Area of Interest: Construction and Skilled Trades

Bachelor of Building Science (Entry Level 03) (Honours) (Co-op)

Honours Degree

Program Code: 1512A03FWO

4 Years

Ottawa Campus

Our Program

Experience current and emerging technologies in Canada`s only Bachelor of Building Science program.

The four-year Bachelor of Building Science Honours Degree program is designed to give you a broad knowledge base related to building environments. It covers all facets of building design, construction, human comfort and sustainability. It is Canada`s only Bachelor of Building Science program.

If you have a recognized Diploma in Architectural Technician, Construction Engineering Technician, or Advanced Diploma in Mechanical Engineering Technology you may be eligible to enter into the second year of the program with advanced academic standing. See Application/Admission Information for details.

The small class sizes of the program allow you and your peers to form tight-knit working groups and build the effective communication skills necessary to succeed in the industry. You spend approximately one third of your time working in the labs, developing your skills. You also have the opportunity to gain industry experience from site visits, professors who are actively working in the field and mandatory cooperative education work terms.

As a student in the program, you learn skills specific to architecture, construction methodologies, building envelopes, sustainability and other areas such as:

- science and engineering principles, professionalism and methodologies
- fundamentals of mathematics, technical writing, computer applications
- building frames and structures, geotechnical engineering, and materials science
- sustainable design, botany, renewable energy, urban planning and building information modeling
- business fundamentals, project planning and management, and research and leadership skills

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.

Graduates may find work as a(n):

- building scientist
- architectural or construction project manager
- energy consultant
- building inspector
- researcher

- junior analyst
- technical staff member with engineering firms or government agencies

Graduates of this program may also pursue further study in a variety of graduate credentials, such as Algonquin College`s Energy Management Ontario College Graduate Certificate, or pursue a Master`s degree in Building Science.

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 that are 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 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 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: 03	Courses	Hours
BSC2100	Building Frame and Structural Studies	56.0
ENG1100	Thermodynamics	42.0
ENG2100	Geotechnical Engineering	42.0
ENL8810	Technical Communications	42.0
GEP1001	Cooperative Education and Job Readiness	18.0
MAT8204	Differential Equations	42.0
SOC2000	Introduction to Sociology	56.0
Level: 04	**Courses**	**Hours**
BSC2300	Applied Numerical Methods	56.0
CON2200	Business Development for the Construction Industry	42.0
CON3200	Seminar in Constructability	42.0
DSN2200	Sustainable Design	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
Co-op: 01	**Courses**	**Hours**
WKT2500	Work Term I	
Level: 05	**Courses**	**Hours**
BSC2200	Building Systems	70.0
BSC3100	Renewable Energy	42.0

GEO2300	Principles of Urban Planning	56.0
MAT8205	Statistics and Probability	42.0
MGT3100	Introduction to Construction Project Management	42.0
Level: 06	**Courses**	**Hours**
BIO2200	Botany	56.0
BSC3200	Alternative Energy	42.0
BSC3300	Energy Conservation and Auditing	42.0
CAD3200	Building Information Modeling	42.0
ENG3100	Heat Transfer	42.0
Co-op: 02	**Courses**	**Hours**
WKT3500	Work Term II	
Level: 07	**Courses**	**Hours**
BSC4100	Applied Energy Management	42.0
BSC4200	Professional Portfolio Development	28.0
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**
BSC4350	Building Science Research Project II	56.0
BSC4400	Seminar in Sustainable Solutions	42.0
CON4200	Construction Methods for Renovation and Rehabilitation	42.0
MGT4200	Scenarios in Team Leadership	28.0

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

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

Program Eligibility

- Graduates from one of the following Ontario College Diplomas with the noted Grade Point Averages are eligible to bridge directly into semester three (year 2) of the eight semester (4-year) Bachelor of Building Science (BBS) Degree program:

- Architectural Technician, Ontario College Diploma with an overall GPA of 2.7 (70%); OR

- Construction Engineering Technician, Ontario College Diploma with an overall GPA of 2.7 (70%); OR

- Mechanical Engineering Technology, Ontario College Advanced Diploma with an overall GPA of 2.7 (70%) minimum. (* a bridging course is required and will be added to the student`s Level 03 course load.)

- Students who have completed the Architectural Technician or Construction Engineering Technician Ontario College Diploma programs are strongly recommended to complete an Integral calculus course or equivalent. (* a bridging course is required and will be added to the student`s Level 03 course load).

Admission Requirements for 2023/2024 Academic Year

Program Eligibility

Graduates from one of the following Ontario College Diplomas with the noted Grade Point Averages are eligible to bridge directly into semester three (year 2) of the eight semester (4 year) Bachelor of Building Science (BBS) Degree program:

- Architectural Technician, Ontario College Diploma with an overall GPA of 2.7 (70%); OR

- Construction Engineering Technician, Ontario College Diploma with an overall GPA of 2.7 (70%); OR

- Mechanical Engineering Technology, Ontario College Advanced Diploma with an overall GPA of 2.7 (70%) minimum. (* a bridging course is required and will be added to the student level 3 course load.)

- Students who have completed the Architectural Technician or Construction Engineering Technician Ontario College Diploma programs are strongly recommended to complete an Integral calculus course or equivalent. (* a bridging course is required and will be added to the students` Level 03 course load).

Application Information

BACHELOR OF BUILDING SCIENCE (ENTRY LEVEL 03)(HONOURS)(CO-OP)
Program Code 1512A03FWO

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

Applications are available online 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 applying from out-of-country can obtain the International Student Application Form at https://algonquincollege.force.com/myACint/ or by contacting the Registrar`s Office.

For further information on the admissions process, contact:

Registrar`s Office
Algonquin College
1385 Woodroffe Avenue
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) will be 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.

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

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

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

BSC2200 Building Systems

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

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

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

BSC4200 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

BSC4400 Seminar in Sustainable Solutions

In this collaborative learning experience, students research and hypothesize about the direction sustainable solutions may take in the years ahead. Reaching back through the many courses in the program, students look for avenues to integrate sustainability in the context of construction methods and materials, in structural components, the building envelope, building systems and building operations. Students also strive to place any proposals in their historical context in order to consider the broadest application for their recommendations. In addition, students survey contemporary and new concepts, practices and strategies that promote the application of sustainable solutions by enhancing efficiencies and decreasing the demand for resources.

Prerequisite(s): none
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

CON2200 Business Development for the Construction Industry

As a substantial economic sector, the construction industry reaches many facets of today's society. On the strength of a broad industry overview, students explore three specific business skills at play in the construction industry. With its focus on responding to clients and their requirements, students work with the concepts and principles of client relationship management from both an organizational and consulting perspective. To this service focus is added a financial edge in the form of estimating. Through guided exercises, students become familiar with valuable estimating skills that can make the difference between profit and debt. Finally, students balance these two seemingly contradictory elements with value engineering concepts that respond to client needs in a financially viable fashion.

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

CON3200 Seminar in 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): BSC2100
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

DSN2200 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): 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

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

ENL4100 Creative Writing

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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

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

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

ENL4200 New Worlds and Alternative Realities: Speculative Fiction

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Prerequisite(s): none
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

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

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

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

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

MGT3100 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

MGT4200 Scenarios in Team Leadership

With the prevalence of team and project-based organizational models in the construction industry, skills in team participation and leadership are integral for success. Students benefit from interactive activities combining seminar discussions with simulated and real scenarios to build leadership skills and experience the challenges that can arise in high-stress, team-based work environments.

Prerequisite(s): MGT3100
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

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

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

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

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

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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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

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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.

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Corerequisite(s):none

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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

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

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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

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Prerequisite(s): SOC2000

Corerequisite(s):none

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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