	APSC_O	T1D	System Dynamics	W1	Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: All of APSC 173, APSC 179, APSC 181.	Discussion	In Person Learning	Thu	10:00 a.m. - 11:00 a.m.
APSC_O 246-T1E	APSC_O	T1E	System Dynamics	W1	Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: All of APSC 173, APSC 179, APSC 181.	Discussion	In Person Learning	Wed	5:00 p.m. - 6:00 p.m.
APSC_O 246-T1F	APSC_O	T1F	System Dynamics	W1	Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: All of APSC 173, APSC 179, APSC 181.	Discussion	In Person Learning	Fri	9:00 a.m. - 10:00 a.m.
APSC_O 246-T1G	APSC_O	T1G	System Dynamics	W1	Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: All of APSC 173, APSC 179, APSC 181.	Discussion	In Person Learning	Tue	10:00 a.m. - 11:00 a.m.
APSC_O 246-T1H	APSC_O	T1H	System Dynamics	W1	Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: All of APSC 173, APSC 179, APSC 181.	Discussion	In Person Learning	Wed	11:00 a.m. - 12:00 p.m.
APSC_O 246-T1I	APSC_O	T1I	System Dynamics	W1	Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: All of APSC 173, APSC 179, APSC 181.	Discussion	In Person Learning	Mon	11:00 a.m. - 12:00 p.m.
APSC_O 248-101	APSC_O	101	Engineering Analysis III	W1	Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorems; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
APSC_O 248-102	APSC_O	102	Engineering Analysis III	W1	Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorems; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
APSC_O 248-T1A	APSC_O	T1A	Engineering Analysis III	W1	Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorems; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.	Discussion	In Person Learning	Mon	8:00 a.m. - 9:00 a.m.









APSC_O 410-71M	APSC_O	71M	Co-operative Education Work Term IV	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 310.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 410-71Z	APSC_O	71Z	Co-operative Education Work Term IV	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 310.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 411-71C	APSC_O	71C	Co-operative Education Work Term V	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 410.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 411-71E	APSC_O	71E	Co-operative Education Work Term V	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 410.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 411-71F	APSC_O	71F	Co-operative Education Work Term V	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 410.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 411-71M	APSC_O	71M	Co-operative Education Work Term V	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 410.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 412-71C	APSC_O	71C	Co-operative Education Work Term VI	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 411.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 412-71E	APSC_O	71E	Co-operative Education Work Term VI	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 411.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 412-71F	APSC_O	71F	Co-operative Education Work Term VI	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 411.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 412-71M	APSC_O	71M	Co-operative Education Work Term VI	W1	Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 411.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 501-001	APSC_O	001	Professional Communication for Engineering Lea W1	W1	Advanced workplace communication. Audience and purpose. Proposals and reports. Equity and diversity. Social media. Oral presentations (face-to-face and video conferencing) and visual aids. Listening skills. This course is restricted to students in the M.Eng. program.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
APSC_O 501-002	APSC_O	002	Professional Communication for Engineering Lea W1	W1	Advanced workplace communication. Audience and purpose. Proposals and reports. Equity and diversity. Social media. Oral presentations (face-to-face and video conferencing) and visual aids. Listening skills. This course is restricted to students in the M.Eng. program.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
APSC_O 501-003	APSC_O	003	Professional Communication for Engineering Lea W1	W1	Advanced workplace communication. Audience and purpose. Proposals and reports. Equity and diversity. Social media. Oral presentations (face-to-face and video conferencing) and visual aids. Listening skills. This course is restricted to students in the M.Eng. program.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
APSC_O 509-001	APSC_O	001	Construction Digitalization and Informatics	W1	Lean construction; n-dimensional Building Information Modeling; Internet of Things; digital business models; digital fabrication and platforms. Credit will be granted for only one of APSC 509 or ENGR 409.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
APSC_O 510-001	APSC_O	001	Engineering Internship I	W1	Supervised, technical paid work experience with a public or private organization for a minimum of 12 weeks full-time. Internship assignment required. Restricted to graduate degree students meeting requirements of the Faculty of Applied Science and the Co-operative Education program. Prerequisite: APSC 107. and 30 credits M.Eng. coursework. Pass/Fail.	Experiential	In Person Learning	Arranged	Arranged
APSC_O 512-001	APSC_O	001	Engineering Internship III	W1-2	Supervised, technical paid work experience with a public or private organization for a minimum of 12 weeks full-time. Internship assignment required. Restricted to graduate degree students meeting requirements of the Faculty of Applied Science and the Co-operative Education program. Prerequisite: APSC 511. Pass/Fail.	Lecture	In Person Learning	Arranged	Arranged
ARTH_O 101-001	ARTH_O	001	Art and Visual Cultures of the World I	W1	Introduction to art and visual cultures of major world regions from prehistory to the early modern period. [3-0-0]	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
ARTH_O 202-001	ARTH_O	001	The Critical Viewer	W1	Critical thinking about art and visual cultures of the world, past and present, and how visual works can be viewed closely, creatively analyzed, and interpreted. [3-0-0] Prerequisite: 3 credits of 100-level English.	Lecture	In Person Learning	Mon Thu	12:30 p.m. - 2:00 p.m.
ARTH_O 301-001	ARTH_O	001	Critical Viewing - Advanced Studies	W1	Key ideas influencing art theory, art practice, and visual culture studies and topics relating to the emergence and globalization of Euro-American art ideologies and practices. [3-0-0] Prerequisite: Third-year standing.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
ARTH_O 309-001	ARTH_O	001	Performance Art: Global Perspectives	W1	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 ARTH 309, CULT 309, THTR 309, or WRLD 309. Prerequisite: Third-year standing. Equivalency: CULT 380, THTR 309, WRLD 309.	Lecture	In Person Learning	Wed	2:00 p.m. - 5:00 p.m.
ARTH_O 360-B_001	ARTH_O	B	B_001 Selected Topics	W1	With different topics, this course can be taken more than once for credit. Prerequisite: Third-year standing	Lecture	Online Learning	Wed Fri	12:30 p.m. - 2:00 p.m.



ARTH_O 370-001	ARTH_O	001	Story and Image Across the Islamic World	W1	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 ARTH 370, DIHU 370, or WRLD 370. Prerequisite: Third-year standing. Equivalency: DIHU 370, WRLD 370	Lecture	In Person Learning	Mon Wed	6:30 p.m. - 8:00 p.m.
ARTH_O 380-001	ARTH_O	001	African Art and Visual Culture	W1	Historic and contemporary sub-Saharan African art and visual culture with emphasis on socio-historical contexts. [3-0-0] Prerequisite: Third-year standing.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
ARTH_O 390-001	ARTH_O	001	Indigenous Art and Visual Culture	W1	Historic and contemporary North American Indigenous art and visual culture with emphasis on socio-historical contexts and cultural identity. [3-0-0] Prerequisite: Third-year standing.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ARTH_O 395-001	ARTH_O	001	Renaissance Europe in a Global Context	W1	A re-evaluation of conventional Renaissance art history facilitated by intercultural perspectives, gender studies, cognitive science, and cultural theory. [3-0-0] Prerequisite: Third-year standing.	Lecture	Online Learning	Wed Fri	8:00 a.m. - 9:30 a.m.
ARTH_O 397-001	ARTH_O	001	Latin American Art and Visual Culture Since 1521	W1	Latin American art and visual cultures from the colonial period to the present. [3-0-0] Prerequisite: Third-year standing.	Lecture	In Person Learning	Tue Fri	2:00 p.m. - 3:30 p.m.
ARTH_O 420-001	ARTH_O	001	Curating Contemporary Art	W1	Approaches to researching Contemporary Art in a global context, and the practice of curating exhibitions. Prerequisite: Third-year standing.	Lecture	In Person Learning	Mon Thu	11:00 a.m. - 12:30 p.m.
ASTR_O 110-001	ASTR_O	001	Astrophysics I	W1	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.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
ASTR_O 110-L01	ASTR_O	L01	Astrophysics I	W1	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.	Laboratory	In Person Learning	Tue (Alternate weeks)	2:30 p.m. - 5:30 p.m.
ASTR_O 110-L02	ASTR_O	L02	Astrophysics I	W1	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.	Laboratory	In Person Learning	Tue (Alternate weeks)	6:30 p.m. - 9:30 p.m.
ASTR_O 110-S01	ASTR_O	S01	Astrophysics I	W1	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.	Seminar	In Person Learning	Wed	1:00 p.m. - 2:00 p.m.
ASTR_O 111-001	ASTR_O	001	Astronomy I	W1	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, ASTR 111, ASTR 112. [3-3*-0] Prerequisite: Foundations of Mathematics 11 is strongly recommended.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
ASTR_O 111-L01	ASTR_O	L01	Astronomy I	W1	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, ASTR 111, ASTR 112. [3-3*-0] Prerequisite: Foundations of Mathematics 11 is strongly recommended.	Laboratory	In Person Learning	Tue (Alternate weeks)	2:30 p.m. - 5:30 p.m.
ASTR_O 111-L02	ASTR_O	L02	Astronomy I	W1	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, ASTR 111, ASTR 112. [3-3*-0] Prerequisite: Foundations of Mathematics 11 is strongly recommended.	Laboratory	In Person Learning	Tue (Alternate weeks)	6:30 p.m. - 9:30 p.m.
ASTR_O 111-L03	ASTR_O	L03	Astronomy I	W1	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, ASTR 111, ASTR 112. [3-3*-0] Prerequisite: Foundations of Mathematics 11 is strongly recommended.	Laboratory	In Person Learning	Tue (Alternate weeks)	9:30 a.m. - 12:30 p.m.
ASTR_O 112-001	ASTR_O	001	Astronomy I (Non Lab)	W1	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. Does not satisfy science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 110, 111, 112. [3-0-0] Prerequisite: Foundations of Mathematics 11 is strongly recommended.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
ASTR_O 210-001	ASTR_O	001	Physical Processes in the Universe	W1	Introduction to observational conventions. Applications of physics to astronomical systems, including orbital mechanics, radiative processes. Introduction to stellar properties and atmospheres, accretion, and general relativity including black holes and modern cosmology. [3-0-0] Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ASTR_O 401-001	ASTR_O	001	Astrophysical Processes	W1	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] Prerequisite: PHYS 301, and ASTR 321 or PHYS 321. PHYS 324 is recommended.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.

ASTR_O 501-001	ASTR_O	001	Astrophysical Processes	W1	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	BIOC_O	001	Chemical and Biochemical Analysis	W1	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	BIOC_O	L01	Chemical and Biochemical Analysis	W1	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	BIOC_O	001	Molecular Biochemistry I	W1	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	BIOC_O	001	Pharmacology I	W1	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	BIOC_O	001	Lipids and Biomembranes	W1	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	BIOC_O	001	Natural Product Biosynthesis and Synthetic Biol	W1	Origin and Biosynthesis of natural products used as flavours, 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 485 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	BIOC_O	001	Nucleic Acids - Structure and Function	W1	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	BIOC_O	001	Methods in Metabolomics	W1	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, chemoinformatics, 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 533. [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	BIOC_O	001	Biocatalysis	W1	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 Fri	1:00 p.m. - 2:00 p.m.
BIOC_O 448-A_001	BIOC_O	A	A_001 Directed Studies in Biochemistry	W1	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	BIOC_O	A	A_002 Directed Studies in Biochemistry	W1	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	BIOC_O	A	A_003 Directed Studies in Biochemistry	W1	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	BIOC_O	A	A_004 Directed Studies in Biochemistry	W1	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	BIOC_O	A	A_005 Directed Studies in Biochemistry	W1	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 494-L01	BIOC_O	L01	Biotechnology Laboratory I: DNA Manipulation	W1	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.
BIOC_O 494-L02	BIOC_O	L02	Biotechnology Laboratory I: DNA Manipulation	W1	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.
BIOC_O 494-L03	BIOC_O	L03	Biotechnology Laboratory I: DNA Manipulation	W1	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.
BIOC_O 494-L04	BIOC_O	L04	Biotechnology Laboratory I: DNA Manipulation	W1	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.
BIOC_O 494-L05	BIOC_O	L05	Biotechnology Laboratory I: DNA Manipulation	W1	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.
BIOC_O 530-001	BIOC_O	001	Biochemistry Seminar	W1	Course designed to enhance oral and written communication of scientific concepts. Each student will present two seminars and write an NSERC-style grant related to their research. Credit will be granted for only one of BIOC 530 or BIOC 630. Prerequisite: Admission to the Biochemistry and Molecular Biology graduate program.	Lecture	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
BIOC_O 549-001	BIOC_O	001	M.Sc. Thesis	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
BIOC_O 549-201	BIOC_O	201	M.Sc. Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
BIOC_O 649-001	BIOC_O	001	Ph.D. Thesis	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
BIOC_O 649-201	BIOC_O	201	Ph.D. Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
BIOL_O 116-001	BIOL_O	001	Biology for Science Majors I	W1	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	Wed Fri	11:00 a.m. - 12:30 p.m.
BIOL_O 116-002	BIOL_O	002	Biology for Science Majors I	W1	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	Tue Thu	8:00 a.m. - 9:30 a.m.
BIOL_O 116-L01	BIOL_O	L01	Biology for Science Majors I	W1	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	12:30 p.m. - 3:30 p.m.
BIOL_O 116-L02	BIOL_O	L02	Biology for Science Majors I	W1	First of a pair of courses that introduce students to the biological concepts necessary to continue into second-year biology. Covers evolutionary theory and its underlying genetic basis, basic cell biology, plant and animal nutrition, and energy acquisition. Credit will be granted for only BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: Either (a) CHEM 11 and one of Life Science 11, Anatomy and Physiology 12; or (b) CHEM 11 and one of BIOL 11, BIOL 12. Corequisite: One of CHEM 111, CHEM 121 is recommended.	Laboratory	In Person Learning	Mon	3:30 p.m. - 6:30 p.m.
BIOL_O 116-L03	BIOL_O	L03	Biology for Science Majors I	W1	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.
BIOL_O 116-L04	BIOL_O	L04	Biology for Science Majors I	W1	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.
BIOL_O 116-L05	BIOL_O	L05	Biology for Science Majors I	W1	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.







BIOL_O 116-L30	BIOL_O	L30	Biology for Science Majors I	W1	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	Thu	3:30 p.m. - 6:30 p.m.
BIOL_O 116-L31	BIOL_O	L31	Biology for Science Majors I	W1	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	Thu	6:30 p.m. - 9:30 p.m.
BIOL_O 116-L32	BIOL_O	L32	Biology for Science Majors I	W1	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	Fri	9:30 a.m. - 12:30 p.m.
BIOL_O 116-XM2	BIOL_O	XM2	Biology for Science Majors I	W1	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	Arranged	Arranged
BIOL_O 116-XMT	BIOL_O	XMT	Biology for Science Majors I	W1	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	Arranged	Arranged
BIOL_O 117-101	BIOL_O	101	Evolution and Ecology	W1	Evolutionary theory and its underlying genetic basis; population, community, ecosystem, and behavioural ecology. Specific case studies and current environmental concerns. Recommended for Arts or Education students, in conjunction with BIOL 122. BIOL 117/122 cannot be used in place of BIOL 116/125 for those degree programs that require BIOL 116/125. Credit will be granted for only one of BIOL 117/122 or BIOL 116/125. [3-0-0]	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
BIOL_O 131-001	BIOL_O	001	Human Anatomy and Physiology I	W1	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.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
BIOL_O 131-L01	BIOL_O	L01	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
BIOL_O 131-L02	BIOL_O	L02	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Mon	5:00 p.m. - 8:00 p.m.
BIOL_O 131-L03	BIOL_O	L03	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Tue	8:00 a.m. - 11:00 a.m.
BIOL_O 131-L04	BIOL_O	L04	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.
BIOL_O 131-L05	BIOL_O	L05	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Tue	5:00 p.m. - 8:00 p.m.
BIOL_O 131-L06	BIOL_O	L06	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Wed	8:00 a.m. - 11:00 a.m.

BIOL_O 131-L07	BIOL_O	L07	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Wed	12:00 p.m. - 3:00 p.m.
BIOL_O 131-L08	BIOL_O	L08	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Wed	5:00 p.m. - 8:00 p.m.
BIOL_O 131-L09	BIOL_O	L09	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Thu	8:00 a.m. - 11:00 a.m.
BIOL_O 131-L10	BIOL_O	L10	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.
BIOL_O 131-L11	BIOL_O	L11	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Thu	5:00 p.m. - 8:00 p.m.
BIOL_O 131-L12	BIOL_O	L12	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Fri	8:00 a.m. - 11:00 a.m.
BIOL_O 131-L13	BIOL_O	L13	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Fri	12:00 p.m. - 3:00 p.m.
BIOL_O 131-XMT	BIOL_O	XMT	Human Anatomy and Physiology I	W1	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.	Laboratory	In Person Learning	Arranged	Arranged
BIOL_O 200-001	BIOL_O	001	Cell Biology	W1	Structure and function of plant and animal cells; membrane models, cytoplasmic organelles, biological information from gene to protein, the endomembrane system, secretion, intracellular digestion, endocytosis, transport processes, cytoskeleton and cell motility. [3-0-0] Prerequisite: BIOL 125 and one of CHEM 113, CHEM 123.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
BIOL_O 201-001	BIOL_O	001	Introduction to Evolution and Ecology	W1	Fundamental processes underlying adaptive evolution, speciation, and extinction. Methods used to reconstruct the evolutionary histories of, and relationships among, groups of organisms. Factors determining the distribution and abundance of organisms. Competition, predation, and an exploration of processes that promote species coexistence and lead to the maintenance of species diversity. [3-0-0] Prerequisite: BIOL 125.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
BIOL_O 202-001	BIOL_O	001	Introduction to Biostatistics	W1	Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize and analyze data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.	Lecture	In Person Learning	Mon Wed Fri	4:00 p.m. - 5:00 p.m.
BIOL_O 202-L01	BIOL_O	L01	Introduction to Biostatistics	W1	Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize and analyze data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.	Laboratory	In Person Learning	Mon	5:00 p.m. - 6:30 p.m.
BIOL_O 202-L02	BIOL_O	L02	Introduction to Biostatistics	W1	Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize and analyze data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.	Laboratory	In Person Learning	Thu	11:00 a.m. - 12:30 p.m.



BIOL_O 202-XMT	BIOL_O	XMT	Introduction to Biostatistics	W1	Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize and analyze data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.	Laboratory	In Person Learning	Arranged	Arranged
BIOL_O 204-001	BIOL_O	001	Vertebrate Structure and Function	W1	Introduction to the vertebrate phyla and their evolution; comparative study of vertebrate structure and function, with dissection of representative forms. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
BIOL_O 204-L01	BIOL_O	L01	Vertebrate Structure and Function	W1	Introduction to the vertebrate phyla and their evolution; comparative study of vertebrate structure and function, with dissection of representative forms. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Tue	12:30 p.m. - 3:30 p.m.
BIOL_O 204-L02	BIOL_O	L02	Vertebrate Structure and Function	W1	Introduction to the vertebrate phyla and their evolution; comparative study of vertebrate structure and function, with dissection of representative forms. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Mon	12:30 p.m. - 3:30 p.m.
BIOL_O 204-L03	BIOL_O	L03	Vertebrate Structure and Function	W1	Introduction to the vertebrate phyla and their evolution; comparative study of vertebrate structure and function, with dissection of representative forms. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Mon	5:00 p.m. - 8:00 p.m.
BIOL_O 204-L04	BIOL_O	L04	Vertebrate Structure and Function	W1	Introduction to the vertebrate phyla and their evolution; comparative study of vertebrate structure and function, with dissection of representative forms. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Tue	8:00 a.m. - 11:00 a.m.
BIOL_O 204-L05	BIOL_O	L05	Vertebrate Structure and Function	W1	Introduction to the vertebrate phyla and their evolution; comparative study of vertebrate structure and function, with dissection of representative forms. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Tue	5:00 p.m. - 8:00 p.m.
BIOL_O 204-L06	BIOL_O	L06	Vertebrate Structure and Function	W1	Introduction to the vertebrate phyla and their evolution; comparative study of vertebrate structure and function, with dissection of representative forms. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.
BIOL_O 204-L07	BIOL_O	L07	Vertebrate Structure and Function	W1	Introduction to the vertebrate phyla and their evolution; comparative study of vertebrate structure and function, with dissection of representative forms. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Wed	12:30 p.m. - 3:30 p.m.
BIOL_O 204-L08	BIOL_O	L08	Vertebrate Structure and Function	W1	Introduction to the vertebrate phyla and their evolution; comparative study of vertebrate structure and function, with dissection of representative forms. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Wed	5:00 p.m. - 8:00 p.m.
BIOL_O 204-L09	BIOL_O	L09	Vertebrate Structure and Function	W1	Introduction to the vertebrate phyla and their evolution; comparative study of vertebrate structure and function, with dissection of representative forms. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Thu	8:00 a.m. - 11:00 a.m.
BIOL_O 204-XMT	BIOL_O	XMT	Vertebrate Structure and Function	W1	Introduction to the vertebrate phyla and their evolution; comparative study of vertebrate structure and function, with dissection of representative forms. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Arranged	Arranged
BIOL_O 205-001	BIOL_O	001	Comparative Invertebrate Zoology	W1	Introduction to the invertebrate phyla. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
BIOL_O 205-L01	BIOL_O	L01	Comparative Invertebrate Zoology	W1	Introduction to the invertebrate phyla. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.
BIOL_O 205-L02	BIOL_O	L02	Comparative Invertebrate Zoology	W1	Introduction to the invertebrate phyla. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Wed	6:30 p.m. - 9:30 p.m.
BIOL_O 205-L03	BIOL_O	L03	Comparative Invertebrate Zoology	W1	Introduction to the invertebrate phyla. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Thu	9:30 a.m. - 12:30 p.m.
BIOL_O 205-L04	BIOL_O	L04	Comparative Invertebrate Zoology	W1	Introduction to the invertebrate phyla. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Fri	8:00 a.m. - 11:00 a.m.
BIOL_O 205-L05	BIOL_O	L05	Comparative Invertebrate Zoology	W1	Introduction to the invertebrate phyla. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Thu	6:30 p.m. - 9:30 p.m.
BIOL_O 205-XMT	BIOL_O	XMT	Comparative Invertebrate Zoology	W1	Introduction to the invertebrate phyla. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.	Laboratory	In Person Learning	Arranged	Arranged
BIOL_O 228-001	BIOL_O	001	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
BIOL_O 228-L01	BIOL_O	L01	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Laboratory	In Person Learning	Mon	5:00 p.m. - 8:00 p.m.
BIOL_O 228-L02	BIOL_O	L02	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Laboratory	In Person Learning	Fri	9:30 a.m. - 12:30 p.m.
BIOL_O 228-L03	BIOL_O	L03	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Laboratory	In Person Learning	Tue	9:30 a.m. - 12:30 p.m.
BIOL_O 228-L04	BIOL_O	L04	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Laboratory	In Person Learning	Tue	3:30 p.m. - 6:30 p.m.
BIOL_O 228-L05	BIOL_O	L05	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Laboratory	In Person Learning	Wed	9:30 a.m. - 12:30 p.m.

BIOL_O 228-L06	BIOL_O	L06	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Laboratory	In Person Learning	Wed	5:00 p.m. - 8:00 p.m.
BIOL_O 228-L07	BIOL_O	L07	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Laboratory	In Person Learning	Thu	9:30 a.m. - 12:30 p.m.
BIOL_O 228-L08	BIOL_O	L08	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Laboratory	In Person Learning	Thu	3:30 p.m. - 6:30 p.m.
BIOL_O 228-L09	BIOL_O	L09	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Laboratory	In Person Learning	Fri	3:30 p.m. - 6:30 p.m.
BIOL_O 228-L10	BIOL_O	L10	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Laboratory	In Person Learning	Mon	5:00 p.m. - 8:00 p.m.
BIOL_O 228-L11	BIOL_O	L11	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Laboratory	In Person Learning	Tue	9:30 a.m. - 12:30 p.m.
BIOL_O 228-L12	BIOL_O	L12	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Laboratory	In Person Learning	Tue	3:30 p.m. - 6:30 p.m.
BIOL_O 228-XMT	BIOL_O	XMT	Introductory Microbiology	W1	An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213.	Laboratory	In Person Learning	Arranged	Arranged
BIOL_O 265-001	BIOL_O	001	Principles of Genetics	W1	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. [3-0-0] Prerequisite: BIOL 125.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
BIOL_O 300-001	BIOL_O	001	Advanced Cell Biology	W1	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.	Lecture	In Person Learning	Mon Thu	2:00 p.m. - 3:30 p.m.
BIOL_O 301-101	BIOL_O	101	Evolutionary Principles and Methods	W1	An exploration of the field of Evolutionary Biology as an ongoing scientific endeavour. Current research methodology and development of concepts relating to the study of evolutionary change, adaptation, and the history of life will be examined. [3-0-0] Prerequisite: BIOL 201.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
BIOL_O 308-001	BIOL_O	001	Population Biology	W1	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, GEOG 207.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
BIOL_O 308-T01	BIOL_O	T01	Population Biology	W1	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, GEOG 207.	Discussion	In Person Learning	Tue	1:00 p.m. - 2:00 p.m.
BIOL_O 308-T02	BIOL_O	T02	Population Biology	W1	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, GEOG 207.	Discussion	In Person Learning	Fri	4:00 p.m. - 5:00 p.m.
BIOL_O 308-T03	BIOL_O	T03	Population Biology	W1	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, GEOG 207.	Discussion	In Person Learning	Fri	9:00 a.m. - 10:00 a.m.
BIOL_O 308-T04	BIOL_O	T04	Population Biology	W1	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, GEOG 207.	Discussion	In Person Learning	Wed	2:00 p.m. - 3:00 p.m.
BIOL_O 308-T05	BIOL_O	T05	Population Biology	W1	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, GEOG 207.	Discussion	In Person Learning	Thu	2:00 p.m. - 3:00 p.m.
BIOL_O 311-001	BIOL_O	001	Biochemistry I	W1	Structure and function of proteins, carbohydrates, lipids, and nucleic acids. Principles of thermodynamics and enzyme reaction mechanisms. Enzyme kinetics. Credit will only be granted for one of BIOL 311 or BIOC 304. [3-0-0] Prerequisite: BIOL 116 and one of CHEM 204, CHEM 214.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
BIOL_O 314-001	BIOL_O	001	Medical Microbiology	W1	Bacterial and fungal agents of infectious animal diseases. Physiology and structure, mechanisms of pathogenesis, immunological response, clinical disease caused, epidemiology, laboratory diagnosis, treatment, prevention, and control. Properties and uses of antibacterial and antifungal agents, resistance, vaccines, and bioterrorism. [3-0-0] Prerequisite: BIOL 228.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
BIOL_O 318-001	BIOL_O	001	Immunology	W1	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.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
BIOL_O 341-001	BIOL_O	001	Neurobiology	W1	The nervous system control of animal behavior. Examples include: sensory processing and communication, predator-prey interactions, migration, motor-coordination, daily and seasonal changes in activity, cellular mechanisms of learning and memory. [3-0-0] Prerequisite: BIOL 200.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
BIOL_O 354-001	BIOL_O	001	Cell Physiology	W1	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.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.

BIOL_O 354-T01	BIOL_O	T01	Cell Physiology	W1	Analysis of cellular function common to diverse organisms with an emphasis on ion transport in excitable and non-excitabile 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.	Discussion	In Person Learning	Wed (Alternate weeks)	1:00 p.m. - 2:00 p.m.
BIOL_O 354-T02	BIOL_O	T02	Cell Physiology	W1	Analysis of cellular function common to diverse organisms with an emphasis on ion transport in excitable and non-excitabile 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.	Discussion	In Person Learning	Tue (Alternate weeks)	10:00 a.m. - 11:00 a.m.
BIOL_O 354-T03	BIOL_O	T03	Cell Physiology	W1	Analysis of cellular function common to diverse organisms with an emphasis on ion transport in excitable and non-excitabile 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.	Discussion	In Person Learning	Tue (Alternate weeks)	10:00 a.m. - 11:00 a.m.
BIOL_O 354-T04	BIOL_O	T04	Cell Physiology	W1	Analysis of cellular function common to diverse organisms with an emphasis on ion transport in excitable and non-excitabile 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.	Discussion	In Person Learning	Thu (Alternate weeks)	4:00 p.m. - 5:00 p.m.
BIOL_O 354-XMT	BIOL_O	XMT	Cell Physiology	W1	Analysis of cellular function common to diverse organisms with an emphasis on ion transport in excitable and non-excitabile 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.	Laboratory	In Person Learning	Arranged	Arranged
BIOL_O 357-001	BIOL_O	001	Introduction to Entomology	W1	General survey of the evolution, classification, and biology of insects, with a special emphasis on their functional ecology. Experiments using insect systems as well as master techniques for collecting and curating insect specimens will be conducted in the lab. A properly-curated collection is a requirement for this course. [3-3-0] Prerequisite: BIOL 201 and one of BIOL 202, STAT 230. BIOL 205 is recommended.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
BIOL_O 357-L01	BIOL_O	L01	Introduction to Entomology	W1	General survey of the evolution, classification, and biology of insects, with a special emphasis on their functional ecology. Experiments using insect systems as well as master techniques for collecting and curating insect specimens will be conducted in the lab. A properly-curated collection is a requirement for this course. [3-3-0] Prerequisite: BIOL 201 and one of BIOL 202, STAT 230. BIOL 205 is recommended.	Laboratory	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
BIOL_O 357-L02	BIOL_O	L02	Introduction to Entomology	W1	General survey of the evolution, classification, and biology of insects, with a special emphasis on their functional ecology. Experiments using insect systems as well as master techniques for collecting and curating insect specimens will be conducted in the lab. A properly-curated collection is a requirement for this course. [3-3-0] Prerequisite: BIOL 201 and one of BIOL 202, STAT 230. BIOL 205 is recommended.	Laboratory	In Person Learning	Thu	9:30 a.m. - 12:30 p.m.
BIOL_O 357-L03	BIOL_O	L03	Introduction to Entomology	W1	General survey of the evolution, classification, and biology of insects, with a special emphasis on their functional ecology. Experiments using insect systems as well as master techniques for collecting and curating insect specimens will be conducted in the lab. A properly-curated collection is a requirement for this course. [3-3-0] Prerequisite: BIOL 201 and one of BIOL 202, STAT 230. BIOL 205 is recommended.	Laboratory	In Person Learning	Wed	2:30 p.m. - 5:30 p.m.
BIOL_O 357-XMT	BIOL_O	XMT	Introduction to Entomology	W1	General survey of the evolution, classification, and biology of insects, with a special emphasis on their functional ecology. Experiments using insect systems as well as master techniques for collecting and curating insect specimens will be conducted in the lab. A properly-curated collection is a requirement for this course. [3-3-0] Prerequisite: BIOL 201 and one of BIOL 202, STAT 230. BIOL 205 is recommended.	Laboratory	In Person Learning	Arranged	Arranged
BIOL_O 366-001	BIOL_O	001	Molecular Genetics	W1	Stresses the principles of molecular biology techniques and their relevance to the study of all areas of biology. Gene expression, gene regulation, and development genetics. [3-0-0] Prerequisite: One of BIOL 265, BIOL 365. A detailed examination of the microbes that play a role in the manufacturing of beverages (e.g., beer and wine), solid foods (e.g., cheese), and industrial processes (e.g., waste water treatment). [3-0-0] Prerequisite: BIOL 228.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
BIOL_O 380-001	BIOL_O	001	Food and Industrial Microbiology	W1	Stresses the principles of molecular biology techniques and their relevance to the study of all areas of biology. Gene expression, gene regulation, and development genetics. [3-0-0] Prerequisite: One of BIOL 265, BIOL 365. A detailed examination of the microbes that play a role in the manufacturing of beverages (e.g., beer and wine), solid foods (e.g., cheese), and industrial processes (e.g., waste water treatment). [3-0-0] Prerequisite: BIOL 228.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
BIOL_O 401-001	BIOL_O	001	Spatial Ecology	W1	Spatial patterns in ecology, exploring ways to describe variation and mechanisms that give rise to patterns. Dispersal, metapopulation and source-sink dynamics, connectivity and fragmentation, heterogeneity, disturbance, edges, and dynamics of geographical ranges. Credit will be granted for only one of BIOL 401 or BIOL 512. [3-0-0] Prerequisite: One of BIOL 202, STAT 230.	Lecture	In Person Learning	Tue Fri	2:00 p.m. - 3:30 p.m.
BIOL_O 406-001	BIOL_O	001	Functional Glycoscience	W1	Metabolism and nomenclature of glycans (saccharides) in prokaryotes and eukaryotes. Roles of glycans in normal cell function and in congenital, chronic and infectious diseases. Techniques for glycan analysis. [3-0-0] Prerequisite: BIOL 200 and one of BIOL 319, BIOC 305.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
BIOL_O 410-001	BIOL_O	001	Plant-Microbe Interactions	W1	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 BIOL 410 or BIOL 510. [3-0-0] Prerequisite: BIOL 228.	Lecture	In Person Learning	Tue Fri	11:00 a.m. - 12:30 p.m.
BIOL_O 440-001	BIOL_O	001	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 a seminar. Prerequisite: Permission of the department head and course supervisor.	Thesis	In Person Learning	Arranged	Arranged
BIOL_O 440-002	BIOL_O	002	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 a seminar. Prerequisite: Permission of the department head and course supervisor.	Thesis	In Person Learning	Arranged	Arranged
BIOL_O 440-003	BIOL_O	003	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 a seminar. Prerequisite: Permission of the department head and course supervisor.	Thesis	In Person Learning	Arranged	Arranged



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 a 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 a 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 a 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 a 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 a 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 a 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 a 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 a seminar. Prerequisite: Permission of the department head and course supervisor.	Thesis	In Person Learning	Arranged	Arranged	
BIOL_O 459-001	BIOL_O	001	Behavioural Ecology	W1	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. [3-0-0] 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	W1	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 the underlying research.	Lecture	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.	
BIOL_O 510-001	BIOL_O	001	Plant-Microbe Interactions	W1	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 BIOL 510 or BIOL 410.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.	
BIOL_O 512-001	BIOL_O	001	Spatial Ecology	W1	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	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	W1	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	W1	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	W1	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	W1	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 599-001	BIOL_O	001	M.Sc. Thesis	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged	
BIOL_O 599-201	BIOL_O	201	M.Sc. Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged	
BIOL_O 699-001	BIOL_O	001	Ph.D. Thesis	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged	
BIOL_O 699-201	BIOL_O	201	Ph.D. Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged	
CCS_O 250-001	CCS_O	001	Creative and Critical Art Theory II	W1	The continued study of Western, Indigenous, and global art practices and the theoretical discourses that contribute to the development of contemporary art. [3-0-1] 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	W1	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	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged	
CCS_O 599-201	CCS_O	201	Master's Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged	
CHEM_O 121-001	CHEM_O	001	Atomic and Molecular Chemistry	W1	Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.	











CHEM_O 213-L08	CHEM_O	L08	Organic Chemistry for Biological Sciences I	W1	Structure, bonding, and physical properties of organic compounds; conformational analysis, stereochemistry, and chirality; reactions of alkenes, alkyl halides, and alcohols. Emphasis will be placed on biological applications. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 203.	Laboratory	In Person Learning	Wed (Alternate weeks)	5:30 p.m. - 8:30 p.m.
CHEM_O 213-L09	CHEM_O	L09	Organic Chemistry for Biological Sciences I	W1	Structure, bonding, and physical properties of organic compounds; conformational analysis, stereochemistry, and chirality; reactions of alkenes, alkyl halides, and alcohols. Emphasis will be placed on biological applications. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 203.	Laboratory	In Person Learning	Thu (Alternate weeks)	9:30 a.m. - 12:30 p.m.
CHEM_O 213-L10	CHEM_O	L10	Organic Chemistry for Biological Sciences I	W1	Structure, bonding, and physical properties of organic compounds; conformational analysis, stereochemistry, and chirality; reactions of alkenes, alkyl halides, and alcohols. Emphasis will be placed on biological applications. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 203.	Laboratory	In Person Learning	Thu (Alternate weeks)	9:30 a.m. - 12:30 p.m.
CHEM_O 213-L11	CHEM_O	L11	Organic Chemistry for Biological Sciences I	W1	Structure, bonding, and physical properties of organic compounds; conformational analysis, stereochemistry, and chirality; reactions of alkenes, alkyl halides, and alcohols. Emphasis will be placed on biological applications. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 203.	Laboratory	In Person Learning	Thu (Alternate weeks)	1:30 p.m. - 4:30 p.m.
CHEM_O 213-L12	CHEM_O	L12	Organic Chemistry for Biological Sciences I	W1	Structure, bonding, and physical properties of organic compounds; conformational analysis, stereochemistry, and chirality; reactions of alkenes, alkyl halides, and alcohols. Emphasis will be placed on biological applications. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 203.	Laboratory	In Person Learning	Thu (Alternate weeks)	1:30 p.m. - 4:30 p.m.
CHEM_O 213-XMT	CHEM_O	XMT	Organic Chemistry for Biological Sciences I	W1	Structure, bonding, and physical properties of organic compounds; conformational analysis, stereochemistry, and chirality; reactions of alkenes, alkyl halides, and alcohols. Emphasis will be placed on biological applications. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 203.	Laboratory	In Person Learning	Arranged	Arranged
CHEM_O 220-001	CHEM_O	001	Atomic Structure and Molecular Bonding	W1	Examination of various theories of atomic structure and molecular bonding, and their use to explain chemical and physical properties of atoms and molecules. Atomic wave mechanics, Lewis theory, valence bond theory, crystal field theory, symmetry and group theory, and molecular orbital theory of diatomic and polyatomic molecules and extended solids. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
CHEM_O 302-001	CHEM_O	001	Atmospheric Environmental Chemistry	W1	Introduction to structure, composition, and chemical processes occurring in Earth's atmosphere including interactions with solar radiation, stratospheric ozone layer, photochemical smog, and acid rain. [3-0-0] Prerequisite: One of MATH 101, MATH 103 and one of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. One of CHEM 210, 211 is recommended.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
CHEM_O 304-001	CHEM_O	001	Advanced Physical Chemistry	W1	Review of thermodynamics concepts; solution thermodynamics; electrochemistry; chemical equilibria, phase equilibria, colloid science. Emphasis on applications of thermodynamics to both chemical and biochemical systems. [3-4*-0] Prerequisite: CHEM 201. MATH 200 is recommended.	Lecture	In Person Learning	Mon Wed Fri	12:00 p.m. - 1:00 p.m.
CHEM_O 304-L01	CHEM_O	L01	Advanced Physical Chemistry	W1	Review of thermodynamics concepts; solution thermodynamics; electrochemistry; chemical equilibria, phase equilibria, colloid science. Emphasis on applications of thermodynamics to both chemical and biochemical systems. [3-4*-0] Prerequisite: CHEM 201. MATH 200 is recommended.	Laboratory	In Person Learning	Thu (Alternate weeks)	3:30 p.m. - 7:30 p.m.
CHEM_O 304-L02	CHEM_O	L02	Advanced Physical Chemistry	W1	Review of thermodynamics concepts; solution thermodynamics; electrochemistry; chemical equilibria, phase equilibria, colloid science. Emphasis on applications of thermodynamics to both chemical and biochemical systems. [3-4*-0] Prerequisite: CHEM 201. MATH 200 is recommended.	Laboratory	In Person Learning	Thu (Alternate weeks)	3:30 p.m. - 7:30 p.m.
CHEM_O 304-XMT	CHEM_O	XMT	Advanced Physical Chemistry	W1	Review of thermodynamics concepts; solution thermodynamics; electrochemistry; chemical equilibria, phase equilibria, colloid science. Emphasis on applications of thermodynamics to both chemical and biochemical systems. [3-4*-0] Prerequisite: CHEM 201. MATH 200 is recommended.	Laboratory	In Person Learning	Arranged	Arranged
CHEM_O 305-001	CHEM_O	001	Biophysical Chemistry	W1	Diffusion and transport phenomena of biomolecules. Interaction of radiation and matter in biochemical systems. Methods to determine molar mass, size, and shape of biomolecules in solution. MATH 200 is strongly recommended. [3-4*-0] Prerequisite: One of CHEM 201, CHEM 210.	Lecture	In Person Learning	Mon Wed Fri	2:00 p.m. - 3:00 p.m.
CHEM_O 305-L01	CHEM_O	L01	Biophysical Chemistry	W1	Diffusion and transport phenomena of biomolecules. Interaction of radiation and matter in biochemical systems. Methods to determine molar mass, size, and shape of biomolecules in solution. MATH 200 is strongly recommended. [3-4*-0] Prerequisite: One of CHEM 201, CHEM 210.	Laboratory	In Person Learning	Tue (Alternate weeks)	3:30 p.m. - 7:30 p.m.
CHEM_O 305-L02	CHEM_O	L02	Biophysical Chemistry	W1	Diffusion and transport phenomena of biomolecules. Interaction of radiation and matter in biochemical systems. Methods to determine molar mass, size, and shape of biomolecules in solution. MATH 200 is strongly recommended. [3-4*-0] Prerequisite: One of CHEM 201, CHEM 210.	Laboratory	In Person Learning	Tue (Alternate weeks)	3:30 p.m. - 7:30 p.m.
CHEM_O 305-XMT	CHEM_O	XMT	Biophysical Chemistry	W1	Diffusion and transport phenomena of biomolecules. Interaction of radiation and matter in biochemical systems. Methods to determine molar mass, size, and shape of biomolecules in solution. MATH 200 is strongly recommended. [3-4*-0] Prerequisite: One of CHEM 201, CHEM 210.	Laboratory	In Person Learning	Arranged	Arranged
CHEM_O 333-001	CHEM_O	001	Spectroscopic Techniques in Organic Chemistry	W1	Application of mass spectrometry, NMR, and IR spectroscopies to organic chemical problems. [3-0-0] Prerequisite: One of CHEM 204, CHEM 214.	Lecture	In Person Learning	Mon Wed Fri	1:00 p.m. - 2:00 p.m.

CHEM_O 338-001	CHEM_O	001	Organometallic Chemistry	W1	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	W1	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	W1	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	W1	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	W1	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, chemoinformatics, compound identification, metabolic pathway and network mapping, data interpretation and presentation. Credit will be granted for only one of CHEM 412, BIOC 412 or CHEM 533. [3-0-0] Prerequisite: CHEM 211. and fourth-year standing in Chemistry or Environmental Chemistry.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.	
CHEM_O 429-001	CHEM_O	001	Main Group Chemistry	W1	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	W1	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 448-A_001	CHEM_O	A	A_001	Special Topics in Chemistry, Lecture Format	W1-2	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 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 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
CHEM_O 448-A_002	CHEM_O	A	A_002	Special Topics in Chemistry, Lecture Format	W1	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 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 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
CHEM_O 448-A_003	CHEM_O	A	A_003	Special Topics in Chemistry, Lecture Format	W1	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 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 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
CHEM_O 448-B_001	CHEM_O	B	B_001	Special Topics in Chemistry, Lecture Format	W1-2	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 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 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
CHEM_O 448-B_002	CHEM_O	B	B_002	Special Topics in Chemistry, Lecture Format	W1-2	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 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 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
CHEM_O 448-B_003	CHEM_O	B	B_003	Special Topics in Chemistry, Lecture Format	W1-2	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 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 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
CHEM_O 448-C_001	CHEM_O	C	C_001	Special Topics in Chemistry, Lecture Format	W1	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 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 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
CHEM_O 449-001	CHEM_O	001	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.	Thesis	In Person Learning	Arranged	Arranged	
CHEM_O 449-002	CHEM_O	002	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.	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.	Thesis	In Person Learning	Arranged	Arranged
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.	Thesis	In Person Learning	Arranged	Arranged
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.	Thesis	In Person Learning	Arranged	Arranged
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.	Thesis	In Person Learning	Arranged	Arranged
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.	Thesis	In Person Learning	Arranged	Arranged
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.	Thesis	In Person Learning	Arranged	Arranged
CHEM_O 461-001	CHEM_O	001	Advanced Analytical Chemistry Laboratory	W1	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	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 La	W1	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 Biolc	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, BIOL 319, BIOC305.	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 analyses, 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	201	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	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
CHEM_O 549-201	CHEM_O	201	M.Sc. Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
CHEM_O 585-001	CHEM_O	001	Natural Product Biosynthesis and Synthetic Biolc	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]	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		Thesis	In Person Learning	Arranged	Arranged
CHEM_O 649-201	CHEM_O	201	Ph.D. Thesis	W1-2		Thesis	In Person Learning	Arranged	Arranged
CHIN_O 100-001	CHIN_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 Techno	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 401-101	COOP_O	101	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	Arranged
COOP_O 402-101	COOP_O	101	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	Arranged

COOP_O 403-101	COOP_O	101	Co-op Education Work Experience III	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 402.	Experiential	In Person Learning	Arranged	Arranged
COOP_O 404-101	COOP_O	101	Co-op Education Work Experience IV	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 403.	Experiential	In Person Learning	Arranged	Arranged
COOP_O 405-101	COOP_O	101	Co-op Education Work Experience V	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 404.	Experiential	In Person Learning	Arranged	Arranged
COOP_O 406-101	COOP_O	101	Co-op Education Work Experience VI	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 405.	Experiential	In Person Learning	Arranged	Arranged
CORH_O 203-001	CORH_O	001	Communication in the Sciences	W1	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 ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 155, ENGL 156, APSC 176.	Lecture	Online Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
CORH_O 203-002	CORH_O	002	Communication in the Sciences	W1	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 ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 155, ENGL 156, APSC 176.	Lecture	Online Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
CORH_O 204-001	CORH_O	001	Communications in the Humanities	W1	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 ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156, APSC 176.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
CORH_O 205-001	CORH_O	001	Communication in the Social Sciences	W1	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 ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156, APSC 176.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
CORH_O 205-002	CORH_O	002	Communication in the Social Sciences	W1	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 ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156, APSC 176.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
CORH_O 321-101	CORH_O	101	Personal and Professional Identity and Interpers	W1	Multidisciplinary concepts of and approaches to identity and agency in personal and professional interpersonal communication settings, face-to-face and online. Fosters application of communication skills and enactments of agency in dyadic and collaborative contexts. Prerequisite: Third-year standing or permission of the instructor.	Lecture	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.
CORH_O 331-001	CORH_O	001	Social Writing: Studies in Multimodal Communic	W1	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.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
CORH_O 400-A_001	CORH_O	A	A_001	W1	Special Topics in Communication	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
COSC_O 111-001	COSC_O	001	Computer Programming I	W1	Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
COSC_O 111-002	COSC_O	002	Computer Programming I	W1	Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
COSC_O 111-003	COSC_O	003	Computer Programming I	W1	Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
COSC_O 111-101	COSC_O	L01	Computer Programming I	W1	Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.	Laboratory	In Person Learning	Tue	2:00 p.m. - 4:00 p.m.
COSC_O 111-102	COSC_O	L02	Computer Programming I	W1	Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.	Laboratory	In Person Learning	Mon	12:00 p.m. - 2:00 p.m.





COSC_O 121-001	COSC_O	001	Computer Programming II	W1	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
COSC_O 121-L01	COSC_O	L01	Computer Programming II	W1	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Mon	12:00 p.m. - 2:00 p.m.
COSC_O 121-L02	COSC_O	L02	Computer Programming II	W1	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Fri	2:00 p.m. - 4:00 p.m.
COSC_O 121-L03	COSC_O	L03	Computer Programming II	W1	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Thu	2:00 p.m. - 4:00 p.m.
COSC_O 121-L04	COSC_O	L04	Computer Programming II	W1	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Fri	2:00 p.m. - 4:00 p.m.
COSC_O 121-L05	COSC_O	L05	Computer Programming II	W1	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Mon	10:00 a.m. - 12:00 p.m.
COSC_O 121-L06	COSC_O	L06	Computer Programming II	W1	Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.	Laboratory	In Person Learning	Thu	2:00 p.m. - 4:00 p.m.
COSC_O 122-001	COSC_O	001	Computer Fluency	W1	Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0]	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.
COSC_O 122-L01	COSC_O	L01	Computer Fluency	W1	Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0]	Laboratory	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
COSC_O 122-L02	COSC_O	L02	Computer Fluency	W1	Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0]	Laboratory	In Person Learning	Thu	8:00 a.m. - 10:00 a.m.
COSC_O 122-L03	COSC_O	L03	Computer Fluency	W1	Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0]	Laboratory	In Person Learning	Fri	10:00 a.m. - 12:00 p.m.
COSC_O 122-L04	COSC_O	L04	Computer Fluency	W1	Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0]	Laboratory	In Person Learning	Tue	8:00 a.m. - 10:00 a.m.
COSC_O 122-L05	COSC_O	L05	Computer Fluency	W1	Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0]	Laboratory	In Person Learning	Tue	8:00 a.m. - 10:00 a.m.
COSC_O 122-L06	COSC_O	L06	Computer Fluency	W1	Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0]	Laboratory	In Person Learning	Thu	8:00 a.m. - 10:00 a.m.
COSC_O 122-L07	COSC_O	L07	Computer Fluency	W1	Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0]	Laboratory	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
COSC_O 122-L08	COSC_O	L08	Computer Fluency	W1	Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0]	Laboratory	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
COSC_O 122-L09	COSC_O	L09	Computer Fluency	W1	Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0]	Laboratory	In Person Learning	Mon	10:00 a.m. - 12:00 p.m.
COSC_O 211-001	COSC_O	001	Machine Architecture	W1	Organization and design of computer systems and their impact on the practice of software development. Instruction set architecture and assembly programming languages, design of central processing units (CPU), memory hierarchy and cache organization, input and output programming. [3-0-0] Prerequisite: COSC 121.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
COSC_O 221-001	COSC_O	001	Discrete Structures in Computing	W1	Discrete structures in computing and relevant mathematical techniques. Logic and applications in automated reasoning and programming; proof techniques and analysis of algorithms and computation models; graph theory and graph models in computing; counting principles and discrete probability. [3-0-1] Prerequisite: One of MATH 101, MATH 103, MATH 142, APSC 173. Corequisite: COSC 121.	Lecture	In Person Learning	Mon Wed Fri	8:00 a.m. - 9:00 a.m.
COSC_O 221-S01	COSC_O	S01	Discrete Structures in Computing	W1	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.

COSC_O 221-S02	COSC_O	S02	Discrete Structures in Computing	W1	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.
COSC_O 221-S03	COSC_O	S03	Discrete Structures in Computing	W1	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	Thu	1:00 p.m. - 2:00 p.m.
COSC_O 221-S05	COSC_O	S05	Discrete Structures in Computing	W1	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	Wed	9:00 a.m. - 10:00 a.m.
COSC_O 222-001	COSC_O	001	Data Structures	W1	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.
COSC_O 222-L01	COSC_O	L01	Data Structures	W1	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.
COSC_O 222-L02	COSC_O	L02	Data Structures	W1	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.
COSC_O 222-L03	COSC_O	L03	Data Structures	W1	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.
COSC_O 222-L04	COSC_O	L04	Data Structures	W1	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.
COSC_O 222-L05	COSC_O	L05	Data Structures	W1	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.
COSC_O 222-L06	COSC_O	L06	Data Structures	W1	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.
COSC_O 222-L07	COSC_O	L07	Data Structures	W1	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.
COSC_O 222-L08	COSC_O	L08	Data Structures	W1	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.
COSC_O 301-101	COSC_O	101	Introduction to Data Analytics	W1	Software development and techniques for computation, analysis, and visualization of data. Manipulation of small and large data sets. Automation 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.
COSC_O 301-L2A	COSC_O	L2A	Introduction to Data Analytics	W1	Software development and techniques for computation, analysis, and visualization of data. Manipulation of small and large data sets. Automation 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.
COSC_O 301-L2B	COSC_O	L2B	Introduction to Data Analytics	W1	Software development and techniques for computation, analysis, and visualization of data. Manipulation of small and large data sets. Automation 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.
COSC_O 301-L2D	COSC_O	L2D	Introduction to Data Analytics	W1	Software development and techniques for computation, analysis, and visualization of data. Manipulation of small and large data sets. Automation 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.
COSC_O 301-L2E	COSC_O	L2E	Introduction to Data Analytics	W1	Software development and techniques for computation, analysis, and visualization of data. Manipulation of small and large data sets. Automation 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.
COSC_O 301-L2F	COSC_O	L2F	Introduction to Data Analytics	W1	Software development and techniques for computation, analysis, and visualization of data. Manipulation of small and large data sets. Automation 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.
COSC_O 304-001	COSC_O	001	Introduction to Databases	W1	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.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
COSC_O 310-001	COSC_O	001	Software Engineering	W1	Techniques to construct large systems using fundamental activities of specification, design, implementation, testing, and maintenance. Various life cycle models, exposure to software development tools, modelling techniques, good development practices, and project management. [3-2-0] Prerequisite: One of COSC 210, COSC 222, COSC 223. and third-year standing.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.

COSC_O 310-L01	COSC_O	L01	Software Engineering	W1	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_O 310-L02	COSC_O	L02	Software Engineering	W1	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	Mon	4:00 p.m. - 6:00 p.m.
COSC_O 315-001	COSC_O	001	Introduction to Operating Systems	W1	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_O 315-L01	COSC_O	L01	Introduction to Operating Systems	W1	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_O 315-L02	COSC_O	L02	Introduction to Operating Systems	W1	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_O 315-L03	COSC_O	L03	Introduction to Operating Systems	W1	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_O 315-L04	COSC_O	L04	Introduction to Operating Systems	W1	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	Thu	2:00 p.m. - 4:00 p.m.
COSC_O 320-001	COSC_O	001	Analysis of Algorithms	W1	Design and analysis of algorithms, illustrated from various problem areas. Models of computation, choice of data structures, space and time efficiency, computation complexity, algorithms for searching, sorting and graph-theoretic problems, NP-complete problems. [3-0-0] Prerequisite: All of COSC 221, COSC 222 and one of MATH 221, APSC 179.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
COSC_O 341-001	COSC_O	001	Human Computer Interaction	W1	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.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
COSC_O 344-101	COSC_O	101	Image Processing and Applications	W1	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 435, or COSC 445. [3-0-0] Prerequisite: One of COSC 210, COSC 222 and one of MATH 200, APSC 248 and one of MATH 221, APSC 179.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
COSC_O 405-001	COSC_O	001	Modelling and Simulation	W1	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.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
COSC_O 405-L01	COSC_O	L01	Modelling and Simulation	W1	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	Tue	12:00 p.m. - 2:00 p.m.
COSC_O 406-001	COSC_O	001	Numerical Optimization	W1	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.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
COSC_O 421-101	COSC_O	101	Network Science	W1	Graphs and complex networks in scientific research. Probabilistic and statistical models. Structures, patterns, and behaviors in networks. Algorithmic 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.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
COSC_O 441-001	COSC_O	001	Advanced Human Computer Interaction	W1	Computer interaction design principles, advanced methodologies and theories; novel interfaces and platforms, conceptualization from ideation to implementation, advanced techniques for evaluation including controlled quantitative evaluation, field evaluation, quantitative analysis; introduction to HCI research. Credit will be granted for only one of COSC 441 or COSC 541. [3-2-0] Prerequisite: COSC 341. and Fourth-year standing.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
COSC_O 441-L01	COSC_O	L01	Advanced Human Computer Interaction	W1	Computer interaction design principles, advanced methodologies and theories; novel interfaces and platforms, conceptualization from ideation to implementation, advanced techniques for evaluation including controlled quantitative evaluation, field evaluation, quantitative analysis; introduction to HCI research. Credit will be granted for only one of COSC 441 or COSC 541. [3-2-0] Prerequisite: COSC 341. and Fourth-year standing.	Laboratory	In Person Learning	Mon	4:00 p.m. - 6:00 p.m.

COSC_O 441-L02	COSC_O		L02	Advanced Human Computer Interaction	W1	Computer interaction design principles, advanced methodologies and theories; novel interfaces and platforms, conceptualization from ideation to implementation, advanced techniques for evaluation including controlled quantitative evaluation, field evaluation, quantitative analysis; introduction to HCI research. Credit will be granted for only one of COSC 441 or COSC 541. [3-2-0] Prerequisite: COSC 341. and Fourth-year standing.	Laboratory	In Person Learning	Tue	10:00 a.m. - 12:00 p.m.
COSC_O 448-A_001	COSC_O	A	A_001	Directed Studies in Computer Science	W1	Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head.	Independent Study	In Person Learning	Arranged	Arranged
COSC_O 448-A_005	COSC_O	A	A_005	Directed Studies in Computer Science	W1	Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head.	Independent Study	In Person Learning	Arranged	Arranged
COSC_O 448-B_001	COSC_O	B	B_001	Directed Studies in Computer Science	W1-2	Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head.	Independent Study	In Person Learning	Arranged	Arranged
COSC_O 448-B_002	COSC_O	B	B_002	Directed Studies in Computer Science	W1-2	Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head.	Independent Study	In Person Learning	Arranged	Arranged
COSC_O 448-B_003	COSC_O	B	B_003	Directed Studies in Computer Science	W1-2	Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head.	Independent Study	In Person Learning	Arranged	Arranged
COSC_O 448-C_001	COSC_O	C	C_001	Directed Studies in Computer Science	W1	Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head.	Independent Study	In Person Learning	Arranged	Arranged
COSC_O 448-C_002	COSC_O	C	C_002	Directed Studies in Computer Science	W1	Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head.	Independent Study	In Person Learning	Arranged	Arranged
COSC_O 449-001	COSC_O		001	Honours Thesis	W1-2	Students will undertake a research project as agreed upon by the student, supervising faculty member, and department head. A written thesis and a public presentation (poster or seminar) are required. Prerequisite: Fourth-year standing; admission to the B.A. or B.Sc. Computer Science Honours Program; and permission of the department head.	Thesis	In Person Learning	Arranged	Arranged
COSC_O 449-002	COSC_O		002	Honours Thesis	W1-2	Students will undertake a research project as agreed upon by the student, supervising faculty member, and department head. A written thesis and a public presentation (poster or seminar) are required. Prerequisite: Fourth-year standing; admission to the B.A. or B.Sc. Computer Science Honours Program; and permission of the department head.	Thesis	In Person Learning	Arranged	Arranged
COSC_O 449-003	COSC_O		003	Honours Thesis	W1-2	Students will undertake a research project as agreed upon by the student, supervising faculty member, and department head. A written thesis and a public presentation (poster or seminar) are required. Prerequisite: Fourth-year standing; admission to the B.A. or B.Sc. Computer Science Honours Program; and permission of the department head.	Thesis	In Person Learning	Arranged	Arranged
COSC_O 449-004	COSC_O		004	Honours Thesis	W1-2	Students will undertake a research project as agreed upon by the student, supervising faculty member, and department head. A written thesis and a public presentation (poster or seminar) are required. Prerequisite: Fourth-year standing; admission to the B.A. or B.Sc. Computer Science Honours Program; and permission of the department head.	Thesis	In Person Learning	Arranged	Arranged
COSC_O 449-005	COSC_O		005	Honours Thesis	W1-2	Students will undertake a research project as agreed upon by the student, supervising faculty member, and department head. A written thesis and a public presentation (poster or seminar) are required. Prerequisite: Fourth-year standing; admission to the B.A. or B.Sc. Computer Science Honours Program; and permission of the department head.	Thesis	In Person Learning	Arranged	Arranged
COSC_O 499-002	COSC_O		002	Capstone Software Engineering Project	W1-2	A capstone project requiring team software development for an actual client. Students must produce a comprehensive report and deliver a formal presentation. [0-3-0; 0-3-0] Prerequisite: All of COSC 304, COSC 310, COSC 341.	Laboratory	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
COSC_O 499-003	COSC_O		003	Capstone Software Engineering Project	W1-2	A capstone project requiring team software development for an actual client. Students must produce a comprehensive report and deliver a formal presentation. [0-3-0; 0-3-0] Prerequisite: All of COSC 304, COSC 310, COSC 341.	Laboratory	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
COSC_O 505-001	COSC_O		001	Modelling and Simulation	W1	Simulation methodology: data collection, model design, output analysis, optimization, validation. Credit will be granted for only one of COSC 405, DATA 405, COSC 505, or DATA 505.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
COSC_O 506-001	COSC_O		001	Numerical Optimization	W1	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_O 519-J_001	COSC_O	J	J_001	Topics in Computer Science	W1	Specialized topics in computer science. Credit will be granted for only one of COSC 419 or COSC 519 when the subject matter is of the same nature.	Lecture	In Person Learning	Wed	2:00 p.m. - 5:00 p.m.
COSC_O 521-001	COSC_O		001	Network Science	W1	Graphs and complex networks in scientific research. Probabilistic and statistical models. Structures, patterns, and behaviors in networks. Algorithmic and statistical methods. (online/mobile) social networks and social media platforms. Social influence, information diffusion, and viral marketing. Sentiment analysis and opinion mining. Data privacy. Search engines and recommendation systems. Credit will be granted for only one of COSC 421, COSC 521, DATA 421 or DATA 521.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
COSC_O 541-001	COSC_O		001	Advanced Human Computer Interaction	W1	Computer interaction design principles, advanced methodologies and theories; novel interfaces and platforms, conceptualization from ideation to implementation, advanced techniques for evaluation including controlled quantitative evaluation, field evaluation, quantitative analysis; HCI research, literature review, critique, reproducibility. Credit will be granted for only one of COSC 441 or COSC 541.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
COSC_O 549-001	COSC_O		001	Master's Thesis	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
COSC_O 549-101	COSC_O		101	Master's Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
COSC_O 590-D_501	COSC_O	D	D_501	Graduate Seminar	W1	Presentation and discussion of recent results in the Computer Science literature. Pass/Fail.	Seminar	In Person Learning	Tue	8:00 a.m. - 11:00 a.m.
COSC_O 649-001	COSC_O		001	Doctoral Dissertation	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
COSC_O 649-201	COSC_O		201	Doctoral Dissertation	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged

CRWR_O 150-001	CRWR_O	001	Introduction to Writing Poetry and Non-Fiction	W1	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 nonfiction, 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 [2-0-1]	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	W1	Introduction to composition and experimentation in the genres of fiction and drama. Students will develop a working knowledge of modern aesthetics in fiction and drama, 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 [2-0-1]	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	W1	Introduction to composition and experimentation in the genres of fiction and drama. Students will develop a working knowledge of modern aesthetics in fiction and drama, 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 [2-0-1]	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: Fict	W1	Intermediate creative writing course. Students are instructed and guided in the writing of fiction, are encouraged to pursue experimentation in fiction, and will participate in the feedback and critique sessions that constitute the workshop method. [3-0-0] Prerequisite: CRWR 160.	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	W1	Students are instructed and guided in the writing of screenplays, are encouraged to pursue experimentation in screenwriting, and will participate in the feedback and critique sessions that constitute the workshop method. Credit will be granted for only one of CRWR 250 or FILM 250. [3-0-0] Prerequisite: One of CRWR 150, CRWR 160, VISA 104, VISA 105, VISA 106, VISA 108, THTR 101, THTR 102. Equivalency: FILM 250	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.	
CRWR_O 310-001	CRWR_O	001	The Power of Metaphor	W1	An interdisciplinary survey of metaphor, focusing on use and understanding of metaphor in thinking, writing and communication across disciplines, including art, health, science, politics, literature, and technology. [3-0-0] Prerequisite: Third-year standing.	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	W1	Advanced workshop in the writing of short fiction. Restricted to students with at least third-year standing. Restricted to Creative Writing Majors and Minors except with permission of the department. [3-0-0] Prerequisite: Either (a) two of CRWR 205, CRWR 216, CRWR 217, CRWR 218, CRWR 219, CRWR 250, CRWR 260 or (b) two of CRWR 210, CRWR 216, CRWR 217, CRWR 218, CRWR 219, CRWR 250, CRWR 260. For non-majors and non-minors portfolio submission is also required.	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	W1	Advanced workshop in the writing of poetry. Restricted to students with at least third-year standing. Restricted to Creative Writing Majors and Minors except with permission of the department. [3-0-0] Prerequisite: Either (a) two of CRWR 205, CRWR 216, CRWR 217, CRWR 218, CRWR 219, CRWR 250, CRWR 260 or (b) two of CRWR 210, CRWR 216, CRWR 217, CRWR 218, CRWR 219, CRWR 250, CRWR 260. For non-majors and non-minors portfolio submission is also required.	Lecture	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
CRWR_O 470-A_001	CRWR_O	A	A_001	Portfolio	W1	Intensive manuscript production in one or two major genres: fiction, poetry, drama, or creative non-fiction. As students begin to shape their portfolios, they will be asked to place their work in a contemporary aesthetic context. [3-0-0] or [1-0-2] Prerequisite: 6 credits from CRWR 380, CRWR 381, CRWR 382, or CRWR 471 with a minimum grade of 72% in each of these two courses. For non-majors and non-minors: portfolio submission also required.	Lecture	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.
CRWR_O 474-001	CRWR_O	001	Writing with Media	W1	Applied and theoretical aspects of writing with media. Develops specialized skills for working with media such as audio installations, broadcast, recordings, live performance, and video. Students will be encouraged to work in interdisciplinary and collaborative modes. [0-2-2] Prerequisite: Third-year standing.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 4:00 p.m.	
CRWR_O 581-A_001	CRWR_O	A	A_001	Graduate Workshop in Creative Writing - Lyric	W1	Manuscript production course for in-depth discussion and workshoping of lyric forms. No more than 6 credits in total will be granted for CRWR 581, CRWR 580, or any combination thereof. Prerequisite: Admission into the MFA CRWR program, or submission of a portfolio and permission of the Department of Creative Studies.	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- Narrati	W1	Manuscript production course for in-depth discussion and workshoping of narrative forms. No more than 6 credits in total will be granted for CRWR 582, CRWR 580, or any combination thereof. Prerequisite: Admission into the MFA CRWR program, or submission of a portfolio and permission of the Department of Creative Studies	Lecture	In Person Learning	Thu	8:00 a.m. - 11:00 a.m.
CULT_O 100-001	CULT_O	001	Media and Popular Cultures in Global Context	W1	Introduction to media and cultural studies in a global context, specifically the critical analysis of cultural texts, cultural industries, and media audiences. [3-0-0]	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.	
CULT_O 100-002	CULT_O	002	Media and Popular Cultures in Global Context	W1	Introduction to media and cultural studies in a global context, specifically the critical analysis of cultural texts, cultural industries, and media audiences. [3-0-0]	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.	
CULT_O 100-003	CULT_O	003	Media and Popular Cultures in Global Context	W1	Introduction to media and cultural studies in a global context, specifically the critical analysis of cultural texts, cultural industries, and media audiences. [3-0-0]	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.	
CULT_O 101-001	CULT_O	001	Cultural Studies Practices	W1	Key concepts and methods across the history of cultural studies including analysis of consumer society, identity, space, and memory. [3-0-0]	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.	
CULT_O 101-002	CULT_O	002	Cultural Studies Practices	W1	Key concepts and methods across the history of cultural studies including analysis of consumer society, identity, space, and memory. [3-0-0]	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.	
CULT_O 101-003	CULT_O	003	Cultural Studies Practices	W1	Key concepts and methods across the history of cultural studies including analysis of consumer society, identity, space, and memory. [3-0-0]	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.	
CULT_O 101-004	CULT_O	004	Cultural Studies Practices	W1	Key concepts and methods across the history of cultural studies including analysis of consumer society, identity, space, and memory. [3-0-0]	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.	
CULT_O 210-001	CULT_O	001	Reading Screens	W1	Introduction to 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 CULT 210 or ENGL 215. [3-0-3] Prerequisite: 3 credits of first-year CULT and 3 credits of first-year ENGL. Equivalency: ENGL215	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.	
CULT_O 215-001	CULT_O	001	Cultural Industries	W1	An introductory critical study of cultural industries such as television and popular music. [3-0-0] Prerequisite: Second-year standing.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.	
CULT_O 220-101	CULT_O	101	Research with Media in the Humanities	W1	Working in the context of fine arts and humanities research, students develop methods for multimedia research. No digital humanities or computing experience required. At least 35% of class time involves instruction in humanities criticism, prototyping, writing, and research. Credit will be granted for only one of CULT220 and DIHU 220. Prerequisite: 3 credits of 100-level CULT, DIHU, ENGL, or FILM 100 Equivalency: DIHU220	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.	

CULT_O 230-001	CULT_O	001		Foundations: Reading Across Borders	W1	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_O 250-101	CULT_O	101		Foundations: Indigenous Literature	W1	Survey of Indigenous-authored poetry, drama, fiction, non-fiction prose, and orature in North America, with attention to Indigenous methodologies and major critical trends. At least 35% of class time involves practice-based instruction in critical analysis, essay writing and research. Credit will be granted for only one of ENGL 234 or CULT 250. [3-0-0] Prerequisite: 3 credits of first-year CULT and 3 credits of first-year ENGL. Equivalency: ENGL 234	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
CULT_O 275-001	CULT_O	001		Foundations: Interdisciplinary Theory and Meth	W1	Study of the major trends in critical theory. Attention will be given to applications of theory in literary research. Credit will be granted for only one of CULT 275 or ENGL 250. [3-0-0] Prerequisite: 3 credits of first-year CULT and 3 credits of first-year ENGL. Equivalency: ENGL250	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
CULT_O 303-001	CULT_O	001		Narrative Film Production	W1	The theory and practice of producing a short narrative motion picture for the purpose of developing narrative film literacy. Credit will be granted for only one of CULT 303, CULT 316, FILM 303, or THTR 303. VISA 106, VISA 261, VISA 271, CULT 210, THTR 103, CRWR 250, or FILM 100 recommended. Prerequisite: One of VISA 106, VISA 261, FILM 261. and third-year standing or permission of the instructor. Equivalency: FILM 303; THTR 303	Lecture	In Person Learning	Thu	12:00 p.m. - 3:00 p.m.
CULT_O 309-001	CULT_O	001		Performance Art: Global Perspectives	W1	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_O 312-A_001	CULT_O	A	A_001	Internet Culture	W1	A critical study of the cultural influence of the Internet on everyday life. With different topics, this course may be taken more than once for credit. No more than 9 credits in total will be granted for CULT 312, DIHU 312, or any combination thereof. Credit will be granted for only one of CULT 312 and DIHU 312 when the subject matter is of the same nature. Prerequisite: Third-year standing. Equivalency: DIHU312	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
CULT_O 315-001	CULT_O	001		Television Studies	W1	The medium of television from a global perspective, and the investigation of how genres in different television broadcast regimes shape content and reception. Credit will be granted for only one of CULT 315 or DIHU 315. [3-2-0] Prerequisite: Third-year standing. CULT 201, CULT 215, or CULT 220 recommended. Equivalency: DIHU 315	Lecture	In Person Learning	Tue	5:00 p.m. - 8:00 p.m.
CULT_O 362-A_001	CULT_O	A	A_001	Advanced Practice in Photography	W1	Advanced studio course in digital- and film-based photography. Emphasis on photography as an artistic tool. This course may be taken twice for a maximum of 6 credits. Students in the Major/Combined Major/Minor in CULT can apply no more than 6 credits in total of CULT 310, VISA 362, or any combination thereof to their degree. Prerequisite: All of VISA 244, VISA 256. Or permission of the instructor. Note: for VISA 244, CULT students require permission of instructor. Equivalency: VISA 362	Lecture	In Person Learning	Tue	3:30 p.m. - 7:30 p.m.
CULT_O 371-A_001	CULT_O	A	A_001	Modern Critical Theory and Interdisciplinary Me	W1	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	Mon Wed	9:30 a.m. - 11:00 a.m.
CULT_O 382-A_001	CULT_O	A	A_001	Advanced Practice in Media Arts	W1	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 VISA 206, VISA 266, VISA 268, VISA 269, VISA 271. or permission of the instructor. Equivalency: VISA 382	Lecture	In Person Learning	Tue	8:00 a.m. - 12:00 p.m.
CULT_O 390-A_001	CULT_O	A	A_001	Identities and Power: Areas and Themes	W1	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_O 390-B_001	CULT_O	B	B_001	Identities and Power: Areas and Themes	W1	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_O 411-001	CULT_O	001		Performance Studies	W1	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	2:00 p.m. - 5:00 p.m.
CULT_O 437-B_001	CULT_O	B	B_001	Postcolonial Studies	W1	Examines colonialism, decolonization, and globalization, as they relate to literature and other modes of cultural production, using a cross-cultural framework. Topics vary from year to year. With different topics this course may be taken more than once for credit. No more than 9 credits in total will be granted for CULT 437, ENGL 437, or any combination thereof. [3-0-0] Prerequisite: 3 credits of CULT and third-year standing. CULT 230 is recommended. Equivalency: ENGL437	Lecture	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
CULT_O 450-001	CULT_O	001		Studies in Indigenous Literature and Criticism	W1	Topics in Indigenous literature and criticism in North America, including particular periods and individual authors. Credit will be granted for only one of ENGL 473 or CULT 450. [3-0-0] Prerequisite: 3 credits of 200-level CULT. CULT 250 recommended. Equivalency: ENGL 473	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
DATA_O 101-001	DATA_O	001		Making Predictions with Data	W1	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_O 101-002	DATA_O	002		Making Predictions with Data	W1	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_O 101-L01	DATA_O	L01		Making Predictions with Data	W1	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_O 101-L02	DATA_O	L02		Making Predictions with Data	W1	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_O 101-L03	DATA_O	L03		Making Predictions with Data	W1	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-L04	DATA_O	L04	Making Predictions with Data	W1	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-L05	DATA_O	L05	Making Predictions with Data	W1	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	W1	Theory and application of simple and multiple linear regression models, estimation, inference (confidence intervals, prediction intervals and hypothesis testing), polynomial regression, ANOVA and ANCOVA, variable selection, model adequacy and residual diagnostics. [3-0-0] Prerequisite: MATH 221 and one of STAT 205, STAT 230.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.	
DATA_O 311-101	DATA_O	101	Machine Learning	W1	Regression, classification, resampling, 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 373; and one of COSC 111, APSC 177.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.	
DATA_O 311-L01	DATA_O	L01	Machine Learning	W1	Regression, classification, resampling, 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 373; and one of COSC 111, APSC 177.	Laboratory	In Person Learning	Fri	10:00 a.m. - 12:00 p.m.	
DATA_O 311-L02	DATA_O	L02	Machine Learning	W1	Regression, classification, resampling, 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 373; and one of COSC 111, APSC 177.	Laboratory	In Person Learning	Thu	12:00 p.m. - 2:00 p.m.	
DATA_O 311-L03	DATA_O	L03	Machine Learning	W1	Regression, classification, resampling, 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 373; 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	W1	Pseudorandom number generation and testing. Simulation and modelling of univariate and multivariate data; stochastic models, including Poisson processes and Markov chains; MCMC 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-L01	DATA_O	L01	Stochastic Modelling and Simulation	W1	Pseudorandom number generation and testing. Simulation and modelling of univariate and multivariate data; stochastic models, including Poisson processes and Markov chains; MCMC 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	A	A_001	Directed Studies in Data Science	W1	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	B	B_001	Directed Studies in Data Science	W1-2	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	B	B_002	Directed Studies in Data Science	W1-2	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	C	C_001	Directed Studies in Data Science	W1	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 449-001	DATA_O	001	Honours Thesis	W1-2	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.Sc. 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	W1	Effective consulting practices, ethical considerations, methodology selection, data preparation, effective software development. Credit will be granted for only one of DATA 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	W1	Simulation methodology: data collection, model design, output analysis, optimization, validation. Credit will be granted for only one of COSC 405, DATA 405, COSC 505, or DATA 505.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.	
DATA_O 530-001	DATA_O	001	Computing Platforms for Data Science	W1	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-L01	DATA_O	L01	Computing Platforms for Data Science	W1	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	T1A	Computing Platforms for Data Science	W1	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 531-001	DATA_O	001	Programming for Data Science	W1	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-L01	DATA_O	L01	Programming for Data Science	W1	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	T1A	Programming for Data Science	W1	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	W1	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	Tue Thu	9:30 a.m. - 11:00 a.m.	
DATA_O 532-L01	DATA_O	L01	Algorithms and Data Structure	W1	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	T1A	Algorithms and Data Structure	W1	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	101	Collaborative Software Development	W1	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-L01	DATA_O	L01	Collaborative Software Development	W1	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 533-T1A	DATA_O	T1A	Collaborative Software Development	W1	Software life cycle. Licensing. Packaging. Testing and quality control. Version control. Collaborative environments. Restricted to students in the MDS program. Prerequisite: DATA 532.	Discussion	In Person Learning	Mon	8:30 a.m. - 9:30 a.m.
DATA_O 540-001	DATA_O	001	Databases and Data Retrieval	W1	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	W1	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	T1A	Databases and Data Retrieval	W1	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	W1	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	W1	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	T1A	Scripting and Reporting	W1	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	W1	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	W1	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	T1A	Data Collection	W1	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	W1	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	W1	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	T1A	Privacy, Security and Professional Ethics	W1	Data privacy laws and expectations. Freedom of information. Ethics board. Licensing. Data security. Restricted to students in the MDS program.	Discussion	In Person Learning	Tue	8:30 a.m. - 9:30 a.m.
DATA_O 570-001	DATA_O	001	Predictive Modelling	W1	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	W1	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.	Laboratory	In Person Learning	Thu	12:30 p.m. - 4:30 p.m.
DATA_O 570-T1A	DATA_O	T1A	Predictive Modelling	W1	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 571-101	DATA_O	101	Resampling and Regularization	W1	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 Regularization	W1	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	T1A	Resampling and Regularization	W1	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	Tue	8:30 a.m. - 9:30 a.m.
DATA_O 580-001	DATA_O	001	Modelling and Simulation I	W1	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	W1	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	T1A	Modelling and Simulation I	W1	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.	Discussion	In Person Learning	Thu	8:30 a.m. - 9:30 a.m.
DATA_O 581-101	DATA_O	101	Modelling and Simulation II	W1	Markov chains and their applications, for example, queueing 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	Modelling and Simulation II	W1	Markov chains and their applications, for example, queueing 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 581-T1A	DATA_O	T1A	Modelling and Simulation II	W1	Markov chains and their applications, for example, queueing and Markov Chain Monte Carlo. Restricted to students in the MDS program. Prerequisite: DATA 580.	Discussion	In Person Learning	Thu	8:30 a.m. - 9:30 a.m.
DIHU_O 155-001	DIHU_O	001	Writing and Making with Technology in the Hurr	W1	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.
DIHU_O 155-T1A	DIHU_O	T1A	Writing and Making with Technology in the Hurr	W1	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.

DIHU_O 155-T1B	DIHU_O	T1B	Writing and Making with Technology in the Hurr	W1	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Wed	4:00 p.m. - 5:00 p.m.	
DIHU_O 155-T1C	DIHU_O	T1C	Writing and Making with Technology in the Hurr	W1	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Thu	1:00 p.m. - 2:00 p.m.	
DIHU_O 155-T1D	DIHU_O	T1D	Writing and Making with Technology in the Hurr	W1	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Mon	4:00 p.m. - 5:00 p.m.	
DIHU_O 155-T1E	DIHU_O	T1E	Writing and Making with Technology in the Hurr	W1	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Fri	2:00 p.m. - 3:00 p.m.	
DIHU_O 155-T1F	DIHU_O	T1F	Writing and Making with Technology in the Hurr	W1	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Thu	4:00 p.m. - 5:00 p.m.	
DIHU_O 155-T1G	DIHU_O	T1G	Writing and Making with Technology in the Hurr	W1	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Tue	2:00 p.m. - 3:00 p.m.	
DIHU_O 155-T1H	DIHU_O	T1H	Writing and Making with Technology in the Hurr	W1	Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155	Discussion	In Person Learning	Wed	1:00 p.m. - 2:00 p.m.	
DIHU_O 220-101	DIHU_O	101	Research with Media in the Humanities	W1	Working in the context of fine arts and humanities research, students develop methods for multimedia research. No digital humanities or computing experience required. At least 35% of class time involves instruction in humanities criticism, prototyping, writing, and research. Credit will be granted for only one of DIHU 220 and CULT 220. Prerequisite: 3 credits of 100-level CULT, DIHU, or ENGL, or FILM 100 Equivalency: CULT220	Lecture	Online Learning	Tue Thu	3:30 p.m. - 5:00 p.m.	
DIHU_O 312-A_001	DIHU_O	A	A_001	Internet Culture	W1	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 of the same nature. Prerequisite: Third-year standing. Equivalency: CULT312	Lecture	Online Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
DIHU_O 315-001	DIHU_O	001	Television Studies	W1	The medium of television from a global perspective, and the investigation of how genres in different television broadcast regimes shape content and reception. Credit will be granted for only one of CULT 315 or DIHU 315. [3-2-0] Prerequisite: Third-year standing. CULT 201, CULT 215, or CULT 220 recommended. Equivalency: CULT 315	Lecture	In Person Learning	Tue	5:00 p.m. - 8:00 p.m.	
DIHU_O 370-001	DIHU_O	001	Story and Image Across the Islamic World	W1	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	Lecture	In Person Learning	Mon Wed	6:30 p.m. - 8:00 p.m.	
EADM_O 557-001	EADM_O	001	Leadership for Inclusion and Social Justice	W1	An overview of the theoretical and practical elements of leadership for inclusive education, social justice, and other associated topics.	Lecture	Online Learning	Tue	4:30 p.m. - 7:30 p.m.	
EAP_O 103-001	EAP_O	001	English for Academic Purposes Level III	W1	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 <a href="https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs">https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs</a> ). Registration limited to students in the English Foundation Program.	Lecture	In Person Learning	Mon Tue Wed Thu Fri	8:00 a.m. - 11:00 a.m.	
EAP_O 104-001	EAP_O	001	English for Academic Purposes Level IV	W1	Development of advanced academic communication and composition skills: writing and grammar; reading comprehension and proficiency; comprehension and oral fluency; intercultural communication. Students participate in a variety of complex academic activities and situations involving multiple purposes and participants. Twelve weeks (240 hours). Prerequisite: Successful completion of EAP 103 or minimum English language competence level (see English Language Proficiency Tests at <a href="https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs">https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs</a> ). Registration limited to students in the English Foundation Program.	Lecture	In Person Learning	Mon Tue Wed Thu Fri	8:00 a.m. - 11:00 a.m.	
EAP_O 104-002	EAP_O	002	English for Academic Purposes Level IV	W1	Development of advanced academic communication and composition skills: writing and grammar; reading comprehension and proficiency; comprehension and oral fluency; intercultural communication. Students participate in a variety of complex academic activities and situations involving multiple purposes and participants. Twelve weeks (240 hours). Prerequisite: Successful completion of EAP 103 or minimum English language competence level (see English Language Proficiency Tests at <a href="https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs">https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs</a> ). Registration limited to students in the English Foundation Program.	Lecture	In Person Learning	Mon Tue Wed Thu Fri	11:00 a.m. - 2:00 p.m.	

EAP_O 104-003	EAP_O	003	English for Academic Purposes Level IV	W1	Development of advanced academic communication and composition skills: writing and grammar; reading comprehension and proficiency; comprehension and oral fluency; intercultural communication. Students participate in a variety of complex academic activities and situations involving multiple purposes and participants. Twelve weeks (240 hours). Prerequisite: Successful completion of EAP 103 or minimum English language competence level (see English Language Proficiency Tests at <a href="https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs">https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs</a> ). Registration limited to students in the English Foundation Program.	Lecture	In Person Learning	Mon Tue Wed Thu Fri	2:00 p.m. - 5:00 p.m.
ECED_O 438-001	ECED_O	001	Observation and Documentation in Early Childhc	W1	Methods of observing, recording, and interpreting children's behaviour 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
ECON_O 101-001	ECON_O	001	Principles of Microeconomics	W1	Elements of theory and Canadian policy and institutions concerning the economics of markets and market behaviour, prices and costs, exchange and trade, competition and monopoly, distribution of income. [3-0-0]	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
ECON_O 101-002	ECON_O	002	Principles of Microeconomics	W1	Elements of theory and Canadian policy and institutions concerning the economics of markets and market behaviour, prices and costs, exchange and trade, competition and monopoly, distribution of income. [3-0-0]	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
ECON_O 102-001	ECON_O	001	Principles of Macroeconomics	W1	Elements of theory and Canadian policy and institutions concerning the economics of growth and business cycles, national income accounting, interest and exchange rates, money and banking, the balance of trade. [3-0-0]	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ECON_O 204-001	ECON_O	001	Intermediate Microeconomic Analysis	W1	Microtheory course at the post-principles level. Analysis of consumer behaviour, production, exchange, equilibrium of the firm under varying market structures, factor markets, economic efficiency, and welfare. [3-0-1] Prerequisite: ECON 101 and one of MATH 100, MATH 116.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
ECON_O 204-T01	ECON_O	T01	Intermediate Microeconomic Analysis	W1	Microtheory course at the post-principles level. Analysis of consumer behaviour, production, exchange, equilibrium of the firm under varying market structures, factor markets, economic efficiency, and welfare. [3-0-1] Prerequisite: ECON 101 and one of MATH 100, MATH 116.	Discussion	In Person Learning	Tue	10:00 a.m. - 11:00 a.m.
ECON_O 204-T02	ECON_O	T02	Intermediate Microeconomic Analysis	W1	Microtheory course at the post-principles level. Analysis of consumer behaviour, production, exchange, equilibrium of the firm under varying market structures, factor markets, economic efficiency, and welfare. [3-0-1] Prerequisite: ECON 101 and one of MATH 100, MATH 116.	Discussion	In Person Learning	Mon	9:00 a.m. - 10:00 a.m.
ECON_O 205-001	ECON_O	001	Intermediate Macroeconomic Analysis	W1	Macrotheory course at the post-principles level. Income and employment theory, monetary and fiscal policies, the impact of international trade and finance on the domestic economy, economic growth and fluctuations. [3-0-1] Prerequisite: ECON 102 and one of MATH 100, MATH 116.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
ECON_O 205-T01	ECON_O	T01	Intermediate Macroeconomic Analysis	W1	Macrotheory course at the post-principles level. Income and employment theory, monetary and fiscal policies, the impact of international trade and finance on the domestic economy, economic growth and fluctuations. [3-0-1] Prerequisite: ECON 102 and one of MATH 100, MATH 116.	Discussion	In Person Learning	Mon	11:00 a.m. - 12:00 p.m.
ECON_O 205-T02	ECON_O	T02	Intermediate Macroeconomic Analysis	W1	Macrotheory course at the post-principles level. Income and employment theory, monetary and fiscal policies, the impact of international trade and finance on the domestic economy, economic growth and fluctuations. [3-0-1] Prerequisite: ECON 102 and one of MATH 100, MATH 116.	Discussion	In Person Learning	Mon	8:00 a.m. - 9:00 a.m.
ECON_O 225-001	ECON_O	001	Data and Statistics for Economics	W1	Visualization and interpretation of economic data. Topics include descriptive statistics, graphical methods, and inference, and applying these methods to economic data. Credit will be granted for only one of ECON 225 or ECON 391M. [3-0-0] Prerequisite: One of ECON 101, ECON 102.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
ECON_O 232-001	ECON_O	001	History of Economic Thought	W1	Evolution of economic thinking from ancient to present times. The Greek, Islamic, and Medieval scholars; the Physiocrats, Adam Smith, Malthus, Bentham, Ricardo, Mill, Marx, Keynes, and other major economic thinkers. Development of fundamental economic ideas and conflicting perspectives are studied within their social and economic context. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
ECON_O 295-001	ECON_O	001	Managerial Economics	W1	Economic foundations of managerial decision-making. Demand theory, cost and production, market structure, competitive strategy, organization of the firm, welfare-economic foundations of business regulation. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ECON_O 327-001	ECON_O	001	Introduction to Empirical Economics	W1	The essentials of probability and statistics for applied work in economics. Topics include descriptive statistics, probability, estimation, hypothesis testing, and analysis of variance. [3-0-1] Prerequisite: All of ECON 101, ECON 102, ECON 225 and one of MATH 101, MATH 142.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ECON_O 327-T01	ECON_O	T01	Introduction to Empirical Economics	W1	The essentials of probability and statistics for applied work in economics. Topics include descriptive statistics, probability, estimation, hypothesis testing, and analysis of variance. [3-0-1] Prerequisite: All of ECON 101, ECON 102, ECON 225 and one of MATH 101, MATH 142.	Discussion	In Person Learning	Tue	11:00 a.m. - 12:00 p.m.
ECON_O 327-T02	ECON_O	T02	Introduction to Empirical Economics	W1	The essentials of probability and statistics for applied work in economics. Topics include descriptive statistics, probability, estimation, hypothesis testing, and analysis of variance. [3-0-1] Prerequisite: All of ECON 101, ECON 102, ECON 225 and one of MATH 101, MATH 142.	Discussion	In Person Learning	Mon	8:00 a.m. - 9:00 a.m.
ECON_O 339-001	ECON_O	001	Economics of Technological Change	W1	Application of economic analysis to technological change; impact of technological change on the growth and distribution of income; economic influences on the invention and diffusion of technology; interaction between technology, work, skills, and education; public policy toward technological change. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ECON_O 340-001	ECON_O	001	Financial Economics	W1	Fundamental topics in financial economics, including net present value, risk and expected return, valuing bonds and equities, the capital asset pricing model, futures and options, and international investing. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ECON_O 345-001	ECON_O	001	Money and Banking	W1	Financial markets and financial institutions in theory and practice; structure and development of the Canadian financial system; development and theory of the regulation of the financial system; process of monetary control; theory and history of central banking and monetary policy. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
ECON_O 347-101	ECON_O	101	Monetary Economics	W1	Monetary theory and practice. Demand for money. Goals, strategies and tools of central banks. Theory and practice of the interactions between money and other economic variables. Recent policy issues, such as digital currency. Credit will be granted for only one of ECON 347 or ECON 391W. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.

ECON_O 351-001	ECON_O		001	Women in the Economy	W1	Economic analysis of markets and policies particularly affecting women. Economic discrimination; educational, occupational, and work choices; pay and employment equity; allocation of work time; household and market consumption; economics of marriage and fertility; poverty; taxation; income security and pension policies; and historical perspectives. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
ECON_O 353-001	ECON_O		001	Urban and Transportation Economics	W1	Examination of why cities exist, their internal structure, intra-city transportation, local public goods, and policy applications. Credit will be granted for only one of ECON 353 or ECON 391T. [3-0-0] Prerequisite: ECON 204 and one of ECON 225, STAT 230.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
ECON_O 355-001	ECON_O		001	International Trade	W1	The determinants of trade patterns, trade policy, tariff and non-tariff barriers to trade, political economy of protectionism, bilateral and multilateral trade disputes, trade liberalization, trade and development. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Experiential	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ECON_O 360-001	ECON_O		001	Labour Economics	W1	Canadian labour market. Labour supply, allocation of time among work and non-market activity, labour force participation, education and training. Determination of and effect of unions on wages and employment. Wage structure and differentials. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
ECON_O 361-001	ECON_O		001	Economics of Industrial Relations	W1	Economic aspects of industrial relations in Canada; why workers join unions; theory of trade union behaviour; labour movement in Canada; wage determination under collective bargaining; causes of strikes and lockouts; unions and wage structure. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
ECON_O 363-001	ECON_O		001	Health Economics	W1	The role of economics in health, healthcare, and health policy. Topics include economic determinants of health, minority health and health equity, health economic evaluation, demand for healthcare and health insurance, health risk behaviours, and public policy and health outcomes. Credit will be granted for only one of ECON 363 or ECON 391V. [3-0-0] Prerequisite: All of ECON 101, ECON 225.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ECON_O 370-101	ECON_O		101	Benefit-Cost Analysis and the Economics of Proj	W1	Techniques and problems in benefit-cost analysis of public projects. Examination of alternative approaches to public decision-making such as cost-effectiveness analysis and multiple-objective frameworks. Case studies of projects in the areas of natural resources, the environment, human resources, public services, and transportation. [3-0-0] Prerequisite: Either (a) all of ECON 101, ECON 102 or (b) ENGR 305.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ECON_O 371-001	ECON_O		001	Economics of the Environment	W1	Economic analysis applied to various environmental issues, including sustainable development, quality of life, and environmental impacts of specific industrial and consumption activities. The design and implementation of government policies. Global environmental effects of human economic activity. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
ECON_O 386-001	ECON_O		001	Industrial Organization and Regulation	W1	Survey of the behaviour and performance of firms. Determinants and measures of market structure, oligopoly theory, strategic behaviour, predation, entry deterrence, advertising, regulation, and competition policy. [3-0-0] Prerequisite: All of ECON 101, ECON 102, ECON 204.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ECON_O 391-Y_001	ECON_O	Y	Y_001	Topics in Economics	W1	Examination of selected topics in current economic theory and/or policy. Topics vary each time the course is offered. With different topics, the course can be taken more than once for credit. [3-0-0] Prerequisite: All of ECON 101, ECON 102.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
ECON_O 402-001	ECON_O		001	Applied Macroeconomic Analysis	W1	Advanced treatment of the core topics in macroeconomics such as the business cycle, inflation, unemployment, growth, alternative exchange rate regimes, and fiscal and monetary policy. [3-0-0] Prerequisite: ECON 205 and one of MATH 100, MATH 116 and one of MATH 101, MATH 142. and third-year standing.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ECON_O 427-001	ECON_O		001	Econometrics	W1	Advanced treatment of estimation, inference, and econometric problems and techniques with focus on both theoretical and applied methods and with application to a variety of economic models. [3-0-0] Prerequisite: ECON 328. or 3 credits of ECON and 3 credits of upper-level STAT.	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	W1	Seminar that explores various approaches, projects, methodologies, and teaching applications. Restricted to students with at least third-year standing. Pass/Fail. [1-0-0]	Lecture	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	W1	Students will examine basic and fundamental questions about educational policy and practice by critically examining a variety of controversial issues including, but not limited to, issues of equality, community, and individual rights and freedoms. [3-0-0] Prerequisite: Students must have one of a) 70% in English 12 or English 12 First Peoples; b) a 5 on the LPI; c) a passing grade in ENGL 009; d) or an acceptable equivalent. For a list of equivalency options consult the Current Students website at <a href="http://students.ok.ubc.ca/courses-money-enrolment/registration/first-year-english/">students.ok.ubc.ca/courses-money-enrolment/registration/first-year-english/</a> .	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
EDUC_O 104-001	EDUC_O		001	Introduction to Academic Pedagogy: An Aborigir	W1	Using 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]	Lecture	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 Aborigir	W1	Using 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]	Lecture	Online Learning	Arranged	Arranged
EDUC_O 160-001	EDUC_O		001	Mathematical Reasoning for Arts and Education	W1	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	8:00 a.m. - 9:30 a.m.
EDUC_O 300-001	EDUC_O		001	Inquiry in Education	W1	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.
EDUC_O 400-001	EDUC_O		001	Designing and Facilitating Effective Learning Exp	W1	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 403-001	EDUC_O	001	Becoming a Scholar-Practitioner	W1	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	Lecture	In Person Learning	Mon Tue Wed Thu Fri	8:00 a.m. - 5:30 p.m.
EDUC_O 431-001	EDUC_O	001	Developing a Pedagogical Stance	W1	Foundational pedagogical knowledge and practice explored through seminars, colloquia and site-based learning where teacher candidates develop their practice and understandings related to diversity, literacies, numeracy and learning theories. Pass/Fail. Prerequisite: EDUC 403.	Lecture	In Person Learning	Mon Tue Wed Thu Fri	8:00 a.m. - 5:30 p.m.
EDUC_O 440-P01	EDUC_O	P01	Field Experience: Literacies and Numeracies in A	W1	Foundational pedagogical knowledge and practice will be explored through school-based inquiry. With a focus on literacies and numeracies in action, teacher candidates will work with mentor teachers in weekly school visits and then complete a minor practicum. Mentor teachers will take the lead in planning and curriculum enactment while the teacher candidate observes, works with individuals or small groups, and conducts teaching responsibilities as deemed fitting. Pass/Fail. Prerequisite: Restricted to students in the Bachelor of Education Program Corequisite: All of EDUC 403, EDUC 431.	Experiential	In Person Learning	Arranged	Arranged
EDUC_O 444-P01	EDUC_O	P01	Field Experience: Final Practicum/Internship	W1	Extended immersion in a school community, co-planning/co-teaching/co-assessing with mentors and other colleagues and, with demonstrated competency, assume the lead in planning and curricular enactment with the support of mentor teachers. Pass/Fail. Prerequisite: EDUC 438, 6 credits of electives or equivalent approved by the Faculty of Education.	Experiential	In Person Learning	Arranged	Arranged
EDUC_O 500-001	EDUC_O	001	Research Methodology in Education Part I	W1	An introductory course examining various issues, methods and techniques used in educational research. Consideration is given to research strategies and techniques and the selection of research questions appropriate to a range of issues facing educators.	Lecture	In Person Learning	Sat (Alternate weeks)	9:00 a.m. - 3:00 p.m.
EDUC_O 534-001	EDUC_O	001	Coyote Stories: Pedagogy and Praxis	W1	Examines how respective Indigenous traditional knowledge stories and storytelling practices inform organic theoretical frameworks, pedagogy, and praxis in place-based schooling, community, and peoples transforming projects. Credit will be granted for only one of EDUC 534 and EDUC 562 when the subject matter is of the same nature.	Experiential	Hybrid Learning	Wed	5:00 p.m. - 8:00 p.m.
EDUC_O 562-M_001	EDUC_O	M	M_001	W1	Special Topics in Education	Lecture	Online Learning	Sat (Alternate weeks)	9:00 a.m. - 4:00 p.m.
EDUC_O 598-001	EDUC_O	001	M.Ed. Seminar with Project	W1	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
EDUC_O 598-201	EDUC_O	201	M.Ed. Seminar with Project	W1-2	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
EDUC_O 599-001	EDUC_O	001	Senior Seminar with Thesis	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
EDUC_O 599-201	EDUC_O	201	Senior Seminar with Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
EDUC_O 600-001	EDUC_O	001	Research Seminar I: Project Fundamentals	W1	Examining inquiry frameworks as a mode of investigation. Issues, methods and techniques used in educational research. Consideration is given to research strategies and techniques and the selection of research questions appropriate to a range of issues facing scholar-practitioners.	Seminar	Online Learning	Wed	5:00 p.m. - 8:00 p.m.
EESC_O 101-001	EESC_O	001	Environmental Science	W1	A quantitative 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	Tue Thu	12:30 p.m. - 2:00 p.m.
EESC_O 104-001	EESC_O	001	Four Billion Years and Counting	W1	The geological history of what is now Canada from the formation of Earth to the present day. Practical applications of geology to Canadian society and the economy. [3-0-0]	Lecture	In Person Learning	Mon Wed Fri	2:00 p.m. - 3:00 p.m.
EESC_O 111-001	EESC_O	001	Earth Science	W1	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]	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
EESC_O 111-L01	EESC_O	L01	Earth Science	W1	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]	Laboratory	In Person Learning	Thu	8:00 a.m. - 10:00 a.m.
EESC_O 111-L02	EESC_O	L02	Earth Science	W1	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]	Laboratory	In Person Learning	Mon	10:00 a.m. - 12:00 p.m.
EESC_O 111-L03	EESC_O	L03	Earth Science	W1	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]	Laboratory	In Person Learning	Tue	10:00 a.m. - 12:00 p.m.
EESC_O 111-L04	EESC_O	L04	Earth Science	W1	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]	Laboratory	In Person Learning	Fri	2:00 p.m. - 4:00 p.m.
EESC_O 111-L05	EESC_O	L05	Earth Science	W1	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]	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
EESC_O 111-L06	EESC_O	L06	Earth Science	W1	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]	Laboratory	In Person Learning	Thu	12:00 p.m. - 2:00 p.m.
EESC_O 200-001	EESC_O	001	Mineralogy	W1	Crystallography and the physical and chemical properties of minerals. Recognition and identification of common minerals. [2-3-0] Prerequisite: EESC 111 and one of CHEM 111, CHEM 121.	Lecture	In Person Learning	Mon Wed Fri	11:00 a.m. - 12:00 p.m.
EESC_O 200-L01	EESC_O	L01	Mineralogy	W1	Crystallography and the physical and chemical properties of minerals. Recognition and identification of common minerals. [2-3-0] Prerequisite: EESC 111 and one of CHEM 111, CHEM 121.	Laboratory	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.
EESC_O 200-L02	EESC_O	L02	Mineralogy	W1	Crystallography and the physical and chemical properties of minerals. Recognition and identification of common minerals. [2-3-0] Prerequisite: EESC 111 and one of CHEM 111, CHEM 121.	Laboratory	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.

EESC_O 222-001	EESC_O	001	Geomorphology	W1	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 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	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
EESC_O 222-L01	EESC_O	L01	Geomorphology	W1	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 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	Laboratory	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.
EESC_O 222-L02	EESC_O	L02	Geomorphology	W1	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 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	Laboratory	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.
EESC_O 301-001	EESC_O	001	Limnology	W1	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, Earth and Environmental Sciences, Environmental Chemistry, or Freshwater Science. One of BIOL 201 or BIOL 375 is recommended. Equivalency: BIOL307	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
EESC_O 301-L01	EESC_O	L01	Limnology	W1	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, Earth and Environmental Sciences, Environmental Chemistry, or Freshwater Science. One of BIOL 201 or BIOL 375 is recommended. Equivalency: BIOL307	Laboratory	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
EESC_O 301-L02	EESC_O	L02	Limnology	W1	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, Earth and Environmental Sciences, Environmental Chemistry, or Freshwater Science. One of BIOL 201 or BIOL 375 is recommended. Equivalency: BIOL307	Laboratory	In Person Learning	Tue	8:00 a.m. - 11:00 a.m.
EESC_O 313-101	EESC_O	101	Management of Forested Watersheds	W1	Effects of watershed management on water quality and quantity, channel morphology, in-stream wood, and aquatic habitat. Emphasizing integrated land use management and the maintenance of critical watershed functions and services. [2-2-0] Prerequisite: One of EESC 111, EESC 112, EESC 213, GEOG 108, GEOG 109. Third-year standing.	Lecture	In Person Learning	Mon Wed Fri	2:00 p.m. - 3:00 p.m.
EESC_O 313-L01	EESC_O	L01	Management of Forested Watersheds	W1	Effects of watershed management on water quality and quantity, channel morphology, in-stream wood, and aquatic habitat. Emphasizing integrated land use management and the maintenance of critical watershed functions and services. [2-2-0] Prerequisite: One of EESC 111, EESC 112, EESC 213, GEOG 108, GEOG 109. Third-year standing.	Laboratory	In Person Learning	Tue	2:00 p.m. - 4:00 p.m.
EESC_O 314-001	EESC_O	001	Environmental Impact Assessment: Process, Reg	W1	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 [3-0-0] Prerequisite: Either (a) 6 credits of EESC or (b) 6 credits of GEOG. Third-year standing. Equivalency: GEOG314	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
EESC_O 322-001	EESC_O	001	Igneous and Metamorphic Petrology	W1	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.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
EESC_O 322-L01	EESC_O	L01	Igneous and Metamorphic Petrology	W1	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.	Laboratory	In Person Learning	Thu	8:00 a.m. - 11:00 a.m.
EESC_O 322-L02	EESC_O	L02	Igneous and Metamorphic Petrology	W1	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.	Laboratory	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
EESC_O 323-101	EESC_O	101	Geochemistry	W1	Origin, distribution, and cycles of elements in Earth. Low-temperature aqueous solution chemistry, fluid-rock interaction, mineral stability, isotopes. [3-3-0] Prerequisite: One of EESC 111, EESC 200, GEOG 109, CHEM 201, CHEM 210 and either (a) CHEM 113 or (b) CHEM 123.	Lecture	In Person Learning	Mon Wed Fri	10:00 a.m. - 11:00 a.m.
EESC_O 323-L01	EESC_O	L01	Geochemistry	W1	Origin, distribution, and cycles of elements in Earth. Low-temperature aqueous solution chemistry, fluid-rock interaction, mineral stability, isotopes. [3-3-0] Prerequisite: One of EESC 111, EESC 200, GEOG 109, CHEM 201, CHEM 210 and either (a) CHEM 113 or (b) CHEM 123.	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
EESC_O 325-001	EESC_O	001	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.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.

EESC_O 325-L01	EESC_O	L01	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_O 342-001	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, GEOG 205; 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_O 342-L01	EESC_O	L01	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, GEOG 205; or (b) one of ENGR 340, ENGR 341. Third-year standing.	Laboratory	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
EESC_O 342-L02	EESC_O	L02	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, GEOG 205; or (b) one of ENGR 340, ENGR 341. Third-year standing.	Laboratory	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
EESC_O 398-001	EESC_O	001	Technical Communication	W1	Written and oral communication. Report preparation, business correspondence, and oral presentation of technical material. Advanced grammar and writing styles. Logical writing; referencing; and editing. Presenting technical information to scientists and non-scientists. [3-0-2] Prerequisite: Three credits of APSC 176, CORH 203, ENGL 109,112, 113, 114, 150, 151, 153, 154, 155, or 156.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
EESC_O 398-T01	EESC_O	T01	Technical Communication	W1	Written and oral communication. Report preparation, business correspondence, and oral presentation of technical material. Advanced grammar and writing styles. Logical writing; referencing; and editing. Presenting technical information to scientists and non-scientists. [3-0-2] Prerequisite: Three credits of APSC 176, CORH 203, ENGL 109,112, 113, 114, 150, 151, 153, 154, 155, or 156.	Discussion	In Person Learning	Mon	11:00 a.m. - 12:00 p.m.
EESC_O 431-001	EESC_O	001	Quaternary Glacial Environments	W1	Origin, nature, and distribution of glacial landforms and landform assemblages. Evaluation of hypotheses and theories on formation of glacial landforms and sediments, glacial mechanics, hydrology, and Quaternary stratigraphy. Students are required to attend several field trips on weekends. [3-1-0] Prerequisite: One of EESC 222, EESC 356, GEOG 222, GEOG 356.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
EESC_O 449-001	EESC_O	001	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_O 449-002	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_O 449-003	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_O 449-004	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_O 449-005	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_O 449-006	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_O 449-007	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_O 449-008	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_O 449-009	EESC_O	009	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_O 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 121, PHYS 111, PHYS 112. Third-year standing. Equivalency: GEOG466	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.

EESC_O 456-L01	EESC_O	L01	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 121, PHYS 111, PHYS 112. Third-year standing. Equivalency: GEOG466	Laboratory	In Person Learning	Thu	8:00 a.m. - 11:00 a.m.
EESC_O 456-L02	EESC_O	L02	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 121, PHYS 111, PHYS 112. Third-year standing. Equivalency: GEOG466	Laboratory	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
EESC_O 550-001	EESC_O	001	Research in Earth and Environmental Sciences	W1	Practical and theoretical grounding in professional research. Critical assessment of the logic, reasoning, and structure of research ideas. Research proposal development. Presentation of scientific ideas in written and oral forms. Seminar presentations by faculty and external speakers, as available.	Seminar	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
EESC_O 599-001	EESC_O	001	M.Sc. Thesis	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
EESC_O 599-201	EESC_O	201	M.Sc. Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
EESC_O 699-001	EESC_O	001	Ph.D. Dissertation	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
EESC_O 699-201	EESC_O	201	Ph.D. Dissertation	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
ENGL_O 104-001	ENGL_O	001	University Writing: Indigenous Perspectives	W1	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 104 or ENGL 109. 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.
ENGL_O 109-001	ENGL_O	001	Studies in Composition (Enhanced)	W1-2	A two-semester practice-based course that gives learners an extended opportunity to develop university-level writing skills. Advances communication abilities in rhetoric, critical analysis, grammar, and documentation, with emphasis on research-based writing and academic literacy. Essays and exercises are required. Credit will be granted for only one of ENGL 109, ENGL 112 or ENGL 114.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
ENGL_O 109-002	ENGL_O	002	Studies in Composition (Enhanced)	W1-2	A two-semester practice-based course that gives learners an extended opportunity to develop university-level writing skills. Advances communication abilities in rhetoric, critical analysis, grammar, and documentation, with emphasis on research-based writing and academic literacy. Essays and exercises are required. Credit will be granted for only one of ENGL 109, ENGL 112 or ENGL 114.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ENGL_O 109-003	ENGL_O	003	Studies in Composition (Enhanced)	W1-2	A two-semester practice-based course that gives learners an extended opportunity to develop university-level writing skills. Advances communication abilities in rhetoric, critical analysis, grammar, and documentation, with emphasis on research-based writing and academic literacy. Essays and exercises are required. Credit will be granted for only one of ENGL 109, ENGL 112 or ENGL 114.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ENGL_O 109-004	ENGL_O	004	Studies in Composition (Enhanced)	W1-2	A two-semester practice-based course that gives learners an extended opportunity to develop university-level writing skills. Advances communication abilities in rhetoric, critical analysis, grammar, and documentation, with emphasis on research-based writing and academic literacy. Essays and exercises are required. Credit will be granted for only one of ENGL 109, ENGL 112 or ENGL 114.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
ENGL_O 109-005	ENGL_O	005	Studies in Composition (Enhanced)	W1-2	A two-semester practice-based course that gives learners an extended opportunity to develop university-level writing skills. Advances communication abilities in rhetoric, critical analysis, grammar, and documentation, with emphasis on research-based writing and academic literacy. Essays and exercises are required. Credit will be granted for only one of ENGL 109, ENGL 112 or ENGL 114.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
ENGL_O 109-006	ENGL_O	006	Studies in Composition (Enhanced)	W1-2	A two-semester practice-based course that gives learners an extended opportunity to develop university-level writing skills. Advances communication abilities in rhetoric, critical analysis, grammar, and documentation, with emphasis on research-based writing and academic literacy. Essays and exercises are required. Credit will be granted for only one of ENGL 109, ENGL 112 or ENGL 114.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
ENGL_O 112-001	ENGL_O	001	Studies in Composition	W1	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	Online Learning	Arranged	Arranged
ENGL_O 112-002	ENGL_O	002	Studies in Composition	W1	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	Online Learning	Arranged	Arranged
ENGL_O 112-003	ENGL_O	003	Studies in Composition	W1	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	Online Learning	Arranged	Arranged
ENGL_O 112-004	ENGL_O	004	Studies in Composition	W1	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	12:30 p.m. - 2:00 p.m.
ENGL_O 112-005	ENGL_O	005	Studies in Composition	W1	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
ENGL_O 112-006	ENGL_O	006	Studies in Composition	W1	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ENGL_O 112-007	ENGL_O	007	Studies in Composition	W1	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.



ENGL_O 112-008	ENGL_O	008	Studies in Composition	W1	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	3:30 p.m. - 5:00 p.m.
ENGL_O 112-009	ENGL_O	009	Studies in Composition	W1	Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ENGL_O 112-010	ENGL_O	010	Studies in Composition	W1	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	3:30 p.m. - 5:00 p.m.
ENGL_O 112-011	ENGL_O	011	Studies in Composition	W1	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	11:00 a.m. - 12:30 p.m.
ENGL_O 112-012	ENGL_O	012	Studies in Composition	W1	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	5:00 p.m. - 6:30 p.m.
ENGL_O 112-013	ENGL_O	013	Studies in Composition	W1	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	12:30 p.m. - 2:00 p.m.
ENGL_O 114-001	ENGL_O	001	Studies in Composition: Indigenous Perspectives	W1	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	Online Learning	Tue Thu	6:30 p.m. - 8:00 p.m.
ENGL_O 150-001	ENGL_O	001	Introduction to Literary Genre	W1	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ENGL_O 150-002	ENGL_O	002	Introduction to Literary Genre	W1	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Mon Wed Fri	3:00 p.m. - 4:00 p.m.
ENGL_O 150-003	ENGL_O	003	Introduction to Literary Genre	W1	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Mon Wed Fri	1:00 p.m. - 2:00 p.m.
ENGL_O 150-004	ENGL_O	004	Introduction to Literary Genre	W1	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ENGL_O 150-005	ENGL_O	005	Introduction to Literary Genre	W1	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
ENGL_O 150-006	ENGL_O	006	Introduction to Literary Genre	W1	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ENGL_O 150-007	ENGL_O	007	Introduction to Literary Genre	W1	Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
ENGL_O 153-001	ENGL_O	001	Readings in Narrative	W1	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Fri	2:00 p.m. - 4:00 p.m.
ENGL_O 153-T01	ENGL_O	T01	Readings in Narrative	W1	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	5:00 p.m. - 6:00 p.m.
ENGL_O 153-T02	ENGL_O	T02	Readings in Narrative	W1	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	8:00 a.m. - 9:00 a.m.
ENGL_O 153-T03	ENGL_O	T03	Readings in Narrative	W1	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	Fri	8:00 a.m. - 9:00 a.m.
ENGL_O 153-T04	ENGL_O	T04	Readings in Narrative	W1	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Tue	8:00 a.m. - 9:00 a.m.
ENGL_O 153-T05	ENGL_O	T05	Readings in Narrative	W1	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Thu	12:00 p.m. - 1:00 p.m.
ENGL_O 153-T06	ENGL_O	T06	Readings in Narrative	W1	Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.	Discussion	In Person Learning	Tue	12:00 p.m. - 1:00 p.m.
ENGL_O 153-T07	ENGL_O	T07	Readings in Narrative	W1	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	Fri	8:00 a.m. - 9:00 a.m.
ENGL_O 153-T08	ENGL_O	T08	Readings in Narrative	W1	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	Fri	1:00 p.m. - 2:00 p.m.
ENGL_O 153-T09	ENGL_O	T09	Readings in Narrative	W1	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	1:00 p.m. - 2:00 p.m.
ENGL_O 153-T10	ENGL_O	T10	Readings in Narrative	W1	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	2:00 p.m. - 3:00 p.m.

ENGL_O 153-T11	ENGL_O	T11	Readings in Narrative	W1	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_O 153-T12	ENGL_O	T12	Readings in Narrative	W1	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_O 155-001	ENGL_O	001	Writing and Making Technology in the Humaniti	W1	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_O 155-T1A	ENGL_O	T1A	Writing and Making Technology in the Humaniti	W1	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_O 155-T1B	ENGL_O	T1B	Writing and Making Technology in the Humaniti	W1	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_O 155-T1C	ENGL_O	T1C	Writing and Making Technology in the Humaniti	W1	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_O 155-T1D	ENGL_O	T1D	Writing and Making Technology in the Humaniti	W1	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_O 155-T1E	ENGL_O	T1E	Writing and Making Technology in the Humaniti	W1	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_O 155-T1F	ENGL_O	T1F	Writing and Making Technology in the Humaniti	W1	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_O 155-T1G	ENGL_O	T1G	Writing and Making Technology in the Humaniti	W1	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_O 155-T1H	ENGL_O	T1H	Writing and Making Technology in the Humaniti	W1	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_O 156-001	ENGL_O	001	Environmental Literature	W1	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_O 156-002	ENGL_O	002	Environmental Literature	W1	Introduction to literature and criticism on the environment. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.	
ENGL_O 203-A_001	ENGL_O	A	A_001	Topics in Composition	W1	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_O 203-A_002	ENGL_O	A	A_002	Topics in Composition	W1	Examination of published research on a special topic with emphasis on rhetorical features and social contexts. Students will produce a final project that demonstrates their ability to reason, develop ideas, organize, write in an effective style, incorporate research, and revise their work. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ENGL_O 203-A_003	ENGL_O	A	A_003	Topics in Composition	W1	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_O 212-001	ENGL_O	001	Children's Literature	W1	Historical survey of literature written for and about children, in genres such as poems, short stories, fairy tales, novels, and treatises, covering a full range of modes from didactic to realistic to fantasy. At least 35% of class time involves practice-based instruction in critical analysis, essay writing and research. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.	
ENGL_O 215-001	ENGL_O	001	Reading Screens	W1	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	12:30 p.m. - 2:00 p.m.	
ENGL_O 220-001	ENGL_O	001	Foundations: Literature in Historical Context 1	W1	Poetry, drama, fiction, and non-fiction prose to the eighteenth century, with attention to the importance of history and changes in form for literary analysis. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.	

ENGL_O 220-002	ENGL_O	002		Foundations: Literature in Historical Context	W1	Poetry, drama, fiction, and non-fiction prose to the eighteenth century, with attention to the importance of history and changes in form for literary analysis. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
ENGL_O 224-001	ENGL_O	001		Foundations: Reading Across Borders	W1	Critical intercultural reading approaches, focusing on literature and film from the global South. Emphasis upon ideas of culture, difference, and the relations between reader and text. At least 35% of class time involves practice-based instruction in critical analysis, essay writing and research. Credit will be granted for only one of ENGL 224 or CULT 230. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Equivalency: CULT230	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ENGL_O 234-001	ENGL_O	001		Foundations: Indigenous Literature	W1	Survey of Indigenous-authored poetry, drama, fiction, non-fiction prose, and orature in North America, with attention to Indigenous methodologies and major critical trends. At least 35% of class time involves practice-based instruction in critical analysis, essay writing and research. Credit will be granted for only one of ENGL 234 or CULT 250. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Equivalency: CULT 250	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
ENGL_O 250-001	ENGL_O	001		Foundations: Interdisciplinary Theory and Meth	W1	Major trends in critical theory, with attention to the applications of theory in literary research. Credit will be granted for only one of ENGL 250 or CULT 275. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Equivalency: CULT275	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ENGL_O 309-A_001	ENGL_O	A	A_001	Modern Critical Theory and Interdisciplinary Me	W1	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. Recommended for all English Majors. No more than 6 credits in total will be granted for ENGL 309, CULT 371 or any combination thereof. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Equivalency: CULT371	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
ENGL_O 339-001	ENGL_O	001		American Literature from the Civil War to WWI	W1	The movement from the literature of the Gilded Age to the Progressive Era, paying close attention to the cultural work done by realism and naturalism. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Recommended: One of ENGL 221 or ENGL 233.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
ENGL_O 349-C_001	ENGL_O	C	C_001	17th-Century Literature	W1	Study of how literary works reflect and respond to social, political, and religious change in the context of revolution. Popular and polemical works, including advice literature, polemical pamphlets, or political tracts, will inform critical debates on gender, religion, and/or liberty. With different topics this course may be taken more than once for credit. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
ENGL_O 350-C_001	ENGL_O	C	C_001	16th- and 17th-Century Studies	W1	Examines sixteenth and seventeenth century works across a range of authors, forms, and genres with a thematic focus. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ENGL_O 353-101	ENGL_O	101		Shakespeare: Later Works	W1	Examines Shakespeare's works after 1599. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ENGL_O 391-001	ENGL_O	001		Afropolitan Literature	W1	Contemporary African identities in the age of accelerating globalization. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
ENGL_O 394-B_001	ENGL_O	B	B_001	Interdisciplinary Studies in English Literature	W1	Addresses English literature through interdisciplinary perspectives and practices, ranging from performance, to visual arts, to creative writing and comparative literature. This course may involve cross-discipline pedagogies, experiential learning, community-based learning and/or undergraduate research opportunities. With different topics, this course may be taken three times for credit. ENGL 394 and ENGL 395 must have different topics in order for students to receive credit for both courses. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing.	Experiential	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
ENGL_O 395-I_001	ENGL_O	I	I_001	Popular Literature	W1	An examination 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, honours or combined major, or the English concentration in the BA, General Studies. With different topics, this course may be taken three times for credit, but it cannot be used as a prerequisite for 400-level ENGL courses. ENGL 395 and ENGL 394 must have different topics in order for students to receive credit for both courses. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156, APSC 176. and third-year standing.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
ENGL_O 437-B_001	ENGL_O	B	B_001	Postcolonial Studies	W1	Examines colonialism, decolonization, and globalization, as they relate to literature and other modes of cultural production, using a cross-cultural framework. Topics vary from year to year. With different topics this course may be taken more than once for credit. No more than 9 credits in total will be granted for ENGL 437, CULT 437, or any combination thereof. [3-0-0] Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT437	Lecture	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
ENGL_O 459-C_001	ENGL_O	C	C_001	Major Authors of the 20th and 21st Centuries	W1	The works of no more than three significant authors will be examined. Specific topics will be announced. [3-0-0] Prerequisite: 3 credits of 300-level ENGL.	Independent Study	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
ENGL_O 473-001	ENGL_O	001		Studies in Indigenous Literature and Criticism	W1	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 300-level ENGL. Equivalency: CULT 450	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ENGL_O 493-K_001	ENGL_O	K	K_001	Topics in Popular Culture	W1	Focus on media such as music, film, music video, television, advertising, and the Internet. No more than 9 credits in total will be granted for ENGL 493, CULT 400, or any combination thereof. [3-0-0] Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT400	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.
ENGL_O 499-001	ENGL_O	001		Honours Essay	W1-2	Prerequisite: Entry into the English Honours program.	Independent Study	In Person Learning	Arranged	Arranged
ENGL_O 501-001	ENGL_O	001		Methodologies: Critical Theory	W1	Examines critical and cultural theory and how it informs current practices of research.	Seminar	In Person Learning	Wed	2:00 p.m. - 5:00 p.m.
ENGL_O 503-001	ENGL_O	001		Practices in the Profession of Literary Studies an	W1	Introduction to the profession's expectations, practices, and responsibilities. Pass/Fail.	Lecture	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.
ENGL_O 525-K_001	ENGL_O	K	K_001	Studies in Diversity and Identity	W1		Lecture	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
ENGL_O 531-A_101	ENGL_O	A	A_101	Place and Power	W1		Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.

ENGR_O 303-101	ENGR_O	101	Engineering Project Management	W1	Project management including initiating, planning, executing, controlling, and closing engineering projects. Managing the scope, costs, schedule, risks, and human resources in engineering projects. External party engagement, including Indigenous communities. [3-0-0] Prerequisite: All of APSC 169, APSC 201.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
ENGR_O 310-101	ENGR_O	101	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ENGR_O 310-L1A	ENGR_O	L1A	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Laboratory	In Person Learning	Wed (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 310-L1B	ENGR_O	L1B	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Laboratory	In Person Learning	Wed (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 310-L1C	ENGR_O	L1C	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Laboratory	In Person Learning	Fri (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 310-L1D	ENGR_O	L1D	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Laboratory	In Person Learning	Fri (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 310-L1E	ENGR_O	L1E	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Laboratory	In Person Learning	Fri (Alternate weeks)	12:00 p.m. - 2:00 p.m.
ENGR_O 310-L1F	ENGR_O	L1F	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Laboratory	In Person Learning	Fri (Alternate weeks)	12:00 p.m. - 2:00 p.m.
ENGR_O 310-L1G	ENGR_O	L1G	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Laboratory	In Person Learning	Wed (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 310-L1H	ENGR_O	L1H	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Laboratory	In Person Learning	Wed (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 310-L1I	ENGR_O	L1I	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Laboratory	In Person Learning	Fri (Alternate weeks)	8:00 a.m. - 10:00 a.m.
ENGR_O 310-L1J	ENGR_O	L1J	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Laboratory	In Person Learning	Fri (Alternate weeks)	8:00 a.m. - 10:00 a.m.
ENGR_O 310-L1K	ENGR_O	L1K	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Laboratory	In Person Learning	Wed (Alternate weeks)	12:00 p.m. - 2:00 p.m.
ENGR_O 310-L1L	ENGR_O	L1L	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Laboratory	In Person Learning	Wed (Alternate weeks)	12:00 p.m. - 2:00 p.m.
ENGR_O 310-T1A	ENGR_O	T1A	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Discussion	Online Learning	Mon	1:00 p.m. - 2:00 p.m.
ENGR_O 310-T1B	ENGR_O	T1B	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Discussion	Online Learning	Mon	3:00 p.m. - 4:00 p.m.
ENGR_O 310-T1C	ENGR_O	T1C	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Discussion	Online Learning	Mon	10:00 a.m. - 11:00 a.m.
ENGR_O 310-T1D	ENGR_O	T1D	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Discussion	Online Learning	Tue	1:00 p.m. - 2:00 p.m.
ENGR_O 310-T1E	ENGR_O	T1E	Fluid Mechanics II	W1	Differential conservation, equations and solutions, boundary layers, compressible flows, and introduction to turbomachinery. [3-2*-1] Prerequisite: APSC 253.	Discussion	Online Learning	Fri	2:00 p.m. - 3:00 p.m.
ENGR_O 325-101	ENGR_O	101	Civil Engineering Materials	W1	Structures and properties of common materials: aggregates, Portland cement, concrete, asphalt, timber, composites, and metals. Relationships between materials structures and mechanical properties. [3-2*-0] Prerequisite: APSC 259.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
ENGR_O 325-L1A	ENGR_O	L1A	Civil Engineering Materials	W1	Structures and properties of common materials: aggregates, Portland cement, concrete, asphalt, timber, composites, and metals. Relationships between materials structures and mechanical properties. [3-2*-0] Prerequisite: APSC 259.	Laboratory	In Person Learning	Tue (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 325-L1B	ENGR_O	L1B	Civil Engineering Materials	W1	Structures and properties of common materials: aggregates, Portland cement, concrete, asphalt, timber, composites, and metals. Relationships between materials structures and mechanical properties. [3-2*-0] Prerequisite: APSC 259.	Laboratory	In Person Learning	Tue (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 325-L1C	ENGR_O	L1C	Civil Engineering Materials	W1	Structures and properties of common materials: aggregates, Portland cement, concrete, asphalt, timber, composites, and metals. Relationships between materials structures and mechanical properties. [3-2*-0] Prerequisite: APSC 259.	Laboratory	In Person Learning	Fri (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 325-L1D	ENGR_O	L1D	Civil Engineering Materials	W1	Structures and properties of common materials: aggregates, Portland cement, concrete, asphalt, timber, composites, and metals. Relationships between materials structures and mechanical properties. [3-2*-0] Prerequisite: APSC 259.	Laboratory	In Person Learning	Wed (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 325-L1E	ENGR_O	L1E	Civil Engineering Materials	W1	Structures and properties of common materials: aggregates, Portland cement, concrete, asphalt, timber, composites, and metals. Relationships between materials structures and mechanical properties. [3-2*-0] Prerequisite: APSC 259.	Laboratory	In Person Learning	Thu (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 325-L1F	ENGR_O	L1F	Civil Engineering Materials	W1	Structures and properties of common materials: aggregates, Portland cement, concrete, asphalt, timber, composites, and metals. Relationships between materials structures and mechanical properties. [3-2*-0] Prerequisite: APSC 259.	Laboratory	In Person Learning	Mon (Alternate weeks)	1:00 p.m. - 3:00 p.m.
ENGR_O 325-L1G	ENGR_O	L1G	Civil Engineering Materials	W1	Structures and properties of common materials: aggregates, Portland cement, concrete, asphalt, timber, composites, and metals. Relationships between materials structures and mechanical properties. [3-2*-0] Prerequisite: APSC 259.	Laboratory	In Person Learning	Thu (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 325-L1H	ENGR_O	L1H	Civil Engineering Materials	W1	Structures and properties of common materials: aggregates, Portland cement, concrete, asphalt, timber, composites, and metals. Relationships between materials structures and mechanical properties. [3-2*-0] Prerequisite: APSC 259.	Laboratory	In Person Learning	Mon (Alternate weeks)	5:00 p.m. - 7:00 p.m.
ENGR_O 327-101	ENGR_O	101	Reinforced Concrete Design I	W1	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.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
ENGR_O 327-L1A	ENGR_O	L1A	Reinforced Concrete Design I	W1	Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 259, APSC 260, APSC 261. Corequisite: ENGR 325.	Laboratory	In Person Learning	Tue (Alternate weeks)	10:00 a.m. - 12:00 p.m.

ENGR_O 327-L1B	ENGR_O	L1B	Reinforced Concrete Design I	W1	Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 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	W1	Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 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	W1	Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 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	W1	Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 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	W1	Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 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	W1	Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 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	W1	Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 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	W1	Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 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	W1	Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 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	W1	Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 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	W1	Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 259, APSC 260, APSC 261. Corequisite: ENGR 325.	Discussion	In Person Learning	Fri	10:00 a.m. - 11:00 a.m.
ENGR_O 341-101	ENGR_O	101	Engineering Hydrology	W1	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	W1	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	W1	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.	Laboratory	In Person Learning	Thu (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 342-L2B	ENGR_O	L2B	Open Channel Flow	W1	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.	Laboratory	In Person Learning	Thu (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 342-L2C	ENGR_O	L2C	Open Channel Flow	W1	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.	Laboratory	In Person Learning	Thu (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 342-L2D	ENGR_O	L2D	Open Channel Flow	W1	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.	Laboratory	In Person Learning	Thu (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 342-L2E	ENGR_O	L2E	Open Channel Flow	W1	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.	Laboratory	In Person Learning	Fri (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 342-L2F	ENGR_O	L2F	Open Channel Flow	W1	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.	Laboratory	In Person Learning	Fri (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 347-101	ENGR_O	101	Environmental Engineering	W1	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	W1	Transient and steady-state 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	W1	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-L2A	ENGR_O	L2A	Microelectronics I	W1	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-L2B	ENGR_O	L2B	Microelectronics I	W1	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-L2C	ENGR_O	L2C	Microelectronics I	W1	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-L2D	ENGR_O	L2D	Microelectronics I	W1	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-L2E	ENGR_O	L2E	Microelectronics I	W1	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	W1	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	W1	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-L1A	ENGR_O	L1A	Microcomputer Engineering	W1	Microcomputer architecture, number representation, assembly language, parallel and serial input/output, interrupts, memory, peripherals. [3-2*-0] Prerequisite: APSC 255.	Laboratory	In Person Learning	Tue (Alternate weeks)	12:00 p.m. - 2:00 p.m.
ENGR_O 359-L1B	ENGR_O	L1B	Microcomputer Engineering	W1	Microcomputer architecture, number representation, assembly language, parallel and serial input/output, interrupts, memory, peripherals. [3-2*-0] Prerequisite: APSC 255.	Laboratory	In Person Learning	Tue (Alternate weeks)	12:00 p.m. - 2:00 p.m.
ENGR_O 359-L1C	ENGR_O	L1C	Microcomputer Engineering	W1	Microcomputer architecture, number representation, assembly language, parallel and serial input/output, interrupts, memory, peripherals. [3-2*-0] Prerequisite: APSC 255.	Laboratory	In Person Learning	Tue (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 359-L1D	ENGR_O	L1D	Microcomputer Engineering	W1	Microcomputer architecture, number representation, assembly language, parallel and serial input/output, interrupts, memory, peripherals. [3-2*-0] Prerequisite: APSC 255.	Laboratory	In Person Learning	Tue (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 359-L1E	ENGR_O	L1E	Microcomputer Engineering	W1	Microcomputer architecture, number representation, assembly language, parallel and serial input/output, interrupts, memory, peripherals. [3-2*-0] Prerequisite: APSC 255.	Laboratory	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.	W1	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	Tue Thu	2:00 p.m. - 3:30 p.m.
ENGR_O 360-T1A	ENGR_O	T1A	Engineering Probability and Statistics.	W1	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.	W1	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.	W1	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	W1	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 259.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ENGR_O 381-101	ENGR_O	101	Kinematics and Dynamics of Machinery	W1	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	Tue Thu	5:00 p.m. - 6:30 p.m.
ENGR_O 381-T1A	ENGR_O	T1A	Kinematics and Dynamics of Machinery	W1	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	W1	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	W1	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	W1	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	W1	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	W1	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	W1	Vibration of mechanical systems. Single and multiple degree of freedom systems. Undamped, damped vibrations. Forced vibrations and resonance. Modal analysis, modelling vibrating systems. Spectral analysis. Measurement and control of vibrating mechanical systems. [3-0-1] Prerequisite: APSC 246.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
ENGR_O 387-T1A	ENGR_O	T1A	Vibration of Mechanical Systems	W1	Vibration of mechanical systems. Single and multiple degree of freedom systems. Undamped, damped vibrations. Forced vibrations and resonance. Modal analysis, modelling vibrating systems. Spectral analysis. Measurement and control of vibrating mechanical systems. [3-0-1] Prerequisite: APSC 246.	Discussion	In Person Learning	Thu	8:00 a.m. - 9:00 a.m.

ENGR_O 387-T1B	ENGR_O	T1B	Vibration of Mechanical Systems	W1	Vibration of mechanical systems. Single and multiple degree of freedom systems. Undamped, damped vibrations. Forced vibrations and resonance. Modal analysis, modelling vibrating systems. Spectral analysis. Measurement and control of vibrating mechanical systems. [3-0-1] Prerequisite: APSC 246.	Discussion	In Person Learning	Mon	4:00 p.m. - 5:00 p.m.
ENGR_O 387-T1C	ENGR_O	T1C	Vibration of Mechanical Systems	W1	Vibration of mechanical systems. Single and multiple degree of freedom systems. Undamped, damped vibrations. Forced vibrations and resonance. Modal analysis, modelling vibrating systems. Spectral analysis. Measurement and control of vibrating mechanical systems. [3-0-1] Prerequisite: APSC 246.	Discussion	In Person Learning	Mon	1:00 p.m. - 2:00 p.m.
ENGR_O 387-T1D	ENGR_O	T1D	Vibration of Mechanical Systems	W1	Vibration of mechanical systems. Single and multiple degree of freedom systems. Undamped, damped vibrations. Forced vibrations and resonance. Modal analysis, modelling vibrating systems. Spectral analysis. Measurement and control of vibrating mechanical systems. [3-0-1] Prerequisite: APSC 246.	Discussion	In Person Learning	Mon	10:00 a.m. - 11:00 a.m.
ENGR_O 387-T1E	ENGR_O	T1E	Vibration of Mechanical Systems	W1	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	T1F	Vibration of Mechanical Systems	W1	Vibration of mechanical systems. Single and multiple degree of freedom systems. Undamped, damped vibrations. Forced vibrations and resonance. Modal analysis, modelling vibrating systems. Spectral analysis. Measurement and control of vibrating mechanical systems. [3-0-1] Prerequisite: APSC 246.	Discussion	In Person Learning	Mon	12:00 p.m. - 1:00 p.m.
ENGR_O 401-001	ENGR_O	001	Bioinstrumentation	W1	Bioinstruments used for tracking vitals, diagnosis, and treatment of disease in the vascular, muscular, nervous, and respiratory systems. Introduction to the fundamentals of each body system, electrical safety, signal acquisition, biosensors, transducers, amplifiers, and analysis of human physiological measurements. Hands on experience with sensors, biomedical devices, and design through labs. [3-2*-0] Prerequisite: APSC 254.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
ENGR_O 401-L1A	ENGR_O	L1A	Bioinstrumentation	W1	Bioinstruments used for tracking vitals, diagnosis, and treatment of disease in the vascular, muscular, nervous, and respiratory systems. Introduction to the fundamentals of each body system, electrical safety, signal acquisition, biosensors, transducers, amplifiers, and analysis of human physiological measurements. Hands on experience with sensors, biomedical devices, and design through labs. [3-2*-0] Prerequisite: APSC 254.	Laboratory	In Person Learning	Thu (Alternate weeks)	8:00 a.m. - 10:00 a.m.
ENGR_O 401-L1B	ENGR_O	L1B	Bioinstrumentation	W1	Bioinstruments used for tracking vitals, diagnosis, and treatment of disease in the vascular, muscular, nervous, and respiratory systems. Introduction to the fundamentals of each body system, electrical safety, signal acquisition, biosensors, transducers, amplifiers, and analysis of human physiological measurements. Hands on experience with sensors, biomedical devices, and design through labs. [3-2*-0] Prerequisite: APSC 254.	Laboratory	In Person Learning	Thu (Alternate weeks)	8:00 a.m. - 10:00 a.m.
ENGR_O 401-L1C	ENGR_O	L1C	Bioinstrumentation	W1	Bioinstruments used for tracking vitals, diagnosis, and treatment of disease in the vascular, muscular, nervous, and respiratory systems. Introduction to the fundamentals of each body system, electrical safety, signal acquisition, biosensors, transducers, amplifiers, and analysis of human physiological measurements. Hands on experience with sensors, biomedical devices, and design through labs. [3-2*-0] Prerequisite: APSC 254.	Laboratory	In Person Learning	Wed (Alternate weeks)	4:00 p.m. - 6:00 p.m.
ENGR_O 408-001	ENGR_O	001	Energy System Transition	W1	GHG emission reductions, examination of the sources and use of energy, practical potential transition strategies. Participation in a one-day weekend field trip in March is required. [3-0-0] Prerequisite: ENGR 320. Lean construction; logistics optimization; n-dimensional Building Information Modeling (nD BIM); Internet of Things and Construction 4.0 technologies; new business models; digital fabrication and platform-based construction. Credit will be granted for only one of ENGR 409 or APSC 509. [3-0-0] Prerequisite: One of ENGR 303, MANF 470.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
ENGR_O 409-001	ENGR_O	001	Construction Digitalization and Informatics	W1	GHG emission reductions, examination of the sources and use of energy, practical potential transition strategies. Participation in a one-day weekend field trip in March is required. [3-0-0] Prerequisite: ENGR 320. Lean construction; logistics optimization; n-dimensional Building Information Modeling (nD BIM); Internet of Things and Construction 4.0 technologies; new business models; digital fabrication and platform-based construction. Credit will be granted for only one of ENGR 409 or APSC 509. [3-0-0] Prerequisite: One of ENGR 303, MANF 470.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ENGR_O 418-001	ENGR_O	001	Applied Machine Learning for Engineers	W1	Fundamentals of machine learning, toolboxes in machine learning, supervised learning, unsupervised learning, applications of machine learning in various engineering disciplines. Credit will be granted for only one of ENGR 418 or ENGR 518. [3-0-0] Prerequisite: Fourth-year B.A.Sc. or B.Sc. COSC standing.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
ENGR_O 426-101	ENGR_O	101	Analysis of Indeterminate Structures	W1	Analysis of statically indeterminate structures using flexibility and stiffness methods. Linear and non-linear analysis, introduction to finite element method. [3-0-0] Prerequisite: All of APSC 179, ENGR 327.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
ENGR_O 427-101	ENGR_O	101	Reinforced Concrete Design II	W1	Design of reinforced concrete two-way slabs, slender columns, footings, and walls. Design for torsion. [3-0-0] Prerequisite: All of ENGR 325, ENGR 327.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
ENGR_O 428-001	ENGR_O	001	Earthquake Engineering	W1	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	2:00 p.m. - 3:30 p.m.
ENGR_O 432-001	ENGR_O	001	Infrastructure Management II	W1	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, prioritization and optimization, advanced modelling and GIS implementation. [3-0-0] Prerequisite: All of ENGR 303, ENGR 305, ENGR 330, ENGR 331.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ENGR_O 435-001	ENGR_O	001	Transportation Systems Engineering	W1	Analysis, design, and operation of transport systems that support our urban and rural communities, including: traffic studies and field surveys; capacity and level of service analysis; simulation and optimization of networks; transportation demand management; and CAD optimization of horizontal and vertical corridor alignments. [3-2*-0] Prerequisite: All of ENGR 335, ENGR 330.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
ENGR_O 435-L1A	ENGR_O	L1A	Transportation Systems Engineering	W1	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 436-001	ENGR_O	001	Transportation Planning	W1	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.
ENGR_O 436-L1A	ENGR_O	L1A	Transportation Planning	W1	Processes and techniques to facilitate properly integrated land use and transport systems, including: survey and data techniques; trip generation; trip distribution; modal choice; trip assignment; development traffic impact assessment; sustainable transportation strategies; and vulnerable road users. Credit will be granted for only one of ENGR 436 or ENGR 536. [3-2*-0] Prerequisite: ENGR 335.	Laboratory	In Person Learning	Fri (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 438-001	ENGR_O	001	Rock Mechanics and Rock Engineering	W1	Mechanical properties of intact rock. Rock mass properties and classifications. Structural mapping and stereonets. Rock and rock mass strength criteria. Stresses 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.
ENGR_O 438-L2A	ENGR_O	L2A	Rock Mechanics and Rock Engineering	W1	Mechanical properties of intact rock. Rock mass properties and classifications. Structural mapping and stereonets. Rock and rock mass strength criteria. Stresses in rock masses. Rock slope stability analysis. Empirical, analytical, and numerical analysis techniques for underground excavations. Rock support and stabilization. Credit will be granted for only one of ENGR 438 or ENGR 538. [3-2*-0] Prerequisite: ENGR 340.	Laboratory	In Person Learning	Tue (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 440-101	ENGR_O	101	Foundation Engineering	W1	Empirical and analytical approaches for foundation engineering. Topics include site investigation, lateral earth pressure, ground improvement, design of shallow and deep foundations, and retaining structures. [3-0-1*] Prerequisite: ENGR 340. Corequisite: ENGR 327.	Lecture	Online Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
ENGR_O 440-T1A	ENGR_O	T1A	Foundation Engineering	W1	Empirical and analytical approaches for foundation engineering. Topics include site investigation, lateral earth pressure, ground improvement, design of shallow and deep foundations, and retaining structures. [3-0-1*] Prerequisite: ENGR 340. Corequisite: ENGR 327.	Discussion	Online Learning	Thu (Alternate weeks)	4:00 p.m. - 5:00 p.m.
ENGR_O 444-201	ENGR_O	201	Solid Waste Engineering	W1	Applications of engineering principles and practices to land disposal of hazardous and non-hazardous wastes. [3-0-0] Prerequisite: All of ENGR 340, ENGR 347.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ENGR_O 447-101	ENGR_O	101	Design of Processes for Water and Wastewater	W1	Theory and design of fundamental physical, chemical, and biological unit operations for drinking water and municipal wastewater treatment. The design principles of coagulation, flocculation, sedimentation, filtration, biological treatment, solid handling, disinfection, and advanced treatment processes are presented. [3-0-1*] Prerequisite: ENGR 347.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
ENGR_O 447-T1A	ENGR_O	T1A	Design of Processes for Water and Wastewater	W1	Theory and design of fundamental physical, chemical, and biological unit operations for drinking water and municipal wastewater treatment. The design principles of coagulation, flocculation, sedimentation, filtration, biological treatment, solid handling, disinfection, and advanced treatment processes are presented. [3-0-1*] Prerequisite: ENGR 347.	Discussion	Online Learning	Arranged	Arranged
ENGR_O 447-T1B	ENGR_O	T1B	Design of Processes for Water and Wastewater	W1	Theory and design of fundamental physical, chemical, and biological unit operations for drinking water and municipal wastewater treatment. The design principles of coagulation, flocculation, sedimentation, filtration, biological treatment, solid handling, disinfection, and advanced treatment processes are presented. [3-0-1*] Prerequisite: ENGR 347.	Discussion	Online Learning	Arranged	Arranged
ENGR_O 447-T1C	ENGR_O	T1C	Design of Processes for Water and Wastewater	W1	Theory and design of fundamental physical, chemical, and biological unit operations for drinking water and municipal wastewater treatment. The design principles of coagulation, flocculation, sedimentation, filtration, biological treatment, solid handling, disinfection, and advanced treatment processes are presented. [3-0-1*] Prerequisite: ENGR 347.	Discussion	Online Learning	Arranged	Arranged
ENGR_O 450-001	ENGR_O	001	Clinical Engineering	W1	The clinical environment and the role of a clinical engineer in supporting and advancing health care, in applying human factors in the health care setting, and performing health technology management. Labs explore a virtual operating room. [3-2*-0] Corequisite: ENGR 401.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
ENGR_O 450-L1A	ENGR_O	L1A	Clinical Engineering	W1	The clinical environment and the role of a clinical engineer in supporting and advancing health care, in applying human factors in the health care setting, and performing health technology management. Labs explore a virtual operating room. [3-2*-0] Corequisite: ENGR 401.	Laboratory	In Person Learning	Wed (Alternate weeks)	4:00 p.m. - 6:00 p.m.
ENGR_O 450-L1B	ENGR_O	L1B	Clinical Engineering	W1	The clinical environment and the role of a clinical engineer in supporting and advancing health care, in applying human factors in the health care setting, and performing health technology management. Labs explore a virtual operating room. [3-2*-0] Corequisite: ENGR 401.	Laboratory	In Person Learning	Wed (Alternate weeks)	4:00 p.m. - 6:00 p.m.
ENGR_O 458-201	ENGR_O	201	Power Electronics	W1	Applications and roles of power electronics, power semiconductor devices, diode rectifiers, phase-controlled rectifiers, DC-DC converters, DC-AC converters, resonant converters. Examples drawn from residential and industrial applications. Credit will be granted for only one of ENGR 458 or ENGR 558. [3-2*-0] Prerequisite: ENGR 320.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ENGR_O 458-L1A	ENGR_O	L1A	Power Electronics	W1	Applications and roles of power electronics, power semiconductor devices, diode rectifiers, phase-controlled rectifiers, DC-DC converters, DC-AC converters, resonant converters. Examples drawn from residential and industrial applications. Credit will be granted for only one of ENGR 458 or ENGR 558. [3-2*-0] Prerequisite: ENGR 320.	Laboratory	In Person Learning	Tue (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 458-L1B	ENGR_O	L1B	Power Electronics	W1	Applications and roles of power electronics, power semiconductor devices, diode rectifiers, phase-controlled rectifiers, DC-DC converters, DC-AC converters, resonant converters. Examples drawn from residential and industrial applications. Credit will be granted for only one of ENGR 458 or ENGR 558. [3-2*-0] Prerequisite: ENGR 320.	Laboratory	In Person Learning	Tue (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 458-L1C	ENGR_O	L1C	Power Electronics	W1	Applications and roles of power electronics, power semiconductor devices, diode rectifiers, phase-controlled rectifiers, DC-DC converters, DC-AC converters, resonant converters. Examples drawn from residential and industrial applications. Credit will be granted for only one of ENGR 458 or ENGR 558. [3-2*-0] Prerequisite: ENGR 320.	Laboratory	In Person Learning	Wed (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 466-001	ENGR_O	001	Introduction to VLSI Systems	W1	The chip design process using VLSI design styles in CMOS technology. Data path, control and register file design and layout. Clocking schemes, flip-flop and latch-based design. Design project using CAD tools. [3-2*-0] Prerequisite: APSC 262.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
ENGR_O 466-L2A	ENGR_O	L2A	Introduction to VLSI Systems	W1	The chip design process using VLSI design styles in CMOS technology. Data path, control and register file design and layout. Clocking schemes, flip-flop and latch-based design. Design project using CAD tools. [3-2*-0] Prerequisite: APSC 262.	Laboratory	In Person Learning	Tue (Alternate weeks)	12:00 p.m. - 2:00 p.m.



ENGR_O 472-001	ENGR_O	001	Fibre Optics and Photonics	W1	Introduction to fibre optic transmission, single-mode and multimode fibre optics, dispersion and absorption design criteria, semiconductor diode lasers, LEDs, modulators, pn and p-i-n receivers, point-to-point and network implementations of fibre optic networks and integrated photonic systems. Credit will be granted for only one of ENGR 472 or ENGR 572. [3-2*-0] Prerequisite: ENGR 378.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
ENGR_O 472-L2A	ENGR_O	L2A	Fibre Optics and Photonics	W1	Introduction to fibre optic transmission, single-mode and multimode fibre optics, dispersion and absorption design criteria, semiconductor diode lasers, LEDs, modulators, pn and p-i-n receivers, point-to-point and network implementations of fibre optic networks and integrated photonic systems. Credit will be granted for only one of ENGR 472 or ENGR 572. [3-2*-0] Prerequisite: ENGR 378.	Laboratory	In Person Learning	Thu (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 472-L2B	ENGR_O	L2B	Fibre Optics and Photonics	W1	Introduction to fibre optic transmission, single-mode and multimode fibre optics, dispersion and absorption design criteria, semiconductor diode lasers, LEDs, modulators, pn and p-i-n receivers, point-to-point and network implementations of fibre optic networks and integrated photonic systems. Credit will be granted for only one of ENGR 472 or ENGR 572. [3-2*-0] Prerequisite: ENGR 378.	Laboratory	In Person Learning	Thu (Alternate weeks)	2:00 p.m. - 4:00 p.m.
ENGR_O 473-001	ENGR_O	001	Antennas and Propagation	W1	Wave propagation models, radiation patterns, directivity and gain, radiation resistance, Friis transmission equation, reciprocity, dipole antennas, image theory, loop antennas, uniform and non-uniform antenna arrays, broadband antennas, aperture antennas. Credit will be granted for only one of ENGR 473 or ENGR 574. [3-2*-0] Prerequisite: ENGR 378.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ENGR_O 473-L2A	ENGR_O	L2A	Antennas and Propagation	W1	Wave propagation models, radiation patterns, directivity and gain, radiation resistance, Friis transmission equation, reciprocity, dipole antennas, image theory, loop antennas, uniform and non-uniform antenna arrays, broadband antennas, aperture antennas. Credit will be granted for only one of ENGR 473 or ENGR 574. [3-2*-0] Prerequisite: ENGR 378.	Laboratory	In Person Learning	Thu (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 476-201	ENGR_O	201	Mechanics of Materials II	W1	Bending of curved beams; bending of beams with asymmetric cross-sections; shear flow and centre; review of beam deflections; column buckling; Castigliano's theorem; statically indeterminate beams, frames, and rings; Torsion of noncircular members. [3-0-0] Prerequisite: APSC 260.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
ENGR_O 480-101	ENGR_O	101	Modern Control	W1	State-space modelling and design. 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 480 or ENGR 580. [3-0-0] Prerequisite: ENGR 315.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ENGR_O 484-001	ENGR_O	001	Heat and Mass Transfer	W1	Heat exchanger design, heat transfer with phase change, radiation heat transfer, steady and transient mass diffusion, convective mass transfer, simultaneous heat and mass transfer. Credit will be granted for only one of ENGR 484 or ENGR 584. [3-0-0] Prerequisite: All of ENGR 310, ENGR 385.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ENGR_O 485-201	ENGR_O	201	Heating, Ventilating, and Air Conditioning	W1	Properties of moist air, air conditioning systems, heat transmission in building systems, heating and cooling load, refrigeration, pumps and piping design, fans and building air distribution. [3-0-0] Prerequisite: All of APSC 253, APSC 258, ENGR 385.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
ENGR_O 492-101	ENGR_O	101	Finite Element Methods	W1	Finite Element Discretization, Direct Stiffness Method, Numerical Solution of Large Deformations, Formulation of Finite Elements, Auxiliary Equations, Thermomechanical Analysis, Computer Implementation of the Finite Element Methods, Case Studies in Material Forming and Multi-Physics. Credit will be granted for only one of ENGR 492 or ENGR 582. [3-0-0] Prerequisite: Fourth-year B.A.Sc. standing.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ENGR_O 493-001	ENGR_O	001	Introduction to Aerodynamics and Aircraft Desig	W1	Aircraft conceptual design: methods for estimating aircraft weight, fuel load, lift, thrust, airfoil and wing specification, engine selection and sizing, and structural loads. Introductory aerodynamics of airfoils and wings. [3-0-0] Prerequisite: ENGR 310.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
ENGR_O 499-101	ENGR_O	101	Engineering Capstone Design Project	W1-2	A capstone design project in response to an actual engineering problem. The project can be multi-disciplinary or in a specialized area of engineering. Students are required to submit a comprehensive project report and deliver a formal presentation. [2-3-0; 0-6-0] Prerequisite: Fourth-year standing.	Lecture	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
ENGR_O 499-L1A	ENGR_O	L1A	Engineering Capstone Design Project	W1-2	A capstone design project in response to an actual engineering problem. The project can be multi-disciplinary or in a specialized area of engineering. Students are required to submit a comprehensive project report and deliver a formal presentation. [2-3-0; 0-6-0] Prerequisite: Fourth-year standing.	Laboratory	Online Learning	Tue Thu	6:30 p.m. - 8:00 p.m.
ENGR_O 502-001	ENGR_O	001	Technical Communication for Engineering Resea	W1	Strategies for clear, effective, and ethical technical communication (both written and oral). Tools and formatting for graphics, technical reports, proposals, journal papers, theses. Pass/Fail.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
ENGR_O 518-001	ENGR_O	001	Applied Machine Learning for Engineers	W1	Fundamentals of machine learning, toolboxes in machine learning, supervised learning, unsupervised learning, applications of machine learning in various engineering disciplines. Credit will be granted for only one of ENGR 518 or ENGR 418.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
ENGR_O 528-001	ENGR_O	001	Earthquake Engineering	W1	Strong ground motion, single and multiple degree-of-freedom systems, earthquake response of linear and inelastic systems, earthquake response and design, and building design considerations.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ENGR_O 533-101	ENGR_O	101	Construction Engineering and Management	W1	Management of the firm: strategic planning, marketing, organizational structure and behaviour. Project delivery systems: traditional, construction management, turnkey. Network planning methods. Activity planning, including construction methods selection. Estimating, bidding, and bonding. Project control tools and procedures. Safety and quality control. Credit will be granted for only one of ENGR 533 or ENGR 433.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
ENGR_O 536-001	ENGR_O	001	Sustainable Land Use and Transportation	W1	Principles, data, and economics pertaining to the planning, design, and management of sustainable community land use and transportation systems. Credit will be granted for only one of ENGR 536 or ENGR 436.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
ENGR_O 536-L1A	ENGR_O	L1A	Sustainable Land Use and Transportation	W1	Principles, data, and economics pertaining to the planning, design, and management of sustainable community land use and transportation systems. Credit will be granted for only one of ENGR 536 or ENGR 436.	Laboratory	In Person Learning	Fri (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 558-201	ENGR_O	201	Power Electronics	W1	Applications and roles of power electronics, power semiconductor devices, diode rectifiers, phase-controlled rectifiers, DC-DC converters, DC-AC converters, resonant converters. Examples drawn from residential and industrial applications. Credit will be granted for only one of ENGR 558 or ENGR 458.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.

ENGR_O 558-L1A	ENGR_O	L1A	Power Electronics	W1	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.
ENGR_O 558-L1B	ENGR_O	L1B	Power Electronics	W1	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.
ENGR_O 572-001	ENGR_O	001	Fibre Optics and Photonics	W1	Introduction to fibre optic transmission, single-mode and multimode fibre optics, dispersion and absorption design criteria, semiconductor diode lasers, LEDs, modulators, pn and p-i-n receivers, point-to-point and network implementations of fibre optic networks and integrated photonic systems. Credit will be granted for only one of ENGR 572 or ENGR 472.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
ENGR_O 572-L2A	ENGR_O	L2A	Fibre Optics and Photonics	W1	Introduction to fibre optic transmission, single-mode and multimode fibre optics, dispersion and absorption design criteria, semiconductor diode lasers, LEDs, modulators, pn and p-i-n receivers, point-to-point and network implementations of fibre optic networks and integrated photonic systems. Credit will be granted for only one of ENGR 572 or ENGR 472.	Laboratory	In Person Learning	Thu (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 574-001	ENGR_O	001	Antennas and Propagation	W1	Wave propagation models, radiation patterns, directivity and gain, radiation resistance, Friis transmission equation, reciprocity, dipole antennas, image theory, loop antennas, uniform and non-uniform antenna arrays, broadband antennas, aperture antennas. Credit will be granted for only one of ENGR 574 or ENGR 473.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
ENGR_O 574-L1A	ENGR_O	L1A	Antennas and Propagation	W1	Wave propagation models, radiation patterns, directivity and gain, radiation resistance, Friis transmission equation, reciprocity, dipole antennas, image theory, loop antennas, uniform and non-uniform antenna arrays, broadband antennas, aperture antennas. Credit will be granted for only one of ENGR 574 or ENGR 473.	Laboratory	In Person Learning	Thu (Alternate weeks)	10:00 a.m. - 12:00 p.m.
ENGR_O 580-101	ENGR_O	101	Modern Control	W1	Review of linear and matrix algebra, highlights of classical control theory; state-space modelling, continuous and discrete state equations, stability, controllability and observability; design of feedback systems. Credit will be granted for only one of ENGR 580 or ENGR 480.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
ENGR_O 580-L01	ENGR_O	L01	Modern Control	W1	Review of linear and matrix algebra, highlights of classical control theory; state-space modelling, continuous and discrete state equations, stability, controllability and observability; design of feedback systems. Credit will be granted for only one of ENGR 580 or ENGR 480.	Laboratory	Online Learning	Arranged	Arranged
ENGR_O 582-001	ENGR_O	001	Finite Element Method	W1	Finite element discretization, direct stiffness method, numerical solution of large deformations, formulation of finite elements, auxiliary equations, thermomechanical analysis. Computer implementation of finite element methods, case studies in metal forming, and multi-physics. Credit will be granted for only one of ENGR 492 or ENGR 582.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
ENGR_O 584-001	ENGR_O	001	Heat and Mass Transfer	W1	Heat exchanger design, heat transfer with phase change, radiation heat transfer, steady and transient mass diffusion, convective mass transfer, simultaneous heat and mass transfer. Credit will be granted for only one of ENGR 584 or ENGR 484.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
ENGR_O 597-001	ENGR_O	001	Engineering Project	W1	Project on assigned topic of specialization. This course is restricted to M.Eng. students.	Independent Study	In Person Learning	Arranged	Arranged
ENGR_O 599-001	ENGR_O	001	Thesis	W1	For M.A.Sc. Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
ENGR_O 599-102	ENGR_O	102	Thesis	W1-2	For M.A.Sc. Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
ENGR_O 699-001	ENGR_O	001	Thesis	W1	For Ph.D. Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
ENGR_O 699-102	ENGR_O	102	Thesis	W1-2	For Ph.D. Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
EXCH_O 380-101	EXCH_O	101	Student Exchange Program, Undergraduate	W1		Experiential	In Person Learning	Arranged	Arranged
EXCH_O 380-211	EXCH_O	211	Student Exchange Program, Undergraduate	W1		Experiential	In Person Learning	Arranged	Arranged
EXCH_O 380-411	EXCH_O	411	Student Exchange Program, Undergraduate	W1		Experiential	In Person Learning	Arranged	Arranged
EXCH_O 381-101	EXCH_O	101	Study Abroad Program, Undergraduate	W1		Experiential	In Person Learning	Arranged	Arranged
EXCH_O 580-101	EXCH_O	101	Student Exchange Program, Graduate	W1		Experiential	In Person Learning	Arranged	Arranged
EXCH_O 582-101	EXCH_O	101	Grad Student Studying Abroad on a Non-UBC Pr	W1		Experiential	In Person Learning	Arranged	Arranged
EXCH_O 582-201	EXCH_O	201	Grad Student Studying Abroad on a Non-UBC Pr	W1		Experiential	In Person Learning	Arranged	Arranged
FILM_O 103-001	FILM_O	001	Acting for Stage and Screen	W1	An introduction to acting techniques pertaining to the style of psychological realism for stage and screen. Credit will be granted for only one of FILM 103 or THTR 103. [5 hours/week studio] [5 hours/week studio] Equivalency: THTR 103	Studio	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
FILM_O 250-001	FILM_O	001	Workshop in Creative Writing: Screenwriting	W1	Students are instructed and guided in the writing of screenplays, are encouraged to pursue experimentation in screenwriting, and will participate in the feedback and critique sessions that constitute the workshop method. Credit will be granted for only one of FILM 250 or CRWR 250. [3-0-0] Prerequisite: Two of CRWR 150, CRWR 160, VISA 104, VISA 105, VISA 106, VISA 108, THTR 101, THTR 102. Equivalency: CRWR 250	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
FILM_O 261-001	FILM_O	001	Video I	W1	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 artist videos, music videos, and television productions. Credit will be granted for only one of FILM 261 or VISA 261. [2-2-0] Prerequisite: One of VISA 106, VISA 108. Equivalency: VISA 261	Studio	In Person Learning	Wed	8:00 a.m. - 12:00 p.m.
FILM_O 303-001	FILM_O	001	Narrative Film Production	W1	The theory and practice of producing a short narrative motion picture for the purpose of developing narrative film literacy. Credit will be granted for only one of FILM 303, CULT 303, or THTR 303. CULT 210, THTR 103, CRWR 250, or FILM 100 recommended. Prerequisite: One of VISA 106, VISA 261, FILM 261. and third-year standing or permission of the instructor. Equivalency: CULT 303; THTR 303	Studio	In Person Learning	Thu	12:00 p.m. - 3:00 p.m.
FREN_O 101-001	FREN_O	001	Elementary French I	W1	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.

FREN_O 101-002	FREN_O	002	Elementary French I	W1	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	Online Learning	Arranged	Arranged	
FREN_O 101-003	FREN_O	003	Elementary French I	W1	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	Tue Thu	11:00 a.m. - 12:30 p.m.	
FREN_O 101-004	FREN_O	004	Elementary French I	W1	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	Online Learning	Arranged	Arranged	
FREN_O 101-005	FREN_O	005	Elementary French I	W1	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	4:00 p.m. - 5:30 p.m.	
FREN_O 103-001	FREN_O	001	Upper Elementary French I	W1	Prepares students to understand and use sentences and frequently used expressions related to their everyday life, such as simple and routine tasks requiring a direct exchange of information. Corresponds to 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: French 11 or FREN 102 or CEFR Level A1.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.	
FREN_O 103-002	FREN_O	002	Upper Elementary French I	W1	Prepares students to understand and use sentences and frequently used expressions related to their everyday life, such as simple and routine tasks requiring a direct exchange of information. Corresponds to 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: French 11 or FREN 102 or CEFR Level A1.	Lecture	In Person Learning	Mon Wed Fri	3:00 p.m. - 4:00 p.m.	
FREN_O 103-003	FREN_O	003	Upper Elementary French I	W1	Prepares students to understand and use sentences and frequently used expressions related to their everyday life, such as simple and routine tasks requiring a direct exchange of information. Corresponds to 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: French 11 or FREN 102 or CEFR Level A1.	Lecture	Online Learning	Arranged	Arranged	
FREN_O 122-001	FREN_O	001	Intermediate French I	W1	Refinement of reading, writing and speaking skills through the study of contemporary literature and other authentic documents of the French-speaking world. Corresponds to level B1 of the Common European Framework of Reference for Languages (CEFR). Not available to students who have completed Français Immersion 12 and/or students who have a CEFR level B1 or higher. The next level course series available is FREN 222-223. Prerequisite: One of FREN 104, French 12, or CEFR level A2.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.	
FREN_O 122-002	FREN_O	002	Intermediate French I	W1	Refinement of reading, writing and speaking skills through the study of contemporary literature and other authentic documents of the French-speaking world. Corresponds to level B1 of the Common European Framework of Reference for Languages (CEFR). Not available to students who have completed Français Immersion 12 and/or students who have a CEFR level B1 or higher. The next level course series available is FREN 222-223. Prerequisite: One of FREN 104, French 12, or CEFR level A2.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.	
FREN_O 221-001	FREN_O	001	Francophone Literature and Textual Analysis	W1	Literary analysis and academic writing through the study of works from the eighteenth century to the present. Prerequisite: FREN 123.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.	
FREN_O 222-001	FREN_O	001	French Language and Style I	W1	Grammar, vocabulary, composition, language in context. Not available to students who have completed Français 12 in a Francophone school and/or students who have a CEFR level B2 or higher. To join a FREN 300-level section, contact the instructor on record. Prerequisite: FREN 123.	Lecture	In Person Learning	Mon Wed Fri	12:00 p.m. - 1:00 p.m.	
FREN_O 330-001	FREN_O	001	Quebecois Literature	W1	Study of Quebec literature through a number of characteristic works from the end of the nineteenth century to the present. Prerequisite: FREN 223. Corequisite: FREN 353.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.	
FREN_O 344-001	FREN_O	001	Techniques of Oral Expression in French I	W1	Training in formal oral presentation in French. Emphasis on structured expression and oral delivery. Prerequisite: Français Langue 12 (Immersion) or both FREN 215 and FREN 223, or CEFR level B2 or higher.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.	
FREN_O 353-001	FREN_O	001	French Grammar	W1	Systematic study of the fundamental principles of French grammar. Prerequisite: A score more than 65% in FREN 223.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.	
FREN_O 420-D_001	FREN_O	D	D_001	Selected Topics in French Literature and Culture	W1	Topics vary each time the course is offered. May be taken up to three times for a total of 9 credits. Prerequisite: FREN 353 and one of FREN 327, FREN 330, FREN 338, FREN 360, FREN 362, FREN 390.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
GEOG_O 108-001	GEOG_O	001	Earth Systems: Weather, Climate, and Life	W1	Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0]	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.	
GEOG_O 108-L01	GEOG_O	L01	Earth Systems: Weather, Climate, and Life	W1	Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0]	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.	
GEOG_O 108-L02	GEOG_O	L02	Earth Systems: Weather, Climate, and Life	W1	Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0]	Laboratory	In Person Learning	Fri	12:00 p.m. - 2:00 p.m.	
GEOG_O 108-L03	GEOG_O	L03	Earth Systems: Weather, Climate, and Life	W1	Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0]	Laboratory	In Person Learning	Thu	10:00 a.m. - 12:00 p.m.	
GEOG_O 108-L04	GEOG_O	L04	Earth Systems: Weather, Climate, and Life	W1	Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0]	Laboratory	In Person Learning	Mon	2:00 p.m. - 4:00 p.m.	
GEOG_O 108-L05	GEOG_O	L05	Earth Systems: Weather, Climate, and Life	W1	Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0]	Laboratory	In Person Learning	Thu	2:00 p.m. - 4:00 p.m.	

GEOG_O 108-L06	GEOG_O	L06	Earth Systems: Weather, Climate, and Life	W1	Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0]	Laboratory	In Person Learning	Wed	2:00 p.m. - 4:00 p.m.
GEOG_O 108-XMT	GEOG_O	XMT	Earth Systems: Weather, Climate, and Life	W1	Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0]	Laboratory	In Person Learning	Arranged	Arranged
GEOG_O 128-001	GEOG_O	001	Human Geography: Space, Place, and Communit	W1	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.
GEOG_O 129-001	GEOG_O	001	Human Geography: Resources, Development, ar	W1	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.
GEOG_O 201-001	GEOG_O	001	Introduction to Research in Sustainability and Gr	W1	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, SUST 201, or GEOG 371. [2-0-1] Equivalency: SUST 201	Lecture	In Person Learning	Mon	12:00 p.m. - 2:00 p.m.
GEOG_O 201-D01	GEOG_O	D01	Introduction to Research in Sustainability and Gr	W1	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, SUST 201, or GEOG 371. [2-0-1] Equivalency: SUST 201	Discussion	In Person Learning	Fri	10:00 a.m. - 11:00 a.m.
GEOG_O 201-D02	GEOG_O	D02	Introduction to Research in Sustainability and Gr	W1	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, SUST 201, or GEOG 371. [2-0-1] Equivalency: SUST 201	Discussion	In Person Learning	Wed	12:00 p.m. - 1:00 p.m.
GEOG_O 222-001	GEOG_O	001	Geomorphology	W1	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.
GEOG_O 222-L01	GEOG_O	L01	Geomorphology	W1	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.
GEOG_O 222-L02	GEOG_O	L02	Geomorphology	W1	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.
GEOG_O 233-001	GEOG_O	001	Climate Change and Society	W1	Critical exploration of climate change as a physical, social, cultural and political challenge. Approaches major climate change themes of knowledge, causes, impacts, responses and governance from a human geography perspective. Emphasizes critical thinking, local-global connections and social justice. [1.5-0-1.5]	Lecture	In Person Learning	Mon	2:00 p.m. - 3:30 p.m.
GEOG_O 233-T01	GEOG_O	T01	Climate Change and Society	W1	Critical exploration of climate change as a physical, social, cultural and political challenge. Approaches major climate change themes of knowledge, causes, impacts, responses and governance from a human geography perspective. Emphasizes critical thinking, local-global connections and social justice. [1.5-0-1.5]	Discussion	In Person Learning	Wed	2:00 p.m. - 3:30 p.m.
GEOG_O 257-001	GEOG_O	001	Seeing our World: An Introduction to Visual Geo	W1	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. Practical skills in geographic image interpretation and visual communication. Recommended prerequisite: GEOG 109. Prerequisite: One of GEOG 128, GEOG 129.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
GEOG_O 271-001	GEOG_O	001	Geographic Data Analysis	W1	Introduction to descriptive and inferential statistical analysis in geography and Earth sciences. Topics include descriptive statistics, elementary probability, statistics for spatial analysis, hypotheses testing, analysis of variance, correlation, and regression. [3-3-0] Prerequisite: 6 credits of 100- or 200-level courses in GEOG or EESC.	Lecture	In Person Learning	Mon Wed Fri	1:00 p.m. - 2:00 p.m.
GEOG_O 271-L01	GEOG_O	L01	Geographic Data Analysis	W1	Introduction to descriptive and inferential statistical analysis in geography and Earth sciences. Topics include descriptive statistics, elementary probability, statistics for spatial analysis, hypotheses testing, analysis of variance, correlation, and regression. [3-3-0] Prerequisite: 6 credits of 100- or 200-level courses in GEOG or EESC.	Laboratory	In Person Learning	Fri	8:00 a.m. - 11:00 a.m.
GEOG_O 271-L02	GEOG_O	L02	Geographic Data Analysis	W1	Introduction to descriptive and inferential statistical analysis in geography and Earth sciences. Topics include descriptive statistics, elementary probability, statistics for spatial analysis, hypotheses testing, analysis of variance, correlation, and regression. [3-3-0] Prerequisite: 6 credits of 100- or 200-level courses in GEOG or EESC.	Laboratory	In Person Learning	Thu	8:00 a.m. - 11:00 a.m.

GEOG_O 314-001	GEOG_O	001	Environmental Impact Assessment: Process, Reg W1		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 GEOG 314 or EESC 314. [3-0-0] Prerequisite: Either (a) 6 credits of EESC or (b) 6 credits of GEOG. Third-year standing. Equivalency: EESC314	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
GEOG_O 365-001	GEOG_O	001	Parks and Outdoor Recreation	W1	Geographic dimensions of parks and outdoor recreation are examined in urban and rural environments. Understanding parks evolution includes focus on the location, distribution, and site capability of parks and recreational resources, including application of ecological, amenity resource, and management models of parks and outdoor recreational facilities. [3-0-0] Prerequisite: Two of GEOG 128, GEOG 129, SUST 104.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
GEOG_O 435-001	GEOG_O	001	Wine Geographies	W1	Geographical expressions and processes of wine, viticulture, and viticulture. Appellation and terroir frame investigation of the nature-human interface in wine production and consumption. Geographic approaches include cultural history, global and localized political economies, cultural adaptation to climate, and physical geography. [3-0-0] Prerequisite: All of GEOG 108, GEOG 109, GEOG 128, GEOG 129. and third-year standing.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
GEOG_O 445-101	GEOG_O	101	Political Ecology	W1	Critical, interdisciplinary approach to human-environment relations, development and environmental change. Theoretical insights across geography and anthropology with empirical insights from the Global South and Global North. Power, political economy, struggle over meaning, marginality, conflict and social justice in understanding environmental change across scales. Credit will be granted for only one of GEOG 445 or ANTH 445. [1.5-0-1.5] Prerequisite: One of GEOG 128, GEOG 129, ANTH 100, SUST 104. Third-year standing.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
GEOG_O 458-001	GEOG_O	001	Population Geography	W1	The relationship between population growth, demographic changes, urbanization, and the environment. Demographic patterns, mortality, fertility and state policy, economic development, migration and immigration, planning, and policy issues. [3-0-0] Prerequisite: All of GEOG 128, GEOG 129. and third-year standing.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
GEOG_O 466-001	GEOG_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 GEOG 466 or EESC 456. [3-3-0] Prerequisite: One of EESC 111, EESC 200, GEOG 109, CHEM 111, CHEM 121, PHYS 111, PHYS 112. Third-year standing. Equivalency: EESC456	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
GEOG_O 466-L01	GEOG_O	L01	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 GEOG 466 or EESC 456. [3-3-0] Prerequisite: One of EESC 111, EESC 200, GEOG 109, CHEM 111, CHEM 121, PHYS 111, PHYS 112. Third-year standing. Equivalency: EESC456	Laboratory	In Person Learning	Thu	8:00 a.m. - 11:00 a.m.
GEOG_O 466-L02	GEOG_O	L02	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 GEOG 466 or EESC 456. [3-3-0] Prerequisite: One of EESC 111, EESC 200, GEOG 109, CHEM 111, CHEM 121, PHYS 111, PHYS 112. Third-year standing. Equivalency: EESC456	Laboratory	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
GEOG_O 474-001	GEOG_O	001	Qualitative Research in Human Geography	W1	Theoretical aspects, principles, and methods of qualitative research in human geography. [1-0-2] Prerequisite: Third-year standing. GEOG 371 highly recommended.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
GERM_O 100-001	GERM_O	001	Beginners' German I	W1	Introduction to the language. Ability to communicate accurately in a variety of everyday situations. [3-0-0]	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
GERM_O 100-002	GERM_O	002	Beginners' German I	W1	Introduction to the language. Ability to communicate accurately in a variety of everyday situations. [3-0-0]	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
GISC_O 380-001	GISC_O	001	Fundamentals of Geographic Information Scienc	W1	Spatial data representation; raster and vector models; spatial database structure; coordinate reference frames and projections; spatial statistics; metadata and data standards; associated technologies and data sources. Laboratory exercises require ArcGIS. Credit will be granted for only one of GISC 380, GEOG 370, GEOG 380, or EESC 380. [3-3-0] Prerequisite: Third-year standing.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
GISC_O 380-L01	GISC_O	L01	Fundamentals of Geographic Information Scienc	W1	Spatial data representation; raster and vector models; spatial database structure; coordinate reference frames and projections; spatial statistics; metadata and data standards; associated technologies and data sources. Laboratory exercises require ArcGIS. Credit will be granted for only one of GISC 380, GEOG 370, GEOG 380, or EESC 380. [3-3-0] Prerequisite: Third-year standing.	Laboratory	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
GISC_O 380-L02	GISC_O	L02	Fundamentals of Geographic Information Scienc	W1	Spatial data representation; raster and vector models; spatial database structure; coordinate reference frames and projections; spatial statistics; metadata and data standards; associated technologies and data sources. Laboratory exercises require ArcGIS. Credit will be granted for only one of GISC 380, GEOG 370, GEOG 380, or EESC 380. [3-3-0] Prerequisite: Third-year standing.	Laboratory	In Person Learning	Fri	3:00 p.m. - 6:00 p.m.
GISC_O 380-L03	GISC_O	L03	Fundamentals of Geographic Information Scienc	W1	Spatial data representation; raster and vector models; spatial database structure; coordinate reference frames and projections; spatial statistics; metadata and data standards; associated technologies and data sources. Laboratory exercises require ArcGIS. Credit will be granted for only one of GISC 380, GEOG 370, GEOG 380, or EESC 380. [3-3-0] Prerequisite: Third-year standing.	Laboratory	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
GISC_O 380-L04	GISC_O	L04	Fundamentals of Geographic Information Scienc	W1	Spatial data representation; raster and vector models; spatial database structure; coordinate reference frames and projections; spatial statistics; metadata and data standards; associated technologies and data sources. Laboratory exercises require ArcGIS. Credit will be granted for only one of GISC 380, GEOG 370, GEOG 380, or EESC 380. [3-3-0] Prerequisite: Third-year standing.	Laboratory	In Person Learning	Tue	8:00 a.m. - 11:00 a.m.
GWST_O 100-001	GWST_O	001	Gender, Race, Sexuality, and Power I: An Introd.	W1	Cross-cultural and historical antecedents to gender studies and feminist thought. The social construction of knowledge and inequality through gender, race, sexuality, and class; the cultural and structural forces that create the dynamic for change and resistance in the personal and political realms of gendered lives. [3-0-0]	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.

GWST_O 215-001	GWST_O	001	Gender and Popular Culture	W1	Examines how gender, sexuality and race intersect with representation in a variety of genres in popular culture. Considers the production, content, and reception of media texts. Ideological, institutional, social, and personal implications of these representations, and use of media to provoke change. [3-0-0]	Lecture	In Person Learning	Tue Fri	12:30 p.m. - 2:00 p.m.
GWST_O 216-001	GWST_O	001	Critical Foundations: Feminism and Difference	W1	History of feminist engagements with race, class, nation, and sexuality within an intersectional framework and in the wake of critiques of feminism's exclusivity. GWST 100 and GWST 110 recommended. [3-0-0]	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
GWST_O 333-001	GWST_O	001	Perspectives on Gendered Bodies	W1	Interdisciplinary overview of approaches to gendered embodiment at the level of lived experience and of representation. Focus on the relationship of embodiment to social identity. GWST 100 and GWST 110 recommended. [3-0-0] Prerequisite: Third-year standing.	Lecture	Online Learning	Mon	2:00 p.m. - 5:00 p.m.
GWST_O 423-001	GWST_O	001	Trans-(Gender) Feminisms	W1	Overview of the historical emergence of trans-(gender) feminisms. Focus on debates across trans, queer, and feminist scholarship, methodology, and activism. Consideration of the politics of sex/gender transformation vis-a-vis 'race', 'culture', sexuality, class, and social justice. One of GWST 216, GWST 223 recommended. [3-0-0] Prerequisite: Third-year standing.	Lecture	Online Learning	Mon	11:00 a.m. - 2:00 p.m.
HES_O 100-001	HES_O	001	Foundations of Health and Exercise Sciences	W1	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 100 or HMKN 100. [3-0-0] Prerequisite: Registration limited to students in the B.H.E.S. program.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
HES_O 100-L01	HES_O	L01	Foundations of Health and Exercise Sciences	W1	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 100 or HMKN 100. [3-0-0] Prerequisite: Registration limited to students in the B.H.E.S. program.	Laboratory	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
HES_O 100-L02	HES_O	L02	Foundations of Health and Exercise Sciences	W1	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 100 or HMKN 100. [3-0-0] Prerequisite: Registration limited to students in the B.H.E.S. program.	Laboratory	In Person Learning	Mon	10:00 a.m. - 12:00 p.m.
HES_O 100-L03	HES_O	L03	Foundations of Health and Exercise Sciences	W1	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 100 or HMKN 100. [3-0-0] Prerequisite: Registration limited to students in the B.H.E.S. program.	Laboratory	In Person Learning	Mon	12:00 p.m. - 2:00 p.m.
HES_O 100-L04	HES_O	L04	Foundations of Health and Exercise Sciences	W1	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 100 or HMKN 100. [3-0-0] Prerequisite: Registration limited to students in the B.H.E.S. program.	Laboratory	In Person Learning	Mon	2:00 p.m. - 4:00 p.m.
HES_O 100-L05	HES_O	L05	Foundations of Health and Exercise Sciences	W1	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 100 or HMKN 100. [3-0-0] 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.
HES_O 100-L06	HES_O	L06	Foundations of Health and Exercise Sciences	W1	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 100 or HMKN 100. [3-0-0] Prerequisite: Registration limited to students in the B.H.E.S. program.	Laboratory	In Person Learning	Wed	10:00 a.m. - 12:00 p.m.
HES_O 100-L07	HES_O	L07	Foundations of Health and Exercise Sciences	W1	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 100 or HMKN 100. [3-0-0] Prerequisite: Registration limited to students in the B.H.E.S. program.	Laboratory	In Person Learning	Wed	12:00 p.m. - 2:00 p.m.
HES_O 100-L08	HES_O	L08	Foundations of Health and Exercise Sciences	W1	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 100 or HMKN 100. [3-0-0] Prerequisite: Registration limited to students in the B.H.E.S. program.	Laboratory	In Person Learning	Wed	2:00 p.m. - 4:00 p.m.
HES_O 100-L09	HES_O	L09	Foundations of Health and Exercise Sciences	W1	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 100 or HMKN 100. [3-0-0] Prerequisite: Registration limited to students in the B.H.E.S. program.	Laboratory	In Person Learning	Fri	4:00 p.m. - 6:00 p.m.

HES_O 100-L10	HES_O	L10	Foundations of Health and Exercise Sciences	W1	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 100 or HMKN 100. [3-0-0] 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.
HES_O 100-L11	HES_O	L11	Foundations of Health and Exercise Sciences	W1	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 100 or HMKN 100. [3-0-0] 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.
HES_O 100-L12	HES_O	L12	Foundations of Health and Exercise Sciences	W1	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 100 or HMKN 100. [3-0-0] 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.
HES_O 101-001	HES_O	001	Human Physiology I	W1	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 190 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.
HES_O 101-L01	HES_O	L01	Human Physiology I	W1	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 190 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.
HES_O 101-L02	HES_O	L02	Human Physiology I	W1	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 190 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.
HES_O 101-L03	HES_O	L03	Human Physiology I	W1	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 190 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.
HES_O 101-L04	HES_O	L04	Human Physiology I	W1	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 190 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.
HES_O 101-L05	HES_O	L05	Human Physiology I	W1	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 190 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.
HES_O 101-L06	HES_O	L06	Human Physiology I	W1	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 190 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.
HES_O 101-L07	HES_O	L07	Human Physiology I	W1	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 190 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.
HES_O 101-L08	HES_O	L08	Human Physiology I	W1	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 190 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.
HES_O 101-L09	HES_O	L09	Human Physiology I	W1	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 190 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.
HES_O 101-L10	HES_O	L10	Human Physiology I	W1	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 190 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.
HES_O 101-L11	HES_O	L11	Human Physiology I	W1	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 190 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.
HES_O 101-L12	HES_O	L12	Human Physiology I	W1	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 190 or BIOL 131. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S. program.	Laboratory	In Person Learning	Tue	7:00 p.m. - 9:00 p.m.
HES_O 120-001	HES_O	001	Introduction to Human Anatomy	W1	Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S. program.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
HES_O 120-L01	HES_O	L01	Introduction to Human Anatomy	W1	Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S. program.	Laboratory	In Person Learning	Wed	8:00 a.m. - 10:00 a.m.

HES_O 120-L02	HES_O	L02	Introduction to Human Anatomy	W1	Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program.	Laboratory	In Person Learning	Wed	10:00 a.m. - 12:00 p.m.
HES_O 120-L03	HES_O	L03	Introduction to Human Anatomy	W1	Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program.	Laboratory	In Person Learning	Wed	12:00 p.m. - 2:00 p.m.
HES_O 120-L04	HES_O	L04	Introduction to Human Anatomy	W1	Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program.	Laboratory	In Person Learning	Wed	2:00 p.m. - 4:00 p.m.
HES_O 120-L05	HES_O	L05	Introduction to Human Anatomy	W1	Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program.	Laboratory	In Person Learning	Fri	8:00 a.m. - 10:00 a.m.
HES_O 120-L06	HES_O	L06	Introduction to Human Anatomy	W1	Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program.	Laboratory	In Person Learning	Fri	10:00 a.m. - 12:00 p.m.
HES_O 120-L07	HES_O	L07	Introduction to Human Anatomy	W1	Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program.	Laboratory	In Person Learning	Fri	12:00 p.m. - 2:00 p.m.
HES_O 120-L08	HES_O	L08	Introduction to Human Anatomy	W1	Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program.	Laboratory	In Person Learning	Fri	2:00 p.m. - 4:00 p.m.
HES_O 120-L09	HES_O	L09	Introduction to Human Anatomy	W1	Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program.	Laboratory	In Person Learning	Tue	8:00 a.m. - 10:00 a.m.
HES_O 120-L10	HES_O	L10	Introduction to Human Anatomy	W1	Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program.	Laboratory	In Person Learning	Tue	10:00 a.m. - 12:00 p.m.
HES_O 120-L11	HES_O	L11	Introduction to Human Anatomy	W1	Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program.	Laboratory	In Person Learning	Tue	12:00 p.m. - 2:00 p.m.
HES_O 120-L12	HES_O	L12	Introduction to Human Anatomy	W1	Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program.	Laboratory	In Person Learning	Fri	4:00 p.m. - 6:00 p.m.
HES_O 130-001	HES_O	001	Social Determinants of Health	W1	Examining the relationships between biological, psychological, social, and economic factors to understand inequities in health outcomes for different individuals and populations. Formerly offered as HEAL 200. Credit will be granted for only one of HES 130 or HEAL 200. [3-0-0] Registration limited to students in the B.H.E.S program.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
HES_O 200-002	HES_O	002	Introduction to Nutrition	W1	Application to health promotion and disease prevention including the study of macro- and micronutrients, their functions, absorption, and metabolism in the body. Examination of healthy food sources and eating habits to support health and wellbeing. Credit will only be granted for one of HES 200, HMKN 323 or HINT 331. [3-0-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100.	Lecture	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
HES_O 201-001	HES_O	001	Exercise Prescription	W1	Exercise prescription and testing for both the healthy adult population and for special populations or persons with a disability. Credit will only be granted for HES 201 or HMKN 311. [3-0-0] Prerequisite: One of HES 105, HMKN 200 and one of HES 111, HMKN 191; and HES 120.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
HES_O 201-L01	HES_O	L01	Exercise Prescription	W1	Exercise prescription and testing for both the healthy adult population and for special populations or persons with a disability. Credit will only be granted for HES 201 or HMKN 311. [3-0-0] Prerequisite: One of HES 105, HMKN 200 and one of HES 111, HMKN 191; and HES 120.	Laboratory	In Person Learning	Arranged	Arranged
HES_O 211-001	HES_O	001	Exercise Testing	W1	The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
HES_O 211-L01	HES_O	L01	Exercise Testing	W1	The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Tue	8:00 a.m. - 10:00 a.m.
HES_O 211-L02	HES_O	L02	Exercise Testing	W1	The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Tue	10:00 a.m. - 12:00 p.m.
HES_O 211-L03	HES_O	L03	Exercise Testing	W1	The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Tue	12:00 p.m. - 2:00 p.m.
HES_O 211-L04	HES_O	L04	Exercise Testing	W1	The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Tue	2:00 p.m. - 4:00 p.m.
HES_O 211-L05	HES_O	L05	Exercise Testing	W1	The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Wed	12:00 p.m. - 2:00 p.m.
HES_O 211-L06	HES_O	L06	Exercise Testing	W1	The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Wed	2:00 p.m. - 4:00 p.m.
HES_O 211-L07	HES_O	L07	Exercise Testing	W1	The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Thu	8:00 a.m. - 10:00 a.m.
HES_O 211-L08	HES_O	L08	Exercise Testing	W1	The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Thu	10:00 a.m. - 12:00 p.m.
HES_O 211-L09	HES_O	L09	Exercise Testing	W1	The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Thu	12:00 p.m. - 2:00 p.m.



HES_O 211-L10	HES_O	L10	Exercise Testing	W1	The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Thu	2:00 p.m. - 4:00 p.m.
HES_O 211-L11	HES_O	L11	Exercise Testing	W1	The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Fri	12:00 p.m. - 2:00 p.m.
HES_O 211-L12	HES_O	L12	Exercise Testing	W1	The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.	Laboratory	In Person Learning	Fri	2:00 p.m. - 4:00 p.m.
HES_O 240-001	HES_O	001	Health Research Methods	W1	Introduction to the research methods commonly encountered in health research, including quantitative and qualitative designs; provides a basis for comprehending more fully the research literature relevant to health studies. Formerly offered as HMKN 206. Credit will be granted for only one of HES 240 or HMKN 206. [3-0-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100. and second-year standing in the B.H.E.S or B.H.K.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
HES_O 305-001	HES_O	001	Exercise Physiology II	W1	Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
HES_O 305-L01	HES_O	L01	Exercise Physiology II	W1	Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.	Laboratory	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
HES_O 305-L02	HES_O	L02	Exercise Physiology II	W1	Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.	Laboratory	In Person Learning	Mon	10:00 a.m. - 12:00 p.m.
HES_O 305-L03	HES_O	L03	Exercise Physiology II	W1	Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.	Laboratory	In Person Learning	Mon	2:00 p.m. - 4:00 p.m.
HES_O 305-L04	HES_O	L04	Exercise Physiology II	W1	Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.	Laboratory	In Person Learning	Mon	4:00 p.m. - 6:00 p.m.
HES_O 305-L05	HES_O	L05	Exercise Physiology II	W1	Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.	Laboratory	In Person Learning	Tue	11:00 a.m. - 1:00 p.m.
HES_O 305-L06	HES_O	L06	Exercise Physiology II	W1	Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.	Laboratory	In Person Learning	Tue	1:00 p.m. - 3:00 p.m.
HES_O 305-L07	HES_O	L07	Exercise Physiology II	W1	Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.	Laboratory	In Person Learning	Thu	11:00 a.m. - 1:00 p.m.
HES_O 305-L08	HES_O	L08	Exercise Physiology II	W1	Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.	Laboratory	In Person Learning	Thu	1:00 p.m. - 3:00 p.m.
HES_O 305-L09	HES_O	L09	Exercise Physiology II	W1	Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.	Laboratory	In Person Learning	Fri	11:00 a.m. - 1:00 p.m.
HES_O 305-L10	HES_O	L10	Exercise Physiology II	W1	Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.	Laboratory	In Person Learning	Fri	1:00 p.m. - 3:00 p.m.
HES_O 320-001	HES_O	001	Functional Anatomy	W1	Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
HES_O 320-002	HES_O	002	Functional Anatomy	W1	Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
HES_O 320-L01	HES_O	L01	Functional Anatomy	W1	Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
HES_O 320-L02	HES_O	L02	Functional Anatomy	W1	Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Mon	10:00 a.m. - 12:00 p.m.
HES_O 320-L03	HES_O	L03	Functional Anatomy	W1	Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Mon	2:00 p.m. - 4:00 p.m.
HES_O 320-L04	HES_O	L04	Functional Anatomy	W1	Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Mon	4:00 p.m. - 6:00 p.m.

HES_O 320-L05	HES_O	L05	Functional Anatomy	W1	Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Tue	5:00 p.m. - 7:00 p.m.
HES_O 320-L06	HES_O	L06	Functional Anatomy	W1	Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Thu	11:00 a.m. - 1:00 p.m.
HES_O 320-L07	HES_O	L07	Functional Anatomy	W1	Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Thu	1:00 p.m. - 3:00 p.m.
HES_O 320-L08	HES_O	L08	Functional Anatomy	W1	Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Wed	5:00 p.m. - 7:00 p.m.
HES_O 320-L09	HES_O	L09	Functional Anatomy	W1	Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Mon	6:00 p.m. - 8:00 p.m.
HES_O 320-L10	HES_O	L10	Functional Anatomy	W1	Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.	Laboratory	In Person Learning	Tue	7:00 p.m. - 9:00 p.m.
HES_O 330-001	HES_O	001	Introduction to Community Programming	W1	The theory and practice of designing community-based programs to promote behavior change based on recent advances in behavioural science. Credit will only be granted for HES 330 or HMKN 303. [3-0-0] Prerequisite: Either (a) HES 231 or (b) HMKN 316.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
HES_O 340-001	HES_O	001	Methods of Data Analysis	W1	Introduction to basic statistics and methods relevant to the analysis and interpretation of quantitative data pertaining to health and social well-being. Credit will only be granted for only one of HES 340, HMKN 205 or STAT 121. [3-0-0] Prerequisite: Either (a) HES 240 or (b) HMKN 206.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
HES_O 350-001	HES_O	001	Clinical Assessment	W1	Key technical skills in conducting clinical evaluations by exercise practitioners, including client interviews and communication, physical examination, pharmacological considerations, health and fitness measures and appropriate data recording and documentation. [3-3-0] Prerequisite: HES 211. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.	Lecture	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.
HES_O 350-L01	HES_O	L01	Clinical Assessment	W1	Key technical skills in conducting clinical evaluations by exercise practitioners, including client interviews and communication, physical examination, pharmacological considerations, health and fitness measures and appropriate data recording and documentation. [3-3-0] Prerequisite: HES 211. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.	Laboratory	In Person Learning	Wed	9:30 a.m. - 11:30 a.m.
HES_O 351-001	HES_O	001	Clinical Exercise Physiology	W1	Integrative approach to normal and abnormal responses to exercise as well as the physiological effects of chronic conditions and their clinical management in exercise physiology. [3-0-2] Prerequisite: HES 311. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
HES_O 351-T01	HES_O	T01	Clinical Exercise Physiology	W1	Integrative approach to normal and abnormal responses to exercise as well as the physiological effects of chronic conditions and their clinical management in exercise physiology. [3-0-2] Prerequisite: HES 311. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.	Discussion	In Person Learning	Mon	2:00 p.m. - 4:00 p.m.
HES_O 356-001	HES_O	001	Health Behaviour Change for Chronic Disease M	W1	Overview of behaviour change theories and principles of behaviour change intervention design with a particular focus on individual and community-based programming for those living with a variety of chronic conditions. [3-0-0] Prerequisite: Either (a) HES 231 or (b) HMKN 316. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
HES_O 371-001	HES_O	001	Professional Practice in Health & Exercise Scienc	W1	Key considerations for safe, effective and professional practice for health and exercise specialists including legal, ethical and client-care standards. [3-0-0] Prerequisite: All of HES 211, HES 212.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
HES_O 380-001	HES_O	001	Exercise Metabolism	W1	The underlying metabolic events associated with exercise and nutritional challenges. Substrate delivery and skeletal muscle metabolism with respect to exercise. Formerly offered as HMKN 313. Credit will be granted for only one of HES 380 or HMKN 313. [3-0-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105; and either (a) HES 200 or (b) HMKN 323.	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.
HES_O 383-001	HES_O	001	Physical Dimensions of Aging	W1	Changes in physiological function with age. For students planning to become health professionals. Various dimensions of life, including health and functional capacity, are addressed. Formerly offered as HMKN 331. Credit will be granted for only one of HES 383 or HMKN 331. [3-0-0] Prerequisite: Either (a) HES 105 or (b) HMKN 200; and either (a) HES 203 or (b) HMKN 203.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
HES_O 401-001	HES_O	001	Community Placement Experience	W1	Practical work experience in a supervised health/human kinetics related work setting with a cooperating agency, private business, or industry. No more than 9 credits in total will be granted for any combination of HMKN 401, HMKN 402, HMKN 499. Formerly offered as HMKN 401. Credit will be granted for only one of HES 401 or HMKN 401. Pass/Fail. Prerequisite: One of HMKN 205, HES 240 and one of HMKN 206, HES 340. and fourth-year standing in Human Kinetics and permission of the Undergraduate Chair.	Lecture	In Person Learning	Arranged	Arranged
HES_O 402-001	HES_O	001	Advanced Community Placement Experience	W1	Advanced 'hands-on' practical work experience in a supervised health-related work setting with a partnered organization. Formerly offered as HMKN 402. Credit will be granted for only one of HES 402 or HMKN 402. Prerequisite: One of HMKN 401, HES 401. and permission of both the Practicum Coordinator and the Undergraduate Chair.	Lecture	In Person Learning	Arranged	Arranged
HES_O 471-001	HES_O	001	Professional Ethics in Health & Exercise Sciences	W1	Ethical and legal responsibilities of allied health practitioners in care and service to clients, patients and public relating to codes of conduct, consent, trust, confidentiality, standards of care, negligence, record keeping, beneficence, least harm, dignity and scope of practice. Credit will be granted for only one of HES 471 or HMKN 400. [3-0-0] Prerequisite: HES 371.	Lecture	In Person Learning	Tue Fri	2:00 p.m. - 3:30 p.m.

HES_O 485-001	HES_O		001	Advanced Circulatory Physiology	W1	Regulation and adaptation of the circulatory systems at rest, during exercise. Focus on adaptations and prescription implications following pathology. Formerly offered as HMKN 414. Credit will be granted for only one of HES 485 or HMKN 414. [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 335; 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	W1	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 415. Credit will be granted for only one of HES 486 or HMKN 415. [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	Mon Wed	2:00 p.m. - 3:30 p.m.
HES_O 488-001	HES_O		001	Cortical Control of Movement	W1	Cortical events associated with sensation and motor planning associated with goal-directed movement. Particular focus on plasticity associated with disease and injury. Formerly offered as HMKN 413. Credit will be granted for only one of HES 488 or HMKN 413. [3-0-0] Prerequisite: Either (a) HES 202 or (b) HMKN 202; and either (a) HES 240 or (b) HMKN 206; and either (a) HES 340 or (b) HMKN 205.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
HES_O 490-A_001	HES_O	A	A_001	Project in Health and Exercise Sciences	W1	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.	Independent Study	In Person Learning	Arranged	Arranged
HES_O 490-B_002	HES_O	B	B_002	Project in Health and Exercise Sciences	W1-2	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.	Independent Study	In Person Learning	Arranged	Arranged
HES_O 492-001	HES_O		001	Undergraduate Honours Thesis	W1-2	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 HMKN 449. Credit will be granted for only one of HES 492 or HMKN 449. 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	W1-2	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.	Experiential	In Person Learning	Arranged	Arranged
HES_O 505-001	HES_O		001	Quantitative Analyses: Decision Making Using D	W1	How to analyze and interpret statistical data commonly encountered in health and exercise science research. Content includes the choice of appropriate statistical analyses, cleaning data, correlation, linear regression, multiple and logistic regression, t-tests and analyses of variance.	Lecture	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
HES_O 525-001	HES_O		001	Behaviour Change Taxonomies and Theories of f	W1	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 how techniques and theories can be applied will occur through discussion, debate, article synopses, presentations, and written assignments.	Lecture	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
HES_O 545-U_001	HES_O	U	U_001	Special Topics in Health and Exercise Sciences	W1	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.
HES_O 549-001	HES_O		001	M.Sc. Thesis	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
HES_O 549-003	HES_O		003	M.Sc. Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
HES_O 649-001	HES_O		001	Ph.D. Dissertation	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
HES_O 649-003	HES_O		003	Ph.D. Dissertation	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
HINT_O 110-001	HINT_O		001	Applied Research in Health	W1	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	W1	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		002	Pathophysiology for Health Sciences	W1	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	W1	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. [3-0-0] Prerequisite: Third-year standing	Lecture	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
HINT_O 320-002	HINT_O		002	Global Health	W1	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. [3-0-0] Prerequisite: Third-year standing	Lecture	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
HINT_O 331-001	HINT_O		001	Nutrition for Health Sciences	W1	Introduction to the dietary requirements of nutrients and their related sources, metabolism, and functions. Nutrition in the context promoting health, preventing disease, and managing illness will be the focus, incorporating tools and knowledge about healthy food choices and dietary habits based on scientific evidence. Current nutritional issues will also be discussed. Credit will only be granted for one of HES 200, HMKN 323 or HINT 331. [3-0-0] Prerequisite: All of BIOL 131, BIOL 133.	Lecture	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.
HINT_O 331-002	HINT_O		002	Nutrition for Health Sciences	W1	Introduction to the dietary requirements of nutrients and their related sources, metabolism, and functions. Nutrition in the context promoting health, preventing disease, and managing illness will be the focus, incorporating tools and knowledge about healthy food choices and dietary habits based on scientific evidence. Current nutritional issues will also be discussed. Credit will only be granted for one of HES 200, HMKN 323 or HINT 331. [3-0-0] Prerequisite: All of BIOL 131, BIOL 133.	Lecture	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.

HINT_O 429-001	HINT_O		001	Advanced Global Health	W1	Grounded in critical, decolonizing, and equity-advancing theory, research, and practices, this course explores current consensus on what constitutes ethical engagement in global health, collective responses to inherently global issues. Credit will be granted for only one of NRSO 429, HINT 429, or HINT 529. [3-0-0] Restricted to students with third-year standing.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 2:00 p.m.
HINT_O 529-001	HINT_O		001	Advanced Global Health	W1	Grounded in critical, decolonizing, and equity-advancing theory, research, and practices, this course rigorously examines current consensus on what constitutes ethical engagement in global health, collective responses to inherently global issues. Credit will be granted for only one of NRSO 429, HINT 429, or HINT 529. [3-0-0] Restricted to students in a Masters or PhD program.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 2:00 p.m.
HIST_O 106-001	HIST_O		001	Global Environmental History	W1	Historical impacts of humans on the non-human environment, and the ways in which the non-human environment has shaped human history. [3-0-0]	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
HIST_O 110-001	HIST_O		001	Survey of the Ancient World	W1	Survey of ancient history from the first civilizations in the Near East to the fall of Rome. Includes examinations of the ancient civilizations of Mesopotamia, Egypt, Greece, and Rome. [3-0-0]	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
HIST_O 112-101	HIST_O		101	Canadian Lands and Peoples	W1	The people, places, and events central to the development of Canada from Indigenous settlement to the twenty-first century. [3-0-0]	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
HIST_O 115-001	HIST_O		001	World History from First to Second World War	W1	Study of the emergence of the contemporary world from the origins of World War I to the aftermath of World War II. [3-0-0]	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
HIST_O 116-001	HIST_O		001	Early Modern Europe 1450-1789	W1	Survey of the major events, systems of thought, and human accomplishments that have contributed to European history. Study includes events dating from approximately 1450, when developments in government, science, industry, art, and philosophy began to accelerate significantly. [3-0-0]	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
HIST_O 118-001	HIST_O		001	History of Science, Medicine, and Technology fr	W1	History of science, medicine, and technology and society from antiquity to the eighteenth century. Credit will be granted for only one of HIST 118 or HIST 215. [3-0-0]	Lecture	Online Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
HIST_O 145-001	HIST_O		001	Contemporary World History	W1	Events and forces shaping the world since the mid-twentieth century. [3-0-0]	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
HIST_O 220-001	HIST_O		001	History of the Islamic World	W1	A historical survey of the various lands, ideas, peoples, and cultures that contributed to the formation of the Islamic world, from the advent of Islam in the 7th century to the contemporary period. [3-0-0]	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
HIST_O 300-001	HIST_O		001	History of Indigenous Peoples of Canada to 1876	W1	The Indigenous people (status and non-status) of Canada from contact to the passage of the Indian Act in 1876. Topics include government policies, environment, gender, religion, oral narratives, colonial frontiers, disease, fur trade. [3-0-0] Prerequisite: 6 credits of HIST and third-year standing; or 3 credits of HIST, INDG 100, and third-year standing.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
HIST_O 303-001	HIST_O		001	The Hellenistic World from the Mediterranean to	W1	The main cultural, political, social, and economic developments in the Hellenistic World from Alexander the Great to the rise of Rome. Credit will be granted for only one of HIST 303 or HIST 383E. [3-0-0] Prerequisite: HIST 110.	Lecture	In Person Learning	Tue Fri	9:30 a.m. - 11:00 a.m.
HIST_O 317-001	HIST_O		001	History of Southern Africa	W1	Pre-colonial, colonial, and contemporary history emphasizing South Africa. [3-0-0] Prerequisite: 6 credits of HIST; or one of HIST 115, HIST 145 and third-year standing.	Lecture	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.
HIST_O 327-001	HIST_O		001	American Colonial History, 1607-1763	W1	Comparative study of the social, economic, and political characteristics of the 13 colonies as they changed from small European outposts to more mature societies. [3-0-0] Prerequisite: 6 credits of HIST; or HIST 211 and third-year standing.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
HIST_O 351-001	HIST_O		001	History of Gender and Sexuality in Latin America	W1	Sexuality and gender relations from colonial period to the present. Role of family, state, religion, and community in constructing gender roles and sexual identities. [3-0-0] Prerequisite: One of HIST 151, or HIST 240, or third-year standing.	Lecture	In Person Learning	Mon	6:30 p.m. - 9:30 p.m.
HIST_O 373-001	HIST_O		001	History of Gender, Race, and Science in the Atlai	W1	The rise of scientific theories of racial and sexual difference and their role in the creation of the early modern Atlantic world (1500-1800), including its economy, culture, and socio-political order. [3-0-0] Prerequisite: 6 credits of HIST; or one of HIST 118, HIST 218 and third-year standing.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
HIST_O 381-A_001	HIST_O	A	A_001	Special Topics in Economic History	W1	Students should consult the department for the particular topics offered in a given year. [3-0-0] Prerequisite: 3 credits of HIST and third-year standing.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.
HIST_O 395-001	HIST_O		001	Environmental History of North America	W1	Themes and methods of environmental history, focusing primarily on North America from the sixteenth to the twenty-first centuries. [2-0-1] Prerequisite: 3 credits of HIST and third-year standing.	Lecture	Online Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
HIST_O 420-001	HIST_O		001	Women in Early Modern Europe	W1	Examination of the experiences of women in Western Europe from 1500-1750. [3-0-0] Prerequisite: 6 credits of HIST; or HIST 116 and third-year standing.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
HIST_O 468-001	HIST_O		001	International Relations of the Great Powers of th	W1	International relations of Britain, France, Germany, Russia, and the United States from the beginning of the 20th century until 1939. Political and diplomatic settlements between the Paris Peace Conference of 1919 and the German invasion of Poland in 1939. [3-0-0] Prerequisite: 6 credits of HIST; or one of HIST 115, HIST 126 and third-year standing; or 6 credits of POLI and third-year standing. Equivalency: POLI433	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
HIST_O 473-101	HIST_O		101	War and Society from the 18th to 20th Centurie: W	W1	Continuity and change in the relations of war and society, and the connections between the economy, society, the military, and government in peacetime and war; not a course in military history. [3-0-0] Prerequisite: 6 credits of HIST; or one of HIST 115, HIST 116, HIST 126, HIST 145 and third-year standing.	Lecture	In Person Learning	Tue Fri	2:00 p.m. - 3:30 p.m.
HIST_O 492-101	HIST_O		101	History, Theory, and Method	W1	Explores selected problems and issues in the theory and practice of historical work. Credit will be granted for only one of HIST 492 or IGS 592. [2-0-1] Prerequisite: 6 credits of HIST or third-year standing. Open to non-history majors with permission of the department head. Equivalency: IGS 592	Seminar	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.
HIST_O 494-001	HIST_O		001	Decolonization and Africa	W1	Overview and analysis of the internal and external factors that explain decolonization in sub-Saharan Africa in the twentieth century. Discussion will focus on the problems of nation-building in the aftermath of decolonization. [1.5-0-1.5] Prerequisite: 6 credits of HIST; or one of HIST 115, HIST 145 and third-year standing.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
IGS_O 502-A_001	IGS_O	A	A_001	Seminar in Digital Arts and Humanities	W1		Seminar	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
IGS_O 515-A_001	IGS_O	A	A_001	Advanced Qualitative Methods	W1		Seminar	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.
IGS_O 524-A_001	IGS_O	A	A_001	Proseminar in Interdisciplinary Studies	W1-2	This seminar-based course prepares graduate students to excel in their academic, professional and scholarly pursuits by engaging topics related to professionalism and scholarly communication. May be offered for 1, 2 or 3 credits; program requirements for the IGS MA, MSc and PhD programs require completion of 3 credits in total. Restricted to students in the IGS MA, MSc, or PhD program. Pass/Fail.	Seminar	In Person Learning	Wed (Alternate weeks)	8:00 a.m. - 11:00 a.m.

IGS_O 582-001	IGS_O	001	Indigenous Knowledges Theme Seminar	W1	Theoretical background on Indigenous Knowledges 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 Knowledges Theme.	Seminar	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.	
IGS_O 584-001	IGS_O	001	Sustainability Theme Seminar	W1	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 586-A_001	IGS_O	A	A_001	Community Engagement, Social Change, and Equi	W1	Will provide the necessary theoretical background on Community-Based Participatory Research (CBPR). Students will learn about a range of strategies and principles of CPBR; 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 587-001	IGS_O	001	Global Politics, Culture and Theory	W1	Examination of conceptual approaches to Global Studies.	Seminar	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.	
IGS_O 589-101	IGS_O	101	Governance	W1	Frameworks of governance systems and public policy. [0-0-3]	Seminar	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.	
IGS_O 590-001	IGS_O	001	Power and Ideas	W1	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	101	History, Theory, and Method	W1	Explores selected problems and issues in the theory and practice of historical work. Credit will be granted for only one of 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	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
IGS_O 599-B_101	IGS_O	B	B_101	Master's Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
IGS_O 599-C_001	IGS_O	C	C_001	Master's Thesis	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
IGS_O 599-C_101	IGS_O	C	C_101	Master's Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
IGS_O 699-001	IGS_O	001	Doctoral Thesis	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged	
IGS_O 699-101	IGS_O	101	Doctoral Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged	
IMTC_O 505-001	IMTC_O	001	Fundamentals of Immersive Technologies	W1	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	W1	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 Stud	W1	Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]	Lecture	Online Learning	Mon Wed	11:00 a.m. - 12:00 p.m.	
INDG_O 100-002	INDG_O	002	Introduction to Decolonization: Indigenous Stud	W1	Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]	Lecture	In Person Learning	Wed	3:30 p.m. - 5:00 p.m.	
INDG_O 100-D01	INDG_O	D01	Introduction to Decolonization: Indigenous Stud	W1	Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]	Discussion	Online Learning	Wed	12:00 p.m. - 1:00 p.m.	
INDG_O 100-D02	INDG_O	D02	Introduction to Decolonization: Indigenous Stud	W1	Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]	Discussion	In Person Learning	Fri	3:30 p.m. - 5:00 p.m.	
INDG_O 204-001	INDG_O	001	Mtis Peoples and Perspectives	W1	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, Michif language and culture, customary law and legal rulings, land issues and mobility, as well as contemporary identity controversies. Credit will be granted for only one of INDG 204 or INDG 295H. [3-0-0] Prerequisite: One of INDG 100, INDG 102.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.	
INDG_O 205-001	INDG_O	001	Indigenous Identities	W1	Complexities of contemporary Indigenous identities in Canada including how Indigeneity 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] Prerequisite: One of INDG 100, INDG 102.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.	
INDG_O 210-001	INDG_O	001	Indigenous Peoples of the Americas	W1	Overview of the contemporary socio-economic, political, cultural, and environmental characteristics of the Indigenous peoples of the Americas. [3-0-0] Prerequisite: One of INDG 100, INDG 102.	Lecture	Online Learning	Mon Wed	11:00 a.m. - 12:30 p.m.	
INDG_O 301-001	INDG_O	001	Examining an Indigenous Methodology: En'owki	W1	Understanding an Indigenous strategy of community discourse as a methodology for inquiry, a technique of examination employing sequential stages of critical analysis in a whole-systems approach. Offered in relationship with the En'owkin Centre. [3-0-0] Prerequisite: One of INDG 100, INDG 102. And third-year standing.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.	
INDG_O 302-001	INDG_O	001	Indigenous Governance	W1	Critically examines various traditional Indigenous governance models and 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] Prerequisite: 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	W1	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] Prerequisite: One of INDG 100, INDG 102. Third-year standing.	Lecture	In Person Learning	Mon Wed	3:30 p.m. - 5:00 p.m.	
INDG_O 305-001	INDG_O	001	Indigenous Justice	W1	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. Revitalization of Indigenous knowledge informs ethical and moral issues addressed in relation to healing, and collective transformation. [3-0-0] Prerequisite: One of INDG 100, INDG 102. Third-year standing.	Lecture	In Person Learning	Tue Thu	5:00 p.m. - 6:30 p.m.	
INDG_O 307-001	INDG_O	001	Traditional Ecological Knowledge	W1	Shows how human life depends on complex systems of cultural knowledge about the natural world. Indigenous People's biological classification and nomenclatural systems, ethnobiology, and Indigenous explanatory models of environmental systems and the application of this knowledge in practice. [3-0-0] Prerequisite: One of INDG 100, INDG 102. Third-year standing.	Experiential	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.	
INDG_O 309-001	INDG_O	001	Indigenous Perspectives on Health	W1	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] Prerequisite: 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	W1	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. [0-0-3] Prerequisite: One of INDG 301, INDG 303, INDG 304.	Lecture	Online Learning	Arranged	Arranged	

INDG_O 404-001	INDG_O	001	Indigenous Peoples United Nations and Global Is	W1	Focuses on Indigenous Peoples' common experience of colonialism, 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_O 405-001	INDG_O	001	Indigenous Education: History and Revitalization	W1	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 through 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_O 420-001	INDG_O	001	Indigenous Perspectives on Food, Place, Identity	W1	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_O 450-001	INDG_O	001	Indigenous Women, Activisms, Feminisms	W1	Examines Indigenous women's feminist activisms and theory in historical and contemporary contexts. Emphasizing 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	In Person Learning	Mon Thu	2:00 p.m. - 3:30 p.m.
INDG_O 499-101	INDG_O	101	Indigenous Studies Capstone Project	W1	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_O 281-001	INLG_O	001	Sounds of Endangered Languages: Conservation	W1	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_O 480-001	INLG_O	001	Endangered Language Documentation and Revit	W1	Study of language shift, including local and global influences of historical, social, cultural, political, and economic factors impacting on language loss, endangerment, retention, and revival. Practical strategies for sustaining and reviving languages, including language documentation and revitalization. Credit will only be granted for one of INLG 480 and ANTH 473. Prerequisite: INLG 282.	Lecture	Multi-access Learning	Thu	5:00 p.m. - 8:00 p.m.
JPST_O 100-001	JPST_O	001	Beginning Japanese Language I	W1	Introduction to spoken and written modern Japanese, with emphasis on both form (grammar and syntax) and functions. Students who have completed Japanese 12, native and heritage speakers cannot receive credit for JPST 100.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
JPST_O 100-002	JPST_O	002	Beginning Japanese Language I	W1	Introduction to spoken and written modern Japanese, with emphasis on both form (grammar and syntax) and functions. Students who have completed Japanese 12, native and heritage speakers cannot receive credit for JPST 100.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
JPST_O 100-L01	JPST_O	L01	Beginning Japanese Language I	W1	Introduction to spoken and written modern Japanese, with emphasis on both form (grammar and syntax) and functions. Students who have completed Japanese 12, native and heritage speakers cannot receive credit for JPST 100.	Laboratory	Online Learning	Mon	1:00 p.m. - 2:00 p.m.
JPST_O 370-001	JPST_O	001	Japanese Food Culture	W1	Social, historical, political, and environmental dimensions of the development of traditional and contemporary Japanese food culture. Taught in English. Credit will not be granted for both JPST 370 and JPST 395A. Prerequisite: Third year standing.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
KORN_O 100-001	KORN_O	001	Basic Korean I	W1	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_O 300-001	LATN_O	001	Intensive Introduction to Latin	W1-2	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_O 497-001	LLED_O	001	Practicum in Additional Language Teaching and	W1	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]	Experiential	In Person Learning	Thu (Alternate weeks)	6:30 p.m. - 8:30 p.m.
MANF_O 330-001	MANF_O	001	Manufacturing Engineering Project I	W1-2	Project-based design and optimization of manufacturing processes (Casting, bulk deformation, sheet metal, polymer), metrology, measuring cutting forces in machining. CNC machining optimization. [1-4-0, 1-4-0] Prerequisite: MANF 277.	Lecture	In Person Learning	Mon	11:00 a.m. - 12:00 p.m.
MANF_O 330-L1A	MANF_O	L1A	Manufacturing Engineering Project I	W1-2	Project-based design and optimization of manufacturing processes (Casting, bulk deformation, sheet metal, polymer), metrology, measuring cutting forces in machining. CNC machining optimization. [1-4-0, 1-4-0] Prerequisite: MANF 277.	Laboratory	In Person Learning	Fri	8:00 a.m. - 12:00 p.m.
MANF_O 370-101	MANF_O	101	Production Systems Management II	W1	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: MANF 270.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
MANF_O 377-001	MANF_O	001	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Lecture	In Person Learning	Wed Fri	4:00 p.m. - 5:00 p.m.
MANF_O 377-L1A	MANF_O	L1A	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Laboratory	In Person Learning	Wed (Alternate weeks)	11:00 a.m. - 2:00 p.m.
MANF_O 377-L1B	MANF_O	L1B	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Laboratory	In Person Learning	Wed (Alternate weeks)	11:00 a.m. - 2:00 p.m.
MANF_O 377-L1C	MANF_O	L1C	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Laboratory	In Person Learning	Mon (Alternate weeks)	8:00 a.m. - 11:00 a.m.
MANF_O 377-L1D	MANF_O	L1D	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Laboratory	In Person Learning	Mon (Alternate weeks)	8:00 a.m. - 11:00 a.m.

MANF_O 377-L1E	MANF_O	L1E	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Laboratory	In Person Learning	Tue (Alternate weeks)	12:30 p.m. - 3:30 p.m.
MANF_O 377-L1F	MANF_O	L1F	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Laboratory	In Person Learning	Tue (Alternate weeks)	12:30 p.m. - 3:30 p.m.
MANF_O 377-L1G	MANF_O	L1G	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Laboratory	In Person Learning	Fri (Alternate weeks)	11:00 a.m. - 2:00 p.m.
MANF_O 377-L1H	MANF_O	L1H	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Laboratory	In Person Learning	Fri (Alternate weeks)	11:00 a.m. - 2:00 p.m.
MANF_O 377-L1I	MANF_O	L1I	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Laboratory	In Person Learning	Mon (Alternate weeks)	2:00 p.m. - 5:00 p.m.
MANF_O 377-L1J	MANF_O	L1J	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Laboratory	In Person Learning	Mon (Alternate weeks)	2:00 p.m. - 5:00 p.m.
MANF_O 377-L1K	MANF_O	L1K	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Laboratory	In Person Learning	Thu (Alternate weeks)	2:00 p.m. - 5:00 p.m.
MANF_O 377-L1L	MANF_O	L1L	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Laboratory	In Person Learning	Thu (Alternate weeks)	2:00 p.m. - 5:00 p.m.
MANF_O 377-T1A	MANF_O	T1A	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Discussion	In Person Learning	Thu	2:00 p.m. - 3:00 p.m.
MANF_O 377-T1B	MANF_O	T1B	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Discussion	In Person Learning	Fri	3:00 p.m. - 4:00 p.m.
MANF_O 377-T1C	MANF_O	T1C	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Discussion	In Person Learning	Mon	11:00 a.m. - 12:00 p.m.
MANF_O 377-T1D	MANF_O	T1D	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Discussion	In Person Learning	Thu	3:00 p.m. - 4:00 p.m.
MANF_O 377-T1E	MANF_O	T1E	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Discussion	In Person Learning	Mon	3:00 p.m. - 4:00 p.m.
MANF_O 377-T1F	MANF_O	T1F	Manufacturing Processes	W1	Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2 -3*-1] Prerequisite: All of APSC 259, APSC 260.	Discussion	In Person Learning	Thu	1:00 p.m. - 2:00 p.m.
MANF_O 386-001	MANF_O	001	Industrial Automation	W1	Principle components of manufacturing automation systems, industrial measurement needs, robotic programming, programmable logical control (PLC) systems and development of PLC programs. [3-2-0] Prerequisite: APSC 246.	Lecture	In Person Learning	Mon Wed Fri	2:00 p.m. - 3:00 p.m.
MANF_O 386-L01	MANF_O	L01	Industrial Automation	W1	Principle components of manufacturing automation systems, industrial measurement needs, robotic programming, programmable logical control (PLC) systems and development of PLC programs. [3-2-0] Prerequisite: APSC 246.	Laboratory	In Person Learning	Thu	5:00 p.m. - 7:00 p.m.
MANF_O 386-L02	MANF_O	L02	Industrial Automation	W1	Principle components of manufacturing automation systems, industrial measurement needs, robotic programming, programmable logical control (PLC) systems and development of PLC programs. [3-2-0] Prerequisite: APSC 246.	Laboratory	In Person Learning	Fri	5:00 p.m. - 7:00 p.m.
MANF_O 416-001	MANF_O	001	CAD/CAM/CAE	W1	CNC machining, Rapid prototyping, G-code, Computer Aided: Design, Manufacturing and Engineering, parametric design and analysis for optimization. Manufacturing engineering students may not use this course to satisfy the requirements of their degree. [3-2-0] Prerequisite: MANF 377.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
MANF_O 416-L01	MANF_O	L01	CAD/CAM/CAE	W1	CNC machining, Rapid prototyping, G-code, Computer Aided: Design, Manufacturing and Engineering, parametric design and analysis for optimization. Manufacturing engineering students may not use this course to satisfy the requirements of their degree. [3-2-0] Prerequisite: MANF 377.	Laboratory	In Person Learning	Tue	4:00 p.m. - 6:00 p.m.
MANF_O 416-L02	MANF_O	L02	CAD/CAM/CAE	W1	CNC machining, Rapid prototyping, G-code, Computer Aided: Design, Manufacturing and Engineering, parametric design and analysis for optimization. Manufacturing engineering students may not use this course to satisfy the requirements of their degree. [3-2-0] Prerequisite: MANF 377.	Laboratory	In Person Learning	Tue	10:00 a.m. - 12:00 p.m.
MANF_O 455-001	MANF_O	001	Factory Planning	W1	Planning of resources, layout and logistics for manufacturing plants; hands-on training on modular production and cyber-physical manufacturing systems in a laboratory scale, virtual manufacturing environments and factory automation. Credit will be granted for only one of MANF 455 or MANF 555. [2-2-0] Prerequisite: MANF 386.	Lecture	In Person Learning	Tue	2:00 p.m. - 4:00 p.m.
MANF_O 455-L1A	MANF_O	L1A	Factory Planning	W1	Planning of resources, layout and logistics for manufacturing plants; hands-on training on modular production and cyber-physical manufacturing systems in a laboratory scale, virtual manufacturing environments and factory automation. Credit will be granted for only one of MANF 455 or MANF 555. [2-2-0] Prerequisite: MANF 386.	Laboratory	In Person Learning	Thu	2:00 p.m. - 4:00 p.m.
MANF_O 460-001	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. Emphasis on assessment of supply chain performance to improve competitiveness. Credit will be granted for only one of MANF 460 or MANF 560. [3-0-0] Prerequisite: Fourth-year B.A.Sc. standing.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.

MANF_O 470-001	MANF_O	001	Production Systems Management III	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-L01	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-L02	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-L1A	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 Sc 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.	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	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	Wed Fri	9:30 a.m. - 11:00 a.m.
MATH_O 125-001	MATH_O	001	Pre-Calculus	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	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.



MATH_O 200-L01	MATH_O	L01	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.	Laboratory	In Person Learning	Mon	8:00 a.m. - 9:00 a.m.
MATH_O 200-L02	MATH_O	L02	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.	Laboratory	In Person Learning	Wed	3:00 p.m. - 4:00 p.m.
MATH_O 200-L03	MATH_O	L03	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.	Laboratory	In Person Learning	Wed	4:00 p.m. - 5:00 p.m.
MATH_O 200-L04	MATH_O	L04	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.	Laboratory	In Person Learning	Fri	3:00 p.m. - 4:00 p.m.
MATH_O 200-L05	MATH_O	L05	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.	Laboratory	In Person Learning	Fri	1:00 p.m. - 2:00 p.m.
MATH_O 200-L06	MATH_O	L06	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.	Laboratory	In Person Learning	Thu	1:00 p.m. - 2:00 p.m.
MATH_O 200-L07	MATH_O	L07	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.	Laboratory	In Person Learning	Fri	10:00 a.m. - 11:00 a.m.
MATH_O 200-L08	MATH_O	L08	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.	Laboratory	In Person Learning	Wed	10:00 a.m. - 11:00 a.m.
MATH_O 200-L09	MATH_O	L09	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.	Laboratory	In Person Learning	Wed	10:00 a.m. - 11:00 a.m.
MATH_O 200-L10	MATH_O	L10	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.	Laboratory	In Person Learning	Tue	12:00 p.m. - 1:00 p.m.
MATH_O 220-001	MATH_O	001	Mathematical Proof	W1	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 103.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
MATH_O 220-T01	MATH_O	T01	Mathematical Proof	W1	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 103.	Discussion	In Person Learning	Mon	1:00 p.m. - 2:00 p.m.
MATH_O 220-T02	MATH_O	T02	Mathematical Proof	W1	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 103.	Discussion	In Person Learning	Mon	8:00 a.m. - 9:00 a.m.
MATH_O 220-T03	MATH_O	T03	Mathematical Proof	W1	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 103.	Discussion	In Person Learning	Mon	10:00 a.m. - 11:00 a.m.
MATH_O 220-T04	MATH_O	T04	Mathematical Proof	W1	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 103.	Discussion	In Person Learning	Fri	3:00 p.m. - 4:00 p.m.
MATH_O 221-001	MATH_O	001	Matrix Algebra	W1	Systems of linear equations, operations on matrices, determinants, eigenvalues and eigenvectors, diagonalization of symmetric matrices, and vector geometry. [3-0-0] Prerequisite: One of MATH 100, MATH 116.	Lecture	In Person Learning	Mon Wed	6:30 p.m. - 8:00 p.m.
MATH_O 307-101	MATH_O	101	Applied Linear Algebra	W1	LU-factorization, iterative estimates for eigenvalues, dynamical systems, orthogonality, QR-factorization, and applications of linear algebra. [3-0-0] Prerequisite: MATH 221.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
MATH_O 311-001	MATH_O	001	Abstract Algebra I	W1	Properties of integers, the integers modulo $n$ , groups, subgroups, cyclic groups, permutation groups, linear groups, quotient groups and homomorphisms, isomorphism theorems, direct products, and an introduction to rings and fields. [3-0-0] Prerequisite: MATH 220.	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
MATH_O 319-001	MATH_O	001	Introduction to Partial Differential Equations	W1	Methods of separation of variable, Fourier series, heat, wave and Laplace's equations, boundary value problems, eigenfunction expansions, and Sturm-Liouville problems. [3-0-1] Prerequisite: All of MATH 200, MATH 225.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
MATH_O 319-T02	MATH_O	T02	Introduction to Partial Differential Equations	W1	Methods of separation of variable, Fourier series, heat, wave and Laplace's equations, boundary value problems, eigenfunction expansions, and Sturm-Liouville problems. [3-0-1] Prerequisite: All of MATH 200, MATH 225.	Discussion	In Person Learning	Tue	4:00 p.m. - 5:00 p.m.
MATH_O 323-001	MATH_O	001	Applied Abstract Algebra	W1	Congruences and groups, introduction to rings and fields, and topics chosen from: lattices, Boolean algebra and applications, balanced incomplete block designs, introduction to cryptography, applications to group theory. [3-0-0] Prerequisite: MATH 221. Corequisite: MATH 311.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
MATH_O 327-001	MATH_O	001	Analysis I	W1	The real number system, real Euclidean $n$ -space; open, closed, compact, and connected sets; Bolzano-Weierstrass theorem; sequences and series; continuity and uniform continuity; differentiability and mean-value theorems; Riemann or Riemann-Stieltjes integrals. [3-0-0] Prerequisite: MATH 220.	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.

MATH_O 339-001	MATH_O	001		Introduction to Dynamical Systems	W1	Non-linear systems and iteration of functions; flows, phase portraits, periodic orbits, chaotic attractors, fractals, and invariant sets. [3-0-0] Prerequisite: All of MATH 200, MATH 225.	Lecture	In Person Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
MATH_O 408-001	MATH_O	001		Differential Geometry	W1	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. [3-0-0] Prerequisite: All of MATH 200, MATH 221. and 9 credits of 300-level MATH.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
MATH_O 409-001	MATH_O	001		Mathematics of Financial Derivatives	W1	Pricing theory of financial derivative securities. Options and markets, present and future values, price movement modeled by Brownian motion, Ito's formula, parabolic 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. [3-0-0] Prerequisite: All of MATH 221, MATH 319 and one of MATH 302, STAT 303.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
MATH_O 448-A_001	MATH_O	A	A_001	Directed Studies in Mathematics	W1	Investigation of a specific topic as agreed upon by the student and the faculty supervisor. Students will be expected to complete a project and make an oral presentation. Prerequisite: 15 credits of 300- or 400-level MATH and STAT courses and permission of the department head and faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
MATH_O 448-B_001	MATH_O	B	B_001	Directed Studies in Mathematics	W1-2	Investigation of a specific topic as agreed upon by the student and the faculty supervisor. Students will be expected to complete a project and make an oral presentation. Prerequisite: 15 credits of 300- or 400-level MATH and STAT courses and permission of the department head and faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
MATH_O 448-C_001	MATH_O	C	C_001	Directed Studies in Mathematics	W1	Investigation of a specific topic as agreed upon by the student and the faculty supervisor. Students will be expected to complete a project and make an oral presentation. Prerequisite: 15 credits of 300- or 400-level MATH and STAT courses and permission of the department head and faculty supervisor.	Independent Study	In Person Learning	Arranged	Arranged
MATH_O 461-101	MATH_O	101		Continuous Optimization	W1	Convex analysis, non-smooth optimization, Karush-Kuhn-Tucker theorem, iterative methods. [3-0-0] Prerequisite: MATH 327.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
MATH_O 563-101	MATH_O	101		Convex Optimization and Non-smooth Analysis	W1	Separation and support properties of convex sets; polar, tangent, and normal cones; Fenchel conjugation; subgradient calculus for convex functions; Fenchel duality for convex optimization problems; algorithms for non-differentiable optimization; non-smooth analysis and optimization for non-convex objects. [3-0-0]	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
MATH_O 590-D_S01	MATH_O	D	D_S01	Graduate Seminar	W1	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	Thu	8:00 a.m. - 11:00 a.m.
MATH_O 649-001	MATH_O	001		Ph.D. Thesis	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
MATH_O 649-201	MATH_O	201		Ph.D. Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
MDST_O 110-001	MDST_O	001		Introduction to Computational Art and Design I	W1	Code as material; design principles; mathematics for space and time; computer programming languages for computational art and design.	Studio	In Person Learning	Tue	8:00 a.m. - 11:00 a.m.
MDST_O 210-001	MDST_O	001		Creative Coding	W1	Theory and practice of encoding creative process and designing software for visualization, simulation, sonification, and generative systems. Techniques from artificial intelligence, machine learning, cognitive science, graphics and sound generation. Credit will be granted for only one of MDST 210 and MDST 320. Prerequisite: Either (a) VISA 108 and one of COSC 222, COSC 223; or (b) MDST 120.	Studio	In Person Learning	Wed Fri	12:00 p.m. - 2:00 p.m.
MDST_O 311-001	MDST_O	001		Computational Poetics	W1	The impact of computer technology and composition strategies on systems of representations and the question of meaning in the interdisciplinary field of computational art and design. Concepts are developed and applied through the creation of a computational multimedia model and the consequent artistic experience. Prerequisite: MDST 220.	Studio	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.
MDST_O 490-001	MDST_O	001		Seminar Series	W1	Presents topics of relevance to media studies. Pass/Fail. Prerequisite: Fourth-year standing Corequisite: MDST 499.	Lecture	Online Learning	Tue	11:00 a.m. - 3:00 p.m.
MDST_O 499-001	MDST_O	001		Capstone Media Project	W1-2	Capstone project in teams. Prerequisite: 3 credits of 3rd-year MDST and 3 credits of 3rd-year DIHU. Corequisite: MDST 490.	Studio	In Person Learning	Mon	10:00 a.m. - 2:00 p.m.
MGCO_O 401-101	MGCO_O	101		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. Restricted to students accepted to the Management Co-operative Education Program.	Experiential	In Person Learning	Arranged	Arranged
MGCO_O 402-101	MGCO_O	101		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. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 401.	Experiential	In Person Learning	Arranged	Arranged
MGCO_O 403-101	MGCO_O	101		Co-op Education Work Experience III	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. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 402.	Experiential	In Person Learning	Arranged	Arranged
MGCO_O 404-101	MGCO_O	101		Co-op Education Work Experience IV	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. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 403.	Experiential	In Person Learning	Arranged	Arranged

MGCO_O 405-101	MGCO_O	101	Co-op Education Work Experience V	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: MGCO 404.	Experiential	In Person Learning	Arranged	Arranged
MGCO_O 406-101	MGCO_O	101	Co-op Education Work Experience VI	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: MGCO 405.	Experiential	In Person Learning	Arranged	Arranged
MGMT_O 100-001	MGMT_O	001	Introduction to Business	W1	Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0]	Lecture	In Person Learning	Mon	12:00 p.m. - 2:00 p.m.
MGMT_O 100-L01	MGMT_O	L01	Introduction to Business	W1	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	Fri	4:00 p.m. - 5:00 p.m.
MGMT_O 100-L02	MGMT_O	L02	Introduction to Business	W1	Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0]	Laboratory	In Person Learning	Mon	2:00 p.m. - 3:00 p.m.
MGMT_O 100-L03	MGMT_O	L03	Introduction to Business	W1	Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0]	Laboratory	In Person Learning	Wed	10:00 a.m. - 11:00 a.m.
MGMT_O 100-L04	MGMT_O	L04	Introduction to Business	W1	Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0]	Laboratory	In Person Learning	Tue	1:00 p.m. - 2:00 p.m.
MGMT_O 100-L05	MGMT_O	L05	Introduction to Business	W1	Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0]	Laboratory	In Person Learning	Mon	8:00 a.m. - 9:00 a.m.
MGMT_O 100-L06	MGMT_O	L06	Introduction to Business	W1	Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0]	Laboratory	In Person Learning	Wed	5:00 p.m. - 6:00 p.m.
MGMT_O 100-L07	MGMT_O	L07	Introduction to Business	W1	Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0]	Laboratory	In Person Learning	Mon	11:00 a.m. - 12:00 p.m.
MGMT_O 100-W01	MGMT_O	W01	Introduction to Business	W1	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	5:00 p.m. - 6:00 p.m.
MGMT_O 110-001	MGMT_O	001	Introduction to Management Thought and Socia	W1	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	Tue	6:30 p.m. - 9:30 p.m.
MGMT_O 201-001	MGMT_O	001	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.	Lecture	In Person Learning	Mon	8:00 a.m. - 10:00 a.m.
MGMT_O 201-W01	MGMT_O	W01	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	Fri	10:00 a.m. - 11:00 a.m.

MGMT_O 201-W02	MGMT_O	W02	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	W03	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	W04	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	W05	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.
MGMT_O 230-001	MGMT_O	001	Introduction to Organizational Behaviour	W1	Theories and concepts. Research, analytic, and behavioural skills aimed at understanding and managing the behaviour of individuals and groups in organizations. [3-0-0] Prerequisite: All of MGMT 100, PSYO 111. Second-year standing, 3 credits of STAT and 3 credits of ENGL. Corequisite: MGMT 110.	Lecture	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.
MGMT_O 230-L01	MGMT_O	L01	Introduction to Organizational Behaviour	W1	Theories and concepts. Research, analytic, and behavioural skills aimed at understanding and managing the behaviour of individuals and groups in organizations. [3-0-0] Prerequisite: All of MGMT 100, PSYO 111. Second-year standing, 3 credits of STAT and 3 credits of ENGL. Corequisite: MGMT 110.	Laboratory	In Person Learning	Mon	2:00 p.m. - 3:00 p.m.
MGMT_O 290-101	MGMT_O	101	Industry Analysis Project	W1	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.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
MGMT_O 290-102	MGMT_O	102	Industry Analysis Project	W1	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.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
MGMT_O 290-103	MGMT_O	103	Industry Analysis Project	W1	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.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
MGMT_O 300-001	MGMT_O	001	Intermediate Financial Accounting I	W1	Environment of financial reporting, standard-setting process, and conceptual framework that underlies financial reporting in Canada. Focuses primarily on accounting for assets. [3-0-0] Prerequisite: MGMT 201. Corequisite: MGMT 310.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
MGMT_O 310-101	MGMT_O	101	Introduction to Finance	W1	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 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. Corequisite: MGMT 201.	Lecture	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
MGMT_O 310-W01	MGMT_O	W01	Introduction to Finance	W1	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 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. Corequisite: MGMT 201.	Workshop	Online Learning	Arranged	Arranged
MGMT_O 355-101	MGMT_O	101	Operations Management	W1	Introduction to the strategic and tactical decisions of operations management as it applies to both service and manufacturing sectors. Topics include process and technology choice, process flow, layout of facilities, capacity and resource planning, inventory control, lean systems, quality management, and quality control. [3-0-0] Prerequisite: Either (a) MATH 100 or (b) MATH 116; and two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. And 3 credits of STAT.	Lecture	In Person Learning	Mon	12:30 p.m. - 2:00 p.m.
MGMT_O 355-102	MGMT_O	102	Operations Management	W1	Introduction to the strategic and tactical decisions of operations management as it applies to both service and manufacturing sectors. Topics include process and technology choice, process flow, layout of facilities, capacity and resource planning, inventory control, lean systems, quality management, and quality control. [3-0-0] Prerequisite: Either (a) MATH 100 or (b) MATH 116; and two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. And 3 credits of STAT.	Lecture	In Person Learning	Mon	3:30 p.m. - 5:00 p.m.
MGMT_O 355-W02	MGMT_O	W02	Operations Management	W1	Introduction to the strategic and tactical decisions of operations management as it applies to both service and manufacturing sectors. Topics include process and technology choice, process flow, layout of facilities, capacity and resource planning, inventory control, lean systems, quality management, and quality control. [3-0-0] Prerequisite: Either (a) MATH 100 or (b) MATH 116; and two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. And 3 credits of STAT.	Workshop	In Person Learning	Tue	2:00 p.m. - 3:30 p.m.
MGMT_O 355-W03	MGMT_O	W03	Operations Management	W1	Introduction to the strategic and tactical decisions of operations management as it applies to both service and manufacturing sectors. Topics include process and technology choice, process flow, layout of facilities, capacity and resource planning, inventory control, lean systems, quality management, and quality control. [3-0-0] Prerequisite: Either (a) MATH 100 or (b) MATH 116; and two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. And 3 credits of STAT.	Workshop	In Person Learning	Tue	5:00 p.m. - 6:30 p.m.
MGMT_O 401-001	MGMT_O	001	Intermediate Managerial Accounting	W1	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.	Lecture	In Person Learning	Fri	8:00 a.m. - 11:00 a.m.
MGMT_O 402-001	MGMT_O	001	Introduction to Income Taxes in Canada	W1	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.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
MGMT_O 404-101	MGMT_O	101	Advanced Financial Accounting	W1	Analyzes the concepts and practices underlying financial reporting in more complex areas such as business combinations, multinational operations, future income taxes, and not-for-profit organizations. [3-0-0] Prerequisite: MGMT 304.	Lecture	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.

MGMT_O 411-101	MGMT_O	101	Human Resources Management	W1	Develops an understanding of the diverse areas in human resources management. Examines analysis, planning, staffing, performance evaluation, compensation, training and development, labor relations, employee safety, health, human resource management, and an understanding of cultural differences and its impact on the organization. [3-0-0] Prerequisite: MGMT 230. and third-year standing.	Lecture	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.	
MGMT_O 429-A_001	MGMT_O	A	A_001	Special Topics in Information Technology Manag	W1	Explores the latest concepts and/or issues in information technology management (ITM). Data warehousing, IS security, IT auditing and control, global ITM, and other related topics within the field of ITM. Not intended for topics routinely covered in the curriculum. Credit will be granted for only one of MGMT 429 or MGMT 329 when the subject matter is of the same nature. Prerequisite: Fourth-year standing.	Lecture	In Person Learning	Tue Thu	4:00 p.m. - 6:00 p.m.
MGMT_O 429-A_L01	MGMT_O	A	A_L01	Special Topics in Information Technology Manag	W1	Explores the latest concepts and/or issues in information technology management (ITM). Data warehousing, IS security, IT auditing and control, global ITM, and other related topics within the field of ITM. Not intended for topics routinely covered in the curriculum. Credit will be granted for only one of MGMT 429 or MGMT 329 when the subject matter is of the same nature. Prerequisite: Fourth-year standing.	Laboratory	Online Learning	Arranged	Arranged
MGMT_O 436-001	MGMT_O	001	Investments	W1	Basic principles and tools of investment analysis. Understanding of the properties and uses of three broad types of financial securities: equity securities (common stock), fixed income securities (government and corporate bonds), and derivative securities (e.g., futures, options). The trading process, portfolio theory (risk-return and risk-arbitrage models), security analysis, and investment performance evaluation. [3-0-0] Prerequisite: MGMT 310. and third-year standing.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.	
MGMT_O 437-001	MGMT_O	001	Intermediate Finance	W1	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.	Lecture	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.	
MGMT_O 443-101	MGMT_O	101	New Product and Service Development	W1	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-off decisions, concept testing, and forecasting. [3-0-0] Prerequisite: All of MGMT 220, MGMT 290. Third-year standing.	Lecture	In Person Learning	Mon	12:30 p.m. - 2:00 p.m.	
MGMT_O 443-W01	MGMT_O	W01	New Product and Service Development	W1	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-off decisions, concept testing, and forecasting. [3-0-0] Prerequisite: All of MGMT 220, MGMT 290. Third-year standing.	Workshop	In Person Learning	Tue	3:30 p.m. - 5:00 p.m.	
MGMT_O 471-001	MGMT_O	001	Applied Health Economics	W1	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. Equivalency: SECH 400	Lecture	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.	
MGMT_O 481-001	MGMT_O	001	Strategy and Change Management	W1	Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignment with organizational mission, how strategic decisions affect the organization structures, processes, culture, resources (both human and financial), and management styles, and how the organization can manage the change process. [3-0-0] Prerequisite: All of MGMT 230, MGMT 360. Third-year standing.	Lecture	In Person Learning	Mon	8:00 a.m. - 9:30 a.m.	
MGMT_O 481-W01	MGMT_O	W01	Strategy and Change Management	W1	Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignment with organizational mission, how strategic decisions affect the organization structures, processes, culture, resources (both human and financial), and management styles, and how the organization can manage the change process. [3-0-0] Prerequisite: All of MGMT 230, MGMT 360. Third-year standing.	Workshop	In Person Learning	Thu	5:00 p.m. - 6:30 p.m.	
MGMT_O 481-W02	MGMT_O	W02	Strategy and Change Management	W1	Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignment with organizational mission, how strategic decisions affect the organization structures, processes, culture, resources (both human and financial), and management styles, and how the organization can manage the change process. [3-0-0] Prerequisite: All of MGMT 230, MGMT 360. Third-year standing.	Workshop	In Person Learning	Tue	11:00 a.m. - 12:30 p.m.	
MGMT_O 481-W03	MGMT_O	W03	Strategy and Change Management	W1	Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignment with organizational mission, how strategic decisions affect the organization structures, processes, culture, resources (both human and financial), and management styles, and how the organization can manage the change process. [3-0-0] Prerequisite: All of MGMT 230, MGMT 360. Third-year standing.	Workshop	In Person Learning	Thu	11:00 a.m. - 12:30 p.m.	
MGMT_O 481-W04	MGMT_O	W04	Strategy and Change Management	W1	Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignment with organizational mission, how strategic decisions affect the organization structures, processes, culture, resources (both human and financial), and management styles, and how the organization can manage the change process. [3-0-0] Prerequisite: All of MGMT 230, MGMT 360. Third-year standing.	Workshop	In Person Learning	Fri	2:00 p.m. - 3:30 p.m.	
MGMT_O 482-101	MGMT_O	101	International Business	W1	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.	Lecture	In Person Learning	Mon	11:00 a.m. - 12:30 p.m.	
MGMT_O 482-W01	MGMT_O	W01	International Business	W1	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	Tue	12:30 p.m. - 2:00 p.m.	

MGMT_O 482-W02	MGMT_O	W02	International Business	W1	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	W1	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	Fri	9:30 a.m. - 11:00 a.m.
MGMT_O 482-W04	MGMT_O	W04	International Business	W1	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	W1	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	W1	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.
MGMT_O 571-001	MGMT_O	001	Applied Health Economics	W1	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. Equivalency: SECH 500	Lecture	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
NLEK_O 332-101	NLEK_O	101	Language Practice and Pedagogy: Creative, Cons	W1	Intensive language immersion class demonstrating, in and through practice, traditional Nle?kepmx visual arts. The language of instruction is Nle?kepmx. Restricted to students in the Bachelor of Nle?kepmx Language Fluency program. [1-0-4] Prerequisite: NLEK 331. Corequisite: NLEK 352.	Lecture	Online Learning	Arranged	Arranged
NLEK_O 332-101	NLEK_O	L01	Language Practice and Pedagogy: Creative, Cons	W1	Intensive language immersion class demonstrating, in and through practice, traditional Nle?kepmx visual arts. The language of instruction is Nle?kepmx. Restricted to students in the Bachelor of Nle?kepmx Language Fluency program. [1-0-4] Prerequisite: NLEK 331. Corequisite: NLEK 352.	Laboratory	Online Learning	Arranged	Arranged
NLEK_O 352-101	NLEK_O	101	Language Applications: Literature and Performa	W1	Emphasis on the language domains of literature and performative arts, and a diverse range of language learning skills that advance competency in conversational fluency, pronunciation, comprehension, vocabulary, oral traditions, literacy, grammatical understanding, and the cultural contextualization of language use in these domains. The language of instruction is Nle?kepmx. Restricted to students in the Bachelor of Nlekepmx Language Fluency program. [1-0-4] Prerequisite: NLEK 351. Corequisite: NLEK 332.	Lecture	Online Learning	Arranged	Arranged
NLEK_O 352-101	NLEK_O	L01	Language Applications: Literature and Performa	W1	Emphasis on the language domains of literature and performative arts, and a diverse range of language learning skills that advance competency in conversational fluency, pronunciation, comprehension, vocabulary, oral traditions, literacy, grammatical understanding, and the cultural contextualization of language use in these domains. The language of instruction is Nle?kepmx. Restricted to students in the Bachelor of Nlekepmx Language Fluency program. [1-0-4] Prerequisite: NLEK 351. Corequisite: NLEK 332.	Laboratory	Online Learning	Arranged	Arranged
NLEK_O 439-101	NLEK_O	101	Capstone: Language Immersion	W1	Project designed to provide students an intensive language immersion experience on a specific topic or domain. Restricted to students in the Bachelor of Nle?kepmx Language Fluency program. Corequisite: INDG 499.	Lecture	Online Learning	Arranged	Arranged
NRSO_O 111-001	NRSO_O	001	Foundations of Health	W1	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 NRSO 112, NRSO 113.	Lecture	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
NRSO_O 111-002	NRSO_O	002	Foundations of Health	W1	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 NRSO 112, NRSO 113.	Lecture	In Person Learning	Wed	2:00 p.m. - 5:00 p.m.
NRSO_O 112-001	NRSO_O	001	Introduction to the Profession of Nursing I	W1	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 NRSO 111, NRSO 113.	Lecture	In Person Learning	Tue	12:30 p.m. - 2:00 p.m.
NRSO_O 112-002	NRSO_O	002	Introduction to the Profession of Nursing I	W1	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 NRSO 111, NRSO 113.	Lecture	In Person Learning	Wed	12:30 p.m. - 2:00 p.m.



NRSO 201-L07	NRSO	L07	Nursing Lab Practice II	W1	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 NRSO 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231.	Laboratory	In Person Learning	Fri	10:00 a.m. - 1:00 p.m.
NRSO 201-L08	NRSO	L08	Nursing Lab Practice II	W1	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 NRSO 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231.	Laboratory	In Person Learning	Fri	10:00 a.m. - 1:00 p.m.
NRSO 201-L09	NRSO	L09	Nursing Lab Practice II	W1	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 NRSO 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231.	Laboratory	In Person Learning	Tue	10:00 a.m. - 1:00 p.m.
NRSO 201-L10	NRSO	L10	Nursing Lab Practice II	W1	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 NRSO 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231.	Laboratory	In Person Learning	Wed	10:00 a.m. - 1:00 p.m.
NRSO 201-L11	NRSO	L11	Nursing Lab Practice II	W1	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 NRSO 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231.	Laboratory	In Person Learning	Thu	10:00 a.m. - 1:00 p.m.
NRSO 201-L12	NRSO	L12	Nursing Lab Practice II	W1	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 NRSO 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSO 210, NRSO 213, NRSO 226, NRSO 236, HINT 231.	Laboratory	In Person Learning	Fri	10:00 a.m. - 1:00 p.m.
NRSO 210-001	NRSO	001	Pharmacology for Nursing I	W1	Principles of pharmacology, including pharmacokinetics and pharmacodynamics of major drug classes using prototype drugs. Develops knowledge and systematic approaches to safely and ethically administer drug therapy. [1.5-0-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSO 201, NRSO 213, NRSO 226, NRSO 236, HINT 231.	Lecture	In Person Learning	Tue	2:00 p.m. - 3:30 p.m.
NRSO 210-002	NRSO	002	Pharmacology for Nursing I	W1	Principles of pharmacology, including pharmacokinetics and pharmacodynamics of major drug classes using prototype drugs. Develops knowledge and systematic approaches to safely and ethically administer drug therapy. [1.5-0-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSO 201, NRSO 213, NRSO 226, NRSO 236, HINT 231.	Lecture	In Person Learning	Wed	2:00 p.m. - 3:30 p.m.
NRSO 213-001	NRSO	001	Relational Practice III	W1	Emphasis is on the unique experience of clients and their families in health and illness. Through exploration of relational theories and evidence-informed approaches, students explore strategies to deliver therapeutic, ethical, and holistic care. Pass/Fail. [1.5-0-0] Prerequisite: All of NRSO 101, NRSO 126, NRSO 136, NRSO 122, NRSO 123, NRSO 120. and Second-Year BSN-O Standing Corequisite: All of NRSO 201, NRSO 210, NRSO 226, NRSO 236, HINT 231.	Lecture	In Person Learning	Wed	3:30 p.m. - 5:00 p.m.
NRSO 213-002	NRSO	002	Relational Practice III	W1	Emphasis is on the unique experience of clients and their families in health and illness. Through exploration of relational theories and evidence-informed approaches, students explore strategies to deliver therapeutic, ethical, and holistic care. Pass/Fail. [1.5-0-0] Prerequisite: All of NRSO 101, NRSO 126, NRSO 136, NRSO 122, NRSO 123, NRSO 120. and Second-Year BSN-O Standing Corequisite: All of NRSO 201, NRSO 210, NRSO 226, NRSO 236, HINT 231.	Lecture	In Person Learning	Thu	2:00 p.m. - 3:30 p.m.
NRSO 226-001	NRSO	001	Health & Healing II	W1	Evidence-informed assessment and management of health challenges in both episodic and chronic illness. Concepts will align with NRSO 236 intentional learning activities. [1.5-0-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSO 201, NRSO 210, NRSO 213, NRSO 236, HINT 231.	Lecture	In Person Learning	Mon	9:30 a.m. - 11:00 a.m.
NRSO 226-002	NRSO	002	Health & Healing II	W1	Evidence-informed assessment and management of health challenges in both episodic and chronic illness. Concepts will align with NRSO 236 intentional learning activities. [1.5-0-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSO 201, NRSO 210, NRSO 213, NRSO 236, HINT 231.	Lecture	In Person Learning	Mon	9:30 a.m. - 11:00 a.m.
NRSO 228-001	NRSO	001	Community Health	W1	Theories, ethics and evidence-informed approaches to community health nursing including primary health care, population health, health maintenance and promotion, disease and injury prevention. Exploration of concepts of community-based assessment, planning, intervention and evaluation with community-as-client. [1.5-0-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 238.	Lecture	In Person Learning	Mon	11:00 a.m. - 12:30 p.m.
NRSO 229-001	NRSO	001	Mental Health in Nursing	W1	Evidence-informed promotion of mental well-being, assessment and management of episodic and chronic mental health challenges across the life span. Concepts will align with NRSO 239 intentional learning activities. [1.5-0-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 239.	Lecture	In Person Learning	Mon	11:00 a.m. - 12:30 p.m.
NRSO 236-P01	NRSO	P01	Nursing Practice II	W1	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 NRSO 201 and NRSO 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 NRSO 201, NRSO 210, NRSO 213, NRSO 226, HINT 231.	Experiential	In Person Learning	Tue	9:00 a.m. - 3:00 p.m.
NRSO 236-P02	NRSO	P02	Nursing Practice II	W1	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 NRSO 201 and NRSO 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 NRSO 201, NRSO 210, NRSO 213, NRSO 226, HINT 231.	Experiential	In Person Learning	Tue	9:00 a.m. - 3:00 p.m.





NRSG_O 236-P15	NRSG_O	P15	Nursing Practice II	W1	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.
NRSG_O 236-P16	NRSG_O	P16	Nursing Practice II	W1	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.
NRSG_O 236-P17	NRSG_O	P17	Nursing Practice II	W1	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.
NRSG_O 236-P18	NRSG_O	P18	Nursing Practice II	W1	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.
NRSG_O 236-P19	NRSG_O	P19	Nursing Practice II	W1	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.
NRSG_O 236-P20	NRSG_O	P20	Nursing Practice II	W1	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.
NRSG_O 238-P01	NRSG_O	P01	Nursing Practice in Community	W1	Practicum in community health nursing develops knowledge, skills, and abilities needed to provide to provide safe ethical nursing care 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.
NRSG_O 238-P02	NRSG_O	P02	Nursing Practice in Community	W1	Practicum in community health nursing develops knowledge, skills, and abilities needed to provide to provide safe ethical nursing care 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.
NRSG_O 238-P03	NRSG_O	P03	Nursing Practice in Community	W1	Practicum in community health nursing develops knowledge, skills, and abilities needed to provide to provide safe ethical nursing care 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	Wed	8:00 a.m. - 12:00 p.m.
NRSG_O 238-P04	NRSG_O	P04	Nursing Practice in Community	W1	Practicum in community health nursing develops knowledge, skills, and abilities needed to provide to provide safe ethical nursing care 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	Wed	8:00 a.m. - 12:00 p.m.
NRSG_O 238-P05	NRSG_O	P05	Nursing Practice in Community	W1	Practicum in community health nursing develops knowledge, skills, and abilities needed to provide to provide safe ethical nursing care 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	Thu	8:00 a.m. - 12:00 p.m.
NRSG_O 238-P07	NRSG_O	P07	Nursing Practice in Community	W1	Practicum in community health nursing develops knowledge, skills, and abilities needed to provide to provide safe ethical nursing care 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	Fri	8:00 a.m. - 12:00 p.m.

NRSO 238-P08	NRSO	P08	Nursing Practice in Community	W1	Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care within varied community settings with diverse populations. Students will draw on principles of social justice and the social determinants of health to engage in 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: NRSO 228.	Experiential	In Person Learning	Fri	8:00 a.m. - 12:00 p.m.
NRSO 239-P01	NRSO	P01	Nursing Practice in Mental Health	W1	Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSO 229. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 229.	Experiential	In Person Learning	Tue	8:00 a.m. - 12:00 p.m.
NRSO 239-P02	NRSO	P02	Nursing Practice in Mental Health	W1	Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSO 229. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 229.	Experiential	In Person Learning	Tue	8:00 a.m. - 12:00 p.m.
NRSO 239-P03	NRSO	P03	Nursing Practice in Mental Health	W1	Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSO 229. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 229.	Experiential	In Person Learning	Wed	8:00 a.m. - 12:00 p.m.
NRSO 239-P05	NRSO	P05	Nursing Practice in Mental Health	W1	Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSO 229. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 229.	Experiential	In Person Learning	Thu	8:00 a.m. - 12:00 p.m.
NRSO 239-P07	NRSO	P07	Nursing Practice in Mental Health	W1	Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSO 229. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 229.	Experiential	In Person Learning	Fri	8:00 a.m. - 12:00 p.m.
NRSO 239-P08	NRSO	P08	Nursing Practice in Mental Health	W1	Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSO 229. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSO 229.	Experiential	In Person Learning	Fri	8:00 a.m. - 12:00 p.m.
NRSO 301-001	NRSO	001	Nursing Lab Practice IV	W1	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. [0-2-1.5] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Third-year BSN-O Standing Corequisite: All of NRSO 326, NRSO 336.	Seminar	In Person Learning	Mon	11:00 a.m. - 12:30 p.m.
NRSO 301-L01	NRSO	L01	Nursing Lab Practice IV	W1	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. [0-2-1.5] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Third-year BSN-O Standing Corequisite: All of NRSO 326, NRSO 336.	Laboratory	In Person Learning	Mon	1:00 p.m. - 3:00 p.m.
NRSO 301-L02	NRSO	L02	Nursing Lab Practice IV	W1	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. [0-2-1.5] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Third-year BSN-O Standing Corequisite: All of NRSO 326, NRSO 336.	Laboratory	In Person Learning	Mon	1:00 p.m. - 3:00 p.m.
NRSO 301-L03	NRSO	L03	Nursing Lab Practice IV	W1	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. [0-2-1.5] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Third-year BSN-O Standing Corequisite: All of NRSO 326, NRSO 336.	Laboratory	In Person Learning	Mon	3:30 p.m. - 5:30 p.m.
NRSO 301-L04	NRSO	L04	Nursing Lab Practice IV	W1	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. [0-2-1.5] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Third-year BSN-O Standing Corequisite: All of NRSO 326, NRSO 336.	Laboratory	In Person Learning	Mon	3:30 p.m. - 5:30 p.m.
NRSO 302-001	NRSO	001	Nursing Lab Practice V	W1	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSO 301, NRSO 326, NRSO 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSO 327, NRSO 337.	Seminar	In Person Learning	Mon	11:00 a.m. - 12:30 p.m.
NRSO 302-L01	NRSO	L01	Nursing Lab Practice V	W1	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSO 301, NRSO 326, NRSO 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSO 327, NRSO 337.	Laboratory	In Person Learning	Mon	1:00 p.m. - 3:00 p.m.
NRSO 302-L02	NRSO	L02	Nursing Lab Practice V	W1	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSO 301, NRSO 326, NRSO 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSO 327, NRSO 337.	Laboratory	In Person Learning	Mon	1:00 p.m. - 3:00 p.m.

NRSG_O 302-L03	NRSG_O	L03	Nursing Lab Practice V	W1	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSG 327, NRSG 337.	Laboratory	In Person Learning	Mon	3:30 p.m. - 5:30 p.m.
NRSG_O 302-L04	NRSG_O	L04	Nursing Lab Practice V	W1	Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSG 327, NRSG 337.	Laboratory	In Person Learning	Mon	3:30 p.m. - 5:30 p.m.
NRSG_O 310-001	NRSG_O	001	Palliative Approach to Chronic Illness	W1	Examination of the philosophy, principles, and evidence-informed practice of a palliative approach to the care of patient/clients with life-limiting chronic illness over the illness trajectory, including end of life and bereavement. This course will pay special attention to ethics and older adults. [3-0-0] Prerequisite: Third-Year BSN-O Standing	Lecture	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
NRSG_O 310-002	NRSG_O	002	Palliative Approach to Chronic Illness	W1	Examination of the philosophy, principles, and evidence-informed practice of a palliative approach to the care of patient/clients with life-limiting chronic illness over the illness trajectory, including end of life and bereavement. This course will pay special attention to ethics and older adults. [3-0-0] Prerequisite: Third-Year BSN-O Standing	Lecture	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
NRSG_O 313-001	NRSG_O	001	Relational Practice V	W1	Understanding and respecting the complexities of difference and diversity with clients in nursing practice. A critical exploration of cultural identities and racism from an Indigenous perspective, facilitates development of evidence-informed practice for culturally safe care for all peoples in a variety of contexts (health care, research, institutions, and society). Pass/Fail. [3-0-0] Prerequisite: Third-Year BSN-O Standing	Lecture	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.
NRSG_O 313-002	NRSG_O	002	Relational Practice V	W1	Understanding and respecting the complexities of difference and diversity with clients in nursing practice. A critical exploration of cultural identities and racism from an Indigenous perspective, facilitates development of evidence-informed practice for culturally safe care for all peoples in a variety of contexts (health care, research, institutions, and society). Pass/Fail. [3-0-0] Prerequisite: Third-Year BSN-O Standing	Lecture	In Person Learning	Thu	11:00 a.m. - 2:00 p.m.
NRSG_O 326-001	NRSG_O	001	Health & Healing IV	W1	Evidence-informed assessment and management of complex health challenges in both episodic and chronic illness utilizing a case study approach. [3-0-0 (over 6 weeks)] [3-0-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232, and Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 336.	Lecture	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
NRSG_O 327-001	NRSG_O	001	Health & Healing V	W1	Continuation of NRSG 326. Evidence-informed assessment and management of complex health challenges in both episodic and chronic illness utilizing a case study approach. [3-0-0 (over 6 weeks)] Prerequisite: All of NRSG 301, NRSG 310, NRSG 326, NRSG 336, HINT 331. Corequisite: All of NRSG 302, NRSG 337.	Lecture	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
NRSG_O 328-001	NRSG_O	001	Health of the Childbearing Family	W1	Nursing within a health promotion framework in both community and acute care settings. Evidence-informed guidelines for care of the childbearing family during pregnancy, labour, birth, and postpartum will be drawn on to inform assessment and management of holistic, ethical care. Concepts will align with NRSG 338 intentional learning activities. Restricted to students in the Bachelor of Science in Nursing. [3-0-0 (over 6 weeks)] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 338.	Lecture	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
NRSG_O 328-002	NRSG_O	002	Health of the Childbearing Family	W1	Nursing within a health promotion framework in both community and acute care settings. Evidence-informed guidelines for care of the childbearing family during pregnancy, labour, birth, and postpartum will be drawn on to inform assessment and management of holistic, ethical care. Concepts will align with NRSG 338 intentional learning activities. Restricted to students in the Bachelor of Science in Nursing. [3-0-0 (over 6 weeks)] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 338.	Lecture	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
NRSG_O 329-001	NRSG_O	001	Child Health	W1	Child health nursing within a health promotion framework in both community and acute care settings. Family-centered care and interprofessional collaboration will be examined with a focus on understanding the diversity and unique needs of both children and families to inform holistic, ethical care. Concepts will align with NRSG 339 intentional learning activities. Restricted to students in the Bachelor of Science in Nursing. [3-0-0 (over 6 weeks)] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 339.	Lecture	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
NRSG_O 329-002	NRSG_O	002	Child Health	W1	Child health nursing within a health promotion framework in both community and acute care settings. Family-centered care and interprofessional collaboration will be examined with a focus on understanding the diversity and unique needs of both children and families to inform holistic, ethical care. Concepts will align with NRSG 339 intentional learning activities. Restricted to students in the Bachelor of Science in Nursing. [3-0-0 (over 6 weeks)] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 339.	Lecture	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
NRSG_O 336-P01	NRSG_O	P01	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. Pass/Fail. [0-16-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232, and Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 326.	Experiential	In Person Learning	Tue Wed	7:00 a.m. - 3:00 p.m.
NRSG_O 336-P02	NRSG_O	P02	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. Pass/Fail. [0-16-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232, and Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 326.	Experiential	In Person Learning	Tue Wed	7:00 a.m. - 3:00 p.m.
NRSG_O 336-P03	NRSG_O	P03	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. Pass/Fail. [0-16-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232, and Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 326.	Experiential	In Person Learning	Tue Wed	7:00 a.m. - 3:00 p.m.





NRSO 338-P10	NRSO	P10	Nursing Practice with Childbearing Families	W1	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in newborn family health contexts. Intentional learning activities integrate knowledge from NRSO 328. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSO 328.	Experiential	In Person Learning	Fri	7:00 a.m. - 3:00 p.m.
NRSO 339-P01	NRSO	P01	Nursing Practice in Child Health	W1	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSO 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSO 329.	Experiential	In Person Learning	Tue	7:00 a.m. - 3:00 p.m.
NRSO 339-P02	NRSO	P02	Nursing Practice in Child Health	W1	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSO 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSO 329.	Experiential	In Person Learning	Wed	7:00 a.m. - 3:00 p.m.
NRSO 339-P03	NRSO	P03	Nursing Practice in Child Health	W1	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSO 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSO 329.	Experiential	In Person Learning	Thu	7:00 a.m. - 3:00 p.m.
NRSO 339-P04	NRSO	P04	Nursing Practice in Child Health	W1	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSO 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSO 329.	Experiential	In Person Learning	Fri	7:00 a.m. - 3:00 p.m.
NRSO 339-P05	NRSO	P05	Nursing Practice in Child Health	W1	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSO 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSO 329.	Experiential	In Person Learning	Tue	7:00 a.m. - 3:00 p.m.
NRSO 339-P06	NRSO	P06	Nursing Practice in Child Health	W1	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSO 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSO 329.	Experiential	In Person Learning	Wed	7:00 a.m. - 3:00 p.m.
NRSO 339-P07	NRSO	P07	Nursing Practice in Child Health	W1	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSO 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSO 329.	Experiential	In Person Learning	Thu	7:00 a.m. - 3:00 p.m.
NRSO 339-P08	NRSO	P08	Nursing Practice in Child Health	W1	This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety child health care contexts. Intentional learning activities integrate knowledge from NRSO 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSO 329.	Experiential	In Person Learning	Fri	7:00 a.m. - 3:00 p.m.
NRSO 421-001	NRSO	001	Capstone Review	W1	A comprehensive review of entry-level nursing knowledge, skills, and abilities in preparation for writing the nursing entry to practice regulatory examination. Through simulation and interactive case studies participants will have opportunities to apply previous learning and clinical reasoning to situations commonly seen in the first year of registered nursing practice. [3-0-0] Prerequisite: Fourth-Year BSN-O Standing Corequisite: All of NRSO 422, NRSO 432.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 2:00 p.m.
NRSO 422-001	NRSO	001	Leadership	W1	Nursing leadership at various levels of the healthcare system with an emphasis on leadership, decision-making, and change theories. Consider the impact of trends, issues, and ethics on leadership in nursing. [3-0-0] Prerequisite: Fourth-Year BSN-O Standing Corequisite: All of NRSO 421, NRSO 432.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 2:00 p.m.
NRSO 423-001	NRSO	001	Advanced Clinical Reasoning for Care of the Cor	W1	Theory and research for evidence-informed practice for the assessment and care of the complex, unstable, acutely ill patient. Understanding challenging etiology, pathophysiology, manifestations, diagnostics and intervention to inform advanced clinical reasoning. [3-0-0] Prerequisite: NRSO 421. Fourth-year BSN-O Standing	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 2:00 p.m.
NRSO 431-P01	NRSO	P01	Capstone Acute Care Preceptorship	W1	Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. and the recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO 431-P02	NRSO	P02	Capstone Acute Care Preceptorship	W1	Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. and the recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO 431-P03	NRSO	P03	Capstone Acute Care Preceptorship	W1	Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. and the recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO 431-P04	NRSO	P04	Capstone Acute Care Preceptorship	W1	Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. and the recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged

NRSO_431-P05	NRSO	P05	Capstone Acute Care Preceptorship	W1	Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432, and the recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged	
NRSO_431-P06	NRSO	P06	Capstone Acute Care Preceptorship	W1	Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432, and the recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged	
NRSO_432-P01	NRSO	P01	Capstone Community Project	W1	This practice course provides opportunity to experience evidenced-informed leadership through application of concepts such as influencing and managing change within the context of emerging global health issues and trends. (72 hours of practice and 24 hours of seminar). Pass/Fail. [0-6-2] Prerequisite: Fourth-Year BSN-O Standing Corequisite: NRSO 422.	Experiential	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.	
NRSO_432-P02	NRSO	P02	Capstone Community Project	W1	This practice course provides opportunity to experience evidenced-informed leadership through application of concepts such as influencing and managing change within the context of emerging global health issues and trends. (72 hours of practice and 24 hours of seminar). Pass/Fail. [0-6-2] Prerequisite: Fourth-Year BSN-O Standing Corequisite: NRSO 422.	Experiential	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.	
NRSO_434-B_P01	NRSO	B	B_P01	Practice Electives	W1	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO_434-B_P02	NRSO	B	B_P02	Practice Electives	W1	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO_434-B_P03	NRSO	B	B_P03	Practice Electives	W1	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO_434-B_P04	NRSO	B	B_P04	Practice Electives	W1	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO_434-B_P05	NRSO	B	B_P05	Practice Electives	W1	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO_434-B_P06	NRSO	B	B_P06	Practice Electives	W1	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO_434-B_P13	NRSO	B	B_P13	Practice Electives	W1-2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO_434-B_P14	NRSO	B	B_P14	Practice Electives	W1-2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO_434-B_P15	NRSO	B	B_P15	Practice Electives	W1-2	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.	Experiential	In Person Learning	Arranged	Arranged
NRSO_437-B_P01	NRSO	B	B_P01	Mental Health Preceptorship	W1	Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSO 421, NRSO 422, NRSO 432, NRSO 427.	Experiential	In Person Learning	Arranged	Arranged





NRSG_O 440-B_P01	NRSG_O	B	B_P01	Research Preceptorship	W1	Preceptored advanced practice course provides the opportunity to engage in research with a faculty supervisor. Application of knowledge, skills, and abilities in nursing and health related research. Pass/Fail. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: securement of a faculty supervisor and research elective (3/6) as determined by faculty supervisor	Experiential	In Person Learning	Arranged	Arranged
NRSG_O 506-001	NRSG_O		001	Qualitative Research	W1	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 from 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	W1	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 Manage	W1	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	W1	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 598-001	NRSG_O		001	Scholarly Project	W1-2	Pass/Fail.	Independent Study	Online Learning	Arranged	Arranged
NRSG_O 598-002	NRSG_O		002	Scholarly Project	W1	Pass/Fail.	Independent Study	Online Learning	Arranged	Arranged
NRSG_O 599-101	NRSG_O		101	Research Thesis	W1	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	W1-2	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	W1-2	Phenomena relevant to nursing science, academia, the process of undertaking doctoral thesis research, and building sustainable careers. This course is restricted to students in the PhD in Nursing program (PHD-O, NRS) unless permission is given by the program coordinator. Pass/Fail.	Seminar	Online Learning	Wed (Alternate weeks)	8:00 a.m. - 9:30 a.m.
NRSG_O 699-001	NRSG_O		001	Doctoral Dissertation	W1-2	Pass/Fail.	Thesis	Online Learning	Arranged	Arranged
NSYL_O 332-101	NSYL_O		101	Language Practice and Pedagogy: Creative, Cons	W1	Intensive language immersion class demonstrating, in and through practice, traditional Syilx visual arts. The language of instruction is Nsyilxcn. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. [1-0-4] Prerequisite: NSYL 331. Corequisite: NSYL 352.	Lecture	In Person Learning	Arranged	Arranged
NSYL_O 332-101	NSYL_O		L01	Language Practice and Pedagogy: Creative, Cons	W1	Intensive language immersion class demonstrating, in and through practice, traditional Syilx visual arts. The language of instruction is Nsyilxcn. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. [1-0-4] Prerequisite: NSYL 331. Corequisite: NSYL 352.	Laboratory	In Person Learning	Arranged	Arranged
NSYL_O 352-101	NSYL_O		101	Language Applications: Literature and Performa	W1	Emphasis on the language domains of literature and performative arts, and a diverse range of language learning skills that advance competency in conversational fluency, pronunciation, comprehension, vocabulary, oral traditions, literacy, grammatical understanding, and the cultural contextualization of language use in these domains. The language of instruction is Nsyilxcn. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. [1-0-4] Prerequisite: NSYL 351. Corequisite: NSYL 332.	Lecture	In Person Learning	Arranged	Arranged
NSYL_O 352-101	NSYL_O		L01	Language Applications: Literature and Performa	W1	Emphasis on the language domains of literature and performative arts, and a diverse range of language learning skills that advance competency in conversational fluency, pronunciation, comprehension, vocabulary, oral traditions, literacy, grammatical understanding, and the cultural contextualization of language use in these domains. The language of instruction is Nsyilxcn. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. [1-0-4] Prerequisite: NSYL 351. Corequisite: NSYL 332.	Laboratory	In Person Learning	Arranged	Arranged
NSYL_O 439-101	NSYL_O		101	Capstone: Language Immersion	W1	Project designed to provide students an intensive language immersion experience on a specific topic or domain. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. Corequisite: INDG 499.	Lecture	In Person Learning	Arranged	Arranged
NSYL_O 439-101	NSYL_O		L01	Capstone: Language Immersion	W1	Project designed to provide students an intensive language immersion experience on a specific topic or domain. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. Corequisite: INDG 499.	Laboratory	In Person Learning	Arranged	Arranged
PHIL_O 111-001	PHIL_O		001	Introduction to Philosophy I	W1	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.
PHIL_O 111-002	PHIL_O		002	Introduction to Philosophy I	W1	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.
PHIL_O 120-001	PHIL_O		001	Introduction to Logic and Critical Thinking	W1	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]	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
PHIL_O 120-002	PHIL_O		002	Introduction to Logic and Critical Thinking	W1	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]	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
PHIL_O 121-001	PHIL_O		001	Introduction to Philosophy II	W1	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.
PHIL_O 220-001	PHIL_O		001	Symbolic Logic I	W1	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.
PHIL_O 230-001	PHIL_O		001	Ethics	W1	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.
PHIL_O 233-001	PHIL_O		001	Biomedical Ethics	W1	Moral problems arising in the health sciences. Topics may include abortion, death and euthanasia, genetic engineering, behaviour modification, compulsory treatment, experimentation with human beings and animals, and/or the relationship between professionals and their patients, subjects, or clients. Credit will be granted for only one of PHIL 233 or PHIL 433. [3-0-0] Prerequisite: Second-year standing.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.

PHIL_O 331-001	PHIL_O	001	Computer Ethics	W1	Ethical and professional issues facing those who work with computers. Piracy, hacking, responsibility, and liability for the use of software; cyberpornography and freedom of information; computerized invasion of privacy; computers in the workplace; the use of artificial intelligence; and expert systems. [3-0-0] Prerequisite: Third-year standing in an Arts program and 3 credits of PHIL, or third-year standing in a Science program.	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.
PHIL_O 331-002	PHIL_O	002	Computer Ethics	W1	Ethical and professional issues facing those who work with computers. Piracy, hacking, responsibility, and liability for the use of software; cyberpornography and freedom of information; computerized invasion of privacy; computers in the workplace; the use of artificial intelligence; and expert systems. [3-0-0] Prerequisite: Third-year standing in an Arts program and 3 credits of PHIL, or third-year standing in a Science program.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
PHIL_O 345-001	PHIL_O	001	Theory of Knowledge	W1	Examines the criteria of knowing, problems of perception, and theories of truth. [3-0-0] Prerequisite: Third-year standing and 6 credits of PHIL.	Lecture	In Person Learning	Wed Fri	8:00 a.m. - 9:30 a.m.
PHIL_O 418-H_001	PHIL_O	H	H_001	W1	Intensive study of a major philosopher such as Wittgenstein, Russell, or Heidegger, or school such as pragmatism or logical empiricism. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL.	Lecture	In Person Learning	Mon Wed	6:30 p.m. - 8:00 p.m.
PHIL_O 425-001	PHIL_O	001	Philosophy of Language	W1	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 PHIL 120, PHIL 220.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
PHIL_O 435-001	PHIL_O	001	Environmental Ethics	W1	Moral problems arising in the context of human relationships to nature and non-human living things, in terms of both general moral theory and policy formation. Moral standing, animal rights, obligations to future generations, pollution, hazardous materials, depletion of natural resources, treatment of non-human living things. [3-0-0] Prerequisite: 3 credits of PHIL or SUST 104. Third-year standing.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
PHIL_O 437-001	PHIL_O	001	Philosophy and the Global Order	W1	Central contemporary philosophical approaches to global political systems and governance. Clarifying the meaning of basic political concepts (e.g., citizenship, civil society, liberty and human rights) in both a global context and when necessary outside the traditional framework of the nation state. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
PHYS_O 111-001	PHYS_O	001	Introductory Physics for the Physical Sciences I	W1	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.	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
PHYS_O 111-L01	PHYS_O	L01	Introductory Physics for the Physical Sciences I	W1	Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.	Laboratory	In Person Learning	Tue (Alternate weeks)	9:00 a.m. - 12:00 p.m.
PHYS_O 111-L02	PHYS_O	L02	Introductory Physics for the Physical Sciences I	W1	Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.	Laboratory	In Person Learning	Tue (Alternate weeks)	12:30 p.m. - 3:30 p.m.
PHYS_O 111-L03	PHYS_O	L03	Introductory Physics for the Physical Sciences I	W1	Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.	Laboratory	In Person Learning	Tue (Alternate weeks)	6:30 p.m. - 9:30 p.m.
PHYS_O 111-L04	PHYS_O	L04	Introductory Physics for the Physical Sciences I	W1	Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.	Laboratory	In Person Learning	Wed (Alternate weeks)	9:30 a.m. - 12:30 p.m.
PHYS_O 111-L05	PHYS_O	L05	Introductory Physics for the Physical Sciences I	W1	Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.	Laboratory	In Person Learning	Wed (Alternate weeks)	1:00 p.m. - 4:00 p.m.



PHYS_O 111-L15	PHYS_O	L15	Introductory Physics for the Physical Sciences I	W1	Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.	Laboratory	In Person Learning	Wed (Alternate weeks)	6:30 p.m. - 9:30 p.m.
PHYS_O 111-L16	PHYS_O	L16	Introductory Physics for the Physical Sciences I	W1	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 100, MATH 116.	Laboratory	In Person Learning	Thu (Alternate weeks)	9:00 a.m. - 12:00 p.m.
PHYS_O 111-L17	PHYS_O	L17	Introductory Physics for the Physical Sciences I	W1	Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.	Laboratory	In Person Learning	Thu (Alternate weeks)	12:30 p.m. - 3:30 p.m.
PHYS_O 111-L18	PHYS_O	L18	Introductory Physics for the Physical Sciences I	W1	Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.	Laboratory	In Person Learning	Thu (Alternate weeks)	6:30 p.m. - 9:30 p.m.
PHYS_O 111-T01	PHYS_O	T01	Introductory Physics for the Physical Sciences I	W1	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 100, MATH 116.	Discussion	In Person Learning	Wed	8:00 a.m. - 9:00 a.m.
PHYS_O 111-T02	PHYS_O	T02	Introductory Physics for the Physical Sciences I	W1	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 100, MATH 116.	Discussion	In Person Learning	Wed	8:00 a.m. - 9:00 a.m.
PHYS_O 111-T03	PHYS_O	T03	Introductory Physics for the Physical Sciences I	W1	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.	Discussion	In Person Learning	Mon	1:00 p.m. - 2:00 p.m.
PHYS_O 111-T04	PHYS_O	T04	Introductory Physics for the Physical Sciences I	W1	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 100, MATH 116.	Discussion	In Person Learning	Thu	10:00 a.m. - 11:00 a.m.
PHYS_O 111-T05	PHYS_O	T05	Introductory Physics for the Physical Sciences I	W1	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.	Discussion	In Person Learning	Thu	5:00 p.m. - 6:00 p.m.

PHYS_O 111-T06	PHYS_O	T06	Introductory Physics for the Physical Sciences I	W1	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.	Discussion	In Person Learning	Tue	5:00 p.m. - 6:00 p.m.
PHYS_O 111-T07	PHYS_O	T07	Introductory Physics for the Physical Sciences I	W1	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 100, MATH 116.	Discussion	In Person Learning	Thu	5:00 p.m. - 6:00 p.m.
PHYS_O 111-T08	PHYS_O	T08	Introductory Physics for the Physical Sciences I	W1	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.	Discussion	In Person Learning	Fri	4:00 p.m. - 5:00 p.m.
PHYS_O 111-XM1	PHYS_O	XM1	Introductory Physics for the Physical Sciences I	W1	Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.	Laboratory	In Person Learning	Arranged	Arranged
PHYS_O 111-XM2	PHYS_O	XM2	Introductory Physics for the Physical Sciences I	W1	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.	Discussion	In Person Learning	Arranged	Arranged
PHYS_O 112-001	PHYS_O	001	Introductory Physics for the Life Sciences I	W1	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.	Lecture	In Person Learning	Tue Thu	6:30 p.m. - 8:00 p.m.
PHYS_O 112-002	PHYS_O	002	Introductory Physics for the Life Sciences I	W1	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.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
PHYS_O 112-L01	PHYS_O	L01	Introductory Physics for the Life Sciences I	W1	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.
PHYS_O 112-L02	PHYS_O	L02	Introductory Physics for the Life Sciences I	W1	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.











PHYS_O 112-XM1	PHYS_O		XM1	Introductory Physics for the Life Sciences I	W1	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	Arranged	Arranged
PHYS_O 112-XM2	PHYS_O		XM2	Introductory Physics for the Life Sciences I	W1	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	Arranged	Arranged
PHYS_O 215-101	PHYS_O		101	Thermodynamics	W1	Thermodynamics at an intermediate level. Temperature, heat and work, the First Law, heat transfer, heat engines, entropy, and the Second Law. [3-0-0] Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
PHYS_O 231-001	PHYS_O		001	Introduction to Electronics	W1	Design and analysis of analog AC circuits, digital circuits, and analog-to-digital conversion methods. Basic physics laboratory skills including data collection, presentation of results, and analysis of uncertainties. [2-3-0] Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122.	Lecture	In Person Learning	Mon Wed	1:00 p.m. - 2:00 p.m.
PHYS_O 231-L01	PHYS_O		L01	Introduction to Electronics	W1	Design and analysis of analog AC circuits, digital circuits, and analog-to-digital conversion methods. Basic physics laboratory skills including data collection, presentation of results, and analysis of uncertainties. [2-3-0] Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122.	Laboratory	In Person Learning	Thu	9:00 a.m. - 12:00 p.m.
PHYS_O 231-L02	PHYS_O		L02	Introduction to Electronics	W1	Design and analysis of analog AC circuits, digital circuits, and analog-to-digital conversion methods. Basic physics laboratory skills including data collection, presentation of results, and analysis of uncertainties. [2-3-0] Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122.	Laboratory	In Person Learning	Thu	1:00 p.m. - 4:00 p.m.
PHYS_O 301-001	PHYS_O		001	Electricity and Magnetism	W1	Electric fields and potentials of static charge distributions, current, fields of moving charges, magnetic field, electromagnetic induction, Maxwell's equations. [3-0-1] Prerequisite: MATH 317 and one of PHYS 121, PHYS 122.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
PHYS_O 301-S01	PHYS_O		S01	Electricity and Magnetism	W1	Electric fields and potentials of static charge distributions, current, fields of moving charges, magnetic field, electromagnetic induction, Maxwell's equations. [3-0-1] Prerequisite: MATH 317 and one of PHYS 121, PHYS 122.	Seminar	In Person Learning	Thu	11:00 a.m. - 12:00 p.m.
PHYS_O 304-001	PHYS_O		001	Introduction to Quantum Mechanics	W1	The beginnings of quantum mechanics, wave mechanics and the Schroedinger equation, one-dimensional potentials, the postulates of quantum mechanics, and applications to three-dimensional systems. [3-0-0] Prerequisite: All of MATH 225, PHYS 200.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
PHYS_O 324-001	PHYS_O		001	Waves	W1	Intermediate treatment of wave production, propagation, reception. Acoustics, electrical transmission lines, electromagnetics, scalar wave equation. Finite difference time domain computer simulation, boundary conditions, normal modes, input impedance, energy density, power flux/propagation across boundaries at normal and oblique incidence, sonic transducers, alternating current sources, and antennae. [3-0-0] Prerequisite: MATH 200 and one of PHYS 200, PHYS 216.	Lecture	In Person Learning	Mon Wed Fri	12:00 p.m. - 1:00 p.m.
PHYS_O 331-001	PHYS_O		001	Experimental Physics I	W1	Selected advanced physics experiments in solid-state physics, fluid dynamics, particle physics, astrophysics, optics, nonlinear dynamics or electromagnetism. Experimental design, construction, and formal presentation of results. [0-3-1.5] Prerequisite: All of PHYS 231, PHYS 232.	Lecture	In Person Learning	Thu	12:30 p.m. - 2:00 p.m.
PHYS_O 331-L01	PHYS_O		L01	Experimental Physics I	W1	Selected advanced physics experiments in solid-state physics, fluid dynamics, particle physics, astrophysics, optics, nonlinear dynamics or electromagnetism. Experimental design, construction, and formal presentation of results. [0-3-1.5] Prerequisite: All of PHYS 231, PHYS 232.	Laboratory	In Person Learning	Tue	9:30 a.m. - 12:30 p.m.
PHYS_O 402-101	PHYS_O		101	Advanced Quantum Mechanics	W1	Quantum mechanical methods and concepts emphasizing operator algebra approaches. Commutation relations; quantum dynamics; approximation methods including stationary-state and time-dependent perturbation theory; interaction of radiation with matter; identical particles. [3-0-0] Prerequisite: PHYS 304.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
PHYS_O 403-001	PHYS_O		001	Statistical Mechanics	W1	Ensemble theory, application to classical and quantum gases, and Boltzmann equation. Principles and applications of statistical mechanics. Ideal gases, degenerate Fermi gases, Bose-Einstein condensation, black body radiation, fluctuations and phase transitions. [3-0-0] Prerequisite: All of MATH 200, PHYS 215. Corequisite: PHYS 304.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
PHYS_O 448-A_001	PHYS_O	A	A_001	Directed Studies in Physics	W1	The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration	Independent Study	In Person Learning	Arranged	Arranged
PHYS_O 448-A_002	PHYS_O	A	A_002	Directed Studies in Physics	W1	The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration	Independent Study	In Person Learning	Arranged	Arranged
PHYS_O 448-B_101	PHYS_O	B	B_101	Directed Studies in Physics	W1-2	The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration	Independent Study	In Person Learning	Arranged	Arranged

PHYS_O 448-B_102	PHYS_O	B	B_102	Directed Studies in Physics	W1-2	The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration	Independent Study	In Person Learning	Arranged	Arranged
PHYS_O 448-B_103	PHYS_O	B	B_103	Directed Studies in Physics	W1-2	The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration	Independent Study	In Person Learning	Arranged	Arranged
PHYS_O 448-C_001	PHYS_O	C	C_001	Directed Studies in Physics	W1	The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration	Independent Study	In Person Learning	Arranged	Arranged
PHYS_O 448-C_002	PHYS_O	C	C_002	Directed Studies in Physics	W1	The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration	Independent Study	In Person Learning	Arranged	Arranged
PHYS_O 449-001	PHYS_O		001	Honours Thesis	W1-2	A research project undertaken under the direction of a faculty member culminating in a thesis. [0-6-1*, 0-6-1*]	Thesis	In Person Learning	Arranged	Arranged
PHYS_O 449-002	PHYS_O		002	Honours Thesis	W1-2	A research project undertaken under the direction of a faculty member culminating in a thesis. [0-6-1*, 0-6-1*]	Thesis	In Person Learning	Arranged	Arranged
PHYS_O 449-003	PHYS_O		003	Honours Thesis	W1-2	A research project undertaken under the direction of a faculty member culminating in a thesis. [0-6-1*, 0-6-1*]	Thesis	In Person Learning	Arranged	Arranged
PHYS_O 449-004	PHYS_O		004	Honours Thesis	W1-2	A research project undertaken under the direction of a faculty member culminating in a thesis. [0-6-1*, 0-6-1*]	Thesis	In Person Learning	Arranged	Arranged
PHYS_O 449-005	PHYS_O		005	Honours Thesis	W1-2	A research project undertaken under the direction of a faculty member culminating in a thesis. [0-6-1*, 0-6-1*]	Thesis	In Person Learning	Arranged	Arranged
PHYS_O 534-001	PHYS_O		001	Radiotherapy Physics I	W1	Principles of dosimetry of ionizing radiation with emphasis on applications to radiotherapy and radiobiology. Covers the basics of linear accelerator design as well as design of X-ray generating apparatus; also provides the basics of electron and photon interactions with media, energy deposition in media, and radiation protection and shielding.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
PHYS_O 540-001	PHYS_O		001	Medical Imaging	W1	Fundamental theory and application of medical imaging, including radiology, computed tomography, magnetic resonance imaging, ultrasound, and nuclear medicine imaging. Basic principles, image formation and reconstruction, imaging instrumentation and hardware, and current trends of each imaging modality will be given.	Lecture	In Person Learning	Tue Thu	1:30 p.m. - 3:00 p.m.
PHYS_O 548-A_001	PHYS_O	A	A_001	Special Topics in Medical Physics	W1	The investigation of specific topics in medical physics may be undertaken under the direction of a Medical Physics department faculty member.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
PHYS_O 549-001	PHYS_O		001	Master's Thesis	W1	Prerequisite: Permission of the department head and registration in the Medical Physics graduate program.	Thesis	In Person Learning	Arranged	Arranged
PHYS_O 549-201	PHYS_O		201	Master's Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
PHYS_O 649-001	PHYS_O		001	Doctoral Dissertation	W1	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
PHYS_O 649-201	PHYS_O		201	Doctoral Dissertation	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged
POLI_O 100-001	POLI_O		001	Introduction to Politics	W1	Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0-1.5]	Lecture	In Person Learning	Fri	9:30 a.m. - 11:00 a.m.
POLI_O 100-T01	POLI_O		T01	Introduction to Politics	W1	Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0-1.5]	Discussion	In Person Learning	Thu	9:30 a.m. - 11:00 a.m.
POLI_O 100-T02	POLI_O		T02	Introduction to Politics	W1	Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0-1.5]	Discussion	In Person Learning	Thu	8:00 a.m. - 9:30 a.m.
POLI_O 100-T03	POLI_O		T03	Introduction to Politics	W1	Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0-1.5]	Discussion	In Person Learning	Mon	5:00 p.m. - 6:30 p.m.
POLI_O 100-T04	POLI_O		T04	Introduction to Politics	W1	Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0-1.5]	Discussion	In Person Learning	Thu	9:30 a.m. - 11:00 a.m.
POLI_O 100-T05	POLI_O		T05	Introduction to Politics	W1	Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0-1.5]	Discussion	In Person Learning	Thu	8:00 a.m. - 9:30 a.m.
POLI_O 100-T06	POLI_O		T06	Introduction to Politics	W1	Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0-1.5]	Discussion	In Person Learning	Fri	3:30 p.m. - 5:00 p.m.
POLI_O 201-001	POLI_O		001	Introduction to Philosophy, Politics and Econom	W1	The relationship of ethics, economics and politics to the advocacy, formulation, legislation and administration of public policy. Credit will be granted for only one of POLI 223 or POLI 201. [3-0-0] Equivalency: POLI 223.	Lecture	In Person Learning	Tue Thu	2:00 p.m. - 3:30 p.m.
POLI_O 203-001	POLI_O		001	Introduction to Law and Politics	W1	Examination of the fundamentals of law and politics, including the judicial system, legal institutions, constitutional and administrative law. [3-0-0]	Lecture	In Person Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
POLI_O 250-001	POLI_O		001	Introduction to Political Theory	W1	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. [3-0-0]	Lecture	In Person Learning	Mon Wed	8:00 a.m. - 9:30 a.m.
POLI_O 309-A_001	POLI_O	A	A_001	Topics in Political Science	W1	Examination of selected topics in current political science and/or policy. Repeatable for up to 6 credits with different topics. Credit will be granted for only one of POLI 391 and POLI 309 when the subject matter is of the same nature. [3-0-0] Prerequisite: 3 credits of 100- or 200-level POLI. Equivalency: POLI 391.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.

POLI_O 314-001	POLI_O	001	Politics of China	W1	Comparative study of Chinese politics, including an analysis of Chinese society, the Chinese Communist party, government structure, and political and economic reform. [3-0-0] Prerequisite: One of POLI 210 or POLI 220.	Lecture	In Person Learning	Wed Fri	9:30 a.m. - 11:00 a.m.
POLI_O 318-001	POLI_O	001	Politics of Mexico and Central America	W1	Analysis of politics in Mexico, Central America, and selected Caribbean countries. [3-0-0] Prerequisite: One of POLI 210 or POLI 220.	Lecture	In Person Learning	Thu	8:00 a.m. - 11:00 a.m.
POLI_O 322-001	POLI_O	001	Authoritarianism	W1	Examination of how political science conceptualizes authoritarianism, and the distinctive nature of politics in authoritarian regimes. [3-0-0] Prerequisite: One of POLI 210 or POLI 220.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
POLI_O 325-001	POLI_O	001	Electoral Systems, Parties, and Elections	W1	Examination of relationships between electoral systems, political parties, and elections. Credit will be granted for only one of POLI 464-N or POLI 325 when the subject matter is of the same nature. [3-0-0] Prerequisite: One of POLI 210 or POLI 220 and one of POLI 230 or POLI 202.	Lecture	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
POLI_O 354-001	POLI_O	001	Classical Political Theory	W1	Political philosophy of classical and medieval political theorists. [3-0-0] Prerequisite: One of POLI 240 or POLI 250.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
POLI_O 367-001	POLI_O	001	Contemporary Fascism	W1	Examination of fascist ideology and its contemporary manifestations. Credit will be granted for only one of POLI 391-P or POLI 367 when the subject matter is of the same nature. [3-0-0] Prerequisite: One of POLI 240 or POLI 250.	Lecture	In Person Learning	Mon Thu	2:00 p.m. - 3:30 p.m.
POLI_O 380-001	POLI_O	001	Technology and Politics	W1	The intersection of technology and politics, with reference to international and domestic factors and implications of technological change, including data and privacy concerns. [3-0-0] Prerequisite: One of POLI 202, 210, 220, 221, 230, 240, 250, or 270.	Lecture	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.
POLI_O 382-001	POLI_O	001	Genocide: An Interdisciplinary Perspective	W1	Evolution of genocide. Strategies for intervention and prevention. Case studies. Genocide from the perspectives of psychology, sociology, anthropology, political science/international relations. [3-0-0] Prerequisite: One of POLI 210 or POLI 220 and one of POLI 270 or POLI 221.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
POLI_O 387-001	POLI_O	001	International Political Economy	W1	Analysis of governmental policies and international political bargaining in regard to such issues as international investment, trade, and monetary relations. Credit will be granted for only one of POLI 366 or POLI 387. [3-0-0] Prerequisite: One of POLI 201 or POLI 223 and one of POLI 270 or POLI 221.	Lecture	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
POLI_O 401-A_001	POLI_O	A	A_001 Seminar in Law and Politics Topics	W1-2	Examination of selected topics in law and politics. Credit will only be granted for one of POLI 464 or POLI 401 when on the same topic. Repeatable for up to 6 credits with different topics. [0-0-3] Prerequisite: POLI 302 or POLI 327.	Seminar	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
POLI_O 449-A_001	POLI_O	A	A_001 Seminar in Canadian Politics Topics	W1	Seminar on selected topics in Canadian politics. Credit will only be granted for one of POLI 464 or POLI 449 when on the same topic. Repeatable for up to 6 credits with different topics. [0-0-3] Prerequisite: 3 credits from POLI 330-349.	Seminar	In Person Learning	Mon	8:00 a.m. - 11:00 a.m.
PSYO_O 111-001	PSYO_O	001	Introduction to Psychology: Basic Processes	W1	Survey of topics in psychology which relate to basic processes. Methods and statistics, the nervous system and physiological processes, sensation and perception, learning, cognition and memory. [3-0-0]	Lecture	Online Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
PSYO_O 111-002	PSYO_O	002	Introduction to Psychology: Basic Processes	W1	Survey of topics in psychology which relate to basic processes. Methods and statistics, the nervous system and physiological processes, sensation and perception, learning, cognition and memory. [3-0-0]	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
PSYO_O 111-003	PSYO_O	003	Introduction to Psychology: Basic Processes	W1	Survey of topics in psychology which relate to basic processes. Methods and statistics, the nervous system and physiological processes, sensation and perception, learning, cognition and memory. [3-0-0]	Lecture	In Person Learning	Fri	6:30 p.m. - 9:30 p.m.
PSYO_O 111-004	PSYO_O	004	Introduction to Psychology: Basic Processes	W1	Survey of topics in psychology which relate to basic processes. Methods and statistics, the nervous system and physiological processes, sensation and perception, learning, cognition and memory. [3-0-0]	Lecture	Online Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
PSYO_O 121-001	PSYO_O	001	Introduction to Psychology: Personal Functionin	W1	Survey of topics in psychology which relate to personal functioning. Methods and statistics, motivation and emotion, life span development, social processes, personality, psychopathology, and psychotherapy. [3-0-0] Prerequisite: PSYO 111.	Lecture	In Person Learning	Thu	6:30 p.m. - 9:30 p.m.
PSYO_O 219-001	PSYO_O	001	Introduction to Cognition	W1	A brief introduction to how the mind works from a cognitive perspective. Topics will be drawn from memory, decision making, reasoning, attention, object perception, and speech and language. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.	Lecture	Online Learning	Tue Thu	5:00 p.m. - 6:30 p.m.
PSYO_O 220-101	PSYO_O	101	Lifespan Development	W1	Introduction to the field of lifespan developmental psychology. Examination of the physical, cognitive, and psychosocial development of the individual from conception through later adulthood. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.	Lecture	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
PSYO_O 252-001	PSYO_O	001	Introduction to Social Psychology	W1	Introduction to social psychology. Attitudes, opinions and beliefs, persuasion, mass communication, group processes, prejudice, interpersonal attraction, conformity, aggression, and conflict. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.	Lecture	Online Learning	Thu	11:00 a.m. - 2:00 p.m.
PSYO_O 270-001	PSYO_O	001	Introduction to Research Methods and Design	W1	Introduction to the procedures and difficulties in the design and critical evaluation of research in experimental psychology. Various research designs and basic statistics. A required course for students majoring in Psychology; restricted to students majoring in Psychology. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.	Lecture	In Person Learning	Mon Wed Fri	8:00 a.m. - 9:00 a.m.
PSYO_O 270-002	PSYO_O	002	Introduction to Research Methods and Design	W1	Introduction to the procedures and difficulties in the design and critical evaluation of research in experimental psychology. Various research designs and basic statistics. A required course for students majoring in Psychology; restricted to students majoring in Psychology. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.	Lecture	In Person Learning	Wed Fri	12:30 p.m. - 2:00 p.m.
PSYO_O 310-001	PSYO_O	001	Learning	W1	A critical survey of the basic experimental findings and theory of the learning process with emphasis on the theoretical formulation of the necessary conditions for learning, retention, and transfer of training. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299, or 6 credits of 200-level Psychology.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
PSYO_O 313-001	PSYO_O	001	Visual Perception	W1	Examines how our brain enables us to see. Topics will focus on visual processing involved in perceiving objects, colours, movement, and depth. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299, or 6 credits of 200-level Psychology.	Lecture	In Person Learning	Mon Wed Fri	3:00 p.m. - 4:00 p.m.

PSYO_O 315-001	PSYO_O	001	Psychology of Touch I	W1	Focuses primarily on the sensory aspect of touch. Topics include: tactual perception in historical perspective, sensory and physiological bases of touch, the psychophysics of touch, thermal sensibility, pain responsiveness, and the introduction of the haptic system and its components. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 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_O 317-001	PSYO_O	001	Psychology of Creativity	W1	Experimental and theoretical approaches used by psychologists to investigate the interplay of internal and external factors involved in the creative process. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 6 credits of 200-level Psychology.	Lecture	Online Learning	Tue Thu	3:30 p.m. - 5:00 p.m.
PSYO_O 322-001	PSYO_O	001	Adolescent Development	W1	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: PSYO 220 and one of PSYO 219, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, 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_O 343-001	PSYO_O	001	Basic Clinical Diagnostics	W1	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 271, 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_O 348-001	PSYO_O	001	Health Psychology	W1	Critical survey of research and theory on relation between psychological factors (behaviour, emotion, cognition, personality, and interpersonal relationships) and health. Topics include: stress and health, coping with stress, social support, health behaviours (e.g., physical activity), and psychosocial aspects of chronic illness. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 6 credits of 200-level Psychology.	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
PSYO_O 349-101	PSYO_O	101	Positive Psychology	W1	The psychology of happiness and well-being. Current research designs, techniques, empirical findings, and theories in positive psychology. Practical experience with some of the interventions and strategies used in positive psychology. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 6 credits of 200-level Psychology.	Lecture	Online Learning	Mon Wed	5:00 p.m. - 6:30 p.m.
PSYO_O 353-001	PSYO_O	001	Psychological Aspects of Human Sexuality I	W1	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 psychosexual development. [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_O 355-001	PSYO_O	001	Forensic Psychology I	W1	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	Mon	11:00 a.m. - 2:00 p.m.
PSYO_O 372-001	PSYO_O	001	Research Methods and Statistics	W1	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. [3-3-0] 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. Corequisite: Enrolment in a three-hour laboratory section is required.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
PSYO_O 372-L01	PSYO_O	L01	Research Methods and Statistics	W1	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. [3-3-0] 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. Corequisite: Enrolment in a three-hour laboratory section is required.	Laboratory	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.
PSYO_O 440-001	PSYO_O	001	Introduction to Counselling and Interviewing	W1	Theoretical and applied issues fundamental to psychological counselling and other helping professions. Development of basic interviewing skills. [0-3-0] Prerequisite: Fourth-year standing. At least 6 credits of 300-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_O 506-001	PSYO_O	001	Contemporary Theories of Psychology	W1	Major theories that comprise core areas of contemporary psychology. Historical perspectives of schools of thought, social and institutional contexts, and evolution of the discipline. [3-0-0]	Lecture	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
PSYO_O 507-001	PSYO_O	001	Advanced Statistics and Research Methods	W1-2	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, multiway frequency analysis, and the analysis of change. [3-0-0;3-0-0]	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
PSYO_O 510-001	PSYO_O	001	Clinical Diagnostics	W1	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_O 514-001	PSYO_O	001	Psychological Assessment I	W1	Core principles of clinical assessment; test interpretation; interviewing techniques; developmental factors in interpretation; integrative report writing. Restricted to the Graduate Clinical Psychology Program. [3-0-0]	Lecture	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.
PSYO_O 516-001	PSYO_O	001	Psychological Intervention I: Process, Motivator	W1	Introduction to psychotherapy, including historical and current models of therapy, as well as introducing the use of Cognitive Behavioural 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_O 530-C_201	PSYO_O	C	C_201	W1-2	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.	Experiential	In Person Learning	Arranged	Arranged
PSYO_O 599-001	PSYO_O	001	Master's Thesis	W1	The credit value for this course will be determined in consultation with the student prior to the registration	Thesis	In Person Learning	Arranged	Arranged
PSYO_O 599-201	PSYO_O	201	Master's Thesis	W1-2	Pass/Fail.	Thesis	In Person Learning	Arranged	Arranged



SECH_O 400-001	SECH_O	001	Applied Health Economics	W1	Methods to assess efficiency of health-related programs; theoretical and practical empirical methods for conducting, analyzing and interpreting applied economic evaluations in the context of health and healthcare. Credit will be granted for only one of MGMT 471, MGMT 571, SECH 400 or SECH 500. Prerequisite: Third-year standing. Equivalency: MGMT 471.	Lecture	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
SECH_O 500-001	SECH_O	001	Applied Health Economics	W1	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. Equivalency: MGMT 571	Lecture	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
SOCI_O 111-001	SOCI_O	001	Introduction to Sociology	W1	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	2:00 p.m. - 3:30 p.m.
SOCI_O 111-002	SOCI_O	002	Introduction to Sociology	W1	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	6:30 p.m. - 8:00 p.m.
SOCI_O 209-001	SOCI_O	001	Foundations of Sociological Thought	W1	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.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
SOCI_O 212-001	SOCI_O	001	Sociology of Race and Ethnicity	W1	Key concepts and theoretical ideas of race and ethnicity; how race and ethnicity shape power, cultural expressions, identities, and resistance movements. [3-0-0] Prerequisite: SOCI 111.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
SOCI_O 228-001	SOCI_O	001	Sociology of the Anthropocene	W1	Examination of the Anthropocene at the intersections of the environment, colonialism, racialization, gender, and species. Explores the drivers of the Anthropocene, the politics of naming and dating an epoch after humans, as well as environmental justice and Anthropocene futures. Credit will only be granted for one of SOCI 228 or SOCI 295E. [3-0-0] Prerequisite: SOCI 111.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
SOCI_O 249-001	SOCI_O	001	Crime and Society	W1	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 criminology; institutional responses to criminal behaviour by the justice system. [3-0-0] Prerequisite: SOCI 111.	Lecture	In Person Learning	Wed Fri	3:30 p.m. - 5:00 p.m.
SOCI_O 291-001	SOCI_O	001	Fundamentals of Sociological Research	W1	Overview of quantitative and qualitative research designs and methodologies. Topics include sampling, operationalization, ethics, data collection and analysis, scientific and sociological literacy. Credit will be granted for only one of SOCI 291 or SOCI 271. [3-0-0] Prerequisite: SOCI 111.	Lecture	In Person Learning	Wed Fri	2:00 p.m. - 3:30 p.m.
SOCI_O 309-101	SOCI_O	101	Violence in Intimate Relations	W1	Social, historical, cultural, and political roots of violence in intimate relations. Primary focus on women, children and the elderly. [3-0-0] Prerequisite: SOCI 111. and third-year standing.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
SOCI_O 374-001	SOCI_O	001	Sexuality, Law, and Society	W1	Examination of how sex and sexuality are regulated through law. Topics may include the social and legal regulation of family forms, pornography, sex work, sexually transmitted infections, sexual violence, and the interplay of technology and law through topics such as online dating. [3-0-0] Prerequisite: Third-year standing.	Lecture	In Person Learning	Tue Thu	11:00 a.m. - 12:30 p.m.
SOCI_O 376-001	SOCI_O	001	Classical Sociological Theory	W1	Classical 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 376 or SOCI 375. [3-0-0] Prerequisite: SOCI 209. and third-year standing.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
SOCI_O 395-201	SOCI_O	201	Sociological Methods: Qualitative Research	W1-2	Examination of methods such as ethnography, interviewing, historical and discourse analyses. Theoretical, epistemological, and ethical issues in social research and methods. [3-0-0] Prerequisite: SOCI 111. and third-year standing.	Lecture	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
SOCI_O 421-001	SOCI_O	001	Sociology of Fear	W1	The role of fear in the production, control, and management of individuals and societies. [3-0-0] Prerequisite: SOCI 111. and third-year standing.	Seminar	In Person Learning	Fri	11:00 a.m. - 2:00 p.m.
SOCI_O 432-101	SOCI_O	101	Sociology of Food	W1	How does food shape social relations (class, gender, race, age)? What is its role in the construction of meaning and identity? How does it connect to the political through civil society and social movements? How is it impacted by globalization? Credit will only be granted for one of SOCI 432 or SOCI 496 when on the same topic. [2-0-1] Prerequisite: SOCI 111. and third-year standing.	Seminar	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
SOCI_O 456-001	SOCI_O	001	Sociology of Elites	W1	Examines theoretical and empirical studies of elites - who they are; what role they play in society; how they operate. Reviews research countering the prominence of elites in economic, social and political life. Focuses primarily on Canada. Credit will only be granted for one of SOCI 456 or SOCI 496 when on the same topic. [3-0-0] Prerequisite: SOCI 111. and third-year standing.	Seminar	In Person Learning	Mon Wed	2:00 p.m. - 3:30 p.m.
SOCI_O 492-001	SOCI_O	001	Surveillance and Society	W1	Surveillance as a social phenomenon, involving differences in power and visibility. How surveillance is related to governance, control, and privacy. Theories and concepts from the interdisciplinary field of surveillance studies, with an emphasis on social relationships. Credit will be granted for only one of SOCI 492 or SOCI 496V. [3-0-0] Prerequisite: SOCI 111. and third-year standing.	Seminar	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
SOCW_O 511-001	SOCW_O	001	Introduction to Social Work	W1	An introduction to social work with emphasis on ethical decision making and preparation for professional 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 511-002	SOCW_O	002	Introduction to Social Work	W1	An introduction to social work with emphasis on ethical decision making and preparation for professional practice. 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 512-001	SOCW_O	001	Theories and Interventions for Clinical Social Wo	W1	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.	Lecture	In Person Learning	Tue	11:00 a.m. - 2:00 p.m.
SOCW_O 512-002	SOCW_O	002	Theories and Interventions for Clinical Social Wo	W1	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.	Lecture	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.
SOCW_O 514-001	SOCW_O	001	Diversity and Critical Reflexive Practice	W1	Meanings, dynamics, and impacts of diversity in social work practice. Students examine their own identities and social locations and a range of theories and orientations to inclusion and social justice. 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 514-002	SOCW_O	002	Diversity and Critical Reflexive Practice	W1	Meanings, dynamics, and impacts of diversity in social work practice. Students examine their own identities and social locations and a range of theories and orientations to inclusion and social justice. 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 517-001	SOCW_O	001	Social Work and Indigenous Peoples in Canada	W1	Overview of historical and current issues confronting social work with First Nations, Mtis, 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	W1	Overview of historical and current issues confronting social work with First Nations, Mtis, 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	W1	Overview of historical and current issues confronting social work with First Nations, Mtis, 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	W1-2	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 Practi	W1	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 Practi	W1	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 Practi	W1	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 So	W1	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 So	W1	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	W1	Explores relevant mental health issues to social work practice in a broad range of settings. Critically examines social work's role in providing effective, evidence-based, theoretically sound interventions and treatments. Prerequisite: Restricted to students in the M.S.W. program.	Lecture	In Person Learning	Mon	5:00 p.m. - 8:00 p.m.
SOCW_O 554-002	SOCW_O	002	Mental Health and Mental Illness	W1	Explores relevant mental health issues to social work practice in a broad range of settings. Critically examines social work's role in providing effective, evidence-based, theoretically sound interventions and treatments. Prerequisite: Restricted to students in the M.S.W. program.	Lecture	In Person Learning	Wed	11:00 a.m. - 2:00 p.m.
SOCW_O 554-003	SOCW_O	003	Mental Health and Mental Illness	W1	Explores relevant mental health issues to social work practice in a broad range of settings. Critically examines social work's role in providing effective, evidence-based, theoretically sound interventions and treatments. Prerequisite: Restricted to students in the M.S.W. program.	Lecture	In Person Learning	Thu	2:00 p.m. - 5:00 p.m.
SOCW_O 559-P03	SOCW_O	P03	Social Work Field Education II	W1-2	Provides 2nd year Foundational and Advanced One-Year track students an opportunity to apply and integrate theory and practice in clinical social work practice settings. Pass/Fail. Prerequisite: Restricted to students in the M.S.W. program.	Experiential	In Person Learning	Arranged	Arranged
SOCW_O 598-001	SOCW_O	001	Graduating Paper	W1	A scholarly paper in an area of interest that conforms to the demands of a peer-reviewed social work journal. Pass/Fail.	Independent Study	In Person Learning	Arranged	Arranged
SOCW_O 598-003	SOCW_O	003	Graduating Paper	W1-2	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	W1	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	W1-2	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	W1	Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR).	Lecture	In Person Learning	Mon Wed Fri	1:00 p.m. - 2:00 p.m.
SPAN_O 101-002	SPAN_O	002	Beginners' Spanish I	W1	Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR).	Lecture	In Person Learning	Mon Wed Fri	2:00 p.m. - 3:00 p.m.
SPAN_O 101-003	SPAN_O	003	Beginners' Spanish I	W1	Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR).	Lecture	In Person Learning	Mon Wed Fri	9:00 a.m. - 10:00 a.m.
SPAN_O 101-004	SPAN_O	004	Beginners' Spanish I	W1	Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR).	Lecture	In Person Learning	Mon Wed Fri	2:00 p.m. - 3:00 p.m.
SPAN_O 101-005	SPAN_O	005	Beginners' Spanish I	W1	Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR).	Lecture	In Person Learning	Mon Wed Fri	4:00 p.m. - 5:00 p.m.
SPAN_O 101-006	SPAN_O	006	Beginners' Spanish I	W1	Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR).	Lecture	In Person Learning	Mon Wed Fri	1:00 p.m. - 2:00 p.m.
SPAN_O 101-007	SPAN_O	007	Beginners' Spanish I	W1	Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR).	Lecture	In Person Learning	Mon Wed Fri	3:00 p.m. - 4:00 p.m.
SPAN_O 101-008	SPAN_O	008	Beginners' Spanish I	W1	Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR).	Lecture	In Person Learning	Mon Wed Fri	9:00 a.m. - 10:00 a.m.
SPAN_O 201-001	SPAN_O	001	Advanced Beginners' Spanish I	W1	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	1:00 p.m. - 2:00 p.m.
SPAN_O 201-002	SPAN_O	002	Advanced Beginners' Spanish I	W1	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	10:00 a.m. - 11:00 a.m.

SPAN_O 201-003	SPAN_O	003	Advanced Beginners' Spanish I	W1	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	W1	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	W1	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. [3-0-0] Prerequisite: SPAN 202.	Lecture	In Person Learning	Tue Thu	9:30 a.m. - 11:00 a.m.
SPAN_O 401-001	SPAN_O	001	Advanced Spanish I	W1	Advanced grammar, composition, oral practice, and reading. Corresponds to level B2 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: SPAN 302. or equivalent	Lecture	In Person Learning	Mon Wed	9:30 a.m. - 11:00 a.m.
SPAN_O 419-001	SPAN_O	001	Introduction to Translation and Interpretation fr	W1	General aspects of translation and interpretation. Theory and practice. Prerequisite: SPAN 301.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
STAT_O 124-001	STAT_O	001	Business Statistics	W1	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	W1	Combinatorics. Axioms of probability. Discrete and continuous random variables, expectation, and variance. Transformations. Central limit theorem and applications. Weak law of large numbers. Credit will be granted for only one of STAT 203 or STAT 230. [3-0-0] Prerequisite: DATA 101 and one of MATH 101, MATH 103, MATH 142. Corequisite: DATA 101.	Lecture	In Person Learning	Wed Fri	11:00 a.m. - 12:30 p.m.
STAT_O 230-001	STAT_O	001	Introductory Statistics	W1	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	Mon Wed	2:00 p.m. - 3:30 p.m.
STAT_O 303-001	STAT_O	001	Intermediate Probability	W1	Multivariate probability distributions, moment and generating functions. [3-0-0] Prerequisite: All of MATH 200, STAT 203.	Lecture	In Person Learning	Mon Wed	12:30 p.m. - 2:00 p.m.
STAT_O 400-001	STAT_O	001	Statistical Communication and Consulting	W1	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 500 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	Tue Thu	2:00 p.m. - 3:30 p.m.
STAT_O 406-001	STAT_O	001	Environmetrics	W1	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	Wed Fri	9:30 a.m. - 11:00 a.m.
STAT_O 547-I_001	STAT_O	I	I_001	W1	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. 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	Wed Fri	9:30 a.m. - 11:00 a.m.
STMC_O 433-001	STMC_O	001	Special Topics in Language Practice and Pedagog	W1	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 St'at'imcets. May be offered on the land. Restricted to students in the Bachelor of St'at'imc Language Fluency program. [0-2-3] Prerequisite: STMC 333. The concept of sustainability and its relationship to people and communities, the management and conservation of natural resources, land and food systems, and the built environment. Guest speakers and in-class discussions covering topics which address local and global contexts. May include community service learning project. [3-0-0]	Lecture	Online Learning	Arranged	Arranged
SUST_O 100-001	SUST_O	001	Sustainability: People, Place, and Process	W1	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	11:00 a.m. - 12:30 p.m.
SUST_O 104-101	SUST_O	101	Introduction to Environmental Humanities	W1	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-D01	SUST_O	D01	Introduction to Environmental Humanities	W1	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 Approac	W1	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	5:00 p.m. - 6:30 p.m.
SUST_O 201-001	SUST_O	001	Introduction to Research in Sustainability and Gr	W1	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. [2-0-1] Equivalency: GEOG 201	Lecture	In Person Learning	Mon	12:00 p.m. - 2:00 p.m.
SUST_O 201-D01	SUST_O	D01	Introduction to Research in Sustainability and Gr	W1	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. [2-0-1] Equivalency: GEOG 201	Discussion	In Person Learning	Fri	10:00 a.m. - 11:00 a.m.

SUST_O 201-002	SUST_O	D02	Introduction to Research in Sustainability and Gr	W1	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. [2-0-1] Equivalency: GEOG 201	Discussion	In Person Learning	Wed	12:00 p.m. - 1:00 p.m.
SUST_O 202-001	SUST_O	001	Community Service Learning	W1-2	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]	Discussion	In Person Learning	Tue (Alternate weeks)	12:00 p.m. - 2:00 p.m.
SUST_O 302-001	SUST_O	001	Community Service Learning	W1-2	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.	Experiential	In Person Learning	Tue (Alternate weeks)	12:00 p.m. - 2:00 p.m.
SUST_O 302-001	SUST_O	D01	Community Service Learning	W1-2	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.	Discussion	In Person Learning	Arranged	Arranged
SUST_O 304-001	SUST_O	001	Place-based Methods for Interdisciplinary Resea	W1	A practice-led methods course that draws on interdisciplinary sustainability literatures on place. Includes a focus on ethics, values, social equity, accessibility and inclusion in addressing multi-scale, multi-stakeholder problems related to sustainability. Restricted to students in the Bachelor of Sustainability program. [1-0-2] Prerequisite: SUST 200.	Lecture	In Person Learning	Mon Thu	8:00 a.m. - 9:30 a.m.
SUST_O 304-001	SUST_O	D01	Place-based Methods for Interdisciplinary Resea	W1	A practice-led methods course that draws on interdisciplinary sustainability literatures on place. Includes a focus on ethics, values, social equity, accessibility and inclusion in addressing multi-scale, multi-stakeholder problems related to sustainability. Restricted to students in the Bachelor of Sustainability program. [1-0-2] Prerequisite: SUST 200.	Discussion	In Person Learning	Arranged	Arranged
THTR_O 101-001	THTR_O	001	Performance Improvisation	W1	A physical approach to improvisation as it relates to the creation of live performance events. [3 hours/week studio]	Studio	In Person Learning	Tue	9:00 a.m. - 12:00 p.m.
THTR_O 103-001	THTR_O	001	Acting for Stage and Screen	W1	An introduction to acting techniques pertaining to the style of psychological realism for stage and screen. Credit will be granted for only one of THTR 103 or FILM 103. [3 hours/week studio] Equivalency: FILM 103	Studio	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
THTR_O 104-001	THTR_O	001	The Art of Public Speaking	W1	Verbal and nonverbal communication skills as well as knowledge of basic communications technologies. Well-suited to students who wish to build skill and confidence in public presentation.	Studio	In Person Learning	Mon	11:00 a.m. - 2:00 p.m.
THTR_O 180-001	THTR_O	001	Theatre Appreciation: The Power of Live Perform	W1	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.	Lecture	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
THTR_O 303-001	THTR_O	001	Narrative Film Production	W1	The theory and practice of producing a short narrative motion picture for the purpose of developing narrative film literacy. Credit will be granted for only one of THTR 303, CULT 303, CULT 316 or FILM 303. VISA 106, VISA 261, VISA 271, CULT 210, THTR 103, CRWR 250, or FILM 100 recommended. Prerequisite: Third-year standing. Equivalency: CULT 303; FILM 303	Studio	In Person Learning	Thu	12:00 p.m. - 3:00 p.m.
THTR_O 309-001	THTR_O	001	Performance Art: Global Perspectives	W1	History, theory, and practice of performance art as a visual medium, a global language, and a political force. Explores a wide range of experimental and interdisciplinary performance art practices, including key contributions by Indigenous artists. Credit will be granted for only one of THTR 309, ARTH 309, CULT 309, or WRLD 309. Prerequisite: Third-year standing. Equivalency: ARTH 309, CULT 309, WRLD 309	Lecture	In Person Learning	Wed	2:00 p.m. - 5:00 p.m.
THTR_O 411-001	THTR_O	001	Performance Studies	W1	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 THTR 411, CULT 411, or WRLD 411. [2-1-0] Prerequisite: Third-year standing. Equivalency: CULT411, WRLD411	Lecture	In Person Learning	Tue	2:00 p.m. - 5:00 p.m.
VGRS_O 599-001	VGRS_O	001	Visiting Graduate Research Students	W1	Visiting Graduate Research Students	Independent Study	In Person Learning	Arranged	Arranged
VGRS_O 599-003	VGRS_O	003	Visiting Graduate Research Students	W1-2	Visiting Graduate Research Students	Independent Study	In Person Learning	Arranged	Arranged
VISA_O 090-001	VISA_O	001	Safety Training	W1	Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.	Lecture	In Person Learning	Mon	9:00 a.m. - 1:00 p.m.
VISA_O 090-002	VISA_O	002	Safety Training	W1	Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.	Lecture	In Person Learning	Tue	1:00 p.m. - 5:00 p.m.
VISA_O 090-003	VISA_O	003	Safety Training	W1	Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.	Lecture	In Person Learning	Wed	9:00 a.m. - 1:00 p.m.
VISA_O 090-004	VISA_O	004	Safety Training	W1	Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.	Lecture	In Person Learning	Fri	1:00 p.m. - 5:00 p.m.
VISA_O 090-005	VISA_O	005	Safety Training	W1	Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.	Lecture	In Person Learning	Mon (Alternate weeks)	9:00 a.m. - 1:00 p.m.
VISA_O 090-006	VISA_O	006	Safety Training	W1	Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.	Lecture	In Person Learning	Tue	1:00 p.m. - 5:00 p.m.
VISA_O 090-007	VISA_O	007	Safety Training	W1	Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.	Lecture	In Person Learning	Wed	9:00 a.m. - 1:00 p.m.
VISA_O 090-008	VISA_O	008	Safety Training	W1	Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.	Lecture	In Person Learning	Fri	1:00 p.m. - 5:00 p.m.

VISA_O 090-009	VISA_O	009	Safety Training	W1	Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.	Lecture	In Person Learning	Thu	1:00 p.m. - 5:00 p.m.
VISA_O 102-001	VISA_O	001	Drawing and Two-Dimensional Art Practices I	W1	This foundation course will introduce the principles, practices, and concepts central to drawing and two-dimensional art. [2-2-0]	Studio	In Person Learning	Wed	2:00 p.m. - 6:00 p.m.
VISA_O 102-002	VISA_O	002	Drawing and Two-Dimensional Art Practices I	W1	This foundation course will introduce the principles, practices, and concepts central to drawing and two-dimensional art. [2-2-0]	Studio	In Person Learning	Thu	2:00 p.m. - 6:00 p.m.
VISA_O 102-003	VISA_O	003	Drawing and Two-Dimensional Art Practices I	W1	This foundation course will introduce the principles, practices, and concepts central to drawing and two-dimensional art. [2-2-0]	Studio	In Person Learning	Tue	1:00 p.m. - 5:00 p.m.
VISA_O 104-001	VISA_O	001	Three-Dimensional Art Practices I	W1	This foundation course will introduce the materials, principles of form and space, and ideas in contemporary 3D art practices. [2-2-0]	Studio	In Person Learning	Wed	9:00 a.m. - 1:00 p.m.
VISA_O 104-002	VISA_O	002	Three-Dimensional Art Practices I	W1	This foundation course will introduce the materials, principles of form and space, and ideas in contemporary 3D art practices. [2-2-0]	Studio	In Person Learning	Fri	9:00 a.m. - 1:00 p.m.
VISA_O 106-001	VISA_O	001	Introduction to Digital Media I	W1	Introduces digital media in contemporary art practice through photography, computer imaging, video, and other emerging digital technologies. [1-3-0]	Lecture	In Person Learning	Wed	1:00 p.m. - 2:00 p.m.
VISA_O 106-L01	VISA_O	L01	Introduction to Digital Media I	W1	Introduces digital media in contemporary art practice through photography, computer imaging, video, and other emerging digital technologies. [1-3-0]	Laboratory	In Person Learning	Wed	8:00 a.m. - 11:00 a.m.
VISA_O 106-L02	VISA_O	L02	Introduction to Digital Media I	W1	Introduces digital media in contemporary art practice through photography, computer imaging, video, and other emerging digital technologies. [1-3-0]	Laboratory	In Person Learning	Fri	8:00 a.m. - 11:00 a.m.
VISA_O 106-L03	VISA_O	L03	Introduction to Digital Media I	W1	Introduces digital media in contemporary art practice through photography, computer imaging, video, and other emerging digital technologies. [1-3-0]	Laboratory	In Person Learning	Fri	2:00 p.m. - 5:00 p.m.
VISA_O 106-L04	VISA_O	L04	Introduction to Digital Media I	W1	Introduces digital media in contemporary art practice through photography, computer imaging, video, and other emerging digital technologies. [1-3-0]	Laboratory	In Person Learning	Wed	2:00 p.m. - 5:00 p.m.
VISA_O 106-L05	VISA_O	L05	Introduction to Digital Media I	W1	Introduces digital media in contemporary art practice through photography, computer imaging, video, and other emerging digital technologies. [1-3-0]	Laboratory	In Person Learning	Thu	5:00 p.m. - 8:00 p.m.
VISA_O 106-L06	VISA_O	L06	Introduction to Digital Media I	W1	Introduces digital media in contemporary art practice through photography, computer imaging, video, and other emerging digital technologies. [1-3-0]	Laboratory	In Person Learning	Mon	2:00 p.m. - 5:00 p.m.
VISA_O 137-001	VISA_O	001	Introduction to Art I	W1	Survey of art theory and practice for students with little or no previous art experience. A wide range of ideas, approaches, and media will be studied. BFA students cannot receive credit for VISA 137. [2-1-0]	Lecture	Online Learning	Tue	11:00 a.m. - 2:00 p.m.
VISA_O 215-001	VISA_O	001	Painting I	W1	Introduction to the materials and techniques of painting. Exploration of colour, surface, structure, and space. Students will be encouraged to search for personal imagery. Critical evaluation skills will be developed through individual and group critiques. [2-2-0] Prerequisite: VISA 103.	Studio	In Person Learning	Tue	9:00 a.m. - 1:00 p.m.
VISA_O 215-002	VISA_O	002	Painting I	W1	Introduction to the materials and techniques of painting. Exploration of colour, surface, structure, and space. Students will be encouraged to search for personal imagery. Critical evaluation skills will be developed through individual and group critiques. [2-2-0] Prerequisite: VISA 103.	Studio	In Person Learning	Fri	2:00 p.m. - 6:00 p.m.
VISA_O 233-001	VISA_O	001	Printmaking: Screenprinting I	W1	Examination of the various processes of screenprinting. Project-based course with considerable emphasis on technical development and skills acquisition. Focus will be on the synthesis of a student's personal imagery and the process of screenprinting. [2-2-0] Prerequisite: VISA 103.	Studio	In Person Learning	Thu	2:00 p.m. - 6:00 p.m.
VISA_O 235-001	VISA_O	001	Sculpture I	W1	For the student who wishes to specialize in sculpture. Students will examine three-dimensional space through a variety of projects and materials. [2-2-0] Prerequisite: VISA 105.	Studio	In Person Learning	Tue	1:00 p.m. - 5:00 p.m.
VISA_O 244-001	VISA_O	001	Photography I	W1	Introduction to the basics of photography and darkroom techniques through the use of the camera as an expressive, conceptual, and artistic tool. A 35mm SLR film camera and tripod are required. Prerequisite: One of VISA 103, VISA 106, VISA 108.	Studio	In Person Learning	Wed	2:00 p.m. - 6:00 p.m.
VISA_O 255-001	VISA_O	001	Introduction to Printmaking: Linocut and Letter	W1	Introduction to the printmaking processes - relief printing and text-based letterpress printing. Focus is on gaining familiarity with these processes and on the development of personal imagery. Basic drawing skills are an asset. [2-2-0] Prerequisite: One of VISA 103, VISA 147, or permission of the instructor.	Studio	In Person Learning	Fri	9:00 a.m. - 1:00 p.m.
VISA_O 261-001	VISA_O	001	Video I	W1	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 artist videos, music videos, and television productions. Credit will be granted for only one of VISA 261 or FILM 261. [2-2-0] Prerequisite: One of VISA 106, VISA 108. Equivalency: FILM 261	Studio	In Person Learning	Wed	8:00 a.m. - 12:00 p.m.
VISA_O 268-001	VISA_O	001	Strategies in Digital Art: Visual Communication	W1	Concepts, principles, and techniques to design effective interfaces exploring areas of branding, information architecture and interaction design. [1-3-0] Prerequisite: VISA 108.	Studio	In Person Learning	Mon	8:00 a.m. - 12:00 p.m.
VISA_O 268-002	VISA_O	002	Strategies in Digital Art: Visual Communication	W1	Concepts, principles, and techniques to design effective interfaces exploring areas of branding, information architecture and interaction design. [1-3-0] Prerequisite: VISA 108.	Studio	In Person Learning	Thu	8:00 a.m. - 12:00 p.m.
VISA_O 282-001	VISA_O	001	Drawing III	W1	Core course in drawing. Various drawing approaches, material applications, and image manipulation practices are explored. [2-2-0] Prerequisite: VISA 103.	Studio	In Person Learning	Tue	5:00 p.m. - 9:00 p.m.
VISA_O 300-W_001	VISA_O	W	W_001	W1	To extend students' abilities in mark-making, image production, and expression of meaning through drawing. Emphasis on developing personal visual languages. [2-2-0] Prerequisite: VISA 283.	Studio	In Person Learning	Fri	2:00 p.m. - 6:00 p.m.
VISA_O 312-A_001	VISA_O	A	A_001	W1	Advanced studio course to increase the student's exploration and understanding of painting. [2-2-0] Prerequisite: VISA 225.	Studio	In Person Learning	Thu	2:00 p.m. - 6:00 p.m.
VISA_O 322-A_001	VISA_O	A	A_001	W1	Advanced studio course to explore contemporary practices in sculpture. [2-2-0] Prerequisite: VISA 245.	Studio	In Person Learning	Thu	8:30 a.m. - 12:30 p.m.
VISA_O 336-A_001	VISA_O	A	A_001	W1	Opportunity for students to continue their exploration of select media in printmaking (intaglio, relief, lithography, and screenprinting) within the context of contemporary art practice. Interdisciplinary crossover, evolving processes, and new materials will be encouraged. [2-2-0] Prerequisite: One of VISA 253, VISA 254, VISA 255.	Studio	In Person Learning	Wed	2:00 p.m. - 6:00 p.m.
VISA_O 362-W_001	VISA_O	W	W_001	W1	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 362, CULT 362, or any combination thereof. Prerequisite: VISA 256, or permission of the instructor. Equivalency: CULT362	Studio	In Person Learning	Tue	3:30 p.m. - 7:30 p.m.

VISA_O 382-W_001	VISA_O	W	W_001	Advanced Practice in Media Arts	W1	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	Studio	In Person Learning	Tue	8:00 a.m. - 12:00 p.m.
VISA_O 400-C_201	VISA_O	C	C_201	Practicum	W1-2	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. [0-0-6] 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	Experiential	In Person Learning	Arranged	Arranged
VISA_O 482-001	VISA_O		001	Advanced Art Practices I	W1	Advanced studio course for fourth-year visual arts students. Students will propose and carry out an independent program of studio work in consultation with course directors and faculty advisors. Students will be intensively involved in artistic research and creation. Interdisciplinary activity will be encouraged. Self-directed readings, writing projects, individual and group critiques, and participation in a final exhibition will be required. Various professional practice topics will be covered. [2-4-0] Prerequisite: 12 credits of 300-level studio courses, and a combined minimum grade average of 68% in ARTH 301 and another 3 credit 300- or 400-level ARTH course.	Studio	In Person Learning	Mon	10:00 a.m. - 5:00 p.m.
VISA_O 582-001	VISA_O		001	Graduate Studio in Visual Arts I	W1-2	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.	Studio	In Person Learning	Tue	2:00 p.m. - 7:00 p.m.
VISA_O 583-001	VISA_O		001	Graduate Studio in Visual Arts II	W1-2	The production of independent artwork and the critical analysis of that work. Students may work in any artistic discipline. Prerequisite: VISA 582. Or permission of the Department of Creative Studies.	Studio	In Person Learning	Tue	2:00 p.m. - 7:00 p.m.
VURS_O 499-001	VURS_O		001	Visiting Undergraduate Research Students	W1	Visiting Undergraduate Research Students	Independent Study	In Person Learning	Arranged	Arranged
VURS_O 499-003	VURS_O		003	Visiting Undergraduate Research Students	W1-2	Visiting Undergraduate Research Students	Independent Study	In Person Learning	Arranged	Arranged
WRLD_O 100-001	WRLD_O		001	A World History of Horror	W1	Introduction to the idea of horror across historical times, geographic regions, and genres, with an emphasis on the interdisciplinary methodologies and theories of World Literature. [3-0-0]	Lecture	In Person Learning	Tue Thu	8:00 a.m. - 9:30 a.m.
WRLD_O 150-001	WRLD_O		001	Introduction to Intercultural Communication	W1	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.	Lecture	In Person Learning	Mon Wed	4:00 p.m. - 5:30 p.m.
WRLD_O 150-002	WRLD_O		002	Introduction to Intercultural Communication	W1	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.	Lecture	Online Learning	Mon Wed Fri	12:00 p.m. - 1:00 p.m.
WRLD_O 158-001	WRLD_O		001	Introduction to Language and Culture: Modern J	W1	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. 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. Prerequisite: Third-year standing.	Lecture	Online Learning	Mon Wed Fri	2:00 p.m. - 3:00 p.m.
WRLD_O 340-001	WRLD_O		001	Tales of Resistance: Indigenous Voices in Central	W1	Changing depictions of the ancient Mediterranean world in media, such as novels, plays, paintings, movies, and television series. Credit will not be granted for both WRLD 351 and WRLD 399f. Prerequisite: Third-year standing.	Lecture	In Person Learning	Tue Thu	12:30 p.m. - 2:00 p.m.
WRLD_O 351-001	WRLD_O		001	Mediterranean World in Cinema and Literature	W1	Changing depictions of the ancient Mediterranean world in media, such as novels, plays, paintings, movies, and television series. Credit will not be granted for both WRLD 351 and WRLD 399f. Prerequisite: Third-year standing.	Lecture	In Person Learning	Mon Wed	11:00 a.m. - 12:30 p.m.
WRLD_O 370-001	WRLD_O		001	Story and Image Across the Islamic World	W1	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 ARTH 370, DIHU 370, or WRLD 370. Prerequisite: Third-year standing. Equivalency: ARTH 370, DIHU 370	Lecture	In Person Learning	Mon Wed	6:30 p.m. - 8:00 p.m.