Area of Interest: Construction and Skilled Trades

Bachelor of Science (Building Science) (Honours) (Co-op)

Honours Degree

Program Code: 1512X03FWO

4 Years

Ottawa Campus

Our Program

This four-year Bachelor of Science (Building Science) (Honours) degree prepares you to develop the skills and knowledge necessary to analyze and problem solve in optimizing the performance of buildings by bridging all facets of building design, construction, human comfort and sustainability.

Opportunities for applied and hands-on experiences with building materials, components and systems are woven throughout the program of study. The program integrates theoretical and applied learning environments to provide opportunities for you to experience current and emerging technologies that support both the construction and operation of buildings.

This program responds to a critical need to prepare professionals with a better understanding of building physics, which is the core of the program. Throughout the program, you will develop the scientific mindset required to engage in scientific inquiry, reason in a scientific context and provide evidence-based approaches and solutions. You will also hone the skills and abilities needed to optimize buildings working as a system and address the fact that buildings are becoming ever-increasingly more complex. This is driven by the continuously growing demand for increased energy efficiency, comfort, structural durability and healthy environments.

You will develop abilities to recognize, forecast and document both successful and poor building performance as well as analytical skills to evaluate the impact of each component in the system and identify potential problems before they become hazards, or potential opportunities for improved performance.

Given that the complexity of working in a multidisciplinary industry requires group success, you will collaboratively conceive, develop and implement solutions as a team using holistic approaches. You will emerge as generalists able to handle these complexities through integrated construction practices. Algonquin Centre for Construction Excellence (ACCE) offers access to an integrated learning and applied research environment. ACCE provides an industry hub to train, inspire and collaborate with construction industry partners.

Interactive and dynamic courses encourage the development of personal and interpersonal skills that position you for success in your future employment.

Students also gain real-world experience through a paid co-operative education (co-op) work term (s) (see Additional Information for more details). Please note that places in the co-op work term(s) are subject to availability and academic eligibility. Please note admission to a co-op program does not guarantee a co-op placement.

Industry trends and market analyses are indicative of employment opportunities for graduates. With the knowledge learned in this program, you may be able to find work as building scientists, architectural or construction project managers, energy consultants or building inspectors. You may also find employment as a researcher, junior analyst, entrepreneur or as technical staff with engineering firms or government agencies.

SUCCESS FACTORS

This program is well suited for students who:

- Appreciate the role of mathematics and applied science in the development of engineering solutions.
- Can work independently and contribute to problem-solving teams.

- Like to use drawings and spatial reasoning to visualize possibilities.

- Are inquisitive about the reasoning behind the choices and decisions made during building construction.

- Enjoy the challenge of researching and testing building methods and materials.

- Are interested in working with individuals who offer diverse perspectives.

Employment

Graduates may work in architects offices, engineering firms, contracting companies and government agencies and departments as researchers, junior analysts, project officers, building specialists, technical staff, architectural and construction project team leaders and consultants.

Learning Outcomes

The graduate has reliably demonstrated the ability to:

- Integrate sustainable building practices and alternative energy solutions and present options that balance client specifications, site conditions, and human factors.

- Use sound, acceptable scientific and engineering principles for the solution and documentation of situations encountered during the construction or rehabilitation of buildings.

- Communicate effectively with all project stakeholders.

- Read, interpret, and, with direction, modify documents related to building plans, including working drawings that involve structural, electrical, and mechanical features.

- Formulate strategies for the efficient and effective commissioning and operation of buildings and building systems.

- Evaluate the practical applications of primary and secondary theoretical research related to existing and emerging construction methods, equipment, and materials.

- Analyze, test, and comment on the functionality of alternative structural, mechanical, and electrical solutions proposed for integration in both new projects and renovations.

- Contribute to the on-going economic viability of construction and engineering projects through the application of principles of estimating, accounting, and cost controls.

- Facilitate partnerships and productive interactions within project teams that involve knowledge-workers and skilled trade workers.

- Ensure work, activities, and practice are in compliance with established ethical and professional standards, as well as local, provincial, and national legislation.

- Adapt to changes in employment requirements through the development, implementation, and updating of professional and personal development plans.

- Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship.

Program of Study

Level: 01	Courses	Hours
ARC1000	Construction Methods and Materials	42.0
BSC1200	Professional Practice	14.0
DAT1120	Computer Applications	28.0

DSN1100	Technical Drawings	42.0
ENL1100	Communications and Academic Writing	42.0
MAT6443	Calculus I	56.0
SCI1100	Physics I	21.0
Level: 02	**Courses**	**Hours**
BSC1100	Building Science I	42.0
BSC1201	Building Code	14.0
ELE1200	Electricity and Power Generation Fundamentals	42.0
MAT8202	Calculus II	56.0
PHI1000	Logic and Critical Thinking	56.0
SCI1200	Materials Science I	42.0
Level: 03	**Courses**	**Hours**
BSC1400	Building Science II	42.0
CAD2300	Building Modelling I	28.0
DSN2300	Building Design Processes I	21.0
ENG1100	Thermodynamics	42.0
GEP1001	Cooperative Education and Job Readiness	18.0
MAT8203	Linear Algebra	42.0
MGT3110	Introduction to Construction Project Management	28.0
SCI2300	Materials Science II	28.0
Elective: choose 1	**Courses**	**Hours**
BIO2200	Botany	56.0
ECO2000	Environmental Economics	42.0
ENL2025	Interpersonal Communication	42.0
FLS3101	French as a Second Language - Beginner 1	42.0
FLS3102	French as a Second Language - Beginner 2	42.0
GEO2300	Principles of Urban Planning	56.0
LAN3101	Spanish - Beginner 1	42.0
LAN3102	Spanish - Beginner 2	42.0
LAW2014	Law	42.0
PHI2002	Ethical Decision Making	42.0
PSI2000	Navigating Canada's Political Landscape	56.0

PSY2100	Introductory Psychology	42.0
SCI2000	Environmental Science	42.0
SOC2000	Introduction to Sociology	56.0
SOC2001	Anti-Racism: Theory and Practice	42.0
Level: 04	**Courses**	**Hours**
BSC2400	Cost Estimating	28.0
CAD2400	Building Modelling II	28.0
CON3210	Constructability	28.0
ENG3100	Heat Transfer	42.0
ENL8810	Technical Communications	42.0
MAT8204	Differential Equations	42.0
PHI2000	Introduction to Research	42.0
SCI2201	Physics II	21.0
Co-op: 01	**Courses**	**Hours**
WKT2500	Work Term I	
Level: 05	**Courses**	**Hours**
BSC2210	Building Systems I	28.0
BSC3400	Building Envelope I	42.0
DSN3100	Building Design Processes II	21.0
ENG2100	Geotechnical Engineering	42.0
MAT8205	Statistics and Probability	42.0
Elective: choose 1	**Courses**	**Hours**
BIO2200	Botany	56.0
ECO2000	Environmental Economics	42.0
ENL2025	Interpersonal Communication	42.0
FLS3101	French as a Second Language - Beginner 1	42.0
FLS3102	French as a Second Language - Beginner 2	42.0
GEO2300	Principles of Urban Planning	56.0
LAN3101	Spanish - Beginner 1	42.0
LAN3102	Spanish - Beginner 2	42.0
LAW2014	Law	42.0
PHI2002	Ethical Decision Making	42.0

PSI2000	Navigating Canada's Political Landscape	56.0
PSY2100	Introductory Psychology	42.0
SCI2000	Environmental Science	42.0
SOC2000	Introduction to Sociology	56.0
SOC2001	Anti-Racism: Theory and Practice	42.0
ENL4100	Creative Writing	42.0
ENL4200	New Worlds and Alternative Realities: Speculative Fiction	42.0
PHI4000	Philosophy and Popular Culture	42.0
PHI4002	The Philosophy of Drugs	42.0
PHI4003	The Philosophy of Love and Sex	42.0
PHI4004	Technology, Society and the Environment	42.0
PHI4100	Survival in the Information Age: Risk and the Media	42.0
PHY4000	Black Holes, Big Bangs and the Cosmos	42.0
SOC4000	Criminology	42.0
SOC4001	Global Perspectives	42.0
Level: 06	**Courses**	**Hours**
BSC2100	Building Frame and Structural Studies	56.0
BSC3420	Building Systems II	42.0
BSC4000	Building Envelope II	42.0
CAD3200	Building Information Modeling	42.0
DSN2211	Sustainable Design	28.0
Elective: choose 1	**Courses**	**Hours**
BIO2200	Botany	56.0
ECO2000	Environmental Economics	42.0
ENL2025	Interpersonal Communication	42.0
FLS3101	French as a Second Language - Beginner 1	42.0
FLS3102	French as a Second Language - Beginner 2	42.0
GEO2300	Principles of Urban Planning	56.0
LAN3101	Spanish - Beginner 1	42.0
LAN3102	Spanish - Beginner 2	42.0
LAW2014	Law	42.0
PHI2002	Ethical Decision Making	42.0

PSI2000	Navigating Canada's Political Landscape	56.0
PSY2100	Introductory Psychology	42.0
SCI2000	Environmental Science	42.0
SOC2000	Introduction to Sociology	56.0
SOC2001	Anti-Racism: Theory and Practice	42.0
Co-op: 02	**Courses**	**Hours**
WKT3500	Work Term II	0.0
Level: 07	**Courses**	**Hours**
BSC2300	Applied Numerical Methods	42.0
BSC3100	Renewable Energy	42.0
BSC3300	Energy Conservation and Auditing	42.0
BSC4300	Building Science Research Project I	56.0
CAD4100	Energy Modelling and Simulation	42.0
Elective: choose 1	**Courses**	**Hours**
ENL4100	Creative Writing	42.0
ENL4200	New Worlds and Alternative Realities: Speculative Fiction	42.0
PHI4000	Philosophy and Popular Culture	42.0
PHI4002	The Philosophy of Drugs	42.0
PHI4003	The Philosophy of Love and Sex	42.0
PHI4004	Technology,Society and the Environment	42.0
PHI4100	Survival in the Information Age: Risk and the Media	42.0
PHY4000	Black Holes, Big Bangs and the Cosmos	42.0
SOC4000	Criminology	42.0
SOC4001	Global Perspectives	42.0
Level: 08	**Courses**	**Hours**
BSC3200	Alternative Energy	42.0
BSC4210	Professional Portfolio Development	7.0
BSC4350	Building Science Research Project II	56.0
CON4200	Construction Methods for Renovation and Rehabilitation	42.0
ENL4005	Report Writing	14.0
Elective: choose 1	**Courses**	**Hours**
ENL4100	Creative Writing	42.0

ENL4200	New Worlds and Alternative Realities: Speculative Fiction	42.0
PHI4000	Philosophy and Popular Culture	42.0
PHI4002	The Philosophy of Drugs	42.0
PHI4003	The Philosophy of Love and Sex	42.0
PHI4004	Technology,Society and the Environment	42.0
PHI4100	Survival in the Information Age: Risk and the Media	42.0
PHY4000	Black Holes, Big Bangs and the Cosmos	42.0
SOC4000	Criminology	42.0
SOC4001	Global Perspectives	42.0
BSC4100	Applied Energy Management	42.0
BSC4500	Building Enclosure Comissioning	42.0

Fees for the 2023/2024 Academic Year

Tuition and related ancillary fees for this program can be viewed by using the Tuition and Fees Estimator tool at https://www.algonquincollege.com/fee-estimator .

Further information on fees can be found by visiting the Registrar`s Office website at http://file:///C:/Users/wingraph/AppData/Local/Apps/2.0/85J89O2J.M29/57NR9QLR.4D2/test..tion-_e800ab5aa35904b3_0001.0000_d5a94ace07199376/www.algonquincollege.com/ro .

Fees are subject to change.

Additional program related expenses include:

- Books and supplies cost approximately $1,200 per academic term and can be purchased from the campus store. For more information visit https://www.algonquincollege.com/coursematerials .

- Students are expected to purchase CSA-approved safety footwear and safety glasses, which are required at the start of the term.

Admission Requirements for the 2024/2025 Academic Year

College Eligibility

- Ontario Secondary School Diploma (OSSD) or equivalent.

- Mature students are applicants who have not achieved the Ontario Secondary School Diploma (OSSD) or its equivalent and who are at least 19 years of age on or before the commencement of the program in which they intend to enroll. Mature students applying for Degree programs satisfy College Eligibility by having demonstrated academic abilities equivalent to those of Ontario high school graduates, verified by successful completion of at least one full-time term at the post-secondary level (minimum five courses taken concurrently in an academic program of study).

Program Eligibility

- Six Grade 12 university (U) or university/college (M) courses with a minimum 65% average including:

- One Grade 12 U Mathematics course, with a minimum of 70%

- One Grade 12 U Science course (Physics preferred), with at least 70%

- Please note that mature students must meet the following subject-specific Program Eligibility requirements, either directly or through equivalencies:

- One Grade 12 U Mathematics, with a minimum of 70%

- One Grade 12 U Science course (Physics preferred), with at least 70%

Admission Requirements for 2023/2024 Academic Year

College Eligibility

- Ontario Secondary School Diploma (OSSD) or equivalent.

- Mature students are applicants who have not achieved the Ontario Secondary School Diploma (OSSD) or its equivalent and who are at least 19 years of age on or before the commencement of the program in which they intend to enroll. Mature students applying for Degree programs satisfy College Eligibility by having demonstrated academic abilities equivalent to those of Ontario high school graduates, verified by successful completion of at least one full-time term at the post-secondary level (minimum five courses taken concurrently in an academic program of study).

Program Eligibility

- Six Grade 12 university (U) or university/college (M) courses with a minimum 65% average including:

- One Grade 12 U English course, with a minimum of 70%.

- One Grade 12 U Mathematics course, with a minimum of 70%.

- One Grade 12 U Science course (Physics preferred), with at least 70%.

- Please note that mature students must meet the following subject-specific Program Eligibility requirements, either directly or through equivalencies:

- One Grade 12 U Mathematics, with a minimum of 70%.

- One Grade 12 U Science course (Physics preferred), with at least 70%.

Application Information

BACHELOR OF SCIENCE (BUILDING SCIENCE) (HONOURS) (CO-OP)
Program Code 1512X03FWO

Applications to full-time day programs must be submitted with official transcripts showing completion of the academic admission requirements through:

ontariocolleges.ca
60 Corporate Court
Guelph, Ontario N1G 5J3
1-888-892-2228

Students currently enrolled in an Ontario secondary school should notify their Guidance Office prior to their online application at http://www.ontariocolleges.ca/ .

Applications for Fall Term and Winter Term admission received by February 1 will be given equal consideration. Applications received after February 1 will be processed on a first-come, first-served basis as long as places are available.

International applicants please visit this link for application process information:
https://algonquincollege.force.com/myACint/ .

For further information on the admissions process, contact:

Registrar`s Office

Algonquin College
1385 Woodroffe Ave
Ottawa, ON K2G 1V8
Telephone: 613-727-0002
Toll-free: 1-800-565-4723
TTY: 613-727-7766
Fax: 613-727-7632
Contact: https://www.algonquincollege.com/ro

Additional Information

Algonquin College has been granted consent by the Minister of Colleges and Universities to offer this applied degree for a seven-year term starting February 5, 2021. The College shall ensure that all students admitted to the above-named program during the period of consent have the opportunity to complete the program within a reasonable timeframe.

CO-OP INFORMATION:
Co-operative education (Co-op) allows students to integrate their classroom learning with a real-world experience through paid work terms. Two academic terms prior to the cooperative education work term, students are required to actively participate in and successfully complete the self-directed co-op course, readiness activities and workshops.

Students must actively conduct a guided, self-directed job search and are responsible for securing approved program-related paid co-op employment. Students compete for co-op positions alongside students from Algonquin College and other Canadian and international colleges and universities. Algonquin College`s Co-op Department provides assistance in developing co-op job opportunities and guides the overall process, but does not guarantee that a student will obtain employment in a co-op work term. Co-op students may be required to relocate to take part in the co-op employment opportunities available in their industry and must cover all associated expenses; e.g., travel, work permits, visa applications, accommodation and all other incurred expenses.

Co-op work terms are typically 14 weeks in duration and are completed during a term when students are not taking courses. For more information on your program`s co-op level(s), visit the courses tab on your program`s webpage.

International students enrolled in a co-op program are required by Immigration, Refugees and Citizenship Canada (IRCC) to have a valid Co-op/Internship Work Permit prior to commencing their work term. Without this document International students are not legally eligible to engage in work in Canada that is part of an academic program. The Co-op/Internship Work Permit does not authorize international students to work outside the requirements of their academic program.

For more information on co-op programs, the co-op work/study schedule, as well as general and program-specific co-op eligibility criteria, please visit https://www.algonquincollege.com/coop .

Successful completion of all courses, including mandatory cooperative education (Co-op) Work Terms, is a requirement for graduation.

TRANSFER CREDIT RECOGNITION:
Applicants with degrees or degree level courses from Canadian institutions empowered to award degrees and from other degree granting institutions recognized by the Ontario Ministry of Colleges and Universities (MCU) are assessed on a case-by-case basis. To receive a course credit, a minimum grade of C (65%) is required. Official transcripts and course descriptions/outlines must be presented with the application for credit recognition. Applicants with degrees or degree level courses from countries other than Canada or from postsecondary institutions not recognized by the MCU must have their degrees evaluated by a recognized Canadian public or private institution that specializes in the evaluation of international degree programs. MCU must have their degrees evaluated by a recognized Canadian public or private institution that specializes in the evaluation of international degree programs.

ADVANCED STANDING:
Graduates of related Ontario College Diploma or Ontario College Advanced Diploma programs may be eligible for advanced standing into the degree program. Please visit the degree program listing or speak to the Program Coordinator for more information and to confirm eligibility.

DEGREE ELECTIVE INFORMATION:
Students may choose from a variety of breadth courses. Courses from a range of disciplines are offered within the humanities, social sciences, sciences, global cultures and mathematics. Elective offerings vary from semester to semester.

Contact Information

Program Coordinator(s)

- Stephen Vardy, mailto:vardys@algonquincollege.com , 613-727-4723, ext. 5042

Course Descriptions

ARC1000 Construction Methods and Materials

Professionals within the Building Science industry require a sound foundation of basic building performance requirements as well as materials and systems used in constructing buildings. This includes a basic understanding of the use of common systems such as foundations, structural framing, building envelopes, and finishes, and their performance with respect to fire, acoustics, temperature and moisture. Students also examine performance characteristics, terminology and usage, of wood, steel, concrete, and masonry materials and manufactured components.

Prerequisite(s): none
Corerequisite(s):none

BIO2200 Botany

Biologists with an interest in plant life may choose to specialize in botany. Beginning with the organic features of life, focusing on plants, students investigate the diversity of plant life and the basis for distinction amongst various species. With a deeper knowledge of plant structures and variability, students consider the impact of plants in the modern world, including human interactions such as food production, building materials and medicine.

Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

BSC1100 Building Science I

Students explore buildings and the inter-connectedness of the constituent features and systems that make up a building. In addition, to the scientific principles students learn about the methodologies and approaches, such as LEED, used in this field of study while they broaden their use of disciplinary concepts and vocabulary. The theoretical and methodological framework developed in this course carries through the program striving for building performance optimization by promoting energy efficiency, structural durability, low environmental impact and a healthy living environment.

Prerequisite(s): none
Corerequisite(s):none

BSC1200 Professional Practice

Maintaining relevancy and currency within one's field is essential to a successful career. Students explore job opportunities in the field of building science and resources involved in certification (e.g. BSSO), conferences/events, professional organization (ASHRAE, etc.), research, education, best practices, individual professionalism, independent practice and consulting. Students start the development of a portfolio gathering work performed throughout the program.

Prerequisite(s): none
Corerequisite(s):none

BSC1201 Building Code

The Ontario Building Code provides the parameters for building construction and energy efficiency. Land use bylaws and municipal regulations provide guidelines for design. An introductory understanding of the framework and application of the code and bylaws is critical to practicing in the industry. Students gain practical experience and knowledge by locating information and then analysing buildings to assess for code and regulatory compliance. Example buildings are assessed with in-class exercises, online worksheets and assignments.

Prerequisite(s): none
Corerequisite(s):none

BSC1400 Building Science II

Environmental elements greatly influence the operational aspects of any building. Students apply principles of physic to develop strategies to control air leakage and ventilation, moisture, heat gain/losses by solar radiation and rain penetration in buildings. Through the analysis of past and existing buildings, students discuss the major causes of envelope failures as well as examples of high performance buildings.

Prerequisite(s): BSC1100
Corerequisite(s):none

BSC2100 Building Frame and Structural Studies

Building frames and structures endure a variety of different strains and stresses over the lifespan of a building. Additional expected and unexpected environmental factors can also erode stability over time. Many of these strains and stresses interact with building materials in different ways, and in this course, students delve into the theoretical and mathematical principles that enable successful structural and framing design. Using case studies, scenarios, and lab activities involving living lab tools, students evaluate successful and no successful examples of building frames and structures.

Prerequisite(s): SCI1200
Corerequisite(s):none

BSC2210 Building Systems I

Through readings, discussion, and primary research using living lab tools, students explore the electrical, plumbing and safety systems that add comfort and control to buildings of all types. Beyond tracing the historical development of these specialized fields, students develop an understanding of the role of skilled trades in the implementation and maintenance of these systems. Special attention is paid to both building code requirements, and interpretation of design drawings for these fields.

Prerequisite(s): ELE1200 and ENG1100
Corerequisite(s):none

BSC2300 Applied Numerical Methods

Students reviews a variety of building science applications and problems using analytical techniques, mathematical knowledge and physics principles to describe, model, forecast and analyze performance. The objective is to use mathematical tools acquired in previous courses to learn how to approach and solve building science situations. Students examine subjects, such as mathematical modeling and engineering problem solving, sensitivity analysis, optimization, numerical heat transfer and computational fluid dynamics in building science applications.

Prerequisite(s): MAT8202
Corerequisite(s):none

BSC2400 Cost Estimating

The success and failure of projects often rest on the accuracy of estimated costs up front. Students work through the bid process and prepare estimates with varying levels of detail that are both viable and achievable. Topics discussed include survey quantities, quantity take off, labour hours and rates, materials and equipment costs, subcontractor and indirect costs, tender forms, bid, estimate and summary sheets.

Prerequisite(s): none
Corerequisite(s):none

BSC3100 Renewable Energy

The energy demands of new and existing buildings are an expense that many building owners and managers have accepted as a requirement, but emerging sources of renewable energy are presenting new options. Students work collaboratively to broaden their knowledge of renewable energy sources available for residential and commercial applications and conduct some tests with living lab tools. Beyond the question of generation and storage of this energy, students outline and investigate the benefits and drawbacks that currently exist with respect to integration of these sources with contemporary building systems.

Prerequisite(s): ELE1200
Corerequisite(s):none

BSC3200 Alternative Energy

Students extend their knowledge of energy sources through a consideration of non-fossil fuel options that are currently available or being researched for development. Beyond questions of generation, storage, and integration with contemporary building systems, students analyze the societal response and economic impact of alternative sources of energy that place a greater emphasis on reducing carbon emissions.

Prerequisite(s): none
Corerequisite(s):none

BSC3300 Energy Conservation and Auditing

In buildings of all sizes for all types of applications, essential components in the establishment and preservation of environmental comfort also play a role in a building's energy utilization. Mindful of code and LEED certification, students, with the support of living lab tools, further develop a picture of the built environment as a holistic system of integrated parts. Students use techniques to assess and improve opportunities to use energy efficiently and reduce energy consumption, while maintaining interior human comfort. Categorizing energy utilization through energy audits, students identify worthwhile energy-saving strategies.

Prerequisite(s): BSC3420
Corerequisite(s):none

BSC3400 Building Envelope I

Problems arising in buildings often trace back to issues with the building envelope. Through case

studies and examples, students examine a range of wall and window assemblies, the synergy between them and industry best practices. To define the scope of repairs, students conduct the required diagnostic approaches, investigate failures and identify possible remedies.

Prerequisite(s): ARC1000
Corerequisite(s):none

BSC3420 Building Systems II

Striking a balance between efficiency and objectives can be challenging in the building science field. Students examine the requirements to implement and manage the ongoing operation and maintenance of building systems and to maximize building efficiency and cost-effectiveness. Through the use of proper charts and equations, students rely on Bernoulli's equation and its extended energy equation form to calculate energy loss in piping and ducting systems. Topics include examination of various components and systems such as heat recovery ventilation and energy recovery ventilation, air distribution, pressure regimes, natural and hybrid ventilation, indoor air quality, illumination, acoustics, fire safety, plumbing systems and waste water. Special attention is paid to both building code requirements, and interpretation of design drawings for these fields. The content of the course also enables the students to understand "Residential Mechanical Ventilation" courses offered by HRAI for certification.

Prerequisite(s): BSC2210
Corerequisite(s):none

BSC4000 Building Envelope II

Proper design and detailing of roof systems is crucial for the adequate performance of the building envelope. Through case studies and examples, students examine a range of roofing systems from their design through their application and maintenance. To define the scope of repairs, students conduct the required diagnostic approaches, investigate failures and identify possible remedies.

Prerequisite(s): BSC3400
Corerequisite(s):none

BSC4100 Applied Energy Management

Using existing and emerging research available from a variety of related disciplines, students examine new and accredited hardware, and software that enable a variety of approaches for the management of energy and the control of the interior environment. Some topics root the theories and concepts in the site planning stages, while others work from a retrofit or renovation perspective.

Prerequisite(s): BSC3300
Corerequisite(s):none

BSC4210 Professional Portfolio Development

In the profession of building science, the ability to construct a portfolio is an important skill. Students collect all the projects for their portfolio throughout the program to present in a professional format.

Prerequisite(s): none
Corerequisite(s):none

BSC4300 Building Science Research Project I

Working individually or in small teams, students engage in a research project that contributes to the body of knowledge in applied building science. Students focus on the choice of topic, the design of the project, the development of the project proposal, and preliminary research and testing.

Prerequisite(s): ARC1000
Corerequisite(s):none

BSC4350 Building Science Research Project II

Students complete the research project that was started in the previous semester. The research project is presented to peers and faculty in the form of both a written report and a presentation. Prior to the delivery of these submissions, students ensure that the necessary level of research and testing has been completed and documented.

Prerequisite(s): BSC4300
Corerequisite(s):none

BSC4500 Building Enclosure Comissioning

A critical aspect of building science is quality assurance measured against desired goals, criteria and objectives, and this is best achieved by the Building Enclosure Commissioning (BECx) process. Students gain knowledge through and participate in simulations of the BECx process, which is utilized to validate that the design and performance of materials, components, systems and assemblies achieve the objectives and requirements of a building project owner. Students further develop and refine knowledge and understanding of building enclosure materials, components, systems and assemblies - such as foundations, walls, roofs windows/doors, and skylights - their importance, and how they are assessed, both qualitatively through visual review and quantitatively through laboratory or field testing to meet the relevant performance standards. Students develop a realistic and applied approach to the BECx field. Comprehension of the BECx process provides students with an enhanced knowledge base in how buildings operate that is directly transferable to the work force.

Prerequisite(s): BSC4000
Corerequisite(s):none

CAD2300 Building Modelling I

Concepts come to life when shared and discussed with others. Students use AutoCAD to create computer-aided drafting. Focus is placed on the drawing and editing commands required to produce two-dimensional architectural drawings.

Prerequisite(s): DSN1100
Corerequisite(s):none

CAD2400 Building Modelling II

Being able to leverage technology to clearly represent detailed building models is necessary in clearly communicating project details. Through the introduction of Revit Architecture, students learn basic creation, editing commands, annotation and view controls in dealing with residential buildings. Students create an elementary residential model and drawing set employing basic concepts of Building Information Modeling (BIM).

Prerequisite(s): DSN1100
Corerequisite(s):none

CAD3200 Building Information Modeling

In construction and the building lifecycle process, alignment and improvement of both qualitative and quantitative metrics is guaranteed in building information modelling. Students apply the theoretical and mathematical principles behind software tools designed to increase productivity in building design and construction. Students develop a three-dimensional model that allows them to add aspects of time and cost to a construction project. Information related to the properties of systems and materials are applied to enable the assessment of various aspects of building performance under particular scenarios. In addition, students develop a process that produces a building information model. This model can then be used for analysis during design, and construction in order to forecast interior building conditions, comfort, energy use, illumination or structural behaviour.

Prerequisite(s): CAD2400

Corerequisite(s):none

CAD4100 Energy Modelling and Simulation

Students explore a number of advanced software tools that use powerful analytical mechanisms to model the whole building during the design of new construction or during major renovations. With the emphasis on energy modeling and simulation students identify the cross-system impacts of individual decisions on building envelope, lighting, electrical power, ventilation and mechanical heating and cooling system performance.

Prerequisite(s): CAD3200 and ENG3100
Corerequisite(s):none

CON3210 Constructability

Using the knowledge and skills acquired to date in the program, students solve problems that arise when construction practicality meets aesthetic design. Students contribute to this seminar through the presentation of solutions to case studies from a variety of contexts. Through this contribution, students both lead a case team and participate as a team member for other cases.

Prerequisite(s): ARC1000
Corerequisite(s):none

CON4200 Construction Methods for Renovation and Rehabilitation

Building from scratch is not always the most feasible solution in today's marketplace, and so owners turn to renovation and rehabilitation as an alternative. Through the application of existing knowledge to cases and scenarios, students examine a variety of procedures, pitfalls and concerns that emerge in these situations. Emphasis is placed not only on code requirements and environmental legislations, but also on accurate assessment of the existing systems, and structures in order to minimize the need to overhaul entire components without sacrificing the building's functionality.

Prerequisite(s): BSC2100
Corerequisite(s):none

DAT1120 Computer Applications

Office productivity suites and computer-aided design applications are an important part of the design and reporting that takes place in the construction industry. To be efficient and effective contributors in the workplace, employees must be both quick and accurate with their work. Students are provided hands-on opportunities to develop and extend their knowledge and skills with current office productivity tools, such as word processors, spreadsheet applications and presentation software.

Prerequisite(s): none
Corerequisite(s):none

DSN1100 Technical Drawings

Effective communication through fundamentals of the design documentation process is key to a successful building project and solid technical drawings are the cornerstone of such communication. Students develop the skills to complete basic hand drawing techniques providing the ability to present the building related ideas and to read drawings from other sources. The specific skills include studies of forms and shapes using lines, textures and light sources. These skills are used to create first the plans and later a feeling of multi-dimensional spaces with the axonometry and perspective, both essential in their professional practice. Students also develop skills in scale drawing, basic geometric construction, and composition, assisted by modeling of simple forms and leading to a better understanding of the creation and reading of conceptual sketches, design development and working drawings of buildings and basic site plans within the urban context.

Prerequisite(s): none

Corerequisite(s):none

DSN2211 Sustainable Design

Sustainable design is the conception and insight of an environmentally responsive expression as a part of the evolving matrix of nature. The integration of elements that contribute to LEED certification is an essential part of sustainable design. Students connect their knowledge and skills in design and building systems to the requirements of the LEED pointing system. Working in teams, and using complete and partially complete plans, students analyze designs and propose opportunities to increase the level of LEED certification for a building. Within this context, students also explore passive solar design and low energy design.

Prerequisite(s): DSN3100
Corerequisite(s):none

DSN2300 Building Design Processes I

Professionals within the building industry often participate in the building design collaboratively with other industry professionals. Students examine fundamentals of design processes to gradually understand the idea of sustainability introduced to the design through the practical use of the integrated design process (IDP). Introduction of design charrette gives an early idea of a necessity of it. Through a variety of team-based simulations, students engage in aspects of the building design process in order to develop both a feel for the stages in the design process, and also an awareness of the time and work that culminates in a set of design plans. Discussions and presentations include introduction to the code and cost principles and various requirements such as environmental ones. These include various building and materials life cycle analysis in preparation for future building and material assessments.

Prerequisite(s): none
Corerequisite(s):none

DSN3100 Building Design Processes II

Through a variety of team-based simulations, students engage in aspects of the building design process in order to develop both a feel for the stages in the design process, and also an awareness of the time and work that culminates in a set of design plans. Students learn fundamentals and history of design to gradually understand the idea and practical use of the integrated design process (IDP). Discussions and presentations include various requirements such as code and principles of different energy and environmental assessment tools. These include building and materials assessment tools/ frameworks. Students use such tools to evaluate theoretical or existing buildings in order to understand the impact of the design decisions related to the building and materials life cycles.

Prerequisite(s): DSN2300
Corerequisite(s):none

ECO2000 Environmental Economics

Issues pertaining to the environment have a major financial impact on society and government. Environmental economics examines the way human decisions affect the quality of the environment, how human values and institutions shape our demands for improvements in the quality and about designing effective public policies to bring about these improvements. Students examine problems and solutions relating to environmental policy analysis in the Canadian context.

Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

ELE1200 Electricity and Power Generation Fundamentals

Students acquire some fundamental knowledge of the way in which electricity is generated. Discussions and exercises focus on addressing questions of energy efficiency and energy savings. Students become proficient with a number of theoretical calculations for current and voltage. Practical labs and demonstrations supplement the theoretical knowledge.

Prerequisite(s): none
Corerequisite(s):none

ENG1100 Thermodynamics

Engineering-related disciplines, such as building science, draw heavily on a variety of sciences in order to identify, describe and solve problems presented by real-world situations. In order to engage in this approach to problem solving, students begin an exploration of theoretical and practical applications of a number of laws of science. Through exercises, and research projects, students visualize solutions to problems that are supported both scientifically and mathematically.

Prerequisite(s): none
Corerequisite(s):none

ENG2100 Geotechnical Engineering

Accurate assessments of the sub-grade geological materials found on a given site are a vital part of the decision making process related to the construction of foundations and other support mechanisms for buildings. Through a variety of activities, students investigate the ways in which scientific principles of physics interact with environmental principles to create risks that must be overcome in order for buildings to be safe.

Prerequisite(s): SCI1200
Corerequisite(s):none

ENG3100 Heat Transfer

Students further develop their problem-solving abilities through a continued exploration of the theoretical and practical applications of more complex laws of science. Assignments and discussions focus on the principles involving higher level mathematics to resolve problems that are more directly related to applications in building science, such as heat transfer, and energy systems. Students also begin an examination of the role of computer based models and simulations.

Prerequisite(s): ENG1100
Corerequisite(s):none

ENL1100 Communications and Academic Writing

Effective communication is an integral component of success in the workplace and in lifelong

learning. Students review communication theory and its connection to expository writing. Frequent writing exercises encourage the development of content that is coherent, well organized and correct. Students consider and use strategies to generate ideas, to collect and organize information, to acknowledge sources, to identify and develop a thesis and to adapt format, style and tone for different purposes and audiences.

Prerequisite(s): none
Corerequisite(s):none

ENL2025 Interpersonal Communication

Effectively communicating with others, both professionally and personally, is an art that requires conscious development. Students address the techniques related to interpersonal communication challenges in the diverse workplace. Focus is on communication barriers, verbal and non-verbal communication, listening, team work, and relational dynamics. Through role play, analysis, and case studies, students engage in simulated and authentic interpersonal communication situations.

Prerequisite(s): ENL1100
Corerequisite(s):none

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Prerequisite(s): ENL1100
Corerequisite(s):none

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Prerequisite(s): ENL1100
Corerequisite(s):none

ENL4005 Report Writing

Technical report writing remains a crucial skill for professionals within technical disciplines. In this course, students define and describe a problem of significant technical complexity and present a suitable technological/scientific solution within a formal report structure. Drawing upon skills previously acquired, students plan, conduct research for, and create a written report.

Prerequisite(s): none
Corerequisite(s):none

ENL4100 Creative Writing

Whether for personal or public consumption, many people enjoy writing short fiction to express their creative energy while improving upon their overall writing abilities. Working with professional short stories as models, students examine the stylistic components that contribute to the excitement, atmosphere, and overall readability of short fiction. Students share their work and provide formal feedback on the work of others.

Prerequisite(s): ENL1100
Corerequisite(s):none

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Prerequisite(s): ENL1100
Corerequisite(s):none

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Prerequisite(s): ENL1100
Corerequisite(s):none

ENL4200 New Worlds and Alternative Realities: Speculative Fiction

Speculative fiction gathers together all those works of fiction in which new worlds or alternative realities are envisioned. Within this category of prose, students have the opportunity to explore the various sub-genres that present readers with new ways of thinking about some of the issues that face society. Students also develop skills in critical analysis using a variety of approaches and methodologies from literary studies.

Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

ENL8810 Technical Communications

Students develop an appreciation of both the applications and the implications of technical communication. Through a combination of written and oral assignments, the practical requirements of technical communication, along with some of its theoretical foundations, are investigated. As part of these investigations, students examine, discuss and prepare the components of a formal technical report.

Prerequisite(s): none
Corerequisite(s):none

FLS3101 French as a Second Language - Beginner 1

The French language is an asset when communicating in the workplace. Students with no prior knowledge of French acquire basic forms and structures to interact and communicate in a simple way with French speakers. Class instruction and practice, repeated feedback, and exposure to a variety of language samples support students to gain basic oral expression and comprehension using simple phrases that develop vocabulary, pronunciation, and comprehension. Students begin to appreciate cultural and linguistic differences when French is used in the workplace.

Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

FLS3102 French as a Second Language - Beginner 2

The workplace benefits from having professionals with knowledge of the French language. Students with basic knowledge of French gain more control over forms and structures to interact and communicate in a simple way with French speakers. Class instruction and practice, repeated feedback, and exposure to a variety of language samples provide students with opportunities to enhance their basic oral expression and comprehension using simple phrases that further develop vocabulary, pronunciation, and comprehension. Students deepen their knowledge of cultural and linguistic differences of French in the workplace.

Prerequisite(s): none
Corerequisite(s):none

FLS3102 French as a Second Language - Beginner 2

The workplace benefits from having professionals with knowledge of the French language. Students with basic knowledge of French gain more control over forms and structures to interact and communicate in a simple way with French speakers. Class instruction and practice, repeated feedback, and exposure to a variety of language samples provide students with opportunities to enhance their basic oral expression and comprehension using simple phrases that further develop vocabulary, pronunciation, and comprehension. Students deepen their knowledge of cultural and linguistic differences of French in the workplace.

Prerequisite(s): none

Corerequisite(s):none

FLS3102 French as a Second Language - Beginner 2

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Prerequisite(s): none
Corerequisite(s):none

GEO2300 Principles of Urban Planning

Increasingly cities and communities are feeling the pressure of expansion, and people from all walks of life feel disconnected from the processes, procedures, and decisions that are affecting everyday life. Students consider urban transformation with a focus on practicing sustainability by exploring innovations in land use, transportation, resource planning and economic development, resulting in employment opportunities, as well as healthy and vibrant cities. Students use local and regional activities as a starting point for developing a knowledge base for future social and community involvement. Research projects and assignments encourage students to identify the gaps between theoretical approaches to urban planning and the practical applications as evidenced in their local surroundings.

Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

GEP1001 Cooperative Education and Job Readiness

Students are guided through a series of activities that prepare them to conduct a professional job

search and succeed in the workplace. Through a detailed orientation students learn the cooperative education program policies and procedures related to searching and securing a work term opportunity. Students identify their strengths and transferable skills and participate in workshop-style sessions that focus on cover letter and resume development, interview techniques and job search strategies. Students learn how to navigate a web-based resource centre, which is used to post employment and cooperative education job opportunities. Students reflect on workplace success, ethics and responsibilities.

Prerequisite(s): none
Corerequisite(s):none

LAN3101 Spanish - Beginner 1

The Spanish language is an asset when communicating in the workplace. Students with no prior knowledge of Spanish acquire basic forms and structures to interact and communicate in a simple way with Spanish speakers. Class instruction and practice, repeated feedback, and exposure to a variety of language samples support students to gain basic oral expression and comprehension using simple phrases that develop vocabulary, pronunciation, and comprehension. Students begin to appreciate cultural and linguistic differences when Spanish is used in the workplace.

Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
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Prerequisite(s): none
Corerequisite(s):none

LAN3102 Spanish - Beginner 2

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Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

LAW2014 Law

The reach of the rule of law extends into our lives on a daily basis. As much as it is present in our lives, very few people are aware of the processes, procedures and theories that guide and underpin the development and maintenance of a functional legal system. With attention to key historical figures and events, students explore the scope, jurisdiction, and key concepts of the sub-disciplines within the field of law. Through an introduction to legal arguments and methodologies, students distinguish between various legal systems and wrestle with the difference between law and justice.

Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

MAT6443 Calculus I

Differential calculus is the study of the definition, properties and applications of the derivative of a function. Students study limits and continuity of functions. They learn the definition and interpretation of the derivative as a rate of change. Students use differentiation rules to find derivatives of algebraic and transcendental functions. They also apply implicit and logarithmic differentiation to find derivatives. Students study a variety of applications of derivatives such as finding a tangent to a curve, curve sketching, and finding an approximate solution to an equation using Newton's method. They also solve rates of change and related rates problems.

Prerequisite(s): none
Corerequisite(s):none

MAT8202 Calculus II

Integral calculus is the study of the definitions, properties and applications of two related concepts, the indefinite integral and the definite integral. Students calculate both indefinite and definite integrals using a variety of integration techniques, such as integration by substitution, by parts, by partial fractions and by trigonometric substitution. They use the Trapezoidal and Simpson's Rules to perform numerical integrations. Students study a variety of applications of integration, such as area, volume and work problems.

Prerequisite(s): MAT6443
Corerequisite(s):none

MAT8203 Linear Algebra

Students are provided an introduction to the basic concepts and techniques of linear algebra including systems of linear equations, matrix operations, determinants, vectors in n-space, linear transformations, eigenvalues, and eigen vectors, together with selected applications, such as linear programming, economic models, least squares and population growth.

Prerequisite(s): none
Corerequisite(s):none

MAT8204 Differential Equations

Physical situations such as beam deflection, harmonic motion, circuit theory or Newton's laws require solving first or second-order ordinary differential equations. Students learn to solve first-order differential equations that are Separable Equations, Linear Equations, Equations with Integrating Factors, Exact Equations and Homogenous Equations. Both homogeneous and non-homogeneous second and higher-order differential equations are solved using the method of undetermined coefficients, Laplace Transforms and by variation of parameters. Fourier series are studied and used to solve differential equations.

Prerequisite(s): MAT8202
Corerequisite(s):none

MAT8205 Statistics and Probability

Students review basic statistics operations including probability, random sampling, variability, and the binomial, normal and Poisson's distributions. Students apply these statistical tools in hypothesis testing and in performing regressions and analysis. Students also apply these tools to statistical process control (SPC), as well as address tolerance and accuracy issues particularly as related to manufacturing and design. Examples are drawn not only from the physical and social sciences but also from business.

Prerequisite(s): MAT8202
Corerequisite(s):none

MGT3110 Introduction to Construction Project Management

It might reasonably be said that the only constant in a construction project is the variables. Students focus their attention on the dynamic features of construction projects that make them both challenging and unique. From equipment to materials to environmental conditions to human

resources, students explore the project management role as a means of appreciating the contribution they can make to a project.

Prerequisite(s): none
Corerequisite(s):none

PHI1000 Logic and Critical Thinking

Logic and critical-thinking skills play an important role in both daily life and ongoing academic studies. As foundational skills, they support both the development and assessment of ideas, concepts and courses of action that are presented on a daily basis. Approaching the subject from both a practical and theoretical perspective, students hone their skills in analysis, argumentation, reasoning and persuasion. A range of topics and thinkers provide material with which students can exercise and apply their skills.

Prerequisite(s): none
Corerequisite(s):none

PHI2000 Introduction to Research

Academic research requires students to possess a fundamental knowledge of accepted methodologies and practices. An overview of the research process and tools prepares students to engage in scholarly work. Emphasis is on evaluation, selection and documentation of primary and secondary sources, as well as the development of a research project.

Prerequisite(s): ENL1100 and PHI1000
Corerequisite(s):none

PHI2002 Ethical Decision Making

To avoid potential prosecution, companies and their employees are well-advised to engage in ethical decision-making practices in all business situations. Students examine ethical concepts and principles, compare a variety of ethical decision-making models and utilize these principles and models to make ethically sound decisions in a variety of contexts. Students also design a code of ethics, practice making ethically- based decisions and develop the analytical skills required to recognize, evaluate and resolve ethical dilemmas in the workplace.

Prerequisite(s): PHI1000
Corerequisite(s):none

PHI2002 Ethical Decision Making

To avoid potential prosecution, companies and their employees are well-advised to engage in ethical decision-making practices in all business situations. Students examine ethical concepts and principles, compare a variety of ethical decision-making models and utilize these principles and models to make ethically sound decisions in a variety of contexts. Students also design a code of ethics, practice making ethically- based decisions and develop the analytical skills required to recognize, evaluate and resolve ethical dilemmas in the workplace.

Prerequisite(s): PHI1000
Corerequisite(s):none

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Prerequisite(s): PHI1000
Corerequisite(s):none

PHI4000 Philosophy and Popular Culture

Many facets of today's popular culture engage, directly or indirectly, with the concerns of a variety of philosophical traditions. Drawing on a number of examples, students explore both the way popular culture permeates and spreads through society and the way it interprets and presents philosophical questions. Students develop skills and techniques for assessing the soundness and validity of thought experiments.

Prerequisite(s): PHI1000
Corerequisite(s):none

PHI4000 Philosophy and Popular Culture

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Prerequisite(s): PHI1000
Corerequisite(s):none

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Prerequisite(s): PHI1000
Corerequisite(s):none

PHI4002 The Philosophy of Drugs

Drugs are everywhere: professionals prescribe them to us to make us "better"; we take them recreationally; we give them to our children, pets and other loved ones; we buy them on the streets and in grocery stores. What are "drugs"? Why are some drugs legal and others not? How do drugs get to market? What ethical issues are relevant in a global drug industry? Are current intellectual property regimes appropriate if the goal of drug research is to promote benefits to society? Students critically examine these, and other, questions through the lens of historical and contemporary ethical, philosophical and legal theories and arguments. Students engage in various peer-oriented learning activities throughout the course.

Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

PHI4003 The Philosophy of Love and Sex

Love and sex are central to the human condition, and have been topics of academic inquiry and controversy throughout history. Various practices surrounding love and sex are celebrated in Western culture, such as monogamy and marriage, while other practices, such as polygamy and pedophilia, are condemned. Why is this? Students critically explore these and other issues surrounding love and sex using examples from popular music, movies and literature, framing those issues with the help of historical and contemporary philosophical theories and arguments. Students engage in various peer-oriented learning activities throughout the course.

Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

PHI4003 The Philosophy of Love and Sex

Love and sex are central to the human condition, and have been topics of academic inquiry and controversy throughout history. Various practices surrounding love and sex are celebrated in Western culture, such as monogamy and marriage, while other practices, such as polygamy and pedophilia, are condemned. Why is this? Students critically explore these and other issues surrounding love and sex using examples from popular music, movies and literature, framing those issues with the help of historical and contemporary philosophical theories and arguments. Students engage in various peer-oriented learning activities throughout the course.

Prerequisite(s): none
Corerequisite(s):none

PHI4004 Technology, Society and the Environment

Environmental issues have come to occupy a central place in the marketplace, politics, policy, and society at large. Owing largely to the many environmental consequences that have accompanied industrialization, we humans have been forced to rethink the complex relationship between technology, society and the environment. Students investigate philosophical concepts and theories surrounding technology, society and the environment including: the "naturalness" of technology, sustainability and animal rights. Students critically examine course material by focusing on questions such as: What is nature, and what role do/should humans occupy in it? What do we owe non-human organisms? What do we owe future generations? Students engage in various peer-oriented learning activities throughout the course.

Prerequisite(s): none
Corerequisite(s):none

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Environmental issues have come to occupy a central place in the marketplace, politics, policy, and society at large. Owing largely to the many environmental consequences that have accompanied industrialization, we humans have been forced to rethink the complex relationship between technology, society and the environment. Students investigate philosophical concepts and theories surrounding technology, society and the environment including: the "naturalness" of technology, sustainability and animal rights. Students critically examine course material by focusing on questions such as: What is nature, and what role do/should humans occupy in it? What do we owe non-human organisms? What do we owe future generations? Students engage in various peer-oriented learning activities throughout the course.

Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

PHI4100 Survival in the Information Age: Risk and the Media

On an almost daily basis, the media, through its various outlets - television, radio, web sites, RSS, and podcasts - reports on issues that address our wellbeing. Through discussions, readings, and assignments, students enhance their ability to interpret and question information presented by the media by better understanding the inherent risks. Issues like alternative medicine (i.e. vaccinations) and socio-legal issues (i.e. bullying, hacking, surveillance, privacy) provide grounds for students to use principles from the social science as a means to think critically about real and perceived risks in daily life.

Prerequisite(s): PHI1000
Corerequisite(s):none

PHI4100 Survival in the Information Age: Risk and the Media

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Prerequisite(s): PHI1000
Corerequisite(s):none

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Prerequisite(s): PHI1000
Corerequisite(s):none

PHY4000 Black Holes, Big Bangs and the Cosmos

The dynamic and exciting field of Cosmology outlines our current understanding of the Universe from its start, at the so-called Big Bang, through the ensuing 13 plus billion years to the present and beyond. Students learn how to discuss our present understanding of the three phases of the Universe as well as its five part make up, with matter making up only 4% of the whole. Students explain our knowledge of the various phases of evolution of the Cosmos and also the latest theories and experiments that are trying to address our uncertainties. Throughout the course, students evaluate and debate many of today's ideas and concepts revolving around cosmology.

Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

PSI2000 Navigating Canada's Political Landscape

A developed knowledge of government and politics is key to an effective participation in public life. Drawing on current events, students explore the societal, cultural and constitutional context along with the major political parties and institutions that shape the Canadian political landscape. Students develop skills and techniques that allow them to position politicians, parties, and policies, past and present, on the spectrum of political ideology and Canadian political traditions. Working together and individually, students analyze issues from the perspective of various political approaches.

Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

PSY2100 Introductory Psychology

With its applications to behaviour and personality, psychology extends its reach into many aspects of our personal lives. The broad applications of this social science in both an applied and theoretical context are premised on a number of fundamental principles. Students explore historical breakthroughs that define the current boundaries of the discipline and interact with a number of the foundational concepts that resonate throughout daily life and popular culture. Students develop an introductory knowledge in the various schools of thought within the discipline.

Prerequisite(s): none
Corerequisite(s):none

PSY2100 Introductory Psychology

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Prerequisite(s): none
Corerequisite(s):none

SCI1100 Physics I

Buildings rely heavily on the integration of nature and properties of matter and energy. Students

form a solid foundation in elementary mechanics and general physics including kinematics (one and two dimensional motion, circular motion), Newton's Laws, types of forces such as gravitational force, tension force, friction force and Hooke's law, work, energy, power and thermodynamics.

Prerequisite(s): none
Corerequisite(s):none

SCI1200 Materials Science I

Students gain an up-close, hands-on sense of the physical, chemical, and aesthetic characteristics of materials used in the construction industry. Experiments in a lab setting and small research assignments ensure the application of the scientific method and the documentation of observations and results. Introduction to both the safety equipment and the procedures for the lab are also part of this course.

Prerequisite(s): none
Corerequisite(s):none

SCI2000 Environmental Science

Environmental science is an interdisciplinary study of how the earth works, human interaction with the earth and how to address the existing environmental problems. Students explore natural capital and the degradation. Students engage in case studies, critical thinking and analysis of alternatives in exploring solutions and trade-offs in trying to address degradation.

Prerequisite(s): ENL1100 and PHI1000
Corerequisite(s):none

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Prerequisite(s): ENL1100 and PHI1000
Corerequisite(s):none

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Prerequisite(s): ENL1100 and PHI1000
Corerequisite(s):none

SCI2201 Physics II

Possessing the underpinnings to understand how things work from first principles provides the basis to becoming a successful professional in the field of building science. Students develop a foundation in general and applied physics including topics such as vectors, conditions of equilibrium, force and motion, dynamics of rigid bodies, gravitation, rotation, elasticity, properties of sound, waves and vibrations and acoustics.

Prerequisite(s): none
Corerequisite(s):none

SCI2300 Materials Science II

Selection of building material greatly influences building performance. Students continue their

study of the materials used to construct and repair the building envelope. Through the analysis of material's atomic structure, hygrothermal properties and compatibility students compare different materials used in the envelope linings to forecast the performance of assemblies. Considering the physical phenomena that affect materials behavior students examine mechanisms of deterioration.

Prerequisite(s): none
Corerequisite(s):none

SOC2000 Introduction to Sociology

When working with individuals and groups it is important to understand both the background and influences present. Students develop a familiarity with sociological theories and methodological approaches used to study individual and group behaviours. Students also examine variables that include culture, social class, race, and gender and how these variables may impact work with diverse individuals and groups.

Prerequisite(s): ENL1100
Corerequisite(s):none

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Prerequisite(s): ENL1100
Corerequisite(s):none

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Prerequisite(s): ENL1100
Corerequisite(s):none

SOC2001 Anti-Racism: Theory and Practice

Anti-racism is the practice of identifying, challenging, and changing the values, structures, and behaviours that perpetuate systemic racism. Students explore concepts of anti-oppressive practice, anti-racist pedagogy, diversity, and inclusion at the personal, societal, and institutional levels. Students develop an understanding of historical and present-day groups and figures that challenge oppressive structures in Canadian society. Through various learning activities anad discussion boards, students will develop the necessary knowledge, attitude, and skills to become an authentic ally within society.

Prerequisite(s): none
Corerequisite(s):none

SOC2001 Anti-Racism: Theory and Practice

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Prerequisite(s): none
Corerequisite(s):none

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Prerequisite(s): none
Corerequisite(s):none

SOC4000 Criminology

The interdisciplinary study of social science examining the individual and social aspects of crime is known as criminology. Students work through an introduction to the social science perspective on crime. Presentations, discussions, and assignments allow students to investigate the various theoretical positions related to crime and criminal behaviour. Working forward from the types and definitions of crime, students trace some of the links between government policy and the impacts of these policies on both society and the individual.

Prerequisite(s): SOC2000
Corerequisite(s):none

SOC4000 Criminology

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Prerequisite(s): SOC2000
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Prerequisite(s): SOC2000
Corerequisite(s):none

SOC4001 Global Perspectives

Sociology, through its exploration of the organization of society and the connections between people and their surroundings, provides new ways of looking at the world. Using fundamental knowledge in the field of sociology, students analyze globalization and its impact on Canadian society. Students take opposing views to debate the opportunities and challenges that come with globalization.

Prerequisite(s): SOC2000
Corerequisite(s):none

SOC4001 Global Perspectives

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Prerequisite(s): SOC2000
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Prerequisite(s): SOC2000
Corerequisite(s):none

WKT2500 Work Term I

Immediately following semester four, the first co-op placement provides students with experiential opportunities within the construction industry and related industries. The first work term centres on attaining entry-level positions that immerse students in a variety of activities allowing them to apply principles and concepts developed over the first two years of study. Students returning from Co-op Placement I bring additional practical considerations to their third year of study.

Prerequisite(s): none
Corerequisite(s):none

WKT3500 Work Term II

Immediately following academic term six, the second co-op placement provides students with experiential opportunities within the construction industry and related industries. The second work term centres on applying knowledge and skills developed since the last placement and accepting increasing responsibilities. Students returning from Co-op Placement II draw on their experience for a number of their final year seminars.

Prerequisite(s): none
Corerequisite(s):none