

Carleton 2016

UNIVERSITY ADMISSIONS VIEWBOOK



Carleton
UNIVERSITY

Canada's Capital University

carleton.ca



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Carleton University acknowledges and respects the Algonquin First Nation people, on whose traditional territory the campus is located.

Welcome to Carleton

In 1942, community leaders in Canada's capital established Carleton University to educate the population for the new, post-war economy. Today, Carleton is a dynamic and innovative university with over 28,000 undergraduate and graduate students and approximately 2,000 faculty and staff. Carleton's contemporary mission reflects both its past and its present: we are a student-centered, independent, collegial university dedicated to excellence in the advancement of learning through disciplinary and interdisciplinary teaching, study and research, the creation and dissemination of knowledge, and the betterment of our community. We are centred in Ottawa and serve the people of Ontario, Canada, and the world.



The capital advantage



Bachelor of Information Technology (Interactive Multimedia and Design) student and varsity rower Matthew Fournier on the Ottawa River with Parliament buildings in background.

Carleton University is located in Ottawa, the nation's capital, which offers opportunities you won't find anywhere else.

Known primarily as the seat of Canada's federal government, Ottawa is that and so much more. It is home to over 130 embassies and high commissions from around the world, as well as numerous national organizations and museums. A large percentage of Canada's major medical, clinical and life sciences research centres are located in the Ottawa area, as well as a technology industry comprised of over 1,900 companies.

Ottawa is also one of the most beautiful capitals in the world, with plentiful neighborhood parks and tranquil green spaces, waterways that wind through the city, and historical and architectural landmarks. The magnificent Gatineau Park, which features 165km of hiking trails, is located in the National Capital Region.

Experiential learning



13 Carleton students travelled to Antarctica as part of a program run by the Students on Ice organization. There, they were able to study natural environments that, despite their remoteness, are rich in geological data.

The best learning environments unite theory and practice. At Carleton, we strive to provide students with real-life experiences that bring the classroom to the world and the world to the classroom. We emphasize hands-on research, community engagement, work experience and immersive learning.

Many of our programs feature co-op or practicum options, allowing students to develop their skills in a workplace environment. We also encourage undergraduate research, entrepreneurship initiatives and Community Service Learning.

Career focus



“Journalism’s greatest responsibility is to open and illuminate the world for others. Carleton provides the key to those doors.”
Jordan Deagle (left), Journalism student

To succeed, you must define your goals. Studying at Carleton will allow you to define your career goals and gain the skills and knowledge to achieve them.

Any of our degree programs will provide you with transferable skills in writing, organization, communication, research, critical thinking, time-management, problem solving and the ability to synthesize information. Such skills are a great asset in today’s constantly-evolving job market. Co-op work, internships and practicum placements, available in many of our programs, allow you to apply these skills in real-world situations.

We encourage all students to take advantage of our on-campus career counselling and career services. Together, we can shape a vision of your future.

Global perspective



A number of our programs feature integrated study abroad options, and through our International Student Services Office, you can take advantage of our exchange agreements with 180+ partner institutions in over 30 countries.

We all want to make the world a better place—but how? At Carleton, we believe that global prosperity can only be achieved by building sustainable communities, and the link between the global and the local is at the heart of our endeavours as an academic community.

Carleton is known as a Canadian university of choice for international students and for encouraging all students to think globally. On campus, you'll study with student peers from over 150 different countries. Also, since the education of global citizens requires exposure to international and global experiences, we offer many opportunities for students to study abroad.

Even if you choose not to study abroad, our location in the nation's capital and your experience on campus can provide you with the resources to build a global perspective.

Bachelor of Architectural Studies



Co-op available

Carleton's Bachelor of Architectural Studies focuses on knowledge, experience, creativity and imagination. Our program encourages you to explore ideas through making, evaluate ideas within the context of human experience, and exercise creativity through writing, model making, drawing, digital media and presentations.

Program of study

Carleton's Azrieli School of Architecture and Urbanism awards the pre-professional Bachelor of Architectural Studies (BAS) degree upon successful completion of our four-year program of study. If you intend to practice architecture, you

can then apply to continue into a professional Master of Architecture program at Carleton, or equivalent professional training at another university. The BAS program is also an excellent degree for a range of careers or for further studies in design, urbanism,

or conservation and sustainability.

The program lays a broad foundation on which architectural studies are built. You will take courses in architecture, design, drawing and multimedia applications, as well as specified general

carleton.ca/architecture

studies in engineering, art history and social sciences.

You will focus your architectural studies by choosing one of our three undergraduate majors:

- Conservation and sustainability
- Design, or
- Urbanism

Build projects on campus

At Carleton, we feel that first-rate facilities are a necessity for any good project.

Therefore, we are proud to offer the finest facilities in Canada. You can take advantage of:

- design studios with personal work space
- fabrication facilities for woodworking, laser and CNC cutting, and welding
- an assembly room for models and full-scale projects
- a technical library and reading room
- extensive computer facilities
- multimedia studio

The Carleton advantage

At Carleton, you will be taught by internationally renowned faculty. You will also have the opportunity to participate in exciting research projects and architectural education that go beyond the classroom.

The Carleton Immersive Media Studio (CIMS) is a Carleton University research centre for advanced studies in modelling and visualization using immersive, digital and hybrid media.

Crossings De-Formation Research Lab focuses on form generation, development and articulation as it relates

to architectural space and supporting structure.

The Directed Studies Abroad option allows you to study architecture on a two-week excursion to continental or overseas destinations, accompanied by a faculty member. The BAS program also offers international student exchanges through Carleton's International Student Services Office (ISSO) to countries such as Australia, England, France, Germany, China, Turkey and more.

Workshop courses on such topics as furniture design, digital fabrication, stage design, building information modelling (BIM), advanced structures and community development are offered throughout the year.

Carleton's Forum Lecture Series held at the National Gallery of Canada allows you to hear internationally acclaimed architects speak on a variety of topics.



The capital advantage

Located in the heart of the nation's capital, Carleton offers unique contact with organizations such as:

- Canada Mortgage and Housing Corporation
- Canada Science and Technology Museum
- Canadian Museum of History
- Library and Archives Canada
- National Capital Commission

- National Gallery of Canada
- National Research Council Canada

Career paths

- architecture
- consulting in sustainable architecture and design
- graphic and multimedia design
- heritage conservation
- urban design
- furniture design
- stage, television and film industry design



For a third-year project, BAS students designed and built outdoor dining pavilions, weaving food and architecture together. Students were encouraged to use found objects and recyclable materials.

Bachelor of Arts



Dr. Kate Higginson teaching a seminar.

Co-op available in selected majors

carleton.ca/fass
carleton.ca/fpa

Carleton's Bachelor of Arts (BA) programs are designed with the understanding that how you learn is every bit as important as what you learn. We have a wide range of undergraduate programs that aim to inspire, challenge and empower you to participate in and help shape our ever-changing world.

Program of study

At Carleton, you can structure your BA according to what you want to achieve. You can pursue an intensive four-year Honours degree or a three-year General program. You can choose a minor subject to complement your major subject and you can, in certain cases, pursue a concentration or a specialization—a set of courses in your major directed toward an area of expertise. If you are interested in two fields of study, you may be

able to pursue them in a combined program.

FIRST-YEAR SEMINARS

Our First-Year Seminars (FYSMs) give you the opportunity to strengthen your critical-thinking skills through discussion and debate with both your professor and your peers. FYSMs consist of small classes of around 30 students, and you can choose from a large selection of seminars.

carleton.ca/first-year-seminars

FINDING YOUR WAY: THE BA UNDECLARED OPTION

Not sure what you want to study? You're not alone—and we are here to help you find your way. You can take time to explore your academic options by leaving your major undeclared for your first year. You can choose from a wide variety of courses and get academic advice on possible majors and careers. Once you've discovered first-hand what Carleton has to offer, you'll be in a better position to decide on your future path.

carleton.ca/baundeclared

The BA career advantage

Turning your BA into the key to a successful career comes down to a simple equation:

area of study
+
practical experience
+
involvement
+
career planning
=
your future



“Many of my Criminology and Criminal Justice professors have worked in the field for years. They are very knowledgeable about the subject and are always willing to share their experiences with their students. Being in the nation’s capital not only provides great opportunities for work and volunteering, but also for placements. The field placement component in Criminology gives you real-life experience working in the field, and teaches you things you could never learn sitting in the classroom.”

Laurie Feldman,
Criminology and Criminal Justice student

Carleton University will help you add it all up

- Choose an **area of study** that really interests you. Carleton’s Faculty of Arts and Social Sciences and Faculty of Public Affairs offer a wide range of majors with flexible program options.
- For those entering today’s job market, **practical experience** is a crucial asset. By incorporating work experience into your Bachelor of Arts program, you can gain practical skills, connections, and an understanding of the working world, all of which will benefit you after graduation. For a list of work experience options within the BA, see the chart on the next page.
- **Involvement** in activities apart from your studies will enhance your degree and can provide long-term personal and professional benefits. Carleton provides many opportunities for involvement in community-service activities, and there are more than 200 active clubs and societies on campus in which you can meet like-minded people and pursue a common goal.
- As you progress through your BA, it is important to engage in **career planning**. We have many resources for career-planning help and inspiration. Carleton’s Career Services provides career workshops and one-on-one advising. carleton.ca/cc

The range of employment possibilities for BA graduates is wide, and includes the following fields (some of which require additional education or training):

- advertising
- archival work
- arts administration
- business
- communications (internal and external)
- community development
- consulting
- counselling
- editing
- education administration
- entertainment
- foreign service
- human resource management
- journalism
- law
- marketing
- policy analysis
- public health
- public relations
- public service
- publishing
- research
- sales
- teaching
- t.v. and radio
- writing/technical writing

Our Honours programs can also provide an excellent foundation for those considering graduate studies.

You can enhance your BA and your employability by studying abroad. Studying on exchange can be an enriching, often life-transforming, experience where learning extends beyond the classroom walls. Consider one of Carleton’s exchange agreements with 180+ partner institutions in more than 30 countries. carleton.ca/isso

BA degree programs and work experience options

Co-op is generally available in Honours programs only. Co-op and work experience may not be available in all program types and concentrations, and some restrictions apply. Please consult the calendar at calendar.carleton.ca for more information.

Legend

H = Honours; CH = Combined Honours; G = General; m = minor available

Program name

Majors and concentrations

Undeclared	n/a	
African Studies	CH, G, m	placement
Anthropology	H, CH, G, m	co-op, field placement
Applied Linguistics and Discourse Studies	H, CH, G, m	practicum (with CTESL)
Art History	H, CH, G, m	practicum
Biology	H, CH, G, m	
Canadian Studies	H, CH, G, m	internship/practicum
Child Studies	H, G	practicum
Communication Studies <i>Image, Politics and Persuasion; Media Industries and Institutions; Communication and Identity</i>	H, CH, m	co-op
Criminology and Criminal Justice <i>Law; Psychology; Sociology</i>	H	practicum
Economics and Applied Economics <i>Development; Financial Economics; International Political Economy; Natural Resources, Environment and Economy</i>	H, CH, G, m	co-op
English <i>Creative Writing; Drama Studies</i>	H, CH, G, m	co-op
Environmental Studies	H, G	practicum
European and Russian Studies	H, CH, m	co-op, internship
Film Studies	H, CH, G, m	practicum
French	H, CH, G, m	co-op
Geography <i>Physical Geography</i>	H, CH, G, m	practicum
Geomatics	H, m	practicum
Greek and Roman Studies	H, CH, G, m	field work
History	H, CH, G, m	co-op, practicum
History and Theory of Architecture	H, G, m	practicum
Human Rights	H, CH, G	practicum
Law <i>Business Law; Law, Policy and Government; Transnational Law and Human Rights</i>	H, CH, G, m	co-op
Linguistics	H, CH, G, m	practicum (with CTESL)
Music	H, CH, G, m	practicum
Philosophy <i>Philosophy, Ethics and Public Affairs</i>	H, CH, G, m	
Political Science <i>Canadian Politics; Comparative Politics and Area Studies (Global North); Comparative Politics and Area Studies (Global South); Gender and Politics; International Relations; North American Politics; Political Theory; Public Affairs and Policy Analysis</i>	H, CH, G, m	co-op, internship
Psychology	H, CH, G, m	co-op, practicum
Religion	H, CH, G, m	
Sociology	H, CH, G, m	co-op, field placement
Women's and Gender Studies	H, CH, G, m	practicum

African Studies

Africa is the most culturally and geographically diverse continent on earth. The African Studies program offers you an opportunity to study the histories, cultures, languages, geographies, politics and economics of this fascinating continent. You will also learn about the aid, trade and investment, and migration flows that link Africa to the rest of the world in the era of globalization.

Students in the Combined Honours program can benefit from a work placement opportunity, a mentorship program and the chance to study in Africa through our African Studies Abroad course (in Ghana in May 2015) or by doing their third year at one of the African universities with which Carleton has exchange agreements.

Career paths: business, education, foreign service, humanitarian aid work, international business, international development, journalism, policy analysis, research

Anthropology

Anthropology is the study of human diversity. Anthropologists study the world's peoples and cultures and analyze such diverse areas of social and cultural life as gender, family forms, livelihood, health, development, religion and politics. As a student in the program, you will acquire a substantive knowledge of anthropology and develop transferable skills in research, analysis, interpretation, writing, oral presentation and group work. The program takes full advantage of Carleton's position in the nation's capital, and you will

have access to the collections of both the Canadian Museum of History and Library and Archives Canada. A fourth-year field-placement course and the opportunity to do independent research through the Honours Research Paper are available.

Career paths: correctional services, counselling and mediation, immigration services, international or community development, museology, personnel services, policy development, research

Applied Linguistics and Discourse Studies

Language is an essential part of what it is to be human and this program gives you the opportunity to examine how language works in real life. The field of Applied Linguistics and Discourse Studies develops and applies theories to solve everyday problems involving language. Course materials address such questions as how languages are taught and learned, how language competencies are evaluated, how writing is used to perform a variety of functions, how language is used in specific social contexts, how language can influence society and vice versa, how government policies influence language practices and what makes a bilingual education program effective.

Minor programs in American Sign Language, Mandarin Chinese, German, Italian, Japanese, Russian, Spanish and Linguistics are also available. Certificate programs are also available in Teaching English as a Second Language (CTESL) and in American Sign Language (CASL).

Career paths: curriculum design, language testing, language-related high-tech industry, policy analysis, speech therapy, teaching, translation, writing/publishing/editing

Art History

As an Art History student you will examine visual art produced by artists from around the world, and from antiquity to the present day. In addition to painting and sculpture, you will study architecture, photography, popular visual culture and art institutions. Art History reconstructs the historical milieu of works of art so that you will be better able to understand the cultures that these works reflect. The program also helps students to develop their critical, research and analytical skills: all of which enhance employability in a wide range of job types.

Students in third or fourth year can take advantage of the program's practicum option, in which they can get real-world experience working in institutions such as the National Gallery of Canada, the Canadian Museum of History, the Ottawa Art Gallery, the Carleton University Art Gallery, and Library and Archives Canada.

Career paths: archival work, art restoration and conservation, arts administration, arts journalism, museum or gallery work, web design

Biology

Biology in the twenty-first century is among the most diverse and exciting of the sciences. Many of the

challenges we face as a society, from environmental decline to the demand for new health therapies, involve biological solutions. As a Carleton Biology student in the BA program, you will gain broad experience through core science courses and courses in the arts and social sciences that suit your individual interests and needs. The Biology department offers BA and Bachelor of Science degrees, and the BA program offers an interdisciplinary joint program with the College of the Humanities.

Career paths: bioinformatics, environmental consulting, field work in horticulture or wildlife management, medicine, natural resource management, research, science writing

Canadian Studies

The Canadian Studies program at Carleton draws on many disciplines, such as art and architecture, literature and language studies, history, politics, sociology and religion, as well as Indigenous, Quebec, heritage, gender and women's studies. The program encourages new ways of exploring Canada and the diverse peoples, places and practices located within its boundaries.

In your fourth year, you will have the opportunity to take a practicum course that provides you with hands-on work experience. The fourth-year capstone seminar provides an opportunity to engage in academic research and publication. Both courses, in addition to other Canadian Studies and Indigenous Studies courses offered, take

advantage of our location in Canada's capital. A minor in Indigenous Studies is also available.

Career paths: journalism, law, museum and archival work, public service, teaching

Child Studies

Professionals working with children and youth face many challenges involving complex relationships with families, communities and governments. Child Studies at Carleton prepares you for careers in this demanding area. The program was originally developed for graduates of Early Childhood Education (ECE) programs, but the broader scope of the new curriculum allows for entry into the program without an ECE diploma. Through core courses in child studies and other relevant disciplines you will learn about a wide range of topics (e.g., children's rights, policy and practice) pertaining to children and youth in Canada and around the world.

Career paths: child advocacy, education services, health and social services, policy development, senior administration or research in public and private agencies

Communication Studies

Carleton's Communication Studies program allows you to explore the roles, impacts, and development of media and communication technologies, industries, infrastructures and practices in Canada and around the world. Students can explore a range of topics, such as how marketing, advertising and public relations are reshaping

politics, business and activism; the structure and role of media industries and changes in communications infrastructures; the policies and regulations that shape our access to technology and entertainment; and how media and communication shape how we construct and contest identities.

As the seat of the federal government, Ottawa is the decision-making centre for Canadian communication policies and regulations. Organizations such as the Canadian Radio-television and Telecommunications Commission (CRTC) and the Department of Canadian Heritage are located here, along with the Canadian Broadcasting Corporation (CBC), national museums and other cultural institutions. Students in Communication Studies can meet and learn from key leaders responsible for shaping the Canadian media and communications landscape.

Career paths: advertising, advocacy, audience measurement, communications policy and regulatory analysis, market research, marketing, public relations

Criminology and Criminal Justice

Our students acquire a comprehensive, multidisciplinary understanding of the causes and definitions of crime and criminal behaviour, criminal law and its administration, and social and institutional responses to crime. You will personalize your program by choosing one of three concentrations: Law,

Psychology or Sociology. In addition, possible field placements in organizations such as the Crown Attorney's Office, criminal law offices or the Royal Ottawa Hospital (Forensic Program) give you hands-on experience in real-life situations, including front-line work with offenders, victims, police and lawyers, to name a few. Other placements can match you with researchers and policy analysts involved in criminal justice and crime prevention. Carleton's location in Ottawa gives you research and employment opportunities at the Department of Justice, the RCMP, the Correctional Service of Canada, the National Crime Prevention Centre and the Canadian Resource Centre for Victims of Crime.

Career paths: correctional and social services, crime prevention analysis, graduate work or professional studies, law enforcement, legal and social policy research,

probation and parole, victim and social services

Economics

Carleton's Economics programs allow you to study the operation of a market-based economy, examining the causes of economic growth, inflation, unemployment and international trade. You will look at how governments manage their economies by developing and administering policies to regulate activities such as trade, taxes and competition, and you will study economic theory and research methods.

If you are an Honours or Applied Honours student interested in a career in banking or finance, you may add a concentration in Financial Economics. If you are interested in a career in the foreign service or in an international governmental or non-governmental organization, you may add a concentration in either International Political

Economy or Development. Those with a strong interest in environmental and natural resource issues may add a concentration in Natural Resources, Environment and Economy. A specialization in Quantitative and Mathematical Economics is available to Honours students, and a Post-Baccalaureate Diploma in Economics is available for qualified students who have already completed an undergraduate degree.

Career paths: banking or finance, education, environmental or international economic law, insurance, non-profit enterprise, private business, public service

English

Carleton's English program ranges from some of the most famous names in English writing to lesser-known authors, taking into account regional, national and global perspectives. You will have a chance to discuss the pressing issues and enduring ideas behind literature, as well as

examine the ways in which books spring from cultural contexts and fit into the arc of literary history. You will explore how British and Canadian literary traditions have evolved and how alternative, underground and non-Western voices trouble and enrich those traditions. You may take workshops in creative writing and drama, either as electives or in the context of the department's concentrations in Creative Writing and Drama Studies. We also offer a minor in Digital Humanities as well as a minor in Drama Studies. Overall, the program is designed to develop students' abilities to analyze texts accurately, contextually and critically, to write clearly and persuasively in a variety of genres, and to conduct independent research—skills that are key to your future endeavors in the world beyond university.

Career paths: civil service, communications, creative writing, editing, human resources, market research, non-profit sector, public relations, publishing, social media, technical writing

Environmental Studies

The Environmental Studies program at Carleton prepares informed, skilled individuals who participate in the design of sustainable solutions to environmental and social problems and shape the larger environmental debates critical to our future. Graduates include professional policy analysts, decision-makers and advocates involved in a wide range of fields, including the conservation



“A great thing about studying History is that it opens up so many doors for the future. The first thing people often ask me when I tell them I am getting a degree in History is, ‘What are you going to do with a History degree?’ My answer to this question is, ‘Anything!’ A degree in History teaches you how to analyze a document, how to research something thoroughly and how to write a report properly. These are all skills that are highly sought after by employers and transferable to any career.”

Hollis Peirce, History student

and management of natural resources, formulation of environmental policy, sustainable urban design, environmental education and environmental research. This interdisciplinary program includes core courses, plus the ability to select courses in a wide range of disciplines in the social sciences and natural sciences, including biology, earth sciences, economics, geography, geomatics, history, law, philosophy, political science and sociology. Field courses, work placements, and training in tools like geographic information systems and remote sensing also provide an opportunity to gain practical experience while you study.

Career paths: conservation and resource management, environmental activism and education, environmental communication, environmental consulting, environmental impact assessment, natural resources policy analysis, sustainable community planning

European and Russian Studies

The Institute of European, Russian and Eurasian Studies (EURUS) offers a comprehensive, interdisciplinary approach to the study of Europe, Russia and Eurasia. You will be able to build a program according to your specific interests, combining subjects such as history, politics, economics, language and culture. You will examine issues such as international security, nationalism and ethnic conflict, crime and corruption, the effects of globalization, migration and multiculturalism, environmental and social

policy, democratization and civil society, collective memory and national identity, market reform and European integration. In your third or fourth year, you may choose to take part in an academic exchange in a European country or in Russia and/or co-op employment. In addition to the core academic program, the Institute hosts a number of special lectures by high-profile experts, foreign visitors and embassy personnel throughout the year. An internship program is available to qualified fourth-year students.

Career paths: consulting, foreign and government service, media and business, non-governmental and international organizations, research

Film Studies

Cinema is examined in Carleton's Film Studies program as an art form, an entertainment, and a documentary record of our time. Through a variety of critical approaches, you will study the history and aesthetics of film and other moving-image media, the main currents and developments in filmmaking, and the works of some of the world's best filmmakers. Other areas of study include the documentary and the musical; animation; experimental film and digital media; African, Japanese and Latin American cinema; film theory; film technology; and silent cinema.

You will also examine broader questions of culture and hone your critical, research and analytical skills. Students in their fourth year can also take advantage of the practicum program in which students can get real-world experience working

in archival research, film preservation, programming, exhibition or production work at institutions such as the Canadian Film Institute, the Ottawa International Animation Festival and the SAW Gallery. Moreover, you will have the opportunity to express your artistic vision and create audiovisual essays through our "Moving Image Practice" courses.

Career paths: archival work, arts administration, film criticism, film and media production, film programming, screenwriting

French

Carleton's Department of French makes it easy to integrate French into your studies, whether you wish to major in French, expand your BA with a minor in French or enrol in a single course. The department's comprehensive approach allows students to benefit from language courses that are culturally grounded in the francophone world. Our course structure spans beginner to advanced levels, targets both oral and written proficiency, and focuses on students' full development as competent readers, speakers and writers. Courses in our BA programs in French offer students the opportunity to specialize in literary studies or French linguistics. You may engage academically with topics ranging from emerging voices in Quebec literature to writers from Africa and the Caribbean to the social dynamics of language. Exchange opportunities are available to students majoring in French.

Career paths: business, foreign and government service, public relations, publishing, teaching, tourism, translation and interpretation

Geography

The BA Geography program at Carleton focuses on human and environmental geography, exploring and analyzing a wide range of topics such as local food systems, urban poverty, cultural landscapes, adaptation to climate change and natural resource management. A separate concentration may be taken in Physical Geography, which studies the Earth's natural systems, processes and environmental change. Our professors have extensive expertise in social, political and cultural geography; resource management and environmental assessment; and the study of physical processes of the Earth's vegetation, climate, water and soil systems. As part of your program you can also take field courses, do work placements and take courses in geographic information systems, remote sensing and cartography. A Bachelor of Science in Physical Geography is also available.

Career paths: community organizing, international development, intercultural mediation, resource management and land-use planning, social justice activism, urban policy analysis

Geomatics

From Google Maps to GPS navigation to global vegetation and water monitoring, geomatics deals with the acquisition, management, analysis and display of geographic information. In our Geomatics BA program, you will obtain intensive training in geographic information systems (GIS), remote sensing (imaging from satellites and aircraft) and cartography, including web-based

applications. You will apply advanced computer software and techniques to the challenge of understanding natural systems, addressing environmental problems and planning human interventions. Our program combines hands-on learning using the latest in laboratory facilities with opportunities to gain field experience and do work placements. Geomatics applications include the analysis of problems involving environmental and resource planning, land cover and vegetation mapping, market analysis, hazard mapping and education, amongst many others. Geomatics can also be taken as a BSc program.

Career paths: GIS analysis and consulting, impact assessment, map design and publishing, market analysis, remote sensing and image analysis, resource management

Greek and Roman Studies

Greek and Roman Studies (Classics) provides an excellent opportunity to learn about the ancient roots of civilization, and to observe the impact that the ancient world had on later eras. The program examines the literature, language, history, philosophy, mythology, religion, social and economic life, technology, art, architecture and archaeology of the ancient world, framed by the impact on the Mediterranean basin of the city-states of Greece and the Roman Republic and Empire. In addition to learning about the history of civilizations that have made an indelible impact on the modern world, you will have the opportunity to learn the ancient Greek



“My majors and minor allow me to explore topics I am passionate and curious about while teaching me how to apply new knowledge to life in everyday situations, as well as in my plans for teaching English as a Second Language (ESL) abroad. After my second year I went on exchange to Germany, and I am currently working toward a CTESL (Certificate for Teaching ESL).

Volunteering with multiple service centers on campus and acting as the current president of both the Carleton University Dance Crew and ROOTS organization are constant sources of growth for me. I am grateful for a school that grants me the space and sense of community that allows me to pursue my academic and personal goals simultaneously in order to become a better student of the world beyond the classroom.”

Selali Ayitey-Wallace, student in Applied Linguistics and Discourse Studies and Women’s and Gender Studies with a minor in German

and Latin languages, to study ancient literature in the original languages or in translation, and to benefit from the expertise of Carleton scholars who have a rich variety of interests and areas of specialty. The program is intrinsically interdisciplinary: the study of Classics provides a well-rounded education, producing graduates who can reason, argue, and communicate—essential skills for any field. A minor in Archaeology is also available.

Career paths: archaeology, archival research, business, law, museology, public service, teaching and academia

History

The study of history allows us to recognize and understand the complex issues that shaped the contemporary world. The History Department offers courses in African, American, Asian, Canadian, Caribbean, European, Latin American and South Asian history. Some courses trace the history of social, political and cultural change of a region or period. Others are thematic and may examine women’s history, the histories of science, sexuality, food and drink, or slavery. In first year, history students

may choose a small seminar class or a larger lecture course with a tutorial group. Both formats foster debate and discussion. All history courses encourage student research which may draw on the rich array of libraries and archives in the national capital, including Carleton’s own valuable collections and resources.

Career paths: archival work, education, film, foreign service, government service, law, library services, museum work, non-governmental organizations, public relations, publishing

History and Theory of Architecture

This program explores the history and meaning of the built environment, and how it reflects and shapes human circumstances. We do this both inside and outside the classroom. The program offers a selection of courses on architectural history and theory ranging from antiquity to postmodernism. We also make regular visits to sites of outstanding architectural interest, both within the national capital region and beyond. The program will help you develop skills such as critical and analytical thinking, creative problem-solving, and visual literacy and communication: all of which enhance employability in a wide range of job types.

As a History and Theory of Architecture student you can access the rich architectural heritage of Ottawa and the National Capital Region. You can also explore opportunities to take one or more courses abroad. Students in third or fourth year are encouraged to take advantage of the program's practicum option, in which they can gain real-world experience.

Career paths: academic research, architecture, governmental heritage management, heritage consulting/preservation, journalism and criticism, teaching

Human Rights

Carleton's Human Rights program provides students with an overview of historical and contemporary human rights issues from an interdisciplinary perspective. The program is structured around five key thematic areas: 1) a critical analysis of the concepts and principles underlying human rights

traditions; 2) a study of the laws and institutions that support and implement human rights frameworks; 3) an analysis of political repression from a human rights perspective; 4) an examination of social marginalization and the role of human rights in the protection of marginalized groups; and 5) an exploration of the relationship between human rights and social justice. Our location in Ottawa will give you access to local, national and international organizations that deal with the promotion of human rights and the elimination of human rights abuses. The city and the university also play host to national and international visitors who offer insights into human rights activism.

Career paths: advocacy work, government service, international relations, law, non-governmental organizations

Law

Carleton is home to the oldest and largest BA program in law in Canada. In the program, you will acquire a strong understanding of the dynamics of law, including its rules, agents, institutions and power structures. You will study legal theory and its application in everyday life and you will be taught by award-winning researchers and extensively published professors. Carleton's proximity to Canada's important public institutions, such as the Supreme Court of Canada, Parliament and the Department of Justice can lead to unique work and volunteer opportunities for our students. As an Honours student, you will have the choice of a concentration in Law, Policy and Government; Business Law; or Transnational Law and Human Rights.

Co-op options are available for qualified students in Law, Policy and Government and Business Law. A study-abroad option is also available, as the Department of Law and Legal Studies participates in an innovative exchange program with Sheffield Hallam University in the U.K.

Career paths: business management, criminal justice policy, education, legal administration, legal research, policy analysis, public service, social policy, social work

Linguistics

The field of Linguistics is concerned with the formal description and analysis of language. As a student in the program, you will examine the following: the production, perception and acoustic properties of human speech sounds (phonetics); the patterns and variations of speech sounds (phonology); the categories, structure and creation of words (morphology); the structure of sentences (syntax); word, phrase and sentence meaning (semantics); language change and relationships among languages (historical linguistics); and language processing and first language acquisition (psycho/neurolinguistics).

Minor programs in American Sign Language, Mandarin Chinese, German, Italian, Japanese, Russian, Spanish and Applied Linguistics and Discourse Studies are also available. Certificate programs are also available in Teaching English as a Second Language (CTESL) and in American Sign Language (CASL).

Career paths: curriculum design, language testing, language-related high-tech industry, speech therapy, teaching, translation, writing/publishing/editing

Music

Students in Carleton's BA in Music program are exposed to many aspects of music, including music theory, musicology and composition. In our program, you will be able to study a wide variety of musical styles and traditions, including Western classical music, Canadian music, various forms of world music, jazz, and popular music. Due to the small size of the program, you will receive personal attention from highly qualified faculty who are internationally distinguished and recognized for their achievements in teaching and research. A Bachelor of Music is also available.

Career paths: arts management and administration, entertainment industry, library and archival work, music criticism, music teaching, musicology, performance, radio and television work

Philosophy

Carleton's innovative philosophy programs offer courses ranging over the history of philosophy, ethics and social/political philosophy, philosophy of mind and language, metaphysics and epistemology. Starting in first year, you will have the opportunity to take a seminar class (of 30 students) that challenges you to develop your skills in reading philosophical texts and making philosophical arguments. In second year, you will take two courses that are offered just for philosophy majors, ensuring that you have the skills you need to do your best. In fourth year, you will study in seminar classes where the professors share with you, at your level, the new knowledge that they are helping to create.

As a graduate, you will have gained unique intellectual flexibility and sophistication as well as highly developed writing, research, analytic and oral presentation skills that are applicable in many careers and professions.

Career paths: advocacy, cognitive science, ethics (medical, business, government and leadership in administration), law, social policy analysis, teaching

Political Science

Where better to study politics than the nation's capital? Our location in Ottawa provides you with numerous chances to see politics not only nationally but internationally. You will examine such topics of study as international relations, transitions to democracy, parties and elections, globalization and social movements, and the culture and ideas of politics. You can focus on one of seven areas of study: Canadian Politics; Comparative Politics and Area Studies (Global North) or Comparative Politics and Area Studies (Global South); Gender and Politics; International Relations; North American Politics; Political Theory; and Public Affairs and Policy Analysis.

International exchanges are an exciting possibility during your third year. In fourth year, a Canadian/British Parliamentary internship or an internship with the Washington Center are options for consideration.

Career paths: foreign service, government, lobbying and consulting, non-profit sector, politics, polling and research

Psychology

Psychologists study the mechanisms that underlie our thoughts, emotions and

behaviours. They examine a diverse range of topics, such as how we think and learn, how we interact with others and how we can promote healthy development and wellness. This is accomplished by conducting research so that the knowledge gained can help us to better understand the human mind, enhance well-being and performance, and generate additional research questions.

At Carleton, you will explore psychology's major areas including cognitive, developmental, forensic, health, organizational and social/personality psychology. Specialized topics include abnormal behaviour, human neuropsychology, perception, positive psychology, criminal behaviour, and social and cognitive development.

The insights you gain from studying psychology will serve you throughout your life, in virtually any career. Psychology is also offered as a Bachelor of Science (Honours) program.

Career paths: corrections, early childhood education, health and social services, human resource management, marketing and public relations, mental health services, parole counselling, probation, research

Religion

In this program, students will analyze responses to questions about identity, history, and the basis of political and ethical commitments that have been posed by the world's major religions. The study of religion nurtures in students a respect for the complex identities of others, their histories, and their cultures. You can study the history and

literature of Christianity, Islam and Judaism; examine Asian religions such as Buddhism and Hinduism; follow the rise and fall of religious leaders and movements; or explore common themes in a variety of religious traditions, such as the environment, the role of women, or death and the afterlife. A degree in Religion will equip you for many career opportunities in our increasingly multicultural world, where religious beliefs play a significant role in human affairs and continue to affect local and global events. Minors in Islamic Studies and Jewish Studies are also available.

Career paths: business, counselling/conflict resolution, foreign service, intercultural communication, international development, law, mediation and peace initiatives, non-governmental organizations, politics, teaching

Sociology

The Sociology program at Carleton brings together elements of the social sciences and humanities as it examines human social behaviour and organization in the context of post-industrial societies and economic and cultural globalization. You will explore social phenomena such as youth and crime, war and state violence, anti-capitalist social movements, the changing nature of families, the meanings of popular culture in the digital age, transformations in the organization of work, the changing place of women in social institutions, the reemergence of religion as a cultural force, and many other topics designed to enhance your understanding of the forces shaping the modern world. At the same time, the study of sociology

develops skills in statistical and interview-based research, data analysis, synthesis of knowledge, and written and oral communication, and also teaches you some of the central theoretical ideas that have shaped our understandings of human society.

Career paths: correctional services, government service, health and social services, human resources, non-governmental agencies, policy development, research, teaching

Women's and Gender Studies

Carleton's Pauline Jewett Institute of Women's and Gender Studies offers a program that engages students in critically understanding the key issues of feminist scholarship and their relationship to our lived experience. Students have the opportunity to engage in activist activities, study gender in courses across disciplines, and do a practicum placement with feminist groups from inside and outside the Carleton community. Central to our program is the consideration of how gender intersects with race, class, ethnicity, age, ability and sexuality. Students explore the practices and processes that impact on women's and men's lives in historical, socio-economic, cultural and political contexts. A Post-Baccalaureate Diploma in Women's and Gender Studies is available for qualified students who have already completed an undergraduate degree.

Career paths: community service, community-based agencies, counselling, education, government, law, media, social policy research

Bachelor of Cognitive Science

Professor Masako Hirotsu shows a Cognitive Science student how to carry out an electroencephalography (brain wave) experiment.



Co-op available

Are you interested in how people, animals or computers think? Cognitive scientists study thinking from a variety of different perspectives.

Program of study

Researchers in our program (students and faculty members) study the mind by combining the methods and theories of five disciplines: psychology, philosophy, linguistics, neuroscience and computer science. This interdisciplinary approach allows unique insights into human understanding, thought, perception, language and emotion. Through Carleton's program, you can develop your expertise in one of five specializations: Biological Foundations of Cognition; Cognition and Computation; Cognition and Psychology; Language and

Linguistics; or Philosophical and Conceptual Issues.

You can also take advantage of a variety of on-campus research facilities including those associated with the Visualization and Simulation Centre (VSIM), the Language, Logic, and Information Lab (LLI), the Science of Imagination Lab (SOIL), the Language and Brain Lab, the Centre for Applied Cognitive Research (CACR) and the Children's Representational Development Lab (CRDL). The Bachelor of Cognitive Science is offered as an Honours program with either a thesis or coursework option, and as a three year degree.

Honours research project

As a senior student, you may have the opportunity to complete a research project on a topic in cognitive science. The Honours Thesis allows you to work closely with a faculty supervisor and to develop an area of independent research. You will graduate with valuable research experience, specific skills in identifying and analyzing problems, and a defined area of expertise.

Other research opportunities

Research interests of faculty members involved in the Cognitive Science program include a broad range of areas.

As a senior student, you may find yourself assisting in areas of research such as:

- natural language processing;
- cognitive engineering;
- modeling and simulation of games; or
- genetic algorithms.

Careers

The Bachelor of Cognitive Science provides ideal preparation for careers in:

- cognitive research in universities, government research facilities or private companies;
- website usability design;
- language processing research; or
- speech pathology or occupational therapy (both with further study).

You will also be prepared to continue to Master's programs in Cognitive Science or in the area of your specialization (such as Psychology, Linguistics, Philosophy or Computer Science).

carleton.ca/ics

Bachelor of Commerce



Co-op available

Did you know
Sprott offers
minors in Business,
Entrepreneurship and
Arts Management
for students in other
programs?



sprott.carleton.ca

Carleton's Sprott School of Business provides endless opportunities to explore your interests and grow your network while gaining resume-building skills and experiences. Known for outstanding student support, close interaction with faculty and a tight-knit student community, Sprott offers a student experience that is second to none.

Program of study

The Bachelor of Commerce (Honours) program offers a complete business education and a lot of flexibility with eight concentrations, as well as options to add co-op, study abroad and/or a minor in another subject.

CORE FOUNDATION

The first two years of the BCom program consist of foundation courses in all business areas. You will also develop critical skills in various forms of business communications, including presentations, cover letters and resumés.

SPECIALIZED KNOWLEDGE

Upper years provide an opportunity to study specific areas in depth. Choose up to two of eight concentrations or keep your future options open with a broad selection of courses. You will strengthen your business acumen with capstone courses in business strategy and ethics.

Eight concentrations ACCOUNTING

Prepare for careers in auditing, financial or management accounting, and taxation. Within the BCom, you can complete all of the academic courses required

to enter the Chartered Professional Accountant (CPA) professional education program (formerly known as CA, CMA and CGA programs). Co-op hours in an approved placement can be counted toward the CPA practical experience requirement.

ENTREPRENEURSHIP

Learn about the entrepreneurial process by experiencing all of the stages in starting a business—from idea inception to implementation in the marketplace. BCom students take courses with students in the minor in Entrepreneurship, creating a collaborative and

Launch a business on the world stage



BCom student Mohamed Hirsi (left), together with his partners, launched their app Props at the renowned SXSW Interactive Festival in March 2015.

“The help that Carleton’s entrepreneurship faculty gave us was invaluable. I can honestly say that Props wouldn’t be where it is today without Carleton’s support. Props was the result of a school project in our entrepreneurship class. With Carleton’s support, we were able to turn it into a business and launch a year later in Austin, Texas, at SXSW.”
– Mohamed Hirsi

interdisciplinary classroom environment.

FINANCE

This concentration examines how financial managers appropriately allocate their firms’ capital to invest in value-enhancing projects and how financial markets value the decisions of the financial manager. Gain an understanding of how money managers and portfolio analysts manage investment risk. This program has been accepted into the CFA Institute University Recognition Program.

INFORMATION SYSTEMS

Information Systems (IS) professionals help organizations achieve outstanding performance. Their dual understanding of business processes and information and communication technologies makes them ideal candidates to deliver cutting edge solutions to exploit existing,

and create new, business opportunities. IS graduates are in high demand across all sectors and organizations of all sizes.

INTERNATIONAL BUSINESS

Gain an appreciation of the global environment; a solid foundation in international finance, marketing, and global expansion strategies; the interpersonal skills to manage in diverse contexts; and first-hand international experience through a practicum and study abroad opportunities.

MANAGEMENT

Develop employer-valued skills and experience in managing and understanding people and their work relationships at individual, group and organizational levels. Prepare for careers in general management, management consulting, training and development, employee relations and strategic human resources.

MARKETING

Gain critical thinking, analytical, decision-making and creative skills to effectively manage the development, pricing, promotion and distribution of products and services. Learn how to build and sustain high-value customer relationships in competitive environments. Prepare for careers in marketing strategy, sales, advertising, brand management, customer relationship management, marketing research, public relations and e-commerce.

SUPPLY CHAIN MANAGEMENT

Develop the essential skills and expertise to manage geographically-dispersed networks of suppliers, manufacturers, logistic services providers, transportation carriers, distributors, service support operators and customers.

Sprott experience

At Sprott, you’ll belong to a connected and caring community. Sprott students take part in national and international business case competitions through Sprott Competes. Our student-managed investment portfolio, The Fund @ Sprott, offers students real money-management experience. We’re home to 10 student-run organizations where you can meet fellow students and develop your leadership skills and professional network.

Careers

BCom graduates find rewarding careers across a range of functions and sectors. Sprott’s Business Career Management Centre provides a range of career services, including access to job postings and employers, career advising, workshops and employer events.

97% of BCom grads are employed in a job relevant to their degree one year from graduation (based on a 2014 survey of Sprott alumni one and two years from graduation).

BCom alumni

Brittany Forsyth, BCom/09
VP, Human Resources
Shopify

Phil Sonea, BCom/11
President & Co-Founder
Soshal Group

Kyle Watters, BCom/12
Portfolio Associate
BMO Private Investment
Counsel Inc.

Sarah Nichols, BCom/13
Technology Consultant,
Deloitte

Felicia Wade, BCom/14
Tax Accountant,
PwC Canada

Bachelor of International Business



Tasha Yee, BIB/14, studied at Universidad Adolfo Ibañez in Viña del Mar, Chile, in 2013.

The Bachelor of International Business is recognized as a leading program in international business education. With a focus on international business, you will develop cross-cultural skills, become proficient in another language and study abroad for a year in a country where that language is spoken.

Program of study

The Bachelor of International Business delivers a unique business education that is truly international. It focuses on five key elements:

- core courses in business fundamentals;
- specialized courses in international business;
- intensive training in a language in which you are not proficient, thereby increasing your competitiveness and career options;
- a full academic year abroad to enhance language fluency and cultural knowledge; and

BIB Languages	Study Abroad Locations
French	Belgium, France
German	Austria, Germany
Japanese	Japan
Mandarin	China
Portuguese	Brazil
Spanish	Argentina, Chile, Colombia, Mexico, Peru, Spain

- an option of three concentrations for further specialization.

The first two years of the BIB program consist of foundation courses in all business areas. You will take courses

in international business management, financial and managerial accounting, economics, marketing, information systems, finance and business statistics. During these years, you will also



sprott.carleton.ca

complete intensive language training.

You will spend your third year studying abroad at a partner institution located in one of 13 possible countries. The language you study during the first two years of the program will determine the country in which you are placed. You'll return to Carleton for fourth year to complete the program.

Concentrations

GLOBAL FINANCIAL MANAGEMENT AND SYSTEMS

This concentration focuses on the financial management of the multinational corporation and the global context in which it occurs. You will examine international financial markets including currency derivatives, exchange rate determination and exchange rate risk management. You will also examine how firms raise and manage capital, and how they manage cross-border financial risks.

INTERNATIONAL MARKETING AND TRADE

This concentration prepares students with the necessary skills to help companies successfully expand to, and compete in, international markets. You will learn how to adapt business strategy to the cultural, political, legal, economic, technological, geographic and historical factors that result in buyer behaviour differences around the world. You will also learn how to assess various foreign expansion alternatives that companies face when going abroad.

INTERNATIONAL STRATEGY AND HUMAN RESOURCES MANAGEMENT

In this concentration you will develop the skills required to design and execute international business strategies by linking a firm's

global environment with its internal operations and structure. Special attention is placed on the role of human resources in framing and implementing comprehensive strategies through hiring, training and evaluating personnel. Understanding the challenges of managing a culturally diverse workforce under contrasting conditions is a key factor for success in this field.

You may also complete the BIB program without a concentration.

International experience

As a Sprott student, you'll have access to many opportunities to gain international experience. These include internships, leadership programs and international business case competitions. Our location in the nation's capital connects you to a network of global companies, federal government departments, international agencies, embassies and

high commissions. Kendra Thorogood, BIB/13, shares her international experiences at sprott.carleton.ca/stories.

Sprott experience

Known for outstanding student support, close interaction with faculty and a tight-knit student community, Sprott offers endless opportunities to explore your interests, grow your network and gain resume-building skills and experiences. Sprott is home to 10 student-run organizations.

Careers

BIB graduates find careers with exporters, importers and multinational organizations in Canada and abroad, as well as government and NGOs. Sprott's Business Career Management Centre provides a range of career services, including access to job postings and employers, career advising, workshops and employer events. Our graduates are currently working in more than 35 different countries around the world.

100% of BIB grads are employed in a field relevant to their degree two years from graduation (based on a 2014 survey of Sprott alumni one and two years from graduation).

BIB alumni

Vladimir Shevchenko, BIB/11
Supply Chain Analyst, Fashion Loblaw Companies Ltd. (Toronto, Canada)

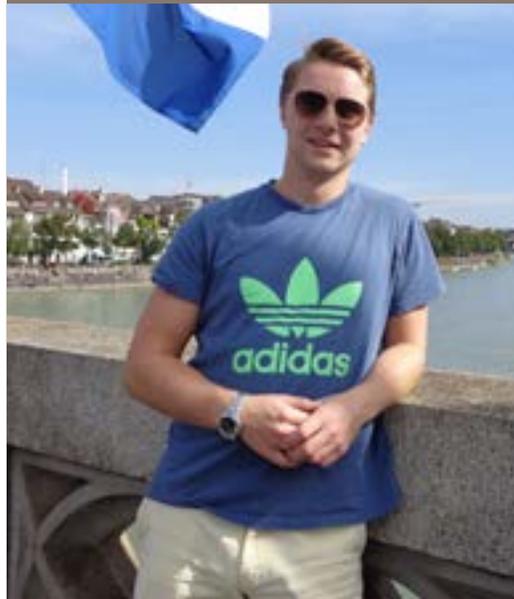
Oliver Carson, BIB/13
Commercial Associate, Asia Markets
Exportadora Gonzagri (Curicó, Chile)

Kendra Thorogood, BIB/13
Portfolio Manager, Europe & Central Asia
Kiva.org (Istanbul, Turkey)

Lupita Ardhyaningrum, BIB/13
Marketing Management Trainee
Danone Nutricia Early Life Nutrition (Jakarta, Indonesia)

Shaun McGeough, BIB/14
Research Assistant, Bank of Canada (Ottawa, Canada)

Study abroad for a year



Students spend a year abroad to enhance language and cross-cultural skills.

“During my exchange, I’ve taken business courses taught not only in German, but from a European viewpoint as well. Being immersed in foreign culture has taught me lessons and given me new experiences that have allowed me to grow as a business student in ways that I never thought possible. When people say ‘opportunity of a lifetime,’ the BIB is exactly that.”

Matthew Martin, BIB/15, studied at the University of Freiburg in Freiburg, Germany.

Bachelor of Computer Science



Co-op available

Carleton's Computer Science program teaches you the principles of solving computational problems, while giving you up-to-date applied skills for working in the information technology, biotech and multimedia industries.

Program of study

Computers and computer systems play a central role in business, communication, science, entertainment and medicine. As the range of computer applications continues to expand, so does the demand for computer scientists. Computer Science is an ever-changing discipline that studies the theory, design and implementation of computer applications and systems. You will learn to use computing and information technology to help solve the problems that we face in

business, science and society today and those that we will face tomorrow.

The Honours Computer Science program at Carleton is organized into diverse streams so that you can develop a particular expertise. Our specialty streams allow you the opportunity to concentrate on one important area of computer science and our multidisciplinary streams give you the chance to examine areas of increasing opportunity for computer scientists. All streams share a common core of computer

science courses. No matter which stream you choose, you will gain expertise in all the fundamentals, including programming, algorithms, software engineering, databases and user interfaces. You may also choose to take the Honours degree without a stream, or to start without a stream and add one later.

Specialty streams COMPUTER GAME DEVELOPMENT

Computer game development has become a sophisticated subject, drawing on advanced

scs.carleton.ca

Benefit from faculty guidance



"One of the best things about this program is the professors, all of whom have shown interest in my success and knowledge. They've been great guides, references and supporters throughout my experience. Be it a question on course material or on which stream to switch into, they're easy to talk to and very helpful. I've also learned so much both inside and outside the classroom thanks to the research I was fortunate enough to be a part of."

Stephanie Thoumy,
Computer Science student

knowledge in a number of areas of computer science, such as artificial intelligence and computer graphics. In this stream, you will learn about both the principles and practice of designing and developing modern computer games.

ALGORITHMS

If you have strong mathematical abilities and wish to pursue an advanced degree or a career in cutting-edge research after your bachelor's degree, this stream is designed for you. In addition to core courses in computer science, this stream includes foundational courses on algorithms that will teach you to design, analyze, experiment with and reason about the algorithms that arise in modern applications.

MOBILE COMPUTING

We are in the midst of a long-term shift of computing applications

from desktop machines to mobile platforms such as smartphones and tablets. In the Mobile Computing stream, you will study some of the fundamental problems related to computing on mobile devices, and at the same time develop the practical skills needed to develop sophisticated mobile applications. Students in the stream must have their own laptop computer.

SOFTWARE ENGINEERING

In this stream, you will learn to efficiently and effectively develop reliable and secure software. The stream is accredited as a Software Engineering program by the Canadian Information Processing Society.

COMPUTER AND INTERNET SECURITY

In this stream, you will learn about the security problems faced by computing and communication networks, and

how to build software that defends against attacks.

NETWORK COMPUTING

In this stream, you will learn how to design and develop a range of networked systems, how to build safer networks and how to fix network problems.

Multidisciplinary streams

MANAGEMENT AND BUSINESS SYSTEMS

This stream deals with business and the application of computers within large business organizations.

PSYCHOLOGY

In this stream, you will study the relationship between computer science and psychology, examining such areas as cognitive science, human factors, human-computer interaction, the social aspects of computer use and product-design methodology.

BIOMEDICAL COMPUTING

This stream is geared toward those seeking employment as computer scientists or software engineers in biotechnology, medical computing or the life sciences.

Program options

The Bachelor of Computer Science is available as a four-year Honours degree, with the optional choice of streams, and a four-year Major degree for those desiring a less specialized program. For those students who might be interested in postgraduate studies in Computer Science, please note that an Honours degree is usually required for admission. We also offer a Combined Honours program with Mathematics. Students in other programs can opt to take a minor in Computer Science.

The capital advantage

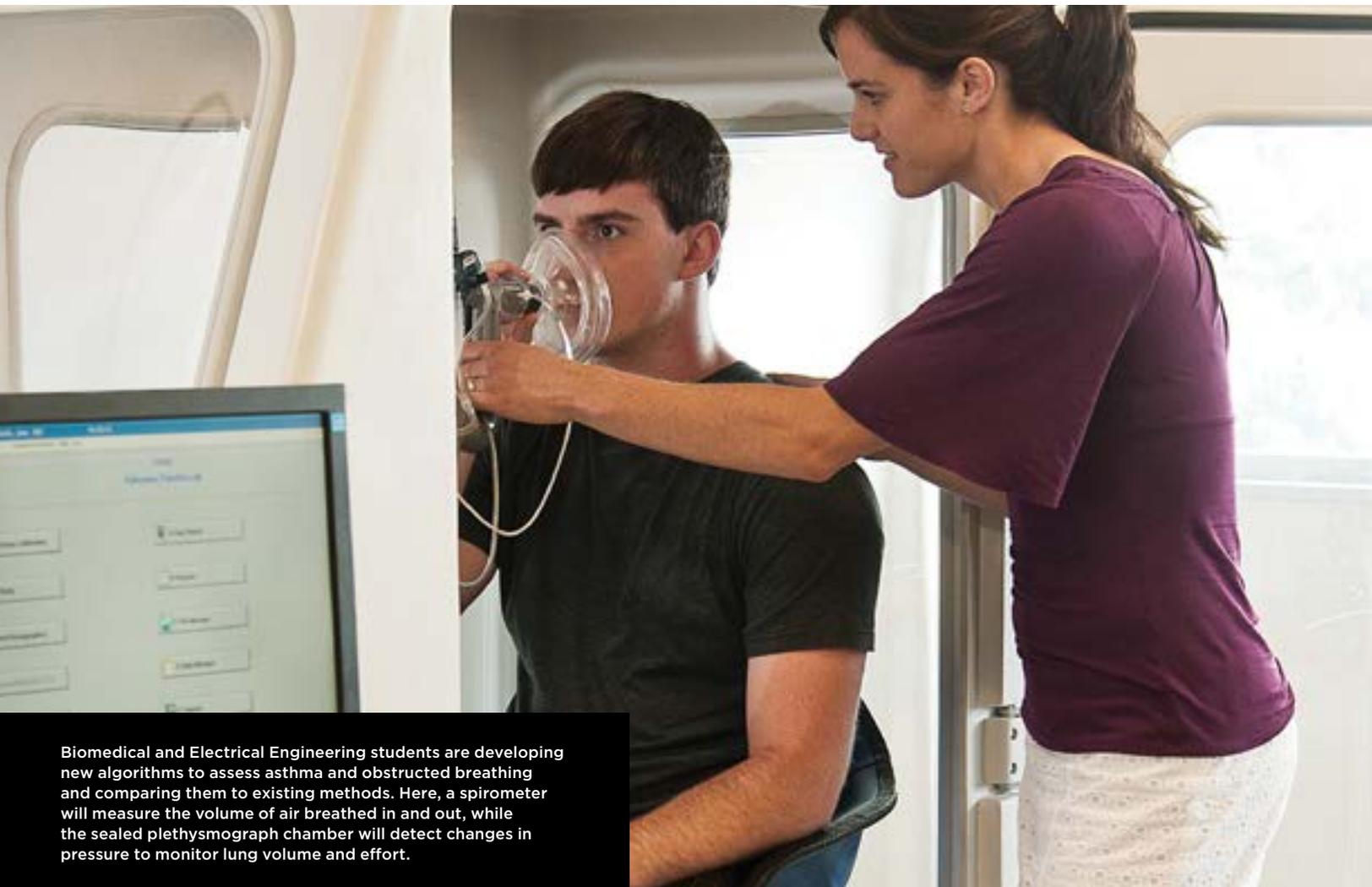
Ottawa is often referred to as Silicon Valley North because of the large number of high-tech companies in the area. Private high-tech companies and the federal government are always seeking computer science graduates.

Careers

Carleton Computer Science graduates go on to prosperous careers in:

- software design and development
- web services and infrastructure
- software and systems security analysis
- applications for biotechnology, artificial intelligence, computer gaming, business and mobile devices

Bachelor of Engineering



Biomedical and Electrical Engineering students are developing new algorithms to assess asthma and obstructed breathing and comparing them to existing methods. Here, a spirometer will measure the volume of air breathed in and out, while the sealed plethysmograph chamber will detect changes in pressure to monitor lung volume and effort.

Co-op available

All of our Engineering programs are accredited by the Canadian Engineering Accreditation Board.

[carleton.ca/
engineering-design](http://carleton.ca/engineering-design)

Our renowned Bachelor of Engineering degree offers an exceptionally comprehensive range of programs. At Carleton, we prepare you for a successful career as an engineer by combining rigorous programs and a highly supportive learning environment with practical hands-on experience.

Program of study

Carleton's Bachelor of Engineering ranks among the best in Canada. You will graduate with the knowledge to undertake a very broad range of engineering activities, including the design of aircraft, software, telecommunications systems, medical devices or environmental solutions

to pollution. Along the way, you will be exposed to exciting technological advances in, for example, information storage, global communications networks and 3D image manipulation technologies. The general curriculum begins with a foundation in mathematics, physical sciences and engineering principles. You

will then proceed in the program to which you were admitted. Each program provides opportunities to specialize your studies according to your interests and ambitions. All programs offer an optional minor in Business. Opportunities for graduates of these programs exist in sectors such as industry, education and

government, and in such diverse areas as research, product development, design, management and consulting.

Co-op employment

Through Carleton, you can obtain rewarding co-op employment with well-known organizations, such as:

- Air Canada
- Alcatel-Lucent
- BlackBerry
- Bombardier
- Canadian Space Agency
- Industry Canada's Communications Research Centre Canada
- Honda Canada
- IBM
- March Networks
- NAV CANADA
- National Research Council Canada

Aerospace Engineering

Our Aerospace Engineering program emphasizes the development of analytical, computational, and hands-on engineering and design skills related to the aerospace field. The broad range of topics and applications included in this discipline are covered in four main streams: Aerodynamics (aerospace propulsion and atmospheric flight); Aerospace Structures (lightweight vehicles for flight and space travel); Aerospace Electronics and Systems (aircraft control, communication and navigation systems); and Space Systems Design (astronautics and space/satellite technology). All four streams emphasize the development of practical and problem-solving skills based on hands-on laboratory and design work.

Career paths

You can work on the design and development of:

- space and satellite systems



Electrical Engineering student Melissa Stapleton holds a Crazyflie nano-quadcopter. Melissa was part of a team of capstone project students that used the Crazyflie, a purchased product, as an open-source platform for the development of avionic equipment. Her team looked specifically at control systems, sensors, communications, power systems and swarm intelligence on micro-UAV platforms.

- aerospace subsonic and supersonic propulsion systems
- aerospace communication, navigation and control systems
- aircraft, including manufacturing, certification, modification and repair/overhaul

Architectural Conservation and Sustainability Engineering

Sustainability has become a key consideration in both society and engineering. There is a growing need for engineers with expertise in the closely related areas of heritage conservation and sustainable building design. Carleton's program in Architectural Conservation and Sustainability Engineering teaches students a modern approach for the design and retrofit of buildings that holds

sustainability as the guiding objective while respecting architectural history and significance. Students learn to consider the life cycle costs and environmental impacts of building materials, energy demand, and the effective reuse and conservation of existing structures. Students in the program work closely with Carleton's architecture students and have the option between following a Structural stream or an Environmental stream after their second year.

Career paths

Your skills can be applied to:

- digital tools for new and historic building surveying and recording
- conservation of heritage structures
- green building design and assessment
- life cycle assessment of green building technologies and materials

Biomedical and Electrical Engineering

The field of health care relies increasingly on technology, with biomedical and electrical engineers leading the way. Carleton's program teaches you principles of electrical engineering and science as they apply to biotechnology and medicine. You will learn about the design of diagnostic and therapeutic devices, bioinstrumentation, automated signal and image analysis, computing and display devices and biometric data readout systems. The program is also designed to meet the prerequisite courses for many medical schools in North America.

Career paths

Your skills can be applied to:

- clinical and health care engineering
- biosignal processing, biosensor design and imaging diagnostic



To share knowledge with the community, Virtual Ventures, Carleton University Women in Science and Engineering (CU-WISE), and the Faculty of Engineering and Design run an engineering badge day for local Girl Guides. The attendees build balloon-powered cars and spaghetti structures.

- technologies
- biomedical informatics and telemedicine
- electronic and computer systems design for biomedical applications

Biomedical and Mechanical Engineering

The Biomedical and Mechanical Engineering program integrates life sciences with the traditional mechanical engineering topics of solid mechanics, dynamics, fluid mechanics, thermodynamics, heat transfer, materials, robotics and control systems to analyze and solve problems related to biomechanical engineering, biotechnology and medicine. The program provides students with a skill set that enables the development of advanced components, systems and techniques for biomechanical applications that are crucial to modern health care. The curriculum is designed with an

emphasis on the development of practical and problem-solving skills based on hands-on laboratory and design work.

Career paths

You can work on the design and development of:

- artificial organs, limbs, knees, hips, heart valves and dental implants
- exercise equipment, robots and therapeutic devices
- nanotechnology for the manipulation of biological cells and genes
- advanced drug therapy techniques

Civil Engineering

Civil engineers provide and maintain all of the infrastructure that we depend on daily. They plan, design, construct, operate, manage and maintain airports, bridges, buildings, dams, highways, railways, pipeline systems, tunnels, water distribution systems and treatment facilities. Carleton's Civil

Engineering program starts by giving students a thorough background in mathematics, chemistry, physics, thermodynamics, geology and numerical methods. In the final two years, students focus on engineering design in the areas of structural, geotechnical, transportation and municipal engineering. Elective courses allow students to further specialize in the area of their choice. The program culminates in a practical fourth-year design project where the students apply their knowledge to a real-world design problem.

Career paths

Your skills can be applied to:

- design of structural, geotechnical, transportation or municipal systems
- on-site construction management and supervision
- built infrastructure evaluation and maintenance
- infrastructure safety, security and comfort

Communications Engineering

Communications engineers are involved in the development of personal communications systems, including the next generation of integrated data, image, voice and video communications. We can teach you how to design the next generation of smartphones, as well as the computer and electrical infrastructure to support such a complex system.

Career paths

You can work on the design and development of:

- smartphone and smart-tablet data transmission
- wired and wireless communications and Internet applications
- distributed computer networks and sensors
- satellite communications and navigation

Computer Systems Engineering

Computer systems engineers combine hardware and software to design and implement integrated computer systems for applications in such areas as robotics, artificial intelligence, aerospace and avionic systems, multimedia applications and cloud computing. Carleton's program will enable you to learn how to engineer complex systems based on computers and acquire an understanding of computers as integrated software/hardware systems.

Career paths

You can work on the design and development of:

- robotics, smart vehicles and artificial intelligence
- smart grids and wireless sensor networks

- cloud computing and social network applications
- autonomous aerospace and avionics systems

Electrical Engineering

Electrical engineers design, develop, test and manage the manufacture of equipment ranging from cell phones to giant power generators. Our unique program allows for specialization in radio-frequency and microwave circuits and applications, communication circuits, integrated circuit design and fabrication, semiconductor and nanoscale technology and devices, or electrical energy and power. Carleton is one of the few universities in Canada with its own facilities for manufacturing integrated circuits.

Career paths

You can work on the design and testing of:

- local area networks, smartphones, fibre optics and satellite communications
- high-speed integrated circuit chips
- vehicular electronic controls and navigation
- electrical power systems including generators, motors and power grids

Engineering Physics

Engineering Physics is a challenging and elite program for those students who want to combine the strengths of physics and engineering. You will obtain an unusually broad and strong foundation in material science, applied physics, electronics and nanotechnology, and learn to apply it in the development of new technologies which include, but are not limited to, nanotechnology, semiconductor devices, optical systems, telecommunications and

related computer hardware. In your senior year, you may specialize in many other areas of interest.

Career paths

You can work on the design, development, simulation and application of physical devices and photonic components and systems in:

- nanotechnology
- biomedical physics and sensors
- microelectronics and process engineering
- photonics technology and communications

Environmental Engineering

Environmental engineers ensure that we have clean water to drink, clean air to breathe, clean soils to grow our crops, and clean energy to sustain our growth. The goal of environmental engineering is to offer sustainable and green solutions to many of the issues and challenges facing our society, and to provide a clean and healthy environment for us and our ecosystem. Environmental engineers use engineering and science principles to design innovative treatment technologies that help to minimize our environmental footprint, prevent pollution, reduce greenhouse gas emissions, improve air quality, ensure drinking water safety, and achieve environmental sustainability.

Career paths

You can work on the design and development of technologies to:

- reduce greenhouse gas emissions
- assess and improve air quality
- design and improve treatment systems for water, wastewater, and solid waste

- provide clean energy alternatives

Mechanical Engineering

Virtually anything one builds that moves or converts energy has a mechanical component, making mechanical engineering among the most versatile of all disciplines. Our program emphasizes the development of analytical, computational and hands-on skills in design, dynamics, thermodynamics, heat transfer, fluid mechanics, solid mechanics, materials, control systems and robotics. Elective courses in energy conversion and power generation, manufacturing and production processes, aerodynamics and flight mechanics, vehicle engineering, biomedical engineering and computational methods are available. A concentration in Integrated Manufacturing is offered.

Career paths

You can work on the design and development of technologies in:

- ground, sea and air transportation
- energy utilities
- manufacturing and robotics
- resource industries

Software Engineering

Real-world software systems, such as massively parallel Internet applications and mission-critical avionics control systems, require robust and provably correct software architecture design. Our Software Engineering program goes beyond teaching simple programming, and instead focuses on modern software engineering principles, tools, and analysis techniques for the design of large and complex software systems.

Career paths

You can work on the design and development of:

- smartphone and smart-tablet applications
- scalable web applications such as social networking
- aerospace and embedded systems
- robotics and artificial intelligence

Sustainable and Renewable Energy Engineering

There is an increasing demand for clean sources of energy such as nuclear, wind, solar, geothermal, hydropower and biomass energies. Truly sustainable development, however, will require the clever integration of renewable energy technologies into existing infrastructure, along with vastly improved efficiencies in non-renewable energy use. This program provides analytical and hands-on skills for designing, building, operating and enhancing sustainable energy systems that combine energy generation, distribution and utilization in an environmentally responsible and economically beneficial manner. Two streams are offered: Smart Technologies for Power Generation and Distribution, and Efficient Energy Generation and Conversion.

Career paths

Your skills can be applied to:

- energy-related industries, power utilities and government agencies
- transportation systems with hybrid propulsion technology
- manufacturing industry sectors related to renewable energy projects
- service industries specializing in efficient generation, distribution and utilization of energy

Bachelor of Global and International Studies



Photo of the Grand Palace in Bangkok, Thailand by Julia Lim.

Where better to study the world and the relationships among its peoples than Ottawa, the national capital of Canada?

Program of Study

Carleton's Bachelor of Global and International Studies (BGIInS) program takes advantage of Carleton's strengths and location to provide an undergraduate education in global and international issues that can give you an advantage in today's job market.

The program has four interconnected components. The core course sequence provides all students with a shared multidisciplinary foundation in global and international studies. The 12 specializations cover specific international and global themes or geographical areas,

giving you the opportunity to focus your studies according to your interests. A second-language requirement and an international experience requirement are included so that you can graduate not only with new knowledge and skills, but also an expanded worldview.

Core courses

All BGIInS students are required to take the core course sequence, which provides them with a strong multidisciplinary foundation in global and international studies:

FIRST YEAR

- Global History

- International Law and Politics
- Ethnography, Globalization and Culture

SECOND YEAR

- Ethics and Globalization
- Globalization and International Economic Issues
- Global Literatures

THIRD YEAR

- Global and International Theory
- Places, Boundaries, Movements and Global Environmental Change

FOURTH YEAR

- Honours Seminar in Global and International Studies

carleton.ca/bgins

Specializations

AFRICA AND GLOBALIZATION

Study a wide range of issues as they apply to Africa, including democratization, human rights, international development, youth cultures, migration and refugees, colonialism and postcolonialism, and social justice.

EUROPE AND RUSSIA IN THE WORLD

Study the region of Europe, Russia and Eurasia in its broader global context, including its history, society, politics, culture, economics and languages. You may focus on particular countries in the region, institutions such as the European Union, or themes such as migration, civil society, EU enlargement, globalization and identity.

GLOBAL DEVELOPMENT

Gain a multidisciplinary perspective on this broad and important field by taking foundational courses in anthropology, economics, geography, and political science, and learn about the way the world is unfolding in the face of increasingly urgent challenges from climate change to global epidemics.

GLOBAL LAW AND SOCIAL JUSTICE

Develop an understanding and facility with law as a key mechanism by which global issues, identities and institutions are organized and contested in this contemporary period of globalization. Explore legal frameworks as they relate to topics such as human rights, migration, trade and armed conflict.

GLOBAL LITERATURES

In the twenty-first century, literature offers one of the most compelling ways to enter into the many cultural worlds that converge in

contemporary societies. Explore how writers reimagine identity and belonging against a background of histories of colonialism, diaspora, migration and the experiences of living in multiple national communities.

GLOBAL POLITICS

Gain an understanding of global political issues through a problem-focused and applied approach to the study of such topics as the gap between rich and poor, democracy and its economic and political benefits, human rights, war and peace, ethnic conflict, and the politics of the environment.

GLOBAL AND TRANSNATIONAL HISTORY

Study the global community from 1400 to the present, with a particular focus on the nonwestern world, and explore global connections, movements and trends. You'll gain an understanding of the historical dialogue between forces of global integration and forms of local knowledge and experience.

GLOBALIZATION, CULTURE, AND POWER

Use the insights of Anthropology to become conversant with the cultural impacts of globalization in terms of economic inequality, ecological vulnerabilities, colonial legacies, health practices and institutions, and new visions of human rights.

GLOBALIZATION AND THE ENVIRONMENT

Develop an integrated understanding of global processes, their impact on the environment, and methods to implement solutions and effect change. Obtain a skill set to critically examine global biophysical systems, human-environment interactions, and approaches to address global environmental issues like climate change.

INTERNATIONAL ECONOMIC POLICY

This program's relatively non-technical approach will give students with diverse backgrounds the opportunity to learn about issues related to economic globalization and gain an understanding of the economic forces invoked by government intervention.

LATIN AMERICAN AND CARIBBEAN STUDIES

The geopolitical region of Latin America and the Caribbean has emerged as a key area of interest for Canadians. Learn about the complex biodiversity, history and cultures of the area and new approaches to understanding sustainable development, democracy, human rights and cultural diversity.

MIGRATION AND DIASPORA STUDIES

Examine the economic and political factors that influence the movement of people, and explore the cultural and social implications of the movement of ideas, by studying with leading experts in topics such as citizenship, diversity, exile, forced migration, integration and transnationalism.

Language requirement

A basic requirement for engaging with the world is the ability to speak in more than one language. For this reason, the BGIInS program expects students to pass a second-language requirement. Those incoming students who do not have skills in a second language can take courses offered by our School of Linguistics and Language Studies (SLaLS) or our Department of French. Options include Arabic, Chinese (Mandarin), French, German, Hebrew, Italian, Japanese, Portuguese, Russian, Spanish and American Sign Language.



Learning another language will not only help you become a culturally literate global citizen, but may also enhance your future employment prospects.

International experience

It is one thing to study a part of the world, and another to live there. For this reason, the BGIInS program features an international experience requirement as an integral part of the program. You can fulfill this requirement by studying abroad under one of Carleton's international exchange agreements, undertaking an international work placement, completing a Carleton University course taught abroad, studying abroad on a letter of permission or taking our innovative internationalization @ home course.

Careers

A global perspective, intercultural understanding and second-language ability are increasingly important skills for success in the workplace. A BGIInS degree can provide the foundation for careers in advertising, business, communications, foreign service, journalism, marketing, policy analysis, public relations, public service, sales and many other fields.

A BGIInS degree can also prepare you for graduate school in a wide range of disciplines.

Bachelor of Health Sciences



Carleton's Bachelor of Health Sciences (BHSc) is a wide-ranging and career-focused program that will provide you with the skills required to succeed in the rapidly changing worlds of medicine, biomedical research and healthcare research. You will gain a strong foundation in the scientific knowledge and methods involved in the study of human health, along with the capacity to engage in broader multidisciplinary, multi-sector, and multicultural approaches to finding solutions to some of the most crucial health issues of our time.

Program of study

The BHSc program offers a broad-based foundation in health science that can prepare you for postgraduate education in biomedical research and professional fields like medicine, dentistry or veterinary medicine, as well as for careers in health-related fields like public health, global and environmental health law and policy, and health services and community healthcare.

The BHSc program offers five concentrations, which can

be combined in unique and informative ways:

BIOMEDICAL SCIENCES

This concentration provides a strong foundation in the biomedical sciences and allows you to explore the genetic, biochemical, immunological, physiological and developmental aspects of human health. In addition, a broader view of health sciences is gained by addressing current issues from cultural, psychological, technological and

environmental perspectives. Training in the dynamic field of biomedical sciences will provide you with the skills needed to be part of the exciting and rapidly changing world of biomedical research and medicine.

GLOBAL HEALTH

This concentration provides you with the knowledge required to address current and developing international health issues. It focuses on real-world issues of increasing relevance in

healthsciences.carleton.ca

our interconnected global community—such as infectious diseases and pandemics—in the context of the social and political factors that influence healthcare practices and policies. You will explore such topics as the interaction between pathogens and our immune system, the way that therapeutics and vaccines work, and why it is harder to develop treatments or vaccines for some diseases than for others.

ENVIRONMENT AND HEALTH

This concentration explores the influence of our environment on our health, from toxins we are exposed to in our daily lives to the effect of climate change on global patterns of infectious disease. You will learn about the chemistry of environmental toxins, their effect on our cells and DNA, and our immune responses to them, including how multiple factors can make individuals either more vulnerable or more resilient to illness. You will also study issues related to the prevention and treatment of environmentally linked illnesses such as cancer, asthma, and neurodegenerative disorders like Parkinson's disease and dementia.

HEALTH THROUGHOUT THE LIFESPAN

This concentration focuses on health and illness through the stages of human life. There are few health sciences programs in Canada that include lifespan studies, and Carleton's program is unique in featuring courses that explore the entire lifespan, from neonatal development to old age. You will learn about the biological aging process, including how events occurring early in life can have



effects that appear much later, in the form of medical conditions like diabetes, cardiovascular disease and depression. In addition, you will explore the biomedical basis of health and disease, and have the opportunity to learn how factors such as gender and social conditions can influence health.

DISABILITY AND CHRONIC ILLNESS

This concentration is unique to Carleton. It introduces you to the biomedical, social and psychological basis of chronic illnesses and explores treatment strategies to enable productive and healthy lives. Chronic illnesses and disabilities affect the quality of life of a large number of people and include heart disease, cancer, chronic pain conditions, mental health problems and physical disabilities. You will learn about biomedical, cognitive and technological advances, as well as the ethical dilemmas affecting intervention and treatment.

Hands-on approach

All concentrations in the BHSc program provide a hands-on approach that includes laboratories, workshops

and seminars, beginning in first year. Students can take advantage of programs offered at Carleton that include summer research internships, the co-curricular volunteer program and international alternative break opportunities. The fourth year of the program provides a capstone experience with various options and hands-on experiences to choose from (pending satisfaction of academic requirements) that can advance your personal and professional goals.

Double concentration option

For those who would like to fuse two areas of study, it is possible to take a double concentration. For example, Biomedical Sciences can be combined with Global Health, if you wish to address new and emerging diseases. Likewise, you might wish to combine the concentrations in Health Throughout the Lifespan and in Disability and Chronic Illness to focus on issues relating to healthy aging. Taking a double concentration can add value to your degree for when you enter the job market or when you apply to professional or post-graduate programs.

The Carleton advantage

The BHSc program reflects Carleton's strengths in such fields as global and international studies, journalism and evidence-based practices and policy, and architecture and the built environment. This emphasis on interdisciplinarity will provide you with the breadth of knowledge and experience that medical schools and employers look for.

The capital advantage

Carleton's location in the nation's capital has enabled the university to forge partnerships in the area of health with both the public and private sectors. There are numerous organizations, agencies, research institutes and hospitals in the region that together provide a knowledge base unique to Ottawa.

Careers

There is great demand for highly-skilled workers in the health sector in Canada. The concentrations in the BHSc program are designed to prepare you for a diverse array of health careers but also provide excellent preparation for medical school and other professional training.

Bachelor of Humanities



In the Bachelor of Humanities, students read the world's most influential books and explore the world's most exciting ideas in art, philosophy, history, literature, classics, music, religion and science.

The Bible
The Bhagavad Gita
Homer
Plato
Dante
Machiavelli
Galileo
Shakespeare
Adam Smith
Bach
Mary Shelley
Nietzsche
Picasso
Rushdie
and more
in Carleton's
"Great Books"
program

carleton.ca/bhum

Program of study

In this interdisciplinary Liberal Arts program, students study the world's greatest ideas, books, and art works produced by thinkers from the span of recorded world history—from ancient Mesopotamia to modern America. The emphasis is on ideas, explored through small discussion groups and writing assignments. The typical Humanities student loves to read and is excited about sharing ideas with students and professors.

Bachelor of Humanities students normally combine Humanities with another discipline to receive a Combined Honours degree or a minor in subjects such as Art History, English, History, Philosophy, Political Science or Religion.

Bachelor of Journalism and Humanities

For those who wish to cultivate their love of ideas

while training for a career. In this degree, students receive professional training in newspaper, radio, television and new media journalism while gaining an in-depth understanding of world culture and history. For more information, visit carleton.ca/bhum.

Bachelor of Humanities and Biology

For students who wish to combine the Liberal Arts with a Science training. This program combines the insights into nature given by modern science with the insights into the human spirit given by the Great Books.

Close-knit creative community

The Bachelor of Humanities program is small, with only 70 students admitted each year. The students form a dynamic and intimate community, and are known personally by their professors, receiving a level

of attention and personalized instruction that is hard to find elsewhere. Students form life-long friendships as they participate in an extensive cultural program that involves a student literary journal, music nights, dramatic readings and visits to performances at the National Arts Centre and to festivals in Montreal.

Core seminars

At the heart of the Bachelor of Humanities are four Core Seminars, one for each year of the program. Each seminar focuses on a different discipline—religion, philosophy, literature and politics—and on a different time period, from the ancient world to the present day. All Core Seminars are team-taught by two professors, include small discussion groups and are restricted to Humanities students.

Careers

The Bachelor of Humanities can take you anywhere you want to go. Humanities students graduate with outstanding research, writing and communications skills, and they normally rise very quickly in their chosen professions. Humanities students can ask to be paired with a professional mentor and can gain insight into the workplace before they graduate. Graduates may go on to rewarding careers in law, journalism, teaching, medicine, business, policy analysis, foreign service, international relations, public service, writing and research. Humanities graduates also regularly gain admittance to prestigious graduate schools, law schools and medical schools.

Bachelor of Industrial Design



Industrial Design student Kristine Vodon displays her Biobuilding project, which is a 3D-printed modular building kit that allows users to make custom home decor products.

Co-op available

Industrial designers are responsible for the concept, the design and the details that are worked out before the manufacturing process of any product can begin. They work behind the scenes to determine the features, appearance, materials and ergonomics of the many products—from toasters to cell phones—that we use every day.

Program of study

Carleton's unique, internationally respected Bachelor of Industrial Design, offered through the School of Industrial Design, blends a design studio component with applied sciences, such as math and physics, and social sciences, such as psychology and business. The program focuses on process—from concept and design through

to manufacturing and the everyday use of the product. There is also an emphasis on the context and social purpose of design.

In the first year of the program, you will take courses in math, psychology, economics and physics. Other courses will introduce you to the profession, help you evaluate products according to the principles of design

and manufacturing and teach you basic design methods and techniques. As you move through the program, you will learn to balance academic studies and design studios. You will work on drawings, models, mock-ups and simulated products, as well as learn about materials, marketing, environmental issues, user needs and user testing.

id.carleton.ca

You will participate in the Annual Graduation Exhibition, which is well attended by visitors and industry employers.

Exceptional facilities

Ranked among the best in North America, our facilities include:

- modelling and prototyping laboratories (wood, plastic, metal)
- well-equipped design studios
- wireless computing facilities
- rapid-prototyping equipment

- a mass-production/mould simulation laboratory

Practical work experience

Internships are a requirement and last a minimum of 12 weeks. Opportunities exist in Canada and North America, Europe, Hong Kong and China.

Careers

Graduates go on to exciting careers in:

- industrial design
- manufacturing
- consulting

Our graduates have also

worked on design projects for such clients as:

- Armani
- BlackBerry
- Black and Decker
- Con Edison
- IBM
- Issey Miyake
- Lee Valley Tools
- Motorola
- Power Athletics (Bata)
- Prada
- Sony
- Umbra

The Carleton advantage

At Carleton, Industrial Design students have an opportunity

to become involved in design projects in collaboration with private- and public-sector partners. The projects range from practical, real-world design opportunities to blue-sky visionary explorations, depending on the course and year of the program.

Project sponsors provide support in a variety of ways including financial contributions, in-kind donations, consultation time, project resources, awards, co-op positions and scholarships. Some of our partners over the years have included:

- Canadian Paralympic Foundation
- Canadian National Institute for the Blind
- DW Product Development
- Institute without Boundaries
- National Capital Commission
- Ontario Ministry of Natural Resources
- Ottawa EMS Paramedics
- SMART Technologies Inc.
- Teknion
- Veritas Tools Inc.

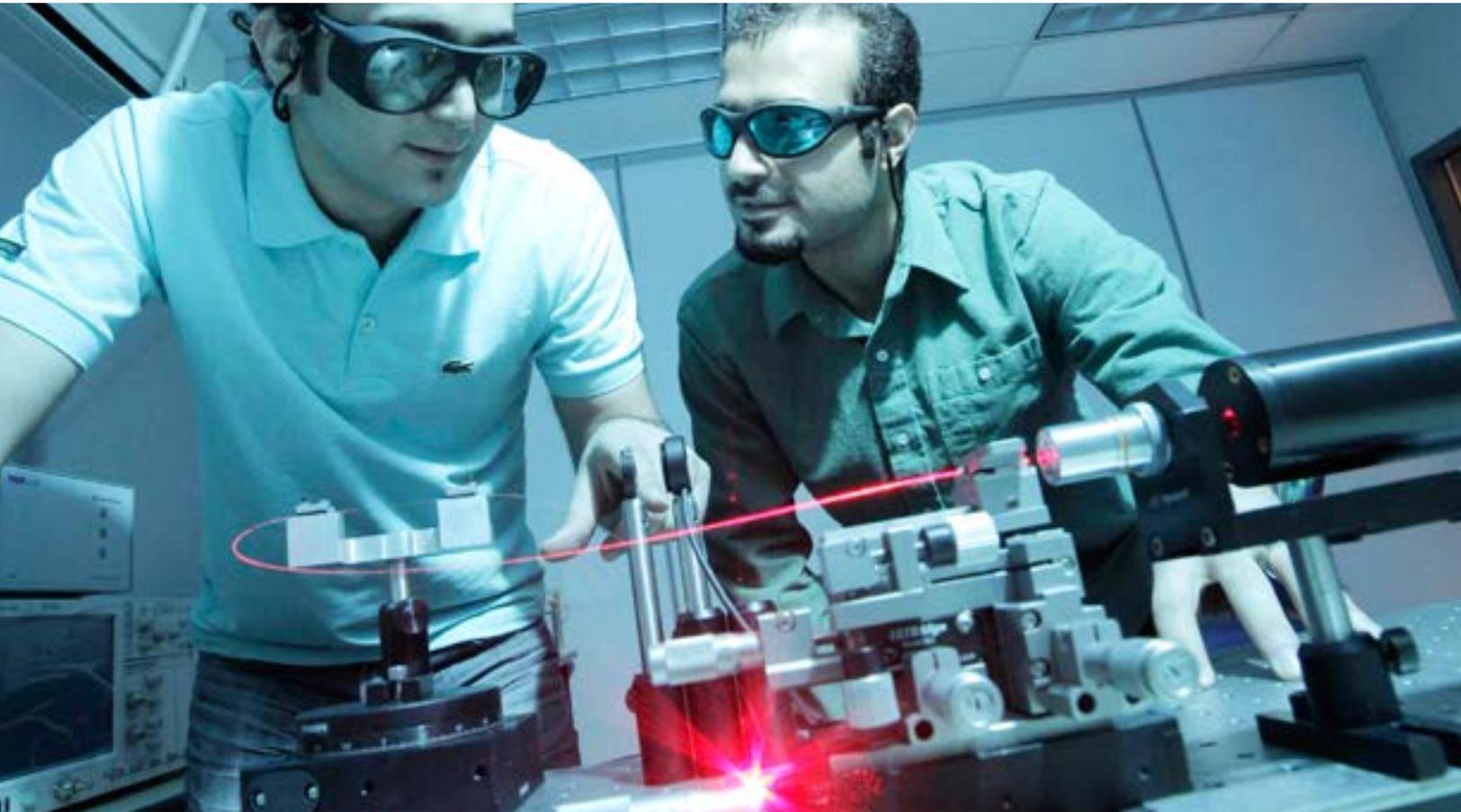
The capital advantage

Because of its location in Ottawa, Carleton University provides students with valuable resources for study and job placements, including a wealth of galleries and museums, such as the Canadian Museum of History and the National Gallery of Canada. Ottawa also boasts a design workforce of more than 3,500 that can offer interesting work placement opportunities as well as diverse career choices after graduation. Our students work for local, national and international companies.



Industrial Design student Kyle Lunau created a design for a Fire Ranger Transport Vehicle that addresses issues with the existing trucks used by forest fire rangers in Northern Ontario. It includes a pull-out cargo tray system to solve ergonomic issues, as well as significant considerations for visibility and overall safety.

Bachelor of Information Technology



Co-op available

The world of information technology is always evolving. What is now commonplace was once a breakthrough. As a student in one of the Bachelor of Information Technology programs, you will acquire the theoretical knowledge and practical skills needed to address the IT issues of today and the possibilities of tomorrow.

Program of study

The Bachelor of Information Technology (BIT) offers three distinct programs: Interactive Multimedia and Design (IMD), Network Technology (NET) and Photonics and Laser Technology (PLT). These programs are offered jointly by Carleton's School of Information Technology and Algonquin College's schools of Media and Design (for IMD) and Advanced Technology

(for NET and PLT). You will graduate with a Bachelor of Information Technology degree from Carleton University and either an Advanced Diploma of Applied Arts (for IMD students), an Advanced Diploma in Technology (for NET students) or an Advanced Diploma in Photonics and Laser Technology (for PLT students) from Algonquin College.

INTERACTIVE MULTIMEDIA AND DESIGN (IMD)

The four-year IMD program is aimed at students who are both artistically inclined and technologically adept and who are interested in all aspects of digital media. You will acquire the tools you need to take an idea or a problem and advance it through the entire process from concept to pre-production, production and post-production for

bitdegree.ca

practically all types of digital media. The program provides you with a multidisciplinary education through courses in computer animation, visual effects, game design and development, graphic design and human-computer interaction. The program is then further enhanced with courses in science, mathematics, business and social science. You will graduate fully equipped to work in and shape the digital world of the future.

NETWORK TECHNOLOGY (NET)

The four-year NET program focuses on the design, management, operation and installation of future complex information networks such as those that make up the Internet and cell phone networks. The program is multidisciplinary in nature, combining courses in computer and network technology with courses in physics, mathematics, business, communications, arts and social sciences. In this program, you will not only explore theories and concepts but also learn about their practical application. You will learn to design, manage,

secure, operate, install and configure advanced IT networks. State-of-the-art networking labs offer hands-on training with real-world equipment. The NET program has a partnership with the Cisco Networking Academy, whereby students are trained to successfully write the Cisco Certified Network Associate (CCNA) and Professional (CCNP) certification exams to earn industry-recognized certification, which is in high demand in the job market.

PHOTONICS AND LASER TECHNOLOGY (PLT)

Our recently introduced four-year PLT program is designed to prepare you for an exciting career in the diverse world of photonics. Photonics technologies, including electronic displays, bio-sensors, solar cells, fiber optic communications and laser manufacturing, impact our lives almost every minute of every day. In fact, you may find it difficult to find a device these days that does not incorporate some form of optical technology. As the technologies in modern society are becoming ever

more integrated, you will require the diverse skill set that we develop through fundamental courses in mathematics, physics, and programming. Once this skill set is established, we shift our focus to modern applications of photonics, and then to some that have not yet been realized! Our program has strong ties with industry and we make every effort to ensure that the skills we teach you are what industry demands.

Co-op employment

Interactive Multimedia and Design (IMD) students have worked with Adobe, Shopify, Magmic, BlackCherry Digital Media, Fuel Industries and IBM Cognos. Network Technology (NET) students have worked with Alcatel-Lucent, Bell, Ericsson, Health Canada, IBM Cognos, Ottawa Paramedic Service, Royal Canadian Mounted Police (RCMP) and Statistics Canada. Photonics and Laser Technology (PLT) students have worked with Allied Scientific Pro, Alcatel-Lucent and DFATD (Department of Foreign Affairs, Trade and Development Canada).

Career paths

IMD

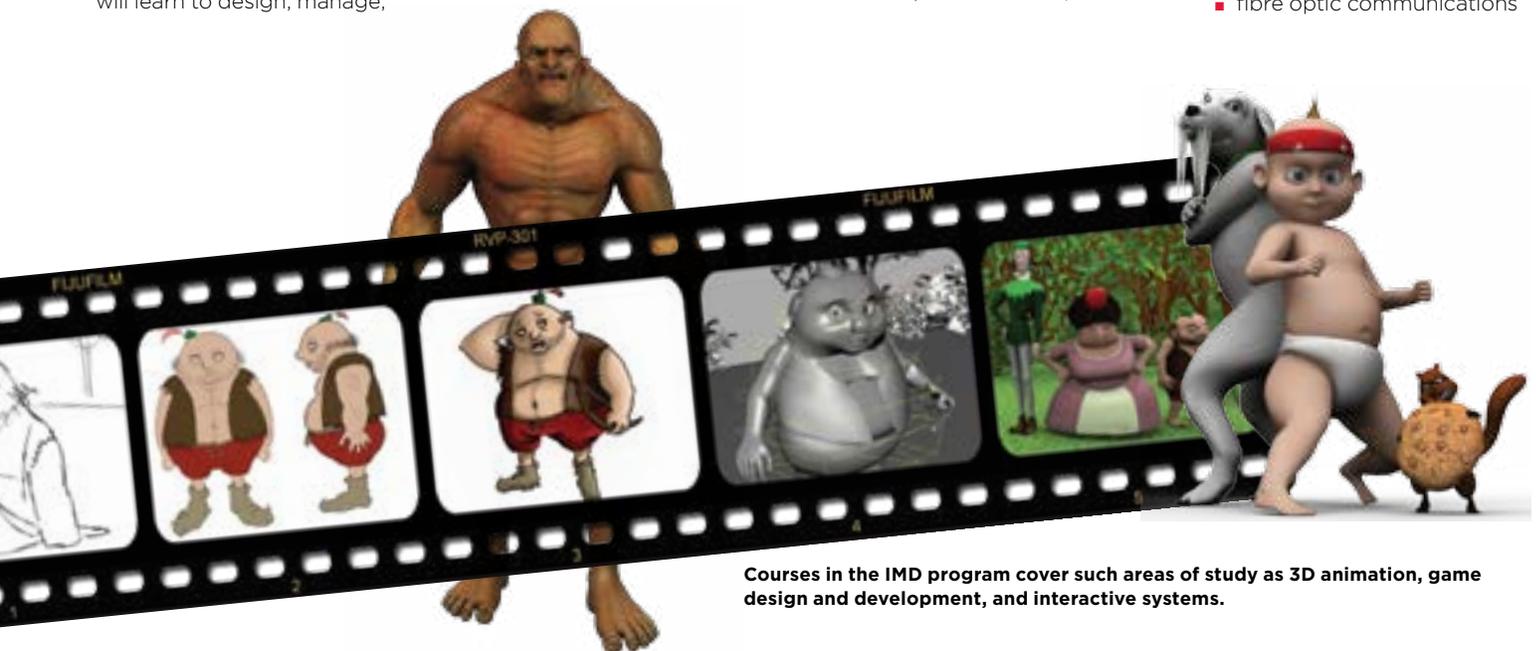
- computer animation
- game design and development
- visual effects
- user-interface design
- human-computer interaction
- web application and software development

NET

- network design and management
- government
- health institutes
- finance companies
- system integration
- telecom operation
- educational institutions
- other business enterprises requiring network design, management and operation

PLT

- lighting and energy
- defence and security
- biomedical industry
- biophotonics industry
- wireless technology
- industrial lasers
- fibre optic communications



Courses in the IMD program cover such areas of study as 3D animation, game design and development, and interactive systems.

Bachelor of Journalism



In Carleton's River Building, students have access to state-of-the-art tools for print, television, radio and online reporting.

Our internationally-renowned Bachelor of Journalism (Honours) program continues to produce some of the best journalists in the country and around the world. At Carleton you will get workshops in print, audio, video and digital journalism combined with reporting courses that allow you to pursue your interests in specialized areas ranging from international affairs to business. Your professional training is rounded out with studies focused on the role of the media in society as well as a strong grounding in another academic field outside of journalism.

Program of study

Our Journalism program will prepare you for the exciting challenges that await you as a reporter, editor or broadcaster skilled in all of the media formats, from digital to audio and video. At Carleton, we believe that the best preparation for someone seeking a career in the media is a solid, broad-based education. That's why you will study Canadian history and another language in addition to required

journalism courses. You may also pursue other subjects beyond journalism, with the option of acquiring a Combined Honours degree in a wide range of disciplines such as history, legal studies, sociology, political science, communication studies or English literature.

FOUR-YEAR PROGRAM

In your first year, you will take an introductory course that gives you a clear understanding of journalism and the media's role in

modern Canadian society, how this role developed through history, and how it is shifting rapidly today. The course also provides students with an introduction to basic journalistic principles, professional practices and new tools such as social media.

In the second-year reporting workshop, you will learn how to gather, organize and report information—the fundamentals of print, broadcast and digital

carleton.ca/sjc

journalism. Your other second-year courses will focus on media law and on the structure and functions of the institutions you are likely to encounter and cover as a working journalist.

Third- and fourth-year study includes a range of professional workshops in audio and video journalism, newspaper and online journalism, and social media and the latest digital journalism skills. Specialized reporting courses offer you a selection of subject areas, such as business, science, health, politics and international affairs. You'll be involved in classes producing student-led professional publications: a community newspaper and website, digital projects or radio or television current affairs programs. A rotating menu of journalism electives is offered each year, from conflict reporting to sports journalism.

Bachelor of Journalism and Humanities

For those who wish to gain an in-depth understanding of world culture and history while studying Journalism, Carleton offers a Bachelor of Journalism and Humanities degree. Students in this degree program spend half their degree learning the skills appropriate to newspaper, radio, television and new media journalism, and the other half studying art history, classics, literature, philosophy, political science and religion. For more information, visit carleton.ca/bhum.

Distinguished faculty

At Carleton, our professors are among the finest journalists in Canada. They have distinguished themselves as reporters, editors, producers,

foreign correspondents, newsroom managers, bureau chiefs and photojournalists in news organizations large and small across the country, including CBC radio and television, Postmedia, the *Globe and Mail*, the *National Post*, the *Ottawa Citizen* and the *Toronto Star*.

In addition, the school has built an extensive and invaluable network of working journalists who share their professional expertise with our students as sessional instructors or guest lecturers. All bring an invaluable knowledge of the rapidly changing working world and its practices into the classroom. Working closely with our full-time faculty and these professionals, you will gain hands-on experience in our video, audio, print, digital and multimedia newsrooms, studios and seminar rooms.

Gain practical experience

Our professional apprenticeships during the academic year allow you to put your skills to practical use in news organizations, public relations and communications firms or non-governmental organizations across Canada. Summer internships and employment are also available through news organizations that use our School and faculty network to recruit our best and brightest every year.

The capital advantage

As the home to Canada's federal government, national non-governmental organizations, and embassies as well as active business and arts and culture communities, Ottawa is a major news-generating city. Many national media outlets and organizations, staffed by some of the country's

leading journalists, are located in or have offices in the city, including:

- CBC (television, radio and digital)
- CTV
- Global TV
- The Canadian Press
- CPAC
- *The Globe and Mail*
- *National Post*
- *Toronto Star*
- *iPolitics*
- *The Tyee*
- *Vice*
- *Huffington Post*
- *rabble.ca*
- *Canadian Geographic*

These news organizations often offer internships as well as career opportunities to our students.

Internships in Africa

Journalism students at Carleton have an opportunity to get involved in the internship program involving the Centre for Media and Transitional Societies (CMTS), Students Without Borders and Uniterria. CMTS was established by journalism professor Allan Thompson to build links between students in Canada and media in Africa. The program began in Rwanda, where the media sector was decimated by the 1994 genocide, and has since expanded to other countries in Africa as well as Asia and Latin America. Each summer, our students can apply to work as interns with media and development organizations in the field.

Careers

Graduates of the Bachelor of Journalism program are employed in the news media (television, print, radio and digital) in Canada and abroad. They are found in organizations working at all levels of the media as well as in the public relations and communications

industries. In addition, given its high level of professional training combined with academic rigour and breadth, our Bachelor of Journalism is recognized as being a valuable stepping-stone to a variety of other career options. Many graduates have used their Bachelor of Journalism to launch professional lives beyond journalism, going on to become writers, lawyers, doctors, teachers, advertising executives, diplomats, academics and public servants.

Prominent alumni

Many of the men and women who report the news—on television and radio, in daily newspapers and magazines—got their start at Carleton.

- Nahlah Ayed, foreign correspondent, CBC
- James Duthie, sportscaster, TSN
- Paul Watson, multimedia foreign reporter and Pulitzer Prize winner, *Toronto Star*
- Jennifer Copestake, reporter/producer, BBC, London
- Michel Cormier, Director-General of Information Programming, Radio-Canada, Montreal
- Mark MacKinnon, London correspondent, *Globe and Mail*
- Susan Ormiston, Senior Correspondent, CBC Television
- Bev Wake, Senior Executive Producer Sports, Postmedia Network
- Geoffrey York, Africa correspondent, *Globe and Mail*

These are just a few of the hundreds of reporters, editors and media executives whose journalism training at Carleton has led to careers that literally span the globe. For the latest news on faculty, students and graduates, visit the school's website at carleton.ca/sjc.

Bachelor of Mathematics



Co-op available

Mathematics is a driving force behind many of today's advancements in medicine, economics, business, science and technology. As a Bachelor of Mathematics student you can choose from a broad range of program options according to your interests and career goals. You will graduate with a BMath instead of a BSc degree, and this designation, in combination with the skills gained from our programs, will provide you with a competitive edge in many careers and prepare you to contribute to the next generation of innovations.

Programs of study

The BMath degree offers three Honours programs:

- Mathematics
- Statistics
- Computational and Applied Mathematics and Statistics

Alternately, you can choose a Combined Honours program like Computer Science and Mathematics, or a General program in Mathematics, Statistics or

Computer Mathematics. Each of these programs ensures that you understand the structure of mathematics and master either traditional mathematical or statistical analysis. In addition, you will have opportunities to learn modern mathematical techniques and use advanced computer software.

Mathematics

Mathematical knowledge is

critical to innovation in fields as disparate as architecture and psychology, to name only two examples. Built around a strong core of traditional pure mathematics, Carleton's program allows you to branch into many areas of modern mathematics and become skilled with a variety of applications. Computer Science courses may be included as options to broaden your skill set. Some

math.carleton.ca

Attend an extra-curricular event



The Faculty of Science holds semimonthly science cafés where Carleton faculty share some of their scientific expertise with the local community. Professor Brett Stevens (on right), a mathematics professor, was a popular presenter at one of the cafés. His passion and enthusiasm for mathematics is infectious and he has consistently received rave reviews from his students. sciencecafe.carleton.ca

programs are available at both the three-year General and four-year Honours levels. A minor is also offered.

Statistics

Statistics is the art and science of applying mathematical ideas to obtain useful information in the face of uncertain data. As a statistician, you will plan data collection methods, monitor the processing of data and advise on the interpretation and limitations of results. You will have many career possibilities in a wide variety of organizations. Our Statistics program is designed to provide you with the basic tools you will need for statistical analysis. The Honours program also includes an introduction to the theoretical dimension of statistics required for advanced studies. Statistics is available as an Honours or a General program. A minor is also offered.

ACTUARIAL SCIENCE CONCENTRATION

A concentration in Actuarial Science is offered in the Statistics Honours program. This concentration incorporates a targeted sequence of courses in Business and Economics that

provides students with the necessary background to satisfy all six undergraduate requirements set out by the Society of Actuaries for professional designation.

Computational and Applied Mathematics and Statistics

In this program, you will acquire the knowledge and skills you need to pursue careers involving the design of computers and computer networks as well as the application of computers in solving critical problems in business, government and science. For example, you might find yourself developing new ways to protect information from both improper access and corruption during transmission, helping managers in business and government to allocate resources optimally, or using computer networks to study traffic flow and optimal routing. The program provides you with a background of computer-related mathematical ideas, combined with a strong foundation of computer science knowledge and skills. The Computational and Applied Mathematics and Statistics program is offered

as an Honours program only. For those students who prefer to pursue a three year program, we offer the 15.0 credit General program in Computer Mathematics.

Four years, two degrees

Carleton also offers an elite fast-track program in which high-achieving students can complete a bachelor's and a master's degree in four years rather than the five years it would normally take to obtain both of these degrees.

Combined Honours programs

The Combined Honours programs incorporate programs in Mathematics and Statistics with those from other disciplines such as Biology, Economics, Computer Science and Physics. You can pursue a Bachelor of Science (Double Honours) in Mathematics and Physics, or choose one of the following Combined Honours within the Bachelor of Mathematics programs:

- Biostatistics
- Computer Science and Mathematics
- Economics and Mathematics
- Economics and Statistics

Computer skills

Our computer labs are set up so that you learn how to apply statistical analysis and utilize optimization software. You will also have access to an advanced computing facility with powerful symbolic computation software as well as Carleton's extensive computer network.

Consulting centre

In January 2013, the School officially opened its newly-created Consulting Centre, CQADS, the Centre for Quantitative Analysis and Decision Support (carleton.ca/math/cqads). Through the Centre, we aim to provide consulting services by sharing our expertise in solving real world problems, and enhance the training and experience of our students through work experience and short courses.

Careers

Professional mathematicians have many career options including:

- actuarial science
- business modelling
- data mining
- management and systems analysis
- information security

Biostatisticians and computer mathematics graduates are working in such diverse fields as:

- business modelling
- networks and science
- information security
- systems analysis

Statisticians and computer statisticians use their statistical and mathematical knowledge in:

- survey design
- data analysis
- market analysis
- financial modelling

Bachelor of Music

The Carleton String Quartet performs on campus in the atrium of the River Building.



Whether you are an aspiring performer, a budding critic curious about how music shapes culture, or a talented musician who wants to share the joys of music as a teacher, Carleton's Bachelor of Music will prepare you to achieve your goals.

Program of study

Carleton University's Bachelor of Music (Honours) program provides a solid grounding in the study and performance of a wide variety of musical instruments and traditions. Subjects of study include the practice, analysis and history of European classical music from the Middle Ages to the present; Canadian music; computer music; composition; ethnomusicology; jazz; popular music and gender studies. One of the unique things about Carleton's Bachelor of Music program is that it is possible for students to undertake individual performance instruction with highly qualified instructors in virtually any musical tradition. We also

offer a wide range of music ensembles including choir, jazz, jazz-rock fusion, music theatre, African drumming and more. In addition, Carleton is the only university in Canada to offer a performance program in carillon studies.

A degree in Music from Carleton provides a broad yet thorough education, giving graduates a competitive advantage in today's job market. The BMus program can lead to various careers in music, as well as graduate studies in musicology, theory, composition or performance.

Admission to the program is by audition, and applicants may audition on any instrument (or voice) used

in classical, traditional or popular music. Applicants are expected to demonstrate musical competence on their instrument and knowledge of basic music theory.

Other programs

Our four-year Bachelor of Arts (Honours or Combined Honours) program focuses on music as a historical and social phenomenon. A three-year General program in Music will introduce you to the theory and history of music. A minor in Music is also offered.

Careers

Bachelor of Music graduates can be found:

- conducting
- composing
- performing in orchestras
- teaching music
- in arts administration positions
- in archival and library positions
- working in the entertainment industry and broadcasting

Resources

Carleton offers a wealth of study, research and performance resources, such as:

- seven grand pianos, eleven upright pianos, a harpsichord, a clavichord, a pre-1800 fortepiano, electric organs, a collection of West African drums, and a collection of medieval, Renaissance and baroque instruments to use in performance
- two computer music production studios
- the largest collection of Canadian musical scores outside of the Canadian Music Centre
- a collection of over 30,000 music recordings

carleton.ca/music

Bachelor of Public Affairs and Policy Management



Carleton's proximity to Parliament Hill has always been a draw for students in our Public Affairs and Policy Management program (seen here with Professor Christopher Dornan).

Co-op available

Public policies fundamentally affect our quality of life. Changing and improving society and our institutions requires an understanding of the policies that govern them. Carleton's Bachelor of Public Affairs and Policy Management degree is designed to prepare you to be effective in assessing, debating, deciding, implementing and evaluating public policies.

Program of study

The influence of public policy is pervasive in our society. It affects the quality of the air we breathe and the water we drink. It affects our access to education and medical care. It determines the duties and powers of our officials at home and overseas. It influences the pace of technological change, the reach and practical meaning of our rights, and the extent

of poverty. As a student in the Bachelor of Public Affairs and Policy Management program (BPAPM), you will examine a wide variety of issues facing society today and develop the necessary skills and knowledge to address them.

The BPAPM does this through a curriculum that combines interdisciplinary study of civic institutions with rigorous study of

public policy. A selection of courses in political science, economics and business, law, communications, and history is combined with exclusive courses in public policy. Together, these courses will provide you with a comprehensive understanding of what governments, civil and business organizations do, why they do it, and how they might do it better.

carleton.ca/akcollege

Specializations

In the BPAPM program you are able to match your interests by choosing one of the following areas of specialization.

COMMUNICATION AND INFORMATION TECHNOLOGY POLICY

Focus on key technical, cultural and regulatory issues that both shape and are shaped by developments in communication and information technology.

DEVELOPMENT STUDIES

Gain insights into development processes and policies throughout the world, including in post-communist and indigenous societies, and developing nations.

HUMAN RIGHTS

Through the study of economic, social, political and legal institutions, examine issues dealing with human rights, ethics and social justice, and the concerns of social movements and disadvantaged groups within society.

INTERNATIONAL STUDIES

Draw on Carleton's exceptional

strengths in international affairs to focus on the challenges to the international community posed by globalization, multinational corporations, environmental change, international terrorism and the spread of ethnic conflict.

PUBLIC POLICY AND ADMINISTRATION

Develop the knowledge, conceptual abilities and practical skills you will need for a career in public organizations, including non-profit organizations and all levels of government.

SOCIAL POLICY

Study the policy issues that play a key role in the Canadian social union and the international community.

STRATEGIC PUBLIC OPINION AND POLICY ANALYSIS

Acquire skills in the rapidly growing field of public behaviour and opinion analysis and discover how these skills are applied in formulating policies for public and private sector organizations.

Academic home and the capital advantage

The BPAPM degree is a unique undergraduate degree that draws directly from Carleton University's research and professional strengths in the study of public administration, international affairs, political studies and journalism. It takes advantage of the University's location in Ottawa, the national capital, home of the federal government, foreign embassies and many international organizations. The BPAPM program is located in the Arthur Kroeger College of Public Affairs, which provides an academic home for our students who come from across Canada and abroad. The university college is ancient in conception, characteristic of universities such as Oxford and Cambridge, and following this model our students belong to a select scholarly community. They have exclusive and direct access to academic advising, dedicated student meeting space and an electronic resource centre.

Student mentors and student society

An example of the program's collegial atmosphere is our mentorship program. First-year students are matched with a volunteer third- or fourth-year student from within the College. Available to answer questions, offer advice and share experiences, these upper-year mentors are eager to help ease your transition from high school and introduce you to the program, the College and university life in general. The Arthur Kroeger College Educational Student Society (AKCESS) organizes a variety of informal professional and social events that give students an opportunity to explore public policy outside the classroom.

Study abroad

With an average of B or better after first year, you can apply for a student exchange. This involves spending one or two terms studying public affairs at one of Carleton's partner institutions around the world.

Co-op and internships

Ottawa provides an unparalleled range of practical policy-related co-op opportunities with governmental and non-governmental organizations. Our students also have access to a wide range of internships, including international placements in locations such as Peru, China, and Ghana.

Careers

Our graduates go on to work around the world for a wide range of public and private sector organizations. Our graduates are also in demand and excel in post graduate and professional studies in public administration, international affairs, politics and law.

Become a Page on Parliament Hill



"The House of Commons Page Program is the experience of a lifetime! It provides the unique opportunity to learn the theoretical foundations of politics while seeing them in action first-hand. My experience as a Page has both strengthened my passion for politics and opened future opportunities for me on Parliament Hill. I am extremely grateful for the Page Program and the chance to be part of the excitement of the House of Commons!"

Morgan Cameron,
Bachelor of Public Affairs and Policy Management
student

To learn more visit
carleton.ca/parliamentarypages.

Bachelor of Science



Co-op available
in selected majors

At Carleton, we pride ourselves on being leaders in scientific discovery, innovation and education. We offer a collegial learning environment where you will be taught by professors recognized for both their scientific research and teaching excellence. They will provide you with plenty of opportunities to gain practical, hands-on experience.

Program of study

Experimenting is a key component of learning science at Carleton. In first year, your classes will typically have a lecture and a lab or tutorial component. Each lab will take three hours per week, so if you choose three of these lab courses you could have nine hours of hands-on experimentation every week.

Our labs, tutorials, field courses and seminars are conducted in small classes, resulting in plenty of

personalized interactions with professors, lab supervisors and fellow students.

FIRST-YEAR SEMINARS

First-year science students are encouraged to enrol in our unique seminar course, Seminar in Science, designed specifically to introduce you to the latest scientific issues and to help you develop the kind of communication, analytical thinking and research skills you will need for your science studies and your career.

RESEARCH OPPORTUNITIES

Many of our professors are actively involved in groundbreaking research in their areas of expertise, and you could find yourself working on some of these projects. Carleton faculty have also forged strong links with Ottawa-based industries, government labs and departments, as well as teaching and research hospitals, providing Carleton students with a diverse range of research and employment opportunities.

carleton.ca/science

LEARNING COMMUNITIES

As a first-year science student, you may be able to join a Science Learning Community and benefit from the following:

- be part of a small group of students that take the same lectures, labs and tutorials
- be offered a timetable with your mandatory courses already included
- meet other students in your program
- easily form lab partnerships and study groups
- participate in skills-development workshops and seminars
- be matched with an upper-year student mentor

If you are interested in this unique student engagement opportunity, visit the Science Learning Community website at slc.carleton.ca for all the details.

Applied Physics

See *Physics*.

Biochemistry

The science of biochemistry seeks to understand how organisms function by investigating enzyme reactions, mechanisms of gene regulation, chemical signaling pathways, and cellular structure at the molecular level. Biochemists study how animals, plants and bacteria make use of energy to grow, compete with other organisms and reproduce. Many of the biochemist's findings are of direct relevance to humanity—they help us understand and treat disease, improve food production and find new techniques to produce valuable products such as vitamins and antibiotics.

Biochemistry programs are excellent training options for

entry into medicine and other health sciences professional programs.

Honours programs in Computational Biochemistry and in Biotechnology and Biochemistry are also offered.

Career paths: environmental toxicology consulting, medical research, medical research technology, medicine and dentistry, patent application and review, pharmaceutical sciences, regulatory toxicology, science policy analysis, teaching and instructional innovation, technical sales and marketing, veterinary medicine

Bioinformatics

Modern biology in the postgenomic age is being greatly enriched by the infusion of ideas from computer science, information science, mathematics, systems research and

statistics. Bioinformatics taps into the vast datasets accumulating in the life sciences, combining techniques from informatics and computer science to solve biological problems such as gene identification, drug interactions and protein structure. At Carleton, you will take courses in several areas including bioinformatics, biology, biochemistry and computer science.

Career paths: analysis of environmental systems and functions; areas of disease detection and drug discovery; biostatistics; database design and data analyses in academic, pharmaceutical and medical settings

Biology

Biology in the twenty-first century is among the most diverse and exciting of the sciences. Many of the



Carleton takes pride in its exceptional support services for students. The Science Student Success Centre (SSSC) offers one-on-one support for students who want to be more academically engaged or just need help meeting the demands of their coursework.

BSc degree programs and work experience options

Co-op is generally available in Honours programs only. Co-op and work experience may not be available in all program types and concentrations, and some restrictions apply. Please consult the calendar at calendar.carleton.ca for more information.

Legend

H = Honours
CH = Combined Honours
M = Major

DH = Double Honours
G = General
m = minor available

Program name

Majors and concentrations

Applied Physics	H	co-op
Biochemistry	H, M	co-op
Bioinformatics	H	co-op
Biology <i>Ecology, Evolution and Behaviour; Health Science; Molecular and Cellular Biology; Physiology</i>	H, CH, M, G, m	co-op
Biotechnology	H	co-op
Chemistry <i>Nanotechnology</i>	H, CH, G, m	co-op
Computational Biochemistry	H	co-op
Earth Sciences <i>Finance; Resource Valuation; Geophysics; Resource Economics; Vertebrate Paleontology and Paleoecology</i>	H, CH, M, G, m	co-op
Environmental Science <i>Biology; Chemistry; Earth Sciences</i>	H, M	co-op, practicum
Food Science and Nutrition	H, m	
Geomatics	H, m	practicum
Nanoscience	H	
Neuroscience	CH	co-op
Neuroscience and Mental Health	H, M, G, m	co-op
Physical Geography	H, m	practicum
Physics <i>Experimental; Theory</i>	H, M, CH, DH, m	co-op
Psychology	H, m	practicum

challenges we face as a society, from climate change to the development of novel health therapies, involve biological solutions. As a Carleton Biology student, you will gain broad experience through core science courses and options that suit your individual interests and needs. The Biology department offers Bachelor of Arts and Bachelor of Science degrees, an Honours program in Biology and Biotechnology, and several interdisciplinary joint programs with other departments and with the College of the Humanities. Students in the BSc (Honours) program in Biology will have extensive opportunities to learn in lab-based environments and may choose to specialize in one of four concentrations: Ecology, Evolution and Behaviour; Health Science; Molecular and Cellular Biology; and Physiology.

Career paths: agriculture and horticulture sciences, applications in biotechnology, environmental consulting, genomics, medicine and health sciences, research, wildlife management

Biotechnology

Biotechnology applies the principles of biochemistry and biology to the study and manipulation of living organisms for industrial, medical, agricultural and environmental applications. Some areas of biotechnology include genetic engineering, metabolic engineering, personalized medicine, drug development, applied microbiology and fermentation techniques, and biological control of insect pests. In the Ottawa area, local companies and government agencies are involved in projects

such as biofuel production from agricultural waste, the development of medical diagnostic screening devices, and the development of new anti-cancer and antimicrobial therapies.

The extensive laboratory training provided in this program will give you the experience you need to work in a laboratory environment. Biotechnology is offered as a specialized Honours program in conjunction with Biology or Biochemistry.

Career paths: agricultural and food industries, agricultural research, biomedical product development, biotechnology consulting, forensic sciences, industrial research and development, medicine and medical research, pharmaceutical research, science writing and broadcasting, technical sales and marketing

Chemistry

As a student interested in chemistry, you can enrol in programs and courses in all the main areas of chemistry, including analytical, inorganic, organic, physical and environmental chemistry. If you wish, you can choose to pursue a concentration in Nanotechnology where you will study the atoms and molecules used to create computer chips and other devices that are the smallest permitted by current technologies. Extensive lab experience is offered, helping you to round out your studies with practical experience.

Career paths: dentistry, environmental policy, law, medicine, pollution control, research and development

CONCENTRATION IN NANOTECHNOLOGY

The innovative concentration in Nanotechnology allows

for the study of devices and architectures at the molecular scale. This program of study combines a strong background in physical and inorganic chemistry with several new core courses in nanotechnology, surface nanofeatures and physical methods. This is complemented with practical research experience in breakthrough fields like thin film deposition and characterization, scanning electron microscopy, fibre-optic pollutant nanosensors, nanobiophysics and DNA nanosensors. Applications

using nanotechnology are already evident in the electronics and aerospace industries. Nanotechnology is set to revolutionize science and technology.

Career paths: biomedical, environmental and communication technology; microelectronics and aerospace

Computational Biochemistry

The modern era of biochemistry has been transformed by the recent development of instruments which can generate vast

amounts of information about entire genomes or thousands of proteins or metabolites. One of our biggest challenges in biochemistry is the development of tools to analyze and manage this flood of data.

The Computational Biochemistry program was developed to provide both training in computer science and a solid foundation in biochemistry. Students are exposed to the core areas of biology and chemistry, including genetics, cell biology, organic chemistry and analytical chemistry, as well as general and experimental biochemistry, bioinformatics and molecular modelling. Optional courses allow you to focus on areas such as molecular genetics, pharmaceutical drug design, functional genomics and protein structure and function.

Career paths: biomedical data management, biomedical and genetic data analysis, biomedical research and development, biotechnology research and development, combinatorial drug and enzyme design, forensic sciences/data analysis, pharmaceutical research, science communications, technical sales for biotechnology companies

Earth Sciences

The Earth Sciences program at Carleton offers you the opportunity to study the Earth's systems, incorporating knowledge from other sciences including physics, biology and chemistry. You will learn about processes (such as evolution, earthquakes, volcanic eruptions, plate tectonics and mountain building, formation of hydrocarbon reservoirs and mineral deposits) influential

in the Earth's geologic past that establish our present and future global development. The program offers the opportunity to participate in hands-on field courses that can take you to sites throughout Ontario, across Canada and around the world.

Honours students may enroll in concentrations such as Finance: Resource Valuation; Geophysics; Resource Economics; or Vertebrate Paleontology and Paleoecology; or in Combined programs with Biology, Chemistry or Physical Geography that provide a broader understanding of fields related to Earth Sciences. Honours and Major graduates are eligible to apply for Professional Geoscientist registration in Canada—an important designation in the job market. Some Earth Sciences students may be

interested in taking a minor in Business or Geomatics.

Career paths: natural resources exploration; research in government, industry or university laboratories; resource and investment valuation in business; water resources, environmental assessment or remediation

Environmental Science

The Environmental Science program brings together the study of biology, chemistry, earth sciences and geography to enable its graduates to address complex and multidisciplinary environmental and conservation problems. Through lecture and seminar courses, hands-on laboratory work and field camps, students become proficient in topics such as water resource

management, fish and wildlife ecology, ecological restoration, sustainable resource extraction, environmental monitoring, and environmental policy. In the upper years, students take courses in chosen areas of study and hone their skills in preparing research and thesis projects, working in teams and individually on current problems facing environmental science. Concentrations are available in Biology, Chemistry and Earth Sciences.

The Environmental Science honours program is accredited by ECO Canada (www.eco.ca), which aids the graduates of our program in following their own interests and paths to tackle a wide range of environmental issues.

Career paths: environmental impact assessment and



“The research and training opportunities I have been afforded while an undergraduate student in biology have allowed me to become an informed and knowledgeable environmental biologist. I have not only been able to work on projects I am truly passionate about, but I have also been able to work directly with an industry partner to solve real world problems. I think the best part about my experience in research so far is the fact that our research team is so diverse, covering various sectors and expertise, which provides me with an appreciation of the value of interdisciplinarity.”

Brittany Sullivan, Biology student with concentration in Ecology, Evolution and Behaviour

monitoring, environmental policy analysis, industrial and environmental consulting, natural resource management, research and education, wildlife and habitat conservation

Food Science and Nutrition

Knowledge of food and nutritional science is required in order to make decisions on such issues as food irradiation, the genetic modification of foods, food contamination by micro-organisms and toxic compounds, and food preservation. Carleton's program in Food Science and Nutrition is unique in that it combines a solid science base with the study of the assessment, management and communication of risk in food safety. No other food or nutritional science program in Canada offers such depth of study in food science as well as food economics, risk assessment, policy and regulation.

The modern job market for food professionals demands people that have technical skills as well as an understanding of regulatory and policy issues. People with both sets of skills are in demand by all levels of government and by the private sector.

Career paths: analytical chemistry, flavour chemistry, food microbiology, food safety and nutrition evaluation, packaging science, quality assurance and regulatory oversight, research and development

Geomatics

From Google Maps to GPS navigation to global vegetation and water monitoring, geomatics deals with the acquisition,

management, analysis and display of geographic information. In our Geomatics BSc program, you will obtain intensive science-based training in geographic information systems (GIS), remote sensing (imaging from satellites and aircraft) and cartography, including web-based applications. You will apply advanced computer software and techniques to the challenge of understanding the Earth's physical and natural systems, addressing environmental problems and planning human interventions. Our program combines hands-on learning using the latest in laboratory facilities with opportunities to gain field experience and do work placements. Science-based geomatics applications include the modeling and mapping of the physical and natural environment, resource planning, land cover and vegetation mapping, and hazards mapping, amongst many others. The BSc in Geomatics includes training in associated physical or natural sciences and computer sciences. Geomatics can also be taken as a BA Honours degree.

Career paths: environmental consulting; mapping and monitoring of forests, water, ice, agriculture, or land use development; natural resources management; regional land use evaluation and environmental assessment; web-based geomatics, including design and programming

Nanoscience

Nanoscience is concerned with the study of matter at a scale on the order of 10 to thousands of atoms. At Carleton, you will examine nanoscience through the disciplines of physical

chemistry and electrical engineering to understand the physical, chemical and electronic characteristics of matter in this size regime. The combination of these two areas of study will equip you to fully understand nanoscience in photonic, electronic, energy and communication technologies. The focus of the program will be on materials—their use in electronic devices, their scalability and the control of their properties. Further required courses in mathematics, physics and statistics will round out the program, and advanced courses in bionanoscience and nanoelectronics are available.

A concentration in Nanotechnology is also available within the Honours program in Chemistry.

Career paths: communications technology, micro (nano) electronics, research and development in aerospace technologies, research and development in green technologies, solar cell technology

Neuroscience/ Neuroscience and Mental Health

Neuroscience is a new, exciting, and rapidly expanding scientific discipline that aims to understand how physical processes in our brains underlie complex functions such as movement, sensation, memory, emotion, consciousness and thought. Faculty and students in Neuroscience are particularly interested in how diseases that affect the brain lead to mental health problems, with the focus of our research including depression, Parkinson's disease, obesity, Alzheimer's disease and

concussion. Our research, like our academic programs, integrates information from many disciplines including medicine, molecular biology, psychology, immunology, genetics, chemistry and epidemiology.

Neuroscience and Mental Health is Canada's first undergraduate degree program to be run by a Neuroscience Department. The program offers flexibility of course selection for students, including opportunities for students to pursue a wide range of minors. Neuroscience (Combined Honours) is also available for students wanting more emphasis on advanced biology courses.

Career paths: human genetics, medicine, neurology, neuroscience, pharmaceutical industry, psychiatry, research, science journalism, veterinary medicine

Physical Geography

Physical Geographers study the natural environment as a product of the interaction of the atmosphere, the hydrosphere (water in all its forms), the biosphere (all living things), the lithosphere (the solid earth) and human activity. Physical Geography is the science of the natural environment at all scales, from the smallest grain of sand to the entire planet. In the Physical Geography BSc program, you can choose from a range of courses that cover topics such as climate change, water resources and land degradation. Both fieldwork and laboratory techniques are emphasized. Physical Geography at Carleton is also offered as a concentration in the BA Honours program.

Career paths: environmental consulting, environmental



management, impacts of climate change, natural hazard risk management, water resource monitoring

Physics and Applied Physics

Physicists study the laws of nature at the most fundamental level. Advances in physics help us to understand the physical reality around us and allow us to solve problems in a broad variety of disciplines, including such disparate fields as medicine and finance. Applied Physicists use their understanding of nature to improve technology, such as telecommunications, photonics and computer technology.

At Carleton, you will be able to study Physics as your Honours subject (Experimental or Theory streams) or in combination with Biology, Chemistry or Mathematics. Double Honours Mathematics and Physics is an elite program for those who are more theoretically inclined. Our Honours Applied Physics program combines

studies in modern physics, optics and electronics, math and computer science. The department also collaborates with the Electronics department in offering an Engineering Physics (BEng) program. This elite program is professionally accredited and aims to produce engineers with a deep understanding of the scientific foundation of engineering.

Career paths: developing emerging technologies such as photonics and nanotechnology; education; finance; further education in professional programs such as law, medicine and teaching; high technology sector; nuclear and sustainable energy industries; science journalism

Psychology

Psychologists study the mechanisms that underlie our thoughts, emotions and behaviours. They examine a diverse range of topics, such as how we think and learn, how we interact with others and how we can promote healthy development and wellness. This is accomplished

by conducting research so that the knowledge gained can help us to better understand the human mind, enhance well-being and performance and generate additional research questions.

At Carleton, you will explore psychology's major areas including cognitive, developmental, forensic, health, organizational and social/personality psychology. Specialized topics include abnormal behaviour, human neuropsychology, perception, criminal behaviour, positive psychology, and social and cognitive development.

The insights you will gain from studying psychology will serve you throughout your life, in virtually any career. Psychology is also offered as Bachelor of Arts Honours, General and Combined Honours programs.

Career paths: corrections, probation, parole counselling; early childhood education; health and social services; human resource management; marketing and public relations; mental health services; research

The Carleton advantage

In addition to offering a great city and a beautiful campus in which to live and study, Carleton offers an impressive array of additional benefits.

Located right on campus, the **National Wildlife Research Centre** is the national headquarters for a network of wildlife researchers from around the world. Government scientists, faculty researchers and students benefit from close collaboration on a number of shared projects.

The **National Research Council Canada (NRC)**, the Government of Canada's premier organization for research and development, is headquartered in Ottawa.

Summer Research Internships are available to eligible students once they have completed their first year of studies. These internships give students the opportunity to work in a research group headed by a Carleton professor.

The **Science Student Success Centre** was created to address the needs of science students. Personnel from the Centre meet one-on-one with students to get to know them and help them draft an individual study plan. They help students succeed academically by advising them on how to manage their workload, take good notes and study for exams and tests. They also act as ongoing resources and mentors to help students reach their academic goals.

Bachelor of Social Work



Social Work students view a counselling session through a one-way mirror in the School of Social Work's observation room.

A BSW from Carleton is portable across the Canadian provinces and territories and is generally recognized in the USA and several other countries.

The School of Social Work is accredited by the Canadian Association for Social Work Education (CASWE); in our last accreditation review in 2012, the BSW program received the highest standing.

carleton.ca/ssw

Vision, energy and a commitment to social justice and social action—these are some of the qualities that are required of contemporary social workers. Through a rigorous program of study that emphasizes theory, critical analysis, research and skills development, Carleton's School of Social Work will prepare you well to meet the challenges of this dynamic profession.

Program of study

Carleton's Bachelor of Social Work (BSW) is a four-year Honours degree that places strong emphasis on the interactions between people and their environments. We look for innovative ways to assist people to engage in society and to achieve their own sense of meaning and accomplishment in a rapidly changing world. Our program is geared towards those who enjoy working with diverse populations and have strong interests in promoting social justice. The program will equip

you with the knowledge and skills necessary for working sensitively with individuals, groups and communities, and for critically analyzing social policies and programs.

FOUR-YEAR PROGRAM

The BSW program combines a liberal arts education with a professional social work education. In first year, you will take a range of courses outside of social work and one main social work course which introduces you to the profession of social work and the programs and policies that comprise the welfare state.

In second year, you will be introduced to the theoretical frameworks that underlie social work. This will include ideas and concepts from the social sciences, including sociology, psychology, political science and economics, with an emphasis placed on understanding the impact of race, gender and class on people's lives. In addition, you will explore the history and theories of the welfare state and cover topics such as the nature of the labour market, the family, the voluntary sector and research methodologies.

In third year, you will study how the welfare state is administered and managed, learn about working in community and human service organizations, and have the opportunity to refine your analytic and interpersonal skills. Field placements provide opportunities to put theory into practice, and are offered in such settings as child protection services; community health or crisis centres; drop-in centres for homeless people; shelters for women; provincial, federal, and municipal government departments; immigration and settlement services; services for refugees; addictions counselling centres; hospitals; and a range of international and non-governmental organizations.

In fourth year, you will have more opportunities to practice social work as you complete another field practicum. The fourth-year Honours Integrative Seminar provides you further opportunity to synthesize theory with practice and to enhance your skills in critical self-evaluation.

A pioneer in social work

Nationally and internationally renowned for its commitment to social justice, equality and respect for all peoples in society, the School of Social Work is a pioneer of the “structural approach” to social work.

As a student of this approach, you will learn that the society in which we live is made up of diverse groups of people with varying degrees of access to economic and political power. At the School of Social Work, we believe that the inequalities based on class, race, sex, sexual orientation, disability or age,

among others, are the result of economic, political and ideological structures—not individual failings. We believe that Carleton-educated social workers are able to work effectively for social justice because they recognize the fundamental impact that social structures have on people.

As a graduate with a Bachelor of Social Work you would be eligible to join the Ontario College of Social Workers and Social Service Workers and receive the designation of Registered Social Worker.

A strong student society

The BSW Student Society (BSWSS) is an active and energetic entity in the School of Social Work. The BSWSS arranges many events, such as workshops, seminars and social gatherings.

Community spirit

The School of Social Work is an integral part of the social welfare community in Ottawa (as well as being active

nationally and internationally) and our professors enjoy strong, collegial relations with a wide range of individuals and community organizations. For example, our faculty play major roles in Campaign 200 (which supports a national coalition for the elimination of child poverty); the City of Ottawa’s Poverty Issues Advisory Committee; YouthREX; and the Committee on Disability and Abuse (which is a sub-committee of Crime Prevention Ottawa), among several other organizations.

The capital advantage

Studying in the nation’s capital gives our students tremendous off-campus learning opportunities.

- For students interested in social policy, the Canadian parliament and numerous think tanks are located in Ottawa.
- The main office of Canada Without Poverty is also located in Ottawa.
- The Canadian Council on Social Development is

located in Ottawa, as are offices of the Canadian Association of Social Workers and the Canadian Association for Social Work Education.

- The headquarters of unions and a number of nongovernmental organizations (Oxfam, CUSO International, North-South Institute) provide a broad range of learning opportunities for our students.

Careers

With a Carleton BSW, you will be able to apply your knowledge and expertise in many areas, such as in:

- child welfare and youth services
- various types of counselling
- family and health services
- rehabilitation
- correctional services
- social assistance and other related government services
- immigration and refugee settlement services
- seniors’ services
- services for Aboriginal peoples



The Bachelor of Social Work Student Society (BSWSS) is extensively involved in activities on campus, from food and clothing drives to the annual Relay for Life, and provides an excellent opportunity for Social Work students to get involved, help others and build friendships.

Add a **minor**



After you choose courses based on your program's requirements, you may have room in your schedule to study a variety of electives or to follow a secondary interest.

A minor is a cohesive set of courses, usually consisting of 4.0 credits, that provides a foundation in another area of study. The following programs can be taken as a minor, but are available as major programs as well:

African Studies *
Anthropology * Applied Linguistics and Discourse Studies * Art History * Biology * Business * Canadian Studies * Chemistry * Communication Studies * Computer Science * Earth Sciences * Economics * English * Entrepreneurship * European and Russian Studies * Film Studies * Food Science * French * Geography * Geomatics * Greek and Roman Studies * History * History and Theory of Architecture * Law * Linguistics * Mathematics * Music * Neuroscience and Mental Health * Philosophy * Physical Geography * Physics * Political Science * Psychology * Religion * Sociology * Statistics * Women's and Gender Studies

A minor in Business designed specifically for Engineering students is also available.

The following programs are offered as minors:

ARCHAEOLOGY

The minor in Archaeology is designed to allow students from any discipline to pursue a wide variety of approaches to the field of archaeology, including the use of digital media and other new technologies.

ARTS MANAGEMENT

This minor is designed to equip students with the business and management skills to pursue careers in arts and culture, whether in institutions or as sole practitioners.

DESIGN

The minor in Design provides an opportunity for students to learn the fundamentals of design thinking and to creatively integrate them into their main field of study.

DIGITAL HUMANITIES

Explore the ways in which digital technologies are transforming reading, writing and literature and providing new insights into our textual past.

DISABILITY STUDIES

Explore the ethics, politics, history and contemporary cultural dynamics of 'disability'

from an interdisciplinary perspective.

DRAMA STUDIES

The minor consists of a combination of workshops (in acting and stagecraft and/or writing for stage and screen) and the intensive study of world and historical drama, including Shakespeare.

INDIGENOUS STUDIES

Study critical perspectives on historical and contemporary relations between Inuit, First Nations and Métis peoples and settler society in Canada.

INDUSTRIAL ECONOMICS

Offered through the Department of Economics, this minor is designed for engineering students who wish to learn the aspects of economics that are most relevant to their major.

ISLAMIC STUDIES

Take 3.5 credits in Religion courses on Islam and, if desired, an additional 0.5 credit—with the approval of the Religion coordinator—pertaining to Islamic Studies from another discipline.

JEWISH STUDIES

Take a half-credit in a specified Religion survey course, plus

3.5 credits in courses with a Jewish theme from Religion or—with the approval of the Religion coordinator—from other disciplines.

LATIN AMERICAN AND CARIBBEAN STUDIES

Learn about the diverse politics, culture, and economies of this exciting region through perspectives drawn from disciplines such as Political Science, Sociology and Anthropology, Human Rights, History and Law.

MEDIEVAL AND EARLY MODERN STUDIES

Gain an interdisciplinary understanding of the Middle Ages and the Early Modern period, as experienced not only in European and Byzantine contexts but also in the Islamic world.

MODERN LANGUAGES

Students can pursue a minor in any of these modern languages: American Sign Language, German, Italian, Japanese, Chinese (Mandarin), Russian and Spanish. These minors are offered through the School of Linguistics and Language Studies. A certificate program is also available in American Sign Language (CASL).

SEXUALITY STUDIES

Examine sexuality in its historical context and through current social, political and cultural practices. Topics include queer and trans theory and politics, marriage and the family, pornography and censorship, reproductive rights and HIV/AIDS activism.

TECHNOLOGY, SOCIETY, ENVIRONMENT STUDIES

Multidisciplinary in nature, the TSE minor addresses the problems that have been created by the interactions of technology, society and the environment.

Co-op and career opportunities



Architecture student Stephen Wolba (BAS/12) at work in the Parliamentary Precinct Branch for Public Works and Government Services Canada. Stephen worked as part of a project management team on the refurbishment and restoration of the Parliament Buildings.

The majority of our undergraduate programs include co-operative education (co-op) or work-study opportunities, which allow you to take theoretical concepts from the classroom and apply them to solving real-world problems in your field of study.

These work opportunities allow you to develop the tangible skills that employers are looking for. The strong industry and government connections that we have built over the years have helped us to create many valuable work opportunities for our students. We also are fortunate to work with employers who are happy to come to our campus to offer students career advice and,

for some, employment when they graduate.

Co-operative education

Carleton's co-op program is diverse and flexible. Co-op options are available in over 100 programs, streams and concentrations at the undergraduate level and in a select group of programs at the graduate level. Choosing to participate in the co-op

option in your program means you will alternate your periods of study with four, eight, 12 or 16-month work terms with employers in your field. Typically, you will take an additional year of study to complete all academic and co-op program requirements, develop your work skills and acquire relevant industry experience. Co-op fees are outside of regular tuition fees. Co-op work opportunities

carleton.ca/cc

are full-time, paid working opportunities.

Students participating in co-op must take the required preparatory course, COOP1000. This course provides information on the co-op program's structure, regulations and expectations for participation. Course material will cover resumé and cover-letter writing, interview preparation, workplace safety and professional ethics, among other topics. This course also provides students with the opportunity to network with and learn from industry professionals in their field of study.

Admission to co-op

You can apply for the co-op option at the same time as you are applying to your academic program. Your letter of admission will indicate if you have been accepted into co-op. If you did not apply before you arrive on campus you may also apply for admission by the end of your first year of study. Deadlines may vary, depending on the degree program. Students admitted to Carleton with an ESL course requirement must pass the Oral Proficiency in English

in Communicative Settings (OPECS) test before admission to the co-op program can be confirmed. A minimum score of 4+ must be attained. Information on this test can be obtained by contacting the co-op program office.

Career development

Co-op and Career Services assists Carleton students not only in making the transition from school to work, but also in developing their professional skills starting as early as first year. Professional career counsellors guide students through the discovery of a personal career path with a focus on how to set career goals and achieve them. Students also have many opportunities to connect with industry professionals through a variety of activities.

Services available to students include:

- access to a variety of job postings on myCareer, our online job search system that lists part-time and full-time jobs, on-campus employment, volunteer and internship opportunities, and more;
- extensive offerings of employment workshops available in person and online;
- year-round career counselling and employment advising sessions available by appointment or drop-in;
- information sessions and panel discussions with key industry employers; and
- multiple Career Fairs, networking events and a Graduate School and Education Fair.



IMMENSE RESOURCES

The city of Ottawa provides ample opportunities for those looking for work experience or a career after graduation. It is home to a vibrant business sector, a strong high-tech industry, numerous cultural institutions (such as the National Art Gallery of Canada, pictured), and some of Canada's most influential government and non-governmental organizations.

Looking for ideas on what you can do with your degree? Visit carleton.ca/cc/career/resources/what-can-i-do-with-my-degree or check out the career section of our admissions site at admissions.carleton.ca/careers.

Co-op programs are only one option for gaining work experience during your university studies.

Many of our programs offer practicum or internship opportunities, both of which allow you to gain work experience, learn new skills and make important contacts.

- For a list of co-op and other work experience options in our BA program, see page 10.
- For a list of co-op and work experience options in our BSc program, see page 46.

Other degree programs with co-op are marked with a "co-op available" tag throughout the Viewbook, with other work experience options detailed in the program descriptions.



Yannick D'Mello (left), a fourth-year Engineering Physics student, and George Hanna (right), a third-year Biomedical and Electrical Engineering student, tied to win the 2014 Co-op Student of the Year Award. Both students worked as Research Assistants at the Energie, Matériaux, Télécommunications (EMT) research centre within the Institut national de la recherche scientifique (INRS), located in Montreal. They were assigned the task of designing and constructing a state-of-the-art multipurpose quantum photonic experimental setup from scratch, and using it to run an experiment and achieve meaningful results. Their setup and design continues to be used for post-doctoral work and experiments.

Connection and **community**



As a Carleton student, you'll have access to our unparalleled package of academic and extra-curricular initiatives designed to support your complete university experience and promote a culture of success. You'll also have many opportunities to get involved in community-building activities both on and off campus.

Student Experience Office

The Student Experience Office (SEO) can help you adjust to university life and offers ways for you to get involved throughout your

time at Carleton. The office oversees a wide variety of programs, such as

- Summer, Fall and Winter Orientation sessions;
- Community Service Learning initiatives such as

Alternative Spring Break; and

- Leadership Development programs such as the Campus Activities Board.
- carleton.ca/seo**

students.carleton.ca

Student Academic Success Centre

The Student Academic Success Centre (SASC) is Carleton's centralized academic support office, providing programs and services that help students achieve their academic potential. Outreach is provided for any student with questions about their degree or academic rules and regulations, and support is provided through advising sessions that are tailored to your needs to help you develop your own path to academic success. Appointments are available daily, on a walk-in basis. Students in a Peer Assisted Study Session (PASS)-supported course can also connect with a PASS facilitator for group workshops. carleton.ca/sasc

Learning Support Services

LSS provides students with study skills support by offering a variety of workshop topics that range from Time Management to Procrastination. Select workshop topics are also available online and will provide you with interactive activities that will strengthen your academic skills. Study Skills appointments and drop-ins are also available to students seeking individual support on improving their study habits. LSS offers a Just Do 10 Series which highlights key study skills and strategies to improve study skills. LSS also maintains the Carleton Tutor Database which matches CU students with tutors to get help with particular courses.

carleton.ca/lss

University Registrar's Office

The University Registrar's Office manages the academic activities and records of



Carleton's Discovery Centre, located on the fourth floor of MacOdrum Library, is an interactive learning space with program areas in undergraduate research, community engagement, immersive learning and international experiences.

all students and helps with transcript requests, course registration and more.

carleton.ca/registrar

Supportive facilities

MACODRUM LIBRARY

The library houses a collection of more than 3.4 million books, journals, government documents, maps, newspapers, games, music scores, CDs, microforms, archives and rare materials, including a wide range of electronic resources available any time via the web. While in the building, you can connect to the library's wireless network or take advantage of the Laptop Loan program. During the fall/winter term, the library hours are extended to better accommodate students' needs. Recent additions to the library include facilities such as labs for digital and immersive media production, a collaborative

learning classroom and a new Discovery Centre where students and faculty can work together on research initiatives. Experienced staff throughout the library are available in person, by phone, and online to help students.

library.carleton.ca

PAUL MENTON CENTRE FOR STUDENTS WITH DISABILITIES

The Centre coordinates academic and support services for students with disabilities. Services include academic accommodations, attendant services, alternate formats, adaptive technology, note-taking, sign language interpretation, learning support and services specific to your educational-related disability needs. carleton.ca/pmc

HEALTH AND COUNSELLING SERVICES

Carleton's multidisciplinary on-campus healthcare facility provides medical, counselling

and health education services to the university's students, faculty and staff.

carleton.ca/health

Co-Curricular Record

Attending classes is only part of your university experience. Campus life is also about joining a club, attending special events and lectures, hanging out with friends and participating in one of our community outreach programs.

We encourage our students to become active members of the larger community. Participation in community-service activities and involvement in student organizations are acknowledged in our Co-Curricular Record, which will track your out-of-class learning experiences and become part of your official record from Carleton University.

carleton.ca/se/ccr



Carleton students in the Alternative Spring Break program digging the foundation for what will become a vocational training centre in Los Trozos, Honduras.

An accessible and inclusive campus

We are strongly committed to providing an environment where everyone is able to study, work and live free of discrimination or harassment. Equity Services and student-run organizations administer numerous on-campus centres and programs that foster diversity, equality, dignity and respect.

Some of the centres and programs that support our diverse community include the Centre for Aboriginal Culture and Education, International Student Services Office, Sexual Assault Support Services, REC Hall (race, ethnicity and culture hall), Womyn's Centre, Carleton Disability Awareness Centre, Ecumenical Chaplaincy, quiet room, Muslim prayer room, and the Carleton University

Safe-Space Program, which supports Carleton's sexual orientation and gender equity policies.

For information on Carleton's human rights policies and procedures, visit carleton.ca/equity.

Clubs and societies

Our extensive network of clubs and societies is another great way to meet new people and pursue your interests outside the classroom. With more than 200 active clubs and societies to choose from, you will certainly find a venue for your academic, social, political or charitable interests. For a complete list of all our clubs and societies, and their contact information, visit cusaonline.ca.

Students giving back

When you get to Carleton, you will be joining a student body that has a history of

offering support to others.

Shinerama—Since 1984, students have spread out across the city during Fall Orientation to wash cars and shine shoes to raise money for Cystic Fibrosis.

Alternative Spring Break—This popular program has given students the opportunity to volunteer on community service projects in Ottawa, Vancouver, Banff, New Orleans, Florida, Alabama, Mexico, Belize and Guatemala.

Relay for Life—In 2015, Carleton held a 12-hour relay run event to raise funds to help fight cancer. This event has been held annually at Carleton since 2009.

Raising awareness for the homeless—Students have participated in several local and national campaigns to raise awareness of Canada's homeless population. In 2015,

five students slept outside on campus for five nights as part of 5 Days for the Homeless, a national campaign.

Enhance your Degree at the Discovery Centre

The Discovery Centre is a collaborative and creative student study space on the fourth floor of MacOdrum Library. With sofas, mobile tables and chairs, it has been designed for students to configure their study space to suit their needs. Media booths are also available with large screens for connecting laptops or tablets to make group work engaging and easy. To assist with creativity, there are also two treadmill desks for study while walking, a Gaming Lab, a Multi-media Lab and a Learning Lab. The Discovery Centre is also a resource for connecting you with hands-on learning through international experiences, community engagement, immersive learning and undergraduate research. carleton.ca/discoverycentre

Stay connected

Current students can connect with Carleton at students.carleton.ca, on Twitter [@Carleton_U](https://twitter.com/Carleton_U), and on Facebook.



Centre for Aboriginal Culture and Education



Equity Services



Carleton University Safe-Space Program

The residence **experience**



If you want to experience university life as a member of a vibrant, close-knit community, consider living in residence. You will love living minutes away from your classes, the Library, athletics and a large dining hall.

For many students, choosing to live on campus is one of the best decisions they make. Last year, over 3,600 students chose to live in one of our residence buildings. Demand for residence continues to grow.

In residence, you will have the opportunity to meet people from around the world and make friendships that last a lifetime. You will be supported by a network of Residence Life staff who are there to assist you in any way they can.

First-year guarantee

At Carleton, a double traditional room is guaranteed to all secondary school and

CEGEP students entering first-year studies in the fall, provided they receive an offer of admission on or before May 16, 2016. You have to pay the deposit and accept the residence offer online by the deadline to confirm your space. If you do not qualify for a guaranteed space in residence, you can still apply. A lottery draw is used for all other residence applications. housing.carleton.ca/applying

What does residence offer?

CAMPUS CONNECTIONS

We understand that students are always on the go. Our residence buildings are

conveniently located and connected to each other and to the rest of campus via underground tunnels, enabling you to get to class, meals or workouts within minutes. You'll find it easy to arrange meetings with friends, study partners or professors. With the conveniences—not to mention the unique living experience—that residence offers, you will be glad that you chose to make residence your home away from home.

TWO LIVING STYLES

Our residences offer two types of rooms—traditional or suite-style rooms. The majority of our rooms for first-year students are traditional double

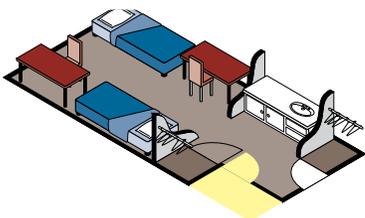
housing.carleton.ca



Residence meals are served in our large, centrally located dining hall in Residence Commons which offers a wide selection of healthy and nutritious foods. You can choose a meal plan that best suits your schedule.

rooms, with shared washroom facilities. Our suite-style rooms, which provide another option, each consist of a four-person single-gender suite (either two doubles or four singles) and shared common area, washroom facility and food-preparation area (with fridge and microwave). A small number of single rooms are available.

Roommates are an integral component of the Carleton residence life experience. You can request a specific person (who also must request you in order for you to be placed together) or be matched with another student based on the responses you provide on the Residence Information Form. Sharing a residence room can be an enriching and supportive experience as you transition into university life, and may even lead to life-long friendship. Visit housing.carleton.ca/buildings to view snapshots of our residences and other sample room floor plans.



A traditional double room in Stormont and Dundas House

THEMED COMMUNITIES

To enhance your residence experience, you may request to share a room with another student in a similar academic program or live in a “themed community.” Living in one of the theme areas provides students with a unique opportunity to develop friendships and spend time with others who share common interests. We currently offer Creative Arts and Design, Entrepreneurship, Global Experience, Healthy Lifestyle, Leadership and Engagement, Sustainable Living, Technology and Media, and Alcohol-Free communities, and floors in various buildings that are designated as “quieter” living areas. Visit housing.carleton.ca/living-in-residence/themed-communities for details on the themed communities or housing.carleton.ca/faq for information on quiet floors.

ALL ACCESS MEAL PLAN

First year students living in residence will be enrolled in the All Access Meal Plan, which provides unlimited entry into the Dining Hall and \$200 Dining ‘Flex’ Dollars. For students living in suite style residences, there is a Reduced Meal Plan option, which offers seven meals per week and \$450 Flex Dollars.

Visit housing.carleton.ca/fees-and-food for further information.

AN EXTENSIVE SUPPORT NETWORK

Embarking on a new chapter in life, especially when living on your own for the first time, can take some getting used to. Carleton’s award-winning Residence Life program has been designed to help with this transition so you can reach your academic and personal goals. Our extensive residence support network includes residence counsellors, live-in residence staff, organized academic programs and social events. Visit housing.carleton.ca/living-in-residence



Residence is convenient—your classes are only minutes away from your home away from home on campus where you live in a furnished room, eat meals prepared for you in the Residence Dining Hall and have the resources of staff and programming designed to assist and support you in your academic and personal life.

Cost

Fees for traditional residence for 2015-2016 range from \$10,397 (double occupancy) to \$11,419 (single occupancy) and cover the cost of your room, communication fees, and an all-access meal plan. Suite style residences range from \$11,549 (double occupancy) to \$12,651 (single occupancy) with all-access meal plan. Detailed information about the cost of residence is available at housing.carleton.ca/fees-and-food.

Residence video

See for yourself what the residence experience offers by checking out our Living in Residence video in our video gallery at admissions.carleton.ca/videos.

Off-campus accommodation

Our Housing Office provides an off-campus housing listing service. Information is available on our website. Please note that listed accommodation is not inspected by the university. Visit housing.carleton.ca/off-campus-housing

Carleton Athletics



The Carleton University Ravens are the 2015 CIS (Canadian Interuniversity Sport) men's basketball champions. They have captured the title eleven times in thirteen years.



RAVENS

WHERE CHAMPIONS PLAY

athletics.carleton.ca
goravens.ca

Recreation & Athletics is the active hub of the Carleton community. Through teamwork, we deliver excellence in sport, health and life.

As a Carleton student, you can take full advantage of our first-class athletic facilities, conveniently located in one area of campus. You can sign up for fitness classes, swim laps in the pool, lift weights, run on a treadmill in the brand new 11,000 sq. ft Fitness Centre, or just get together with friends to play one of your favourite sports during open recreation time. A little friendly competition never hurt anyone, so why not try one of our intramural or

inter-university club teams? If you are looking for a bigger challenge, consider trying out for a spot on one of our men's or women's varsity teams. Whatever your level of fitness, you are sure to find something here that suits you.

Ravens Centre

At Carleton Athletics, we dare you to challenge yourself. Our facilities are your one-stop shop for all things athletic. You'll quickly run out of reasons why you can't get

into shape. The Ravens Centre houses a 50-metre L-shaped pool, a new Fitness Centre, two NHL-sized ice pads, an indoor track, gymnasiums, five international squash courts, and sports medicine and sports therapy clinics.

ALUMNI HALL

This building is home to the Ravens' Nest, a triple gymnasium that, when not serving as home court for 1,500 cheering basketball fans, is open to students for basketball. This building

Join a team or watch a game

Varsity Teams	Competitive Clubs	Intramurals
Basketball..... MW	Badminton..... C	Ball Hockey..... CO
Fencing..... MW	Baseball..... M	Basketball..... MWC
Football..... M	Cheerleading..... C	Dodgeball..... C
Golf..... MW	Fastpitch..... W	Flag Football..... O
Hockey..... MW	Figure Skating..... C	Ice Hockey..... MW
Nordic Skiing..... MW	Lacrosse..... M	Indoor Soccer..... MWC
Rowing..... MW	Ringette..... W	Indoor Ultimate..... C
Rugby..... W	Tennis..... C	Volleyball..... C
Soccer..... MW	Ultimate..... MW	
Swimming..... MW	And more...	
Water Polo..... MW		

M=Men, W=Women, C=Co-ed, O=Open

also houses our new Fitness Centre with over 50 cardio machines and a great selection of weight training equipment.

FIELDHOUSE

Stretch your legs on a 4,500 sq. m sports field and a 230 m, two-lane indoor jogging track. Rain or shine, members of Carleton Athletics benefit from access to the Fieldhouse. The facility is the perfect spot for a pick-up game of soccer or Ultimate in the winter months.

ICE HOUSE

Take advantage of some of the best ice in the city year-round on our two NHL-sized ice surfaces. The \$13 million arena is the most comprehensive facility of its kind in central Ottawa. Students can access the rink for pick-up hockey games, skating lessons and open skate sessions.

OUTDOOR FIELD

Carleton's indoor venues are enhanced by excellent outdoor facilities, including the newly-renovated, 3,000-

seat Ravens' Field stadium, complete with FIFA-standard artificial turf, a multi-purpose field and five tennis courts.

Fitness classes for everyone

Getting in shape shouldn't be a chore, so have fun and invigorate your body with one of our many fitness programs. Discover what Carleton Athletics has to offer. With over 120 exciting classes offered each week, there's something for everyone!

Some of the classes we offer include:

- AquaFit
- Boot Camp
- Dance
- Group and Specialty Fitness
- Indoor group cycling
- Martial arts
- Skating
- Yoga and Pilates
- Zumba

With so many options, it can be difficult to choose just one. That's why we've introduced the CUFit Pass, which offers more variety and flexibility, giving you



access to a variety of fun drop-in classes. Can't decide which Zumba class to attend? Check out our new Zumba Pass which allows you to enjoy ALL our Zumba classes. For a complete listing of all classes offered and for more details on all of our programs, visit athletics.carleton.ca.

Intramurals

Not ready for the commitment of a varsity or club team? You can still show off your skills and battle for a league title and all its glory with Carleton's intramural leagues. Both team and individual registration are available online at athletics.carleton.ca or in person at the Welcome Centre.

Varsity sports

Are you interested in proudly donning the Raven for one of our varsity teams or competitive clubs? Visit goravens.ca for the latest information on the Ravens, including tryout dates and coaches' contact information.

CHEERING ON THE RAVENS

Even if you don't play on a team you can still get the Raven experience! Deck yourself out in red and black, crank up the noise level and be part of the unbeatable atmosphere at our home games. For full schedules, see goravens.ca/events.

With a Varsity Pass, students can gain entry to every Ravens game taking place on campus (except Football) for only \$35 (this is MORE

than 96% savings per game). To see how you can get your Varsity Pass, visit goravens.ca/varsity-pass.

Have any questions? Email us at tickets@carleton.ca. We would LOVE to hear from you.

RAVENS WIN!

During the 2014/15 season, the Carleton University Department of Recreation and Athletics had student participation that included 321 CIS athletes, 156 OUA athletes and 342 Competitive Club athletes.

Our varsity teams finished this past season with 1 CIS Championship, 3 OUA banners and came out victorious in the return of the Panda football game versus the University of Ottawa at TD Place. The Panda game had an unbelievable attendance of 11,546 while the Capital Hoops Classic for basketball broke an all-time CIS attendance record with 10,780 fans!

The Ravens boasted 4 CIS All-Canadians, 28 OUA all-stars and 3 conference coach of the year awards.

The men's basketball program continued their success as they achieved their 11th CIS National Championship in the last 13 years, including 5 in a row.

To be a part of a Ravens Varsity team or Competitive Club, please visit goravens.ca for tryout times and registration.

Tuition, bursaries and scholarships



We are pleased to offer our students one of the most generous scholarship programs in the country. Last year, more than 10,000 scholarships and bursaries totaling over \$17.4 million were awarded to undergraduate students. Contact our Awards Office to get information on all your financial assistance options.

Renewable Entrance Scholarships

No application required.

Admission average	All renewable at A- standing*
95-100%	\$16,000 (\$4,000 x four years)
90-94.9%	\$12,000 (\$3,000 x four years)
85-89.9%	\$8,000 (\$2,000 x four years)
80-84.9%	\$4,000 (\$1,000 x four years)

Prestige Scholarships

All renewable at A- standing*

Minimum 90 per cent admission average and extracurricular activities. Application required.

Deadline: March 1

Chancellor's Scholarship (10)	\$30,000 (\$7,500 x four years)
Richard Lewar Scholarship (7)	\$21,500 (\$6,500 in the first year and \$5,000 in second, third and fourth year)
Carleton University Scholarship of Excellence (3)	\$20,000 (\$5,000 x four years)
Carleton's Shad Valley Scholarship of Excellence (2)	\$20,000 (\$5,000 x four years)
Riordon Scholarship (1)	Full tuition in first, second, third and fourth year
Collins Prestige Scholarship (1)	Full tuition in first, second, third and fourth year

*Annual GPA of 10.0

Carleton Capital Scholarship

Up to 13 students will be selected annually, with one recipient for each province and territory, to receive a \$2000 award in their first year. The Carleton Capital Scholarship is awarded in addition to other Entrance Scholarships.

To be eligible for the Carleton Capital Scholarship, students must be Canadian citizens, permanent residents or protected persons entering the first year of a degree program and pursuing post-secondary studies for the first time. Students must also demonstrate participation in extra-curricular activities and a strong academic background (with a minimum admission average of 90%). An application is required. Deadline is March 1.

carleton.ca/awards

Faculty of Engineering and Design Scholarships

Up to 60 scholarships, valued at \$1,000 to \$5,000, will be awarded to the top students who are entering selected Bachelor of Engineering programs. The scholarship is awarded in addition to other Entrance Scholarships.

Page Program Entrance Scholarships

Up to 15 scholarships will be awarded to students in the House of Commons Page program who are entering an undergraduate degree program at Carleton University. Valued at \$1,000, the scholarship is awarded in addition to other Entrance Scholarships.

Arthur Kroeger College National Scholarships

Up to 10 scholarships will be awarded to students entering the Bachelor of Public Affairs and Policy Management program. Two students (minimum admission average of 90 per cent) will be selected from each of the following five regions:

- Atlantic Canada
- British Columbia and Northern Canada
- Ontario
- Prairies
- Quebec

Valued at \$2,000, the scholarship will be awarded in addition to other Entrance Scholarships.

Collins Memorial Entrance Scholarships for Earth Sciences

Two or more scholarships, valued at \$1,000 to \$4,000, will be awarded to students entering the first year of an Earth Sciences program. The scholarship is awarded in addition to other Entrance Scholarships.

Your tuition, your investment

Living on campus

Tuition and ancillary fees (2015-2016)	\$7,190 - \$11,210
Traditional residence room and board*	\$10,397
Books and supplies (varies according to program)	\$1,300
Personal expenses	\$2,000
Total	\$20,887 - \$24,907

Living off campus

Tuition and ancillary fees (2015-2016)	\$7,190 - \$11,210
Off-campus housing**	\$7,600
Books and supplies (varies according to program)	\$1,300
Personal expenses	\$2,000
Total	\$18,090 - \$22,110

Tuition fees for international students range from \$23,279 - \$27,480 (CDN).

* Based on double occupancy and includes meal plan, local telephone and access to the university's existing computer system, including the Internet.

** Estimate based on eight months of rent (one bedroom, shared kitchen/bath includes utilities, laundry and groceries).

carleton.ca/fees

Bursaries

A bursary is a monetary award similar to a scholarship in that you are not expected to repay it, but is awarded primarily on financial need rather than academic achievement. A Carleton University Entrance Bursary will provide you with additional funds and will help you meet the direct education costs of your first-year studies. To be considered for an Entrance Bursary, apply online by June 30.

carleton.ca/awards

Leadership Entrance Bursary

High school students who have taken a leadership role in their school's extracurricular activities and in community service may also be considered for a Leadership Entrance Bursary. An application is required. To learn more, visit the bursary information on the Awards website. carleton.ca/awards

Working on campus

A great way to offset the expense of university is to have a part-time job on campus. At Carleton, most campus units hire students throughout the academic year. Senior students can often find positions with departments as research assistants and test markers.



A part-time job not only puts extra money in your pocket, but also provides valuable job experience at the same time. Visit the Career Services section of the Co-op and Career Services website to check out the online campus job postings. carleton.ca/cc

Work Study Program

The Work Study program provides part-time, on-campus employment for those students demonstrating financial need. Students can learn more by accessing the Work Study information on the Awards website.

carleton.ca/awards

Other funding

If you are currently attending an Ontario high school, your guidance office can provide information on the Ontario Student Assistance Program (OSAP), which may help cover the cost of your post-secondary studies. Similar programs exist in other provinces. osap.gov.on.ca

Find out about additional financial assistance from the Carleton Awards Office at carleton.ca/awards or from the federal government's website canlearn.ca, which provides in-depth information on government financial assistance and private scholarships.

Admission to Carleton



How to apply

All students interested in Carleton must apply online through the Ontario Universities' Application Centre (OUAC) website at www.ouac.on.ca. If you are presently finishing your last year of high school in Ontario, you must obtain log-in information from your school's guidance office before applying online. Ontario high school students should submit their application to the OUAC by January 13, 2016.

Admission requirements

General information concerning admission requirements for students applying to Carleton can be found on this page and the next. Detailed admission requirements by degree program can be found in the charts on pages 66 to 70. Since programs have limited enrolment, cut-off averages listed in the Ontario chart may vary from year to year and therefore should be used as a general guide only. As well, admission to any program is not guaranteed and all requirements are subject to change. admissions.carleton.ca/requirements

PREREQUISITE COURSES

Prerequisite courses and portfolios are necessary requirements for admission

to particular programs. Prerequisite course marks are included in the average calculated for admission. If any prerequisites for the program(s) of interest to you are not available at your school, please contact Carleton's Undergraduate Recruitment Office for possible alternative requirements.

ADVANCED PLACEMENT (AP)

Applicants who have completed AP exams with

a minimum grade of 4 will be granted appropriate advanced standing credit, subject to the discretion of the appropriate faculty, to a maximum of 3.0 credits.

INTERNATIONAL BACCALAUREATE (IB)

If you are enrolled in an IB diploma program, you will need the full IB (three subsidiary and three higher level subjects), with a minimum of 28 points. (Please note some programs are more

Deadline for applications

School term	Application deadline	Document deadline
Fall (Sept. - Dec.)	June 1*	
Winter (Jan. - Apr.)†	October 15	
* Please note: the application deadline for students with documents originating outside Canada or the United States is April 1.		
† Only a limited number of programs permit entry in the winter term.		
Program deadline exceptions for fall applications		
Architectural Studies	February 1	April 1: Portfolio and graphic exercise
Humanities	March 1	March 1: Portfolio
Industrial Design	March 1	April 1: Portfolio Information session recommended
Information Technology (Interactive Multimedia and Design)	March 1	March 1: Portfolio
Journalism	March 1	
Journalism and Humanities	March 1	
Music	March 1	March 1: Audition booking deadline (for guaranteed audition) Visit admissions.carleton.ca/additional-requirements for details.
Social Work	February 1	March 1: Supplementary application

admissions.carleton.ca

competitive, so will require higher scores). You may have one subject with a grade of 3, provided it is offset by a grade of 5 or better. You must also have a grade of 4 or better for prerequisite subjects. IB students may be awarded advanced standing (transfer) credit for higher level subjects with a grade of 5 or better, subject to the discretion of the appropriate faculty, to a maximum of 3.0 credits.

Admission with an ESL requirement

The language of instruction at Carleton University is English. In their own interest, students whose first language is not English must demonstrate that they can cope with the language demands of an English language university. Students can demonstrate their English language proficiency by presenting official transcripts to indicate that they have studied for the last three years (full-time) in a high school, college or university in Canada, the United States, the United Kingdom or any other country in which the primary language is English and where the language of instruction in the relevant educational institution was exclusively English. Students choosing this option should note the following:

- Time spent in ESL courses will not be counted towards meeting these requirements
- Language requirements will not be waived as a result of completing senior-level high school English courses
- If in addition to evidence of three years of study a student also provides a failing English language test score, the University reserves the right to review the admission decision

Admission requirements	
Applying from	Admission requirements
Canadian high schools	See charts on pages 66 to 70
University (domestic or international)	Courses completed at another university may be eligible for transfer, depending on their applicability to the program to which you have applied and your final mark. For more information, visit admissions.carleton.ca/apply .
Ontario colleges	Students from Ontario Colleges with a CGPA of 3.0 or higher are normally considered for admission to first year after completing the first year of a two-year diploma program. Students completing a two- or three-year diploma may be eligible for advanced standing. For more information, visit admissions.carleton.ca/apply .
United States high schools or American-based high schools overseas	Minimum B- average, completion of Grade 12 with a minimum of 4 academic units, and a minimum of 16 academic units completed during Grades 9-12. For Honours and some limited enrolment programs, a higher average may be required. Applicants are encouraged to submit SAT or ACT scores, school grading information including pass marks, and rank in class to support your application. For more information, visit carleton.ca/usa .
International high schools	International applicants can find application information at carleton.ca/international . Applicants who have completed high school diploma requirements in foreign high schools will be considered for admission to first year. As a general guideline, you will need a secondary school or high school graduation certificate. Education should normally consist of a minimum of 12 years of study. You will need to present transcripts from your senior high school along with your graduation diploma or certificate and any graduation exam results. For some countries, applicants may be required to have completed one year of university studies.

- The University reserves the right to request an English Language Proficiency test from any applicant regardless of their academic background

Students who cannot demonstrate three full-time years in an English medium school as outlined above must present one of the English language test scores listed in the chart on this page.

Students with a language test score below those listed may still be eligible for an offer of admission but with an English language requirement. Students admitted with an English language requirement will begin studies in our

Foundation Program.

For more information on the language test score needed for an offer of admission with an English language requirement go to admissions.carleton.ca/esl.

Please note that students beginning their studies with an English language requirement are not eligible for admission to the following programs:

- Architectural Studies
- Health Sciences
- Humanities

English language test scores

Students presenting the following English language test scores may be eligible for an offer of admission with no ESL requirement and may begin full-time studies.

English Language Tests	Score
Canadian Academic English Language Assessment (CAEL)	70
Paper-based TOEFL	580
Internet-based TOEFL	86 (min. 22 in writing and speaking and 20 in reading and listening)
IELTS	6.5 IELTS (min. 6.0 in each band)
MELAB	85 (min. score of 80 on each section)
Pearson Test of English (PTE) Academic	60 (min. 60 in each Communicative Skill)

admissions.carleton.ca/esl

- Industrial Design
- Information Technology
- International Business
- Journalism
- Journalism and Humanities
- Public Affairs and Policy Management

Enriched Support Program

For students whose high school grades do not reflect their academic potential or for those who are apprehensive about returning to school after an absence, the Enriched Support Program (ESP) offers an opportunity for students to prove their academic ability in a structured university environment. ESP students can register in three full-credit first-year courses, which they

supplement with regular weekly workshops offering academic support. After the ESP year, students who attain the necessary grade point average in their ESP courses are eligible for acceptance into a full-time degree program. carleton.ca/esp

Aboriginal Enriched Support Program

The Aboriginal Enriched Support Program (AESP) is an Aboriginal stream of the ESP, offering alternative admission opportunities as well as academic and social support for First Nations, Métis and Inuit students in their first year of university studies.

carleton.ca/aesp

For admission to undergraduate programs, Ontario students must have the Ontario Secondary School Diploma (OSSD) with six 4U/M courses. 4U English is recommended and 4U/M credits for out-of-class co-op work experience will not be considered as part of the six courses. Higher averages are required for admission to programs for which the demand for places by qualified applicants exceeds the number of places available. The overall average required for admission is determined each year on a program by program basis. All programs have limited enrolment. Admission is not guaranteed and all requirements are subject to change. The admission average required for entry to the co-op option of the programs listed below may be higher than the cut-off range listed for the program itself. admissions.carleton.ca/requirements

Degree program	Areas of study	Required prerequisite courses	Minimum cut-off range	Notes		
Bachelor of Architectural Studies page 6	<ul style="list-style-type: none"> Conservation and Sustainability* Design* Urbanism* 	<ul style="list-style-type: none"> English (ENG4U) Physics (SPH4U) Advanced Functions (MHF4U) (Calculus [MCV4U] recommended) 	74-76%	<p>Application deadline: February 1.</p> <p>Portfolio deadline: April 1.</p> <p>*Co-operative education available.</p>		
Bachelor of Arts page 8 Honours General	<ul style="list-style-type: none"> Undeclared African Studies Anthropology* Applied Economics* Applied Linguistics and Discourse Studies Art History Biology Canadian Studies* Child Studies Communication Studies* Criminology and Criminal Justice 	<ul style="list-style-type: none"> Economics* English* Environmental Studies European and Russian Studies* Film Studies French* Geography Geomatics Greek and Roman Studies History* History and Theory of Architecture 	<ul style="list-style-type: none"> Human Rights Law* Linguistics Music Philosophy* Political Science* Psychology* Religion Sociology* Women's and Gender Studies 	<p>All BA programs:</p> <ul style="list-style-type: none"> English (ENG4U) <p>BA Biology:</p> <ul style="list-style-type: none"> English (ENG4U) Chemistry (SCH4U) (Advanced Functions [MHF4U] and Calculus [MCV4U] recommended) <p>BA Economics and Applied Economics:</p> <ul style="list-style-type: none"> English (ENG4U) Advanced Functions (MHF4U) (Calculus [MCV4U] strongly recommended) 	73-76%	<p>*A Mention : Français is also available.</p> <p>*Co-operative education available.</p> <p>Not all areas of study are offered under both the General and the Honours programs.</p>
Bachelor of Cognitive Science page 17 Honours General	<ul style="list-style-type: none"> Biological Foundations of Cognition* Cognition and Computation* 	<ul style="list-style-type: none"> Cognition and Psychology* Language and Linguistics* 	<ul style="list-style-type: none"> Philosophical and Conceptual Issues* 	<ul style="list-style-type: none"> English (ENG4U) 	73-76%	*Co-operative education available.
Bachelor of Commerce page 18	<ul style="list-style-type: none"> Accounting* Entrepreneurship* Finance* Information Systems* 	<ul style="list-style-type: none"> International Business*† Management* 	<ul style="list-style-type: none"> Marketing* Supply Chain Management* 	<ul style="list-style-type: none"> English (ENG4U) Advanced Functions (MHF4U) One add'l Math credit (MCV4U or MDM4U) (Calculus [MCV4U] recommended) 	80%	<p>*Co-operative education available.</p> <p>†Also see Bachelor of International Business.</p>
Bachelor of International Business page 20	<ul style="list-style-type: none"> Global Financial Management and Systems 	<ul style="list-style-type: none"> International Marketing and Trade 	<ul style="list-style-type: none"> International Strategy and Human Resources Management 	<ul style="list-style-type: none"> English (ENG4U) Advanced Functions (MHF4U) One add'l Math credit (MCV4U or MDM4U) (Calculus [MCV4U] recommended) 	82-85%	Another language is beneficial.
Bachelor of Computer Science page 22 Honours Major	<ul style="list-style-type: none"> Algorithms* Biomedical Computing* Computer Game Development* Computer and Internet Security* 	<ul style="list-style-type: none"> Management and Business Systems* Mobile Computing* Network Computing* 	<ul style="list-style-type: none"> Psychology* Software Engineering* 	<ul style="list-style-type: none"> Advanced Functions or Calculus (MHF4U or MCV4U) <p>BCS Biomedical Computing stream:</p> <ul style="list-style-type: none"> Advanced Functions or Calculus (MHF4U or MCV4U) Chemistry (SCH4U) 	78-82% Honours 74-76% Major	<p>*Co-operative education available.</p> <p>Streams (areas of study) are part of Honours program only.</p>
Bachelor of Engineering page 24	<ul style="list-style-type: none"> Aerospace* Architectural Conservation and Sustainability* Biomedical and Electrical* Biomedical and Mechanical* 	<ul style="list-style-type: none"> Civil* Communications* Computer Systems* Electrical* Engineering Physics* 	<ul style="list-style-type: none"> Environmental* Mechanical* Software* Sustainable and Renewable Energy* 	<ul style="list-style-type: none"> Advanced Functions (MHF4U) Chemistry (SCH4U) Physics (SPH4U) One credit from Calculus (MCV4U), Biology (SBI4U), or Earth and Space Science (SES4U) (Calculus [MCV4U] recommended) 	75-85%	<p>English or French recommended.</p> <p>*Co-operative education and internships available.</p>
Bachelor of Global and International Studies page 28 Honours	<ul style="list-style-type: none"> Africa and Globalization Europe and Russia in the World Global Development Global Law and Social Justice Global Literatures 	<ul style="list-style-type: none"> Global Politics Global and Transnational History Globalization, Culture, and Power Globalization and the Environment 	<ul style="list-style-type: none"> International Economic Policy Latin American and Caribbean Studies Migration and Diaspora Studies 	<ul style="list-style-type: none"> English (ENG4U) 	73-76%	
Bachelor of Health Sciences page 30 Honours	<ul style="list-style-type: none"> Biomedical Sciences Disability and Chronic Illness Environment and Health 	<ul style="list-style-type: none"> Global Health Health Throughout the Lifespan 		<ul style="list-style-type: none"> Advanced Functions (MHF4U) Two credits from Biology (SBI4U), Chemistry (SCH4U), Earth and Space Science (SES4U) or Physics (SPH4U) (Calculus [MCV4U] strongly recommended) 	85-88%	
Bachelor of Humanities page 32	<p>Option A: Bachelor of Humanities (Honours or Combined Honours) The Bachelor of Humanities can also be taken with a Study Year Abroad option.</p> <p>Option B: Bachelor of Humanities and Biology (Combined Honours)</p>			<p>No specific prerequisites</p> <ul style="list-style-type: none"> Biology (SBI4U) or Chemistry (SCH4U) 	80-84%	<p>Application deadline: March 1.</p> <p>Portfolio deadline: March 1.</p>

admission requirements

Degree program	Areas of study	Required prerequisite courses	Minimum cut-off range	Notes
Bachelor of Industrial Design page 33		<ul style="list-style-type: none"> Advanced Functions (MHF4U) Physics (SPH4U) (Calculus [MCV4U] and courses in visual arts and/or technological design are recommended) 	70-73%	<p>Application deadline: March 1.</p> <p>Portfolio deadline: April 1. Information session recommended.</p> <p>Co-operative education available.</p>
Bachelor of Information Technology page 35	<ul style="list-style-type: none"> Interactive Multimedia and Design (IMD)* (Please see notes) 	<ul style="list-style-type: none"> One Math credit (4U) 	72-75%	<p>Interactive Multimedia and Design Application deadline: March 1. Portfolio deadline: March 1. The program is not designed to accommodate part-time students.</p> <p>* Co-operative education available.</p>
	<ul style="list-style-type: none"> Network Technology (NET)* 	<ul style="list-style-type: none"> Advanced Functions (MHF4U) Physics (SPH4U) One credit from Calculus (MCV4U), Chemistry (SCH4U) or Earth and Space Science (SES4U) (Calculus [MCV4U] recommended) 		
	<ul style="list-style-type: none"> Photonics and Laser Technology (PLT)* 			
Bachelor of Journalism page 37		<ul style="list-style-type: none"> English (ENG4U) 	85-88%	<p>Application deadline: March 1. Apprenticeships available. Combined Honours also offered.</p>
Bachelor of Journalism and Humanities pages 32 and 37		<ul style="list-style-type: none"> English (ENG4U) 	85-88%	<p>Application deadline: March 1. Apprenticeships available.</p>
Bachelor of Mathematics page 39 Honours General	<ul style="list-style-type: none"> Biostatistics* Computational and Applied Mathematics and Statistics* Computer Mathematics Computer Science and Mathematics* Mathematics* Mathematics and Economics* Mathematics/Master of Science Statistics* Statistics and Economics* Statistics/Master of Science Statistics with concentration in Actuarial Science* 	<ul style="list-style-type: none"> Advanced Functions (MHF4U) Calculus (MCV4U) Biostatistics (Honours): Advanced Functions (MHF4U), Calculus (MCV4U), Biology (SBI4U), and Chemistry (SCH4U) (Physics [SPH4U] also strongly recommended) 	78-82% Honours 74-76% General	<p>*Co-operative education available in Honours programs.</p> <p>Not all areas of study are offered under both the General and the Honours programs.</p>
Bachelor of Music page 41	Note: Applicants living more than 100 km from Ottawa may audition via a recording and an affidavit in consultation with the School for Studies in Art and Culture: Music.	<ul style="list-style-type: none"> No specific prerequisites (English [ENG4U] recommended) 	70-75%	<p>Application deadline: March 1.</p> <p>Audition booking deadline (for guaranteed audition): March 1.</p>
Bachelor of Public Affairs and Policy Management page 42	<ul style="list-style-type: none"> Communication and Information Technology Policy* Development Studies* Human Rights* International Studies* Public Policy and Administration* Social Policy* Strategic Public Opinion and Policy Analysis* 	<ul style="list-style-type: none"> No specific prerequisites 	85-88%	<p>*Co-operative education available.</p>
Bachelor of Science page 44 Honours	<ul style="list-style-type: none"> Biochemistry* Bioinformatics* Biology* Biotechnology* Chemistry* Computational Biochemistry* Food Science and Nutrition Nanoscience Neuroscience* Neuroscience and Mental Health* Psychology 	<ul style="list-style-type: none"> Advanced Functions (MHF4U) Two credits from Biology (SBI4U), Chemistry (SCH4U), Earth and Space Science (SES4U) or Physics (SPH4U) (Calculus [MCV4U] strongly recommended) 	78-82%	<p>For Honours Psychology, 4U English is recommended.</p> <p>*Co-operative education available.</p>
	<ul style="list-style-type: none"> Earth Sciences* Environmental Science* Geomatics Physical Geography 	<ul style="list-style-type: none"> Advanced Functions (MHF4U) or Calculus (MCV4U) Two credits from Biology (SBI4U), Chemistry (SCH4U), Earth and Space Science (SES4U) or Physics (SPH4U) 	78-82%	<p>For Honours Environmental Science, both 4U Chemistry and 4U Biology are recommended.</p> <p>*Co-operative education available.</p>
	<ul style="list-style-type: none"> Physics* Applied Physics* Biology & Physics* Chemistry & Physics* Mathematics & Physics* 	<ul style="list-style-type: none"> Advanced Functions (MHF4U) and Calculus (MCV4U) One credit from Biology (SBI4U), Chemistry (SCH4U), Earth and Space Science (SES4U) or Physics (SPH4U) 	78-82%	<p>For all programs in Physics, 4U Physics is strongly recommended.</p> <p>*Co-operative education available.</p>
Major	<ul style="list-style-type: none"> Biochemistry Biology Earth Sciences Environmental Science Neuroscience and Mental Health Physics 	<ul style="list-style-type: none"> Advanced Functions (MHF4U) Two credits from Calculus (MCV4U), Biology (SBI4U), Chemistry (SCH4U), Earth and Space Science (SES4U) or Physics (SPH4U) 	74-76%	<p>For the BSc Major in Physics, Calculus (MCV4U) may be substituted for Advanced Functions (MHF4U). For all programs in Physics, 4U Physics is strongly recommended.</p>
General	<ul style="list-style-type: none"> Biology Chemistry Earth Sciences Neuroscience and Mental Health 			
Bachelor of Social Work page 50		<ul style="list-style-type: none"> No specific prerequisites (English strongly recommended) 	75-80%	<p>Application deadline: February 1.</p> <p>Supplementary application deadline: March 1.</p> <p>Practicum required.</p>

National

For complete admission requirements by program (including program-specific deadlines, additional documentation required and admission averages), please see the Ontario chart on pages 66 and 67. For more information about acceptable academic courses please go to admissions.carleton.ca/apply.

Province/Territory	General Requirements	Bachelor of Architectural Studies	Bachelor of Arts	Bachelor of Cognitive Science	Bachelor of Commerce	Bachelor of International Business	Bachelor of Computer Science	Bachelor of Engineering
Alberta NWT Nunavut	High school diploma including five courses numbered 30 or 31.	<ul style="list-style-type: none"> • ELA 30-1 • Physics 30 • Math 30-1 	<ul style="list-style-type: none"> • ELA 30-1 BA Biology: <ul style="list-style-type: none"> • ELA 30-1 • Chemistry 30 BA Economics: <ul style="list-style-type: none"> • ELA 30-1 • Math 30-1 	<ul style="list-style-type: none"> • ELA 30-1 • Math 30-1 • Math 30-2 or Math 31 	<ul style="list-style-type: none"> • ELA 30-1 • Math 30-1 • Math 30-2 or Math 31 	<ul style="list-style-type: none"> • ELA 30-1 • Math 30-1 • Math 30-2 or Math 31 	<ul style="list-style-type: none"> • Math 30-1 BCS Biomedical Computing stream: <ul style="list-style-type: none"> • Math 30-1 • Chemistry 30 	<ul style="list-style-type: none"> • Math 30-1 • Chemistry 30 • Physics 30 • Biology 30 or Math 31
British Columbia Yukon	High school diploma with six academic courses: four Grade 12 level and two at either Grade 11 or Grade 12.	<ul style="list-style-type: none"> • English 12 • Physics 12 • Pre-Calculus 12 	<ul style="list-style-type: none"> • English 12 BA Biology: <ul style="list-style-type: none"> • English 12 • Chemistry 12 BA Economics: <ul style="list-style-type: none"> • English 12 • Pre-Calculus 12 	<ul style="list-style-type: none"> • English 12 • Pre-Calculus 12 • Foundations of Math 12 or Calculus 12 	<ul style="list-style-type: none"> • English 12 • Pre-Calculus 12 • Foundations of Math 12 or Calculus 12 	<ul style="list-style-type: none"> • English 12 • Pre-Calculus 12 • Foundations of Math 12 or Calculus 12 	<ul style="list-style-type: none"> • Pre-Calculus 12 BCS Biomedical Computing stream: <ul style="list-style-type: none"> • Pre-Calculus 12 • Chemistry 12 	<ul style="list-style-type: none"> • Pre-Calculus 12 • Chemistry 12 • Physics 12 • Biology 12 or Calculus 12
Manitoba	High school diploma with five courses at the 40 level.	<ul style="list-style-type: none"> • English 40S • Physics 40S • Pre-Calculus Math 40S 	<ul style="list-style-type: none"> • English 40S BA Biology: <ul style="list-style-type: none"> • English 40S • Chemistry 40S BA Economics: <ul style="list-style-type: none"> • English 40S • Pre-Calculus Math 40S 	<ul style="list-style-type: none"> • English 40S • Pre-Calculus Math 40S • Applied Math 40S or Calculus 45 	<ul style="list-style-type: none"> • English 40S • Pre-Calculus Math 40S • Applied Math 40S or Calculus 45 	<ul style="list-style-type: none"> • English 40S • Pre-Calculus Math 40S • Applied Math 40S or Calculus 45 	<ul style="list-style-type: none"> • Pre-Calculus Math 40S BCS Biomedical Computing stream: <ul style="list-style-type: none"> • Pre-Calculus Math 40S • Chemistry 40S 	<ul style="list-style-type: none"> • Pre-Calculus Math 40S • Chemistry 40S • Physics 40S • Biology 40S or Calculus 45
New Brunswick	High school diploma with five academic courses at the Grade 12 level.	<ul style="list-style-type: none"> • English 121/122 • Physics 121/122 • Pre-Calculus 120A and 120B 	<ul style="list-style-type: none"> • English 121/122 BA Biology: <ul style="list-style-type: none"> • English 121/122 • Chemistry 121/122 BA Economics: <ul style="list-style-type: none"> • English 121/122 • Pre-Calculus 120A and 120B 	<ul style="list-style-type: none"> • English 121/122 • Pre-Calculus 120A and 120B • Foundations of Math 12 	<ul style="list-style-type: none"> • English 121/122 • Pre-Calculus 120A and 120B • Foundations of Math 12 	<ul style="list-style-type: none"> • English 121/122 • Pre-Calculus 120A and 120B • Foundations of Math 12 	<ul style="list-style-type: none"> • Pre-Calculus 120A and 120B BCS Biomedical Computing stream: <ul style="list-style-type: none"> • Pre-Calculus 120A and 120B • Chemistry 121/122 	<ul style="list-style-type: none"> • Pre-Calculus 120A and 120B • Chemistry 121/122 • Physics 121/122 One of: <ul style="list-style-type: none"> • Biology 121/122 • Calculus 12
Newfoundland and Labrador	High school diploma including 10 credits at the 3000 level.	<ul style="list-style-type: none"> • English 3201 • Physics 3204 • Math 3200 	<ul style="list-style-type: none"> • English 3201 BA Biology: <ul style="list-style-type: none"> • English 3201 or 3202 • Chemistry 3202 BA Economics: <ul style="list-style-type: none"> • English 3201 or 3202 • Math 3200 	<ul style="list-style-type: none"> • English 3201 • Math 3200 • Math 3201 or Calculus 3208 	<ul style="list-style-type: none"> • English 3201 • Math 3200 • Math 3201 or Calculus 3208 	<ul style="list-style-type: none"> • English 3201 • Math 3200 • Math 3201 or Calculus 3208 	<ul style="list-style-type: none"> • Math 3200 BCS Biomedical Computing stream: <ul style="list-style-type: none"> • Math 3200 • Chemistry 3202 	<ul style="list-style-type: none"> • Math 3200 • Chemistry 3202 • Physics 3204 • Biology 3201 or Calculus 3208
Nova Scotia	High school diploma including five courses numbered 12 academic or advanced.	<ul style="list-style-type: none"> • English 12 • Physics 12 • Pre-Calculus 12 	<ul style="list-style-type: none"> • English 12 BA Biology: <ul style="list-style-type: none"> • English 12 • Chemistry 12 BA Economics: <ul style="list-style-type: none"> • English 12 • Pre-Calculus 12 	<ul style="list-style-type: none"> • English 12 • Pre-Calculus 12 • One of: Advanced Math 12 or Calculus 12 	<ul style="list-style-type: none"> • English 12 • Pre-Calculus 12 • One of: Advanced Math 12 or Calculus 12 	<ul style="list-style-type: none"> • English 12 • Pre-Calculus 12 • One of: Advanced Math 12 or Calculus 12 	<ul style="list-style-type: none"> • Pre-Calculus 12 BCS Biomedical Computing stream: <ul style="list-style-type: none"> • Pre-Calculus 12 • Chemistry 12 	<ul style="list-style-type: none"> • Pre-Calculus 12 • Chemistry 12 • Physics 12 • Biology 12 or Calculus 12
Prince Edward Island	High school diploma including 5 academic courses at the 611 or 621 level.	<ul style="list-style-type: none"> • English 621A • Physics 621A • Math 621B 	<ul style="list-style-type: none"> • English 621A BA Biology: <ul style="list-style-type: none"> • English 621 • Chemistry 621 BA Economics: <ul style="list-style-type: none"> • English 621 • Math 621B 	<ul style="list-style-type: none"> • English 621A • Math 621B • Math 611B or Math 621A 	<ul style="list-style-type: none"> • English 621A • Math 621B • Math 611B or Math 621A 	<ul style="list-style-type: none"> • English 621A • Math 621B • Math 611B or Math 621A 	<ul style="list-style-type: none"> • Math 621B BCS Biomedical Computing stream: <ul style="list-style-type: none"> • Math 621B • Chemistry 621 	<ul style="list-style-type: none"> • Math 621B • Chemistry 621 • Physics 621A • Biology 621 or Math 611B
Quebec CEGEP	One year of CEGEP with a minimum of 12 academic courses.	<ul style="list-style-type: none"> • Physics (203) Mechanics or Electricity and Magnetism • Mathematics (201) Calculus 1 	<ul style="list-style-type: none"> • English 603 BA Biology: <ul style="list-style-type: none"> • Chemistry (202) General Chemistry or Chemistry of Solutions BA Economics: <ul style="list-style-type: none"> • Mathematics (201) Calculus 1 	<ul style="list-style-type: none"> • Mathematics (201) Calculus 1 • Mathematics (201) Algebra 1 or Calculus 2 	<ul style="list-style-type: none"> • Mathematics (201) Calculus 1 • Mathematics (201) Calculus 1 or Calculus 2 	<ul style="list-style-type: none"> • Mathematics (201) Calculus 1 BCS Biomedical Computing stream: <ul style="list-style-type: none"> • Mathematics (201) Calculus 1 • Chemistry (202) General Chemistry or Chemistry of Solutions 	<ul style="list-style-type: none"> • Mathematics (201) Calculus 1 • Chemistry (202) General Chemistry or Chemistry of Solutions • Physics (203) Mechanics or Electricity and Magnetism • One of: Biology (101) General Biology, Mathematics (201) Algebra 1 or Calculus 2 	
Saskatchewan	High school diploma including six courses numbered 30.	<ul style="list-style-type: none"> • English A30 and B30 • Physics 30 • Pre-Calculus 30 	<ul style="list-style-type: none"> • English A30 and B30 BA Biology: <ul style="list-style-type: none"> • English A30 and B30 • Chemistry 30 BA Economics: <ul style="list-style-type: none"> • English A30 and B30 • Pre-Calculus 30 	<ul style="list-style-type: none"> • English A30 and B30 • Pre-Calculus 30 • Foundations of Math 30 or Calculus 30 	<ul style="list-style-type: none"> • English A30 and B30 • Pre-Calculus 30 • Foundations of Math 30 or Calculus 30 	<ul style="list-style-type: none"> • English A30 and B30 • Pre-Calculus 30 • Foundations of Math 30 or Calculus 30 	<ul style="list-style-type: none"> • Pre-Calculus 30 BCS Biomedical Computing stream: <ul style="list-style-type: none"> • Pre-Calculus 30 • Chemistry 30 	<ul style="list-style-type: none"> • Pre-Calculus 30 • Chemistry 30 • Physics 30 • Biology 30 or Calculus 30

admission requirements

Province/ Territory	Bachelor of Global and International Studies	Bachelor of Health Sciences	Bachelor of Humanities	Bachelor of Humanities (with Biology)	Bachelor of Industrial Design	Bachelor of Information Technology
Alberta NWT Nunavut	<ul style="list-style-type: none"> ELA 30-1 	<ul style="list-style-type: none"> Math 30-1 Two of: <ul style="list-style-type: none"> Chemistry 30 Physics 30 Biology 30 	No specific prerequisites	<ul style="list-style-type: none"> Chemistry 30 or Biology 30 	<ul style="list-style-type: none"> Math 30-1 Physics 30 	IMD/NET: <ul style="list-style-type: none"> Math 30-1 or 30-2 PLT: <ul style="list-style-type: none"> Math 30-1 Physics 30 One other senior level science course
British Columbia Yukon	<ul style="list-style-type: none"> English 12 	<ul style="list-style-type: none"> Pre-Calculus 12 Two of: <ul style="list-style-type: none"> Chemistry 12 Physics 12 Biology 12 	No specific prerequisites	<ul style="list-style-type: none"> Chemistry 12 or Biology 12 	<ul style="list-style-type: none"> Pre-Calculus 12 Physics 12 	IMD/NET: <ul style="list-style-type: none"> Pre-Calculus 12 or Foundations of Math 12 PLT: <ul style="list-style-type: none"> Pre-Calculus 12 Physics 12 One other senior level science course
Manitoba	<ul style="list-style-type: none"> English 40S 	<ul style="list-style-type: none"> Pre-Calculus Math 40S Two of: <ul style="list-style-type: none"> Chemistry 40S Physics 40S Biology 40S 	No specific prerequisites	<ul style="list-style-type: none"> Chemistry 40S or Biology 40S 	<ul style="list-style-type: none"> Pre-Calculus Math 40S Physics 40S 	IMD/NET: <ul style="list-style-type: none"> Pre-Calculus Math 40S or Applied Math 40S PLT: <ul style="list-style-type: none"> Pre-Calculus Math 40S Physics 40S One other senior level science course
New Brunswick	<ul style="list-style-type: none"> English 121/122 	<ul style="list-style-type: none"> Pre-Calculus 120A and 120B Two of: <ul style="list-style-type: none"> Chemistry 121/122 Physics 121/122 Biology 121/122 	No specific prerequisites	<ul style="list-style-type: none"> Chemistry 121/122 or Biology 121/122 	<ul style="list-style-type: none"> Pre-Calculus 120A and 120B Physics 121/122 	IMD/NET: <ul style="list-style-type: none"> Pre-Calculus 120A or 120B or Foundations of Math 12 PLT: <ul style="list-style-type: none"> Pre-Calculus 120A and 120B Physics 121/122 One other senior level science course
Newfoundland and Labrador	<ul style="list-style-type: none"> English 3201 	<ul style="list-style-type: none"> Math 3200 Two of: <ul style="list-style-type: none"> Chemistry 3202 Physics 3204 Biology 3201 	No specific prerequisites	<ul style="list-style-type: none"> Chemistry 3202 or Biology 3201 	<ul style="list-style-type: none"> Math 3200 Physics 3204 	IMD/NET: <ul style="list-style-type: none"> Math 3200 or 3201 PLT: <ul style="list-style-type: none"> Math 3200 Physics 3204 One other senior level science course
Nova Scotia	<ul style="list-style-type: none"> English 12 	<ul style="list-style-type: none"> Pre-Calculus 12 Two of: <ul style="list-style-type: none"> Chemistry 12 Physics 12 Biology 12 	No specific prerequisites	<ul style="list-style-type: none"> Chemistry 12 or Biology 12 	<ul style="list-style-type: none"> Pre-Calculus 12 Physics 12 	IMD/NET: <ul style="list-style-type: none"> Pre-Calculus 12 or Advanced Math 12 PLT: <ul style="list-style-type: none"> Pre-Calculus 12 Physics 12 One other senior level science course
Prince Edward Island	<ul style="list-style-type: none"> English 621A 	<ul style="list-style-type: none"> Math 621B Two of: <ul style="list-style-type: none"> Chemistry 621 Physics 621 Biology 621 	No specific prerequisites	<ul style="list-style-type: none"> Chemistry 621 or Biology 621 	<ul style="list-style-type: none"> Math 621B Physics 621A 	IMD/NET: <ul style="list-style-type: none"> Math 621A or 621B PLT: <ul style="list-style-type: none"> Math 621B Physics 621A One other senior level science course
Quebec CEGEP	<ul style="list-style-type: none"> English 603 	<ul style="list-style-type: none"> Mathematics (201) Calculus 1 Two of: <ul style="list-style-type: none"> Chemistry (202) General Chemistry or Chemistry of Solutions Physics (203) Mechanics or Electricity and Magnetism Biology (101) General Biology 	No specific prerequisites	<ul style="list-style-type: none"> Biology (101) General Biology, or Chemistry (202) General Chemistry or Chemistry of Solutions 	<ul style="list-style-type: none"> Mathematics (201) Calculus 1 Physics (203) Mechanics or Electricity and Magnetism 	IMD/NET: <ul style="list-style-type: none"> Mathematics (201) Calculus 1 or Algebra 1 PLT: <ul style="list-style-type: none"> Mathematics (201) Calculus 1 Physics (203) Mechanics or Electricity and Magnetism Chemistry (202) General Chemistry or Chemistry of Solutions
Saskatchewan	<ul style="list-style-type: none"> English A30 and B30 	<ul style="list-style-type: none"> Pre-Calculus 30 Two of: <ul style="list-style-type: none"> Chemistry 30 Physics 30 Biology 30 	No specific prerequisites	<ul style="list-style-type: none"> Chemistry 30 or Biology 30 	<ul style="list-style-type: none"> Pre-Calculus 30 Physics 30 	IMD/NET: <ul style="list-style-type: none"> Pre-Calculus 30 or Foundations of Math 30 PLT: <ul style="list-style-type: none"> Pre-Calculus 30 Physics 30 One other senior level science course

Province/ Territory	Bachelor of Journalism	Bachelor of Journalism and Humanities	Bachelor of Mathematics	Bachelor of Music	Bachelor of Public Affairs and Policy Management	Bachelor of Science Honours	Bachelor of Science Major and General	Bachelor of Social Work
Alberta NWT Nunavut	• ELA 30-1	• ELA 30-1	• Math 30-1 • Math 31 BMath Biostatistics: Math 30-1, Math 31, Biology 30 and Chemistry 30. Physics 30 also strongly recommended.	No specific prerequisites	No specific prerequisites	• Math 30-1 Two of: • Chemistry 30 • Physics 30 • Biology 30	• Math 30-1 Two of: • Math 31 • Chemistry 30 • Physics 30 • Biology 30	No specific prerequisites
British Columbia Yukon	• English 12	• English 12	• Pre-Calculus 12 • Calculus 12 BMath Biostatistics: Pre-Calculus 12, Calculus 12, Biology 12 and Chemistry 12. Physics 12 also strongly recommended.	No specific prerequisites	No specific prerequisites	• Pre-Calculus 12 Two of: • Chemistry 12 • Physics 12 • Biology 12	• Pre-Calculus 12 Two of: • Calculus 12 • Chemistry 12 • Physics 12 • Biology 12	No specific prerequisites
Manitoba	• English 40S	• English 40S	• Pre-Calculus Math 40S • Calculus 45 BMath Biostatistics: Pre-Calculus Math 40S, Calculus 45, Biology 40S and Chemistry 40S. Physics 40S also strongly recommended.	No specific prerequisites	No specific prerequisites	• Pre-Calculus Math 40S Two of: • Chemistry 40S • Physics 40S • Biology 40S	• Pre-Calculus Math 40S Two of: • Calculus 45 • Chemistry 40S • Physics 40S • Biology 40S	No specific prerequisites
New Brunswick	• English 121/122	• English 121/122	• Pre-Calculus 120A and 120B • Calculus 12 BMath Biostatistics: Pre-Calculus 120A and 120B, Calculus 12, Biology 121/122 and Chemistry 121/ 122. Physics 121/122 also strongly recommended.	No specific prerequisites	No specific prerequisites	• Pre-Calculus 120A and 120B Two of: • Chemistry 121/122 • Physics 121/122 • Biology 121/122	• Pre-Calculus 120A and 120B Two of: • Chemistry 121/122 • Physics 121/122 • Biology 121/122 • Calculus 12	No specific prerequisites
Newfoundland and Labrador	• English 3201	• English 3201	• Math 3200 • Calculus 3208 BMath Biostatistics: Math 3200, Calculus 3208, Biology 3201 and Chemistry 3202. Physics 3204 also strongly recommended.	No specific prerequisites	No specific prerequisites	• Math 3200 Two of: • Chemistry 3202 • Physics 3204 • Biology 3201	• Math 3200 Two of: • Chemistry 3202 • Physics 3204 • Biology 3201 • Calculus 3208	No specific prerequisites
Nova Scotia	• English 12	• English 12	• Pre-Calculus 12 • Calculus 12 BMath Biostatistics: Pre-Calculus 12, Calculus 12, Biology 12 and Chemistry 12. Physics 12 also strongly recommended.	No specific prerequisites	No specific prerequisites	• Pre-Calculus 12 Two of: • Chemistry 12 • Physics 12 • Biology 12	• Pre-Calculus 12 Two of: • Calculus 12 • Biology 12 • Chemistry 12 • Physics 12	No specific prerequisites
Prince Edward Island	• English 621A	• English 621A	• Math 621B • Math 611B BMath Biostatistics: Math 621B, Math 611B, Biology 621 and Chemistry 621. Physics 621 also strongly recommended.	No specific prerequisites	No specific prerequisites	• Math 621B Two of: • Chemistry 621 • Physics 621 • Biology 621	• Math 621B Two of: • Chemistry 621 • Physics 621 • Biology 621 • Math 611B	No specific prerequisites
Quebec CEGEP	• English 603	• English 603	• Mathematics (201) Calculus 1 and one of Calculus 2 or Algebra 1 BMath Biostatistics: Mathematics (201) Calculus 1 and one of Calculus 2 or Algebra 1; Biology (101) General Biology and Chemistry (202) General Chemistry or Chemistry of Solutions. Physics (203) Mechanics or Electricity and Magnetism also strongly recommended.	No specific prerequisites	No specific prerequisites	• Mathematics (201) Calculus 1 Two of: • Chemistry (202) General Chemistry or Chemistry of Solutions • Physics (203) Mechanics or Electricity and Magnetism • Biology (101) General Biology	• Mathematics (201) Calculus 1 Two of: • Mathematics (201) Calculus 2 • Chemistry (202) General Chemistry or Chemistry of Solutions • Physics (203) Mechanics or Electricity and Magnetism • Biology (101) General Biology	No specific prerequisites
Saskatchewan	• English A30 and B30	• English A30 and B30	• Pre-Calculus 30 • Calculus 30 BMath Biostatistics: Pre-Calculus 30, Calculus 30, Biology 30 and Chemistry 30. Physics 30 also strongly recommended.	No specific prerequisites	No specific prerequisites	• Pre-Calculus 30 Two of: • Chemistry 30 • Physics 30 • Biology 30	• Pre-Calculus 30 Two of: • Calculus 30 • Chemistry 30 • Physics 30 • Biology 30	No specific prerequisites

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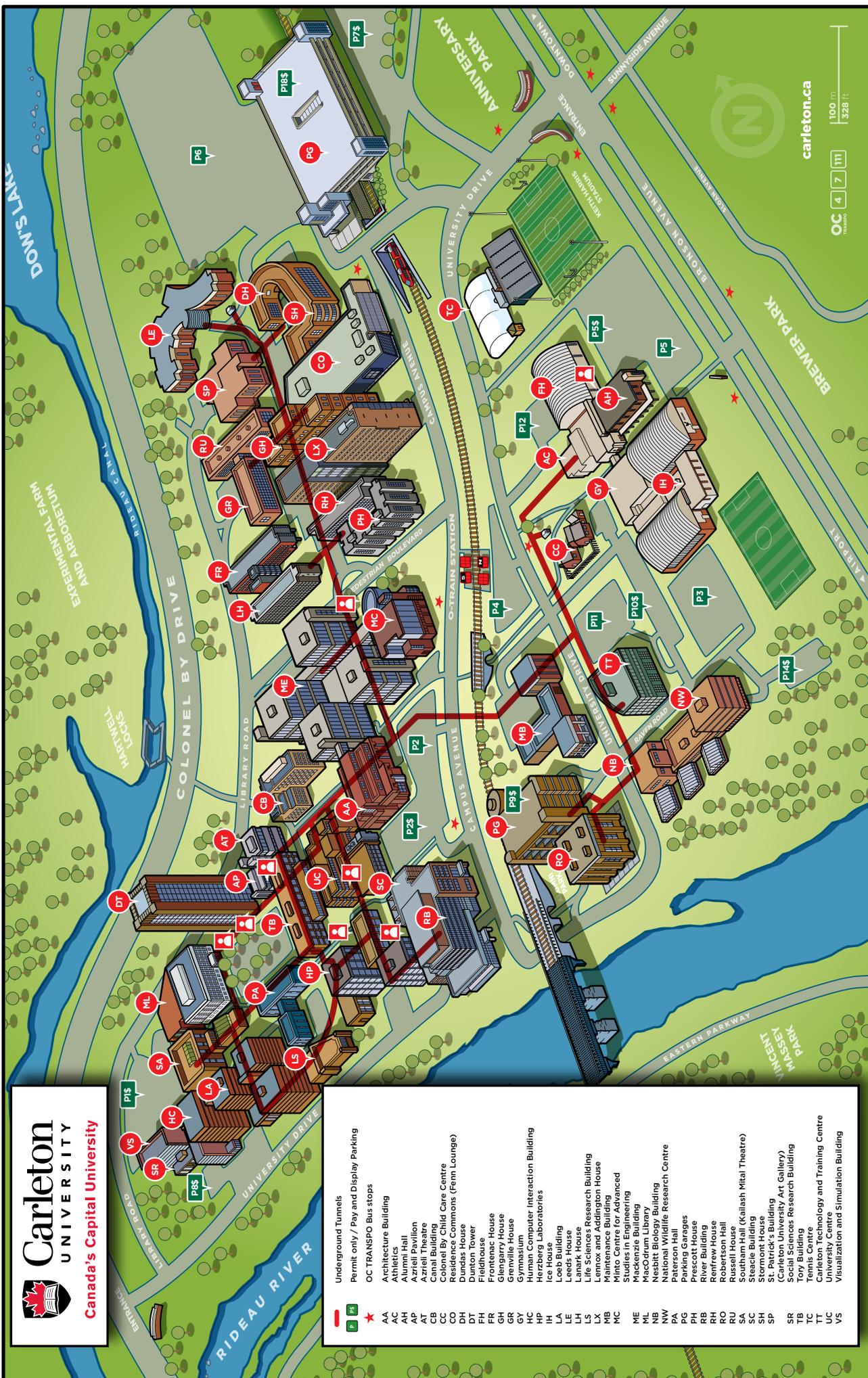
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 - Applied Linguistics and Discourse Studies
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 - Biology*
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AC	Athletics
AH	Alumni Hall
AP	Azrieli Pavilion
AT	Azrieli Theatre
CB	Canal Building
CC	Colonel By Child Care Centre
CO	Residence Commons (Penn Lounge)
DH	Dundas House
DT	Dundas Tower
FR	Frontenac House
GH	Glengarry House
GY	Grenville House
MC	Gymnasium
HC	Human Computer Interaction Building
HP	Herzberg Laboratories
IH	Ice House
LE	Leob Building
LA	Lanark House
LS	Life Sciences Research Building
LX	Lennox and Addington House
MB	Maintenance Building
MC	Minto Centre for Advanced Studies in Engineering
ME	Mackenzie Building
NL	MacOrum Library
NW	National Wildlife Research Centre
PA	National Hall
PV	Parking Garages
PH	Prescott House
RB	River Building
RH	Renfrew House
RU	Robertson Hall
RO	Russell House
SA	Southern Hall (Kailash Mital Theatre)
SC	St. Patrick's Building
SH	Storment House
SP	St. Patrick's Building (Carleton University Art Gallery)
SR	Social Sciences Research Building
TB	Tony Building
TC	Tennis Centre
TT	Carleton Technology and Training Centre
UC	University Centre
VS	Visualization and Simulation Building

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