We recognize that many Indigenous nations have longstanding relationships with the territories upon which York University campuses are located that precede the establishment of York University. York University acknowledges its presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, the Huron-Wendat, and the Métis. It is now home to many Indigenous Peoples. We acknowledge the current treaty holders, the Mississaugas of the Credit First Nation. This territory is subject of the Dish with One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.
THIS IS YOUR SCHOOL

You want to solve problems others might think impossible
You want to change the world
You love discovering unconventional ways to get around roadblocks
You prefer hard puzzles to easy ones
You’ll need a School where you will have the freedom to explore your passions
And a place to gain new perspectives from the world around you
This your School
This is Lassonde

Explore Lassonde in a VR-enabled tour
Experience the places and spaces that you’ll live in as a student here at Lassonde.
discover.lassonde.yorku.ca/tour

OUR PROGRAMS

Civil Engineering BEng
Computer Engineering BEng
Computer Science BSc, iBSc, BA, iBA
Computer Security BSc, BA
Digital Media BA
Earth & Atmospheric Science BSc
Electrical Engineering BEng
Geomatics Engineering BEng
Mechanical Engineering BEng
Software Engineering BEng
Space Engineering BEng
"At Lassonde, I learned it’s possible to have passions that are more than just your program. I started the first Engineering Play at Lassonde and had an amazing time putting on a stage production with 25+ students from across the faculty. It was so much fun to explore a passion that isn’t school."

- Emily, '21 Civil Engineering

"I’ve personally found that Lassonde is a community of supportive and inspiring like-minded people. Upper-years and alumni are role models that I look up to. I met peers that I adore completely. The faculty and the staff are very dedicated to the welfare of the students and to the impact of their work. It’s a microcosm of the kind of global society we strive to have. To be surrounded by such a network is to be empowered in doing my part. We are the change we want to see in the world, and it’s so much better with a community enriching your educational experience behind you."

- Jomia, '21 Computer Science and Cognitive Science
LIFE AT LASSONDE
ACADEMIC & SOCIAL EXPERIENCE

THE LASSONDE COMMUNITY
At Lassonde, you’re not just joining a school, you’re becoming part of a community of life-long learners.

We are diverse, inclusive and collaborative.

Our community empowers you to become an agent of positive change.

Our community is there for you – whether you’re working on design projects for your courses, participating in hackathons, or just catching a break between classes.

STUDENT CLUBS & ORGANIZATIONS
With 15 (and growing) here at Lassonde and over 300 across the university, you’re sure to find something to match what you’re passionate about.

Clubs are a great way to explore your passions and gain new perspectives. Expand on your classroom learning by joining a competition team or field-themed club.

Help change the world in clubs like Engineers Without Borders, or Women in Science and Engineering. Clubs also provide opportunities to expand your social network through events like Purpling Party, Week Zero (our version of Frosh Week), hackathons and tech talks.

Organizations like Lassonde Student Government and Engineering Society provide leadership and representation to guide Lassonde’s student-first philosophy.

PEER SUPPORT
Lassonde’s clubs and organizations provide peer tutoring, workshops, and events focused on your success.

Examples include Lassonde’s Peer Helpers who are part of academic advising and orientation, and Excel Lassonde who offer tutoring for courses.

ENGINEERING COMMON FIRST-YEAR
Students in Engineering begin their studies with a foundational common first-year. The first-year courses in applied mathematics, physical sciences, programming, and engineering (design, ethics and communication) provide a strong base for branching out into the engineering majors.

While you are learning these engineering fundamentals, the common first-year allows you to explore the variety of engineering majors available, before you commit to a particular area for your second-year. The first-year program provides information and examples from all engineering disciplines. At Lassonde, we believe that our common first-year gives you time to explore your passions and find your fit.

CAPSTONE PROJECT
Students in their final year participate in a Capstone Project. As a member of a project team, and mentored by Lassonde professors, you will develop a solution to a challenging, real world problem. You can choose to define your own project or work on a challenge sponsored by an industry partner.

In addition to nurturing your design, prototyping and assembly skills you can also gain valuable business case development experience.
CO-OP & INTERNSHIPS

Developed using the best elements of traditional co-op and internship programs, Lassonde’s experiential opportunities are infused with a Lassondian twist: entrepreneurship, social consciousness, global citizenship and flexibility.

You will develop a professional portfolio with career and job search guidance provided by our dedicated Co-op & Internship team.

STAY LOCAL OR GO GLOBAL
Whether you want to stay in the booming GTA or have a global experience, Lassonde’s Co-op and Internship program is here to help you make the most of your work experience and to help you reach your career goals!

Co-op experiences are available in 3 different flavours:

CLASSIC
- Work with major corporations, small to medium-sized enterprises (SMEs), non-profit and public sector organizations

ENTREPRENEURIAL
- Gain entrepreneurial skills by working at a start-up
- Apply your newly gained skills by starting your own business, from idea to commercialization
- Receive advice and support from industry mentors

INTERNATIONAL
- Explore global citizenship and immerse yourself in a new culture while gaining work experience in your field
- Expand your career prospects by adding international work experience to your resume

CO-OP is available to you after your second year in these programs:
Civil Engineering · Computer Engineering · Electrical Engineering · Geomatics Engineering · Mechanical Engineering · Software Engineering · Space Engineering · Computer Science · Computer Security · Earth & Atmospheric Science

INTERNSHIP is available to you after your third year in these programs:
Computer Science · Computer Security · Digital Media

Our students have worked placements in Montréal, San Francisco, Palo Alto, Amsterdam, Abu Dhabi, San Salvador – just to name a few.

There are over 500 active employer partners who recruit from Lassonde! Some notable partners are IBM, Uber, Tesla, CIBC, Ellis Don, and Hydro One.

12/20
All Lassonde co-op and internship positions are paid full-time employment. Students earned a 12-month salary average of $46,000 which goes a long way to help pay for school.

Work a minimum of 12 months up to a maximum of 20 months while on co-op. You can earn up to 1 year of qualified experience towards your PEng.

INDUSTRY PARTNERSHIP STREAM for Computer Science (BSc)

We’ve teamed up with Shopify, a Canadian commerce leader, to bring you a blended study + work learning experience.

Available exclusively to Computer Science BSc students, you’ll explore your passion and build expertise as you complete your degree.

As a Shopify team member, you’ll gain new perspectives through 4500+ hours of work experience, developing the critical skills needed to solve real problems with modern technology.

Perks include salary, tuition coverage, and paid vacation paired with the experience of working alongside the amazing folks over at Shopify!

Find out more at devdegree.ca

Maas
‘22 Computer Science + Industry Partnership Stream

Passionate About:
Tinkering with computers, reading books, listening to podcasts about business and computer science, playing soccer and chess

My Lassonde Journey:
Education, mentorship, work experience – Dev Degree allows me to directly apply what I learn at university into the real world, which helps me solidify what I learn in class

Life Beyond Lassonde:
Develop software to solve interesting, perhaps unknown problems of the future
The ability to start with a blank text file and create something useful will always inspire me

Stephanie
‘22 Computer Science + Industry Partnership Stream

Passionate About:
Tech in everyday life, coding, painting, playing instruments, trying new cuisines and recipes

My Lassonde Journey:
Learning a new skill everyday and constantly being challenged to learn more
Dev Degree has shown me what my ideal work environment looks like – I get to balance the creative and analytical sides of my personality

Life Beyond Lassonde:
Women in STEM inspire me everyday – I aspire to be like the women who raised me, and the women who teach me
Work in tech industry, meet new people, gain new perspectives
Lassonde students at work on a variety of design projects in the Sandbox, a student-run space featuring breakout rooms, high-performance rendering stations and rapid prototyping tools like laser cutters and 3D printers.
The Bergeron Entrepreneurs in Science and Technology program is a unique initiative that integrates innovation, entrepreneurship teaching, research, and experiential learning to complement traditional approaches to science and engineering education.

Nurture your interest in developing your entrepreneurial skills to achieve career success, either in existing organizations or through starting your own technology venture.

BEST offers you the environment, culture, and resources to help you appreciate the role you play in using technology to solve important societal challenges.

Through entrepreneurial, academic and experiential achievements during your time at Lassonde, you can earn the BEST Certificate.

**BEST CERTIFICATE**
- Create your unique portfolio and earn the BEST Certificate that integrates technology courses at Lassonde, business courses at the Schulich School of Business, and law courses at Osgoode Hall Law School
- Gain problem-solving skills and learn how to innovate
- Combine those skills with knowledge in intellectual property and business
- Learn how to use technology to drive venture creation

**COURSES**
- Courses in Innovation, Communication, Design, Professionalism, Tech Project, Law, Business and Experiential Learning
- Online course in Innovation and Creativity designed to stimulate you to enhance your own innovative and creative capacity

**BEST LAB**
- Provides a space that supports entrepreneurial experimentation
- Connect with mentors, industry experts and technological resources
- Learn to use an evidence-based approach to rapidly develop and test market-based hypotheses

**AWARDS, FELLOWSHIPS & GRANTS**
Various financial resources available for your entrepreneurial and venture creation activities in the BEST Lab:
- When you arrive at Lassonde – $1,000 BEST Entrance Award
- During your time at Lassonde – $2,000-$4,000 BEST Award
- When you start your own ventures – Up to $8,500 BEST Fellowship to support early stage technology ventures
- As you develop your business – Up to $40,000 in BEST grants, funded by York Alumni, to help reduce technology risk, and attract first customers and early investors

**Sogand**
**’20 Space Engineering + BEST Certificate**

**Passionate About:**
Space, robotics, mentoring, FIRST, reading, exercising

**My Lassonde Journey:**
Featured on CBC panel to discuss Apollo 11 and its impact on pop culture, alongside Canadian Astronaut Dave Williams.
International learning opportunities: Engineering for Developing Communities course in Ethiopia; Technion Institute in Israel
Organizing Team Lead for the 2018 & 2019 FIRST Robotics Regional Finals hosted by Lassonde

**Life Beyond Lassonde:**
Engineer
Entrepreneur
Astronaut
Travel to places more wonderful than I have ever imagined
CIVIL ENGINEERING
BEng, Accredited by CEAB
+ Co-Op (optional)
+ Dual Degree: BA Int’l Development Studies (optional)

ABOUT THE PROGRAM
From soaring skyscrapers and breathtaking bridges to next-generation clean water technologies, earthquake-resilient buildings and innovative transportation systems – the scope and impact of Civil Engineering is unparalleled.

Civil Engineering is a driving engine of economic growth; it plays a huge role in the sustainable development of mineral and energy sources as well as protecting our natural and built environment.

Civil Engineering students at Lassonde learn about structural and foundation design, transportation systems planning and design, water resources management, wastewater treatment, and environmental impact assessment. In addition, our graduates receive training in new emerging areas, such as innovative materials and construction technologies, infrastructure rehabilitation, computer-aided simulations, sustainability, natural hazards, and climate-change-driven engineering.

Our aim is to graduate civil engineers with exceptional technical skills, strong communication and entrepreneurial skills, a passion for social justice and environmental stewardship.

PLACES YOU’LL GO
- Construction and Project Manager
- Transportation Planner
- Environmental Regulators and Steward
- Municipal and Sanitary Engineer
- Structural and Geotechnical Engineer
- Natural Resources Developer
- Government and Public Works Engineer

TECHNICAL SKILLS YOU’LL GAIN
- Engineering design skills through a series of dedicated design courses
- Strong field application skills developed in labs spanning structural, geotechnical, hydrotechnical, transportation, and environmental disciplines
- Field surveying experience
- Capstone design course in the graduating year focusing on real-life civil engineering projects delivered in association with industry partners

SAMPLE CO-OP EMPLOYERS
- Ellis Don
- Hatch
- Kenaidan
- Metrolinx
- Miller Group
- Suncor Energy
- Region of Peel
- Canadian Nuclear Laboratories (CNL)

Maheen
’19 Civil Engineering
Passionate About:
Math, science, construction and development of residential homes, being engaged in initiatives that raise awareness of global issues

My Lassonde Journey:
Co-op/Internship
Student-of-the-Year award
Co-op at Metrolinx on Regional Express rail and other infrastructure projects
Co-Founder, Civil Engineers of Lassonde student club
Advisor, Canadian Society for Civil Engineering York chapter

Life Beyond Lassonde:
Secured full-time position at HATCH after 3 co-op terms
Rail and transit industry
My own construction company
ABOUT THE PROGRAM

Computer engineering forms the basis of the modern world. Self-driving cars, robotics, mobile devices, e-commerce, wireless communications, the Internet of Things and other advances are all built by Computer Engineers.

We start by teaching the core concepts in computer hardware and software that you will use to design and implement solutions to the ever-increasing range of engineering challenges.

As a Computer Engineering student, you will gain deep knowledge about hardware and software design, as well be uniquely qualified to work on computer systems. You will take courses in computation, system design and other specialized areas, including robotics and virtual reality. This theoretical knowledge is balanced with hands-on experience. Lassonde Computer Engineering students have access to our state-of-the-art facilities – Digital Systems Lab and Robotics Lab.

TECHNICAL SKILLS YOU’LL GAIN

- A strong programming foundation including Object Oriented Programming/Object Oriented Design, assembly language, multi-threading, design patterns and unit testing
- Advanced knowledge of C and Java – used for projects involving robotics, networking, device drivers, 3D graphics and mobile app development
- Rapid prototyping of electronic and mechatronic systems
- Embedded systems and digital logic design including sensor interfacing & actuation of electromechanical devices
- Digital signal processing using MATLAB modelling software
- Verilog circuit-modelling language for FPGA circuit programming
- Design-to-application of digital communication interfaces and networks
- Unix system programming, shell scripting, shared memory, and other O/S specifics

PLACES YOU’LL GO

- Robotics Engineer
- Biomedical Instrumentation Specialist
- Embedded Systems Developer
- DevOps Engineer
- Telecommunications Engineer
- Remote Sensing Specialist
- IoT/Cloud Developer
- Mobile Device Developer
- Computer Hardware Engineer

SAMPLE CO-OP EMPLOYERS

- IBM
- Uber
- CIBC
- Telus
- TD
- Rogers
- Evertz Micro Systems

Daman

‘19 Computer Engineering

Passionate About: Science, experimenting and building new things, playing basketball

My Lassonde Journey:
Working with peers, mentors, professional engineers to build solutions for people
Co-op at Uber in Denver and in Palo Alto
Co-Chair, IEEE YorkU chapter

Life Beyond Lassonde:
Software Development Engineer, Amazon Canada
Learning how to leverage information from all my courses and co-op experiences in the real world
Work on problems that affect people, and build solutions that work on a global scale
ELECTRICAL ENGINEERING
BEng, Accredited by CEAB
+ Co-op (optional)
+ Dual Degree: BA Int'l Development Studies (optional)

ABOUT THE PROGRAM
From modern telecommunication systems to renewable power generation or medical devices, electrical engineers develop skills that are in-demand in diverse industries.

In Lassonde’s Electrical Engineering program, you will have the chance to train your hands and your mind. We will first teach you about the big concepts that make up electrical engineering. You will gain in-depth knowledge as you learn about designing a whole slew of power electronics, signal processors and assistive medical devices in your upper years.

Your learning will be enhanced in our various lab spaces designed to teach you about Medical Devices, Microelectronics, Power Systems, Embedded Systems, and Robotics.

TECHNICAL SKILLS YOU’LL GAIN
· A strong programming foundation
· Electronic fabrication, testing and measurement
· Rapid prototyping of electronic and mechatronic systems
· Embedded systems and digital logic design including sensor interfacing and actuation of electromechanical devices
· Digital signal processing using MATLAB modelling software
· Verilog circuit-modelling language for FPGA circuit programming
· Circuit design for chips, motors, small controllers or antennas
· Analysis, design and optimization of hardware and software

PLACES YOU’LL GO
· Power and Energy Engineer
· Consumer Electronics Specialist
· Medical Device Developer
· Energy Management Systems Specialist
· Industrial Electronics Engineer
· Wireless Engineer
· Electronics Design Engineer
· SoC Design Engineer
· Computer Hardware Engineer
· Communications Hardware Engineer

SAMPLE CO-OP EMPLOYERS
· IBM
· Ericsson
· BMO
· Nascent
· Ministry of Health and Long Term Care
· Loyalty One
· Teledyne
· Telus

Olga
‘21 Electrical Engineering
Passionate About: Microelectronics and implantable medical devices, business, yoga, snowboarding, hiking, watching ballet
My Lassonde Journey: Courses related to medical devices, business
Co-op as Research Assistant, Biomedical Device Research Lab
Member, Lassonde Engineering Society, Satellite Design Team, IEEE student chapter
Life Beyond Lassonde: Medical devices industry, so I can help people live longer and with less health problems
Sustainability
My own business
Meet interesting people and get inspired
ABOUT THE PROGRAM

Lassonde’s Geomatics Engineering program will prepare you for a variety of jobs like surveying and mapping, modern positioning and navigation techniques, aerial photogrammetry, engineering surveying, UAV aerial mapping, cadastral land surveys, satellite-based estimation of the Earth’s gravity field, remote sensing and GIS analyst.

We will get you started with the basics in geomatics, surveying and mapping, navigation, sensors, and measurements to assist in building a strong foundation in the discipline.


PLACES YOU’LL GO

- General Engineering Surveying and Mapping
- Geospatial 3D Mapping and Modelling
- Geodetic and Engineering Control Surveying
- Location-based Services
- Remote Sensing Specialist
- Aerial Photogrammetrist (including UAV)
- Cadastral Land Surveyor
- Navigation Engineer
- Geomatics Engineer
- GIS Analyst
- Mobile Mapping Specialist
- Research and Development

TECHNICAL SKILLS YOU’LL GAIN

- Expertise in geodesy and gravity, cadastral surveys and land registration systems, global navigation satellite systems (GNSS), photogrammetry and remote sensing, precise engineering surveys, Geographic Information Systems (GIS), 3D modelling, digital elevation modelling, data visualization, wireless and web-based mapping, location-based services and mobile mapping and data analytics
- Extensive experience with a range of conventional and modern surveying and geodetic equipment including total stations, levels, laser scanners, 3D photogrammetric workstations and geodetic GNSS receivers
- Software knowledge includes AutoCAD, MATLAB, GeoLAB, Leica Geo-Office, Columbus Best Fit Computing, ArcGIS, PCI Geomatica, TerraSolid, ERDAS Imagine Photogrammetry
- Add depth by taking part in the co-op program or work with a faculty mentor doing research

SAMPLE CO-OP EMPLOYERS

- Tarasik McMillan Kubicki
- Toronto Hydro
- Powerstream
- Ministry of Transportation
MECHANICAL ENGINEERING

BEng, Accredited by CEAB
• Co-op (optional)
• Dual Degree: BA Int’l Development Studies (optional)

ABOUT THE PROGRAM

Mechanical Engineering is one of the broadest engineering disciplines. You will develop a broad range of technical skills and knowledge to complete diverse engineering tasks for a cleaner and healthier environment.

You will start with learning the fundamental knowledge that serves as the foundation for mechanical engineering. After first year, you will have the chance to focus in and explore what you are most passionate about – Mechanism Design, Manufacturing Engineering, Instrumentation, Electrical Systems, Fluid Dynamics, Solid Mechanics, CAD (computer-aided design) and Computer Simulation Tools, Control, Mechatronics, Vibrations and Actuators, and System Engineering.

Aside from all the technical know-how, you will pick up some great soft skills – effective communication, project management, law, public policy and leadership.

Find your dream job in a wide spectrum of sectors including automotive, aerospace, biomedical, biomechanics, clean technology, energy, manufacturing, mechatronics, design of medical devices, wind turbines, fuel cells and more.

PLACES YOU’LL GO
• Aerospace Engineer
• Automotive Engineer
• Mechatronic Engineer
• Mechanical Engineer
• Manufacturing Engineer
• Industrial Engineer
• HVAC Engineer
• Material Engineer
• Biomechanical Engineer
• Stress and Structural Engineer
• Control and Artificial Intelligence Engineer
• Automation and Instrumentation Engineer
• Robotic Engineer
• Design Engineer
• Testing and Diagnostic Engineer
• System Engineer

TECHNICAL SKILLS YOU’LL GAIN
• Solid theoretical, practical and applied knowledge in areas including thermofluids, solid mechanics, control and automation, vibrations and actuators, clean energy, manufacturing, instrumentation, data acquisition and analysis
• Hands-on experiences in solid mechanics and materials, thermofluid, machining, control and instrumentation and mechatronics
• Macro- and micro-manufacturing, additive manufacturing and rapid prototyping
• Modelling and design software including SOLIDWORKS, MATLAB, LabVIEW, ANSYS, and Abaqus
• Design mechanisms, machine elements, mechanical systems, thermal systems, and integrated systems in a multidisciplinary domain

SAMPLE CO-OP EMPLOYERS
• General Motors of Canada LTD (GM)
• Magna International
• Celestica
• Siemens
• Toronto Transit Commission (TTC)
• ABC Group
• Ontario Power Generation
• Imperial
• Lincoln Electric
• Canadian Nuclear Laboratories (CNL)
• L3 Harris (formerly L3 Wescam)
• Veoneer Canada Inc.

INTERNATIONALIZE YOUR DEGREE

Add Dual Degree: BA International Development Studies Available for all Engineering programs

Theresa ’20 Mechanical Engineering + International Development Studies

Passionate About:
Mechanical Engineering, biomedical devices, making (and watching) movies, graphic design, meditation

My Lassonde Journey:
Student work experience at Department of National Defence Engineers Without Borders, Lassonde Media Group, Technion Institute in Israel, Silicon Valley co-op experience

Life Beyond Lassonde:
Research (sustainable technologies, renewable energy, fluid dynamics)
Entrepreneur
Film director
SOFTWARE ENGINEERING
BEng, Accredited by CEAB
+ Co-Op (optional)
+ Dual Degree: BA Int’l Development Studies (optional)

ABOUT THE PROGRAM
Software is used to control many aspects of the modern world, ranging from medical devices, nuclear power plants and airplanes to Google and Amazon. Software engineering makes these complex systems possible, safe and reliable.

Lassonde’s Software Engineering program prepares you for a career using state-of-the-art computing labs, a full suite of software development tools, and hands-on experience in the design and development of software products. You’ll find your knowledge and skills to be valuable in systems at all scales and applications, from lightweight embedded Internet-of-things devices to massive data-centers.

In a capstone project, you work with a team to design, test and deploy a significant and exciting product using all the knowledge and skills you have gained.

TECHNICAL SKILLS YOU’LL GAIN
- Computing foundations including assembly languages, C, Java and MATLAB, used in a variety of domains such as app development, robotics and 3D graphics
- Linux system programming, shell scripting, shared memory, and operating systems
- Embedded systems and digital logic design including interfacing and actuation of electrical and mechanical peripherals
- Software design including design patterns, unit/acceptance testing and design by contract
- Strong foundation in logic and its application to the specification and design of mission critical systems
- Analysis, design and optimization of hardware and software

SAMPLE CO-OP EMPLOYERS
- IBM
- Ericsson
- BMO
- Nascent
- Ontario Ministry of Health and Long-Term Care
- Loyalty One
- Teledyne
- Telus

PLACES YOU’LL GO
- Software Developer
- Software Architect
- Web and Mobile App Developer
- Computer Systems Designer
- Automotive Systems Developer
- Software Security Engineer
- Web Services Developer
- Cloud Reliability Engineer
- Telecommunications Software Developer

SPACE ENGINEERING
BEng, Accredited by CEAB
+ Co-Op (optional)
+ Dual Degree: BA Int’l Development Studies (optional)

ABOUT THE PROGRAM
New frontiers offer new challenges. Lassonde’s Space Engineering program will equip you with the technical skills required to design solutions to Earth’s problems using space-based assets while utilizing the principles of systems engineering.

These solutions require knowledge of all engineering disciplines combined with the knowledge of unique space environments – both in-orbit and on other planets. You will look at the interface of engineering and science through payload and instrument design. Learn from real space missions, starting with initial concept design to hardware and software design, manufacturing, testing and in-orbit operations.

Delve into concepts ranging from spacecraft structures, orbit control and space-to-ground communications to flight software and robotics. As a student, you will learn and practice the design and management of complex multidisciplinary projects that enable missions to the far reaches of the solar system. Beyond these systems engineering skills, the Space Engineering program also helps you develop payload design and development capabilities, understanding scientific phenomena on the Earth and in space, and designing engineering instruments to measure them.

TECHNICAL SKILLS YOU’LL GAIN
- Advanced knowledge of the systems engineering process and the cross-section of engineering disciplines needed for designing and developing a space mission
- Payload design and development, covering Earth and Space science, and measurement and instrumentation design to interact with this science.
- Space mission and vehicle design, space communications, space environment and orbital dynamics
- Use of software tools for designing and modelling projects involving robotics; Earth observation, planetary missions, communications systems and other space applications are emphasized while frequently using industry standard tools
- Hardware laboratories provide hands-on learning for many subsystems required in spacecraft design
- Valuable experience with hardware test methods required prior to spaceflight

SAMPLE CO-OP EMPLOYERS
- MDA
- Canadian Space Agency
- Canadensys
- eSight Corporation
- Cheilcare

PLACES YOU’LL GO
- Space Industry
- Space Agencies
- Reliability Engineer
- Telecommunications
- Robotics and Automation
- Remote Sensing
- Systems Engineer
- Instrumentation Design Engineer
**COMPUTER SCIENCE**

**ABOUT THE PROGRAM**

Learning about Computer Science is arguably one of the most important routes to understanding and participating in the world of the future.

Our Computer Science program will equip you with both foundational knowledge and applied skills, using a blend of hardware and software courses including extensive lab work. You will learn the methodologies that lead to efficient and accurate software development, and you can choose from a wide range of application areas, including machine learning, robotics, graphics, user interface design and data mining.

Lassonde has teamed up with a variety of companies to help you gain valuable professional experience. There is also an Industry Partnership/Dev Degree option, in which some of your academic courses involve learning on the job as you work at Shopify throughout the 4-year program.

The BSc, BA, iBSc, iBA and International Dual Degree all allow you to explore learning beyond computer science. In the BA, you can complement your studies with courses from the Liberal Arts such as humanities, social sciences, history, philosophy and more – fields that help you understand human social and creative endeavours and the potential impact of computing. In the BSc, complementary courses will be in the sciences (e.g., biology, chemistry, physics). You can also formalize such studies through a degree minor or double major.

Our International degrees give you the opportunity to learn computer science from a global perspective. Pick up a new language and study abroad as part of the iBA or iBSc degree. In the Dual Degree, you’ll spend a year studying in Germany and Greece.

Changing the world for the better, perhaps through artificial intelligence, data science, and other new fields of the future, requires more than a purely technical point of view. An awareness of impacts on the world and on our lives is a fundamental outcome of our programs.

**TECHNICAL SKILLS YOU’LL GAIN**

- Advanced knowledge of C and Java – used for projects involving robotics, 3D graphics, software applications and app development
- MATLAB modelling software for signals, systems and digital communications processing
- Models and algorithms for data mining and machine learning
- Verilog circuit-modelling language, MIPS assembly language for embedded systems and FPGA circuit programming
- Software design models including design pattern and development
- Various networking tools including Wireshark
- Other languages including C++, Eiffel, Unix Shell, SQL/mySQL database, and PHP

**PLACES YOU’LL GO**

- Software and Network Developer
- Data Scientist
- Cloud Computing Specialist
- Artificial Intelligence and Machine Learning Developer
- Robotics Systems Developer
- Virtual Reality System Developer
- Human/Computer Interface Designer
- Cyber Security Analyst
- App Developer

**SAMPLE CO-OP/INTERNSHIP EMPLOYERS**

- IBM
- Nascent
- Caseware
- CGI
- RBC
- Thales
- The Regional Municipality of York
- Ontario Ministry of Education
- Ontario Ministry of Training, Colleges and Universities

**Einas ’16 Computer Science**

**Passionate About:**
The possibilities and diverse applications of computer science and women in STEM

**My Lassonde Journey:**
Student Advisor for incoming Lassonde students
Peer Tutor – Computer Science and Math courses
Coding Instructor/Coach, Hatch Canada

**Life Beyond Lassonde:**
Software Developer, The Jonah Group

The field of computer science continuously re-invents itself, so my learning journey continues.
**DIGITAL MEDIA**

**ABOUT THE PROGRAM**

Offered jointly by the Lassonde School of Engineering and the School of the Arts, Media, Performance and Design, our program explores the entire digital media spectrum.

As a Digital Media student, you will devise and use tools to create engaging, interactive digital objects and experiences that integrate imagery and sound, including effects and animation, 3D modelling and simulation, and responsive interfaces bridging the physical and virtual world.

You will also study larger concepts like aesthetic theories and the cultural impact of digital media as a catalyst for artistic, social and industrial evolution. Most importantly, you will learn to simulate, build and create.

You will begin the program by completing a common core of courses in first year. You will then select from one of three streams based on your interest.

- **Digital Media Development** focusing on design of core tools and technologies for digital media practices.
- **Digital Media Arts** focusing on the creation and application of digital media for creative production in the visual, performing and screen arts.
- **Digital Media Game Arts** focusing on allied artistic and scientific aspects of innovative game design.

We offer courses in a range of subjects, for example, virtual reality user interfaces, graphics, games and animation.

**TECHNICAL SKILLS YOU’LL GAIN**

- A strong foundation in the algorithmic and computational basis for creation of digital imagery, sound, animation and simulations
- Software development for applications such as 3D graphics, sound/music, games and mobile apps
- Comprehensive portfolio development with a blend of digital media creation, understanding and applying computational tools and artistic concepts

**PLACES YOU’LL GO**

- User Experience and Interface Designer
- Game Developer
- Special Effects Expert
- New Media Artist
- Digital Media Strategist
- Digital Marketing Developer
- Social Media Manager
- Virtual Reality Developer

**SAMPLE INTERNSHIP EMPLOYERS**

- IBM
- ICON Consultants
- Celestica
- Deloitte
- CIBC
- RBC

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**COMPUTER SECURITY**

**ABOUT THE PROGRAM**

Learn about protecting the largest of databases to the smallest of IoT devices. The highly trained professionals who maintain and defend our security are in high demand from both government and the private sector.

Computer security is the specialized part of computer science that studies threats to computer systems and networks. It is the science and practice of how to mitigate them. In our Computer Security program you will build a solid background in computer science and math. You will study a variety of courses, including cryptography and operating systems. You will become an expert on all those topics.

We offer both BA and BSc degrees, which share the same computer science and math requirements. In the BA, you can complement your studies with courses from the Liberal Arts such as humanities, social sciences, history, philosophy and more – fields that help you understand human social and creative endeavours and the potential impact of computing. In the BSc, complementary courses will be in the sciences (e.g., biology, chemistry, physics).

Every part of modern life, whether it’s our financial systems, transportation, power supplies or distribution networks, depend on safe, protected IT systems. You’ll be prepared to protect these infrastructures with a Computer Security degree from Lassonde.

**TECHNICAL SKILLS YOU’LL GAIN**

- Advanced knowledge of C and Java – used for projects involving software applications, server-side services, and mobile app development
- Software design models including design pattern and development
- Various networking and security tools
- Other languages include: C++, Eiffel, Unix Shell, SQL/mySQL database, PHP, Python

**PLACES YOU’LL GO**

- Network Security Professional
- Computer Forensics Expert
- Cryptographer
- Information Security Analyst
- Security and Privacy Law
- Secure Software Development
- Security Analyst
- Security Risk Assessment Analyst
- Security Auditor
- Cloud Computing Security Analyst
- Threat Intelligence Analyst

**SAMPLE CO-OP/INTERNSHIP EMPLOYERS**

- IBM
- ICON Consultants
- Celestica
- Deloitte
- CIBC
- RBC

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- RBC
EARTH & ATMOSPHERIC SCIENCE
BSc + Co-op (optional)

ABOUT THE PROGRAM
We offer three streams in this program: Atmospheric Science, Geomatics Science, and Space Science.

Atmospheric Science explores meteorology from the turbulent micro scale to the large synoptic scale weather systems. In our program, you will learn how we use computer models to forecast the weather and will develop a deeper understanding of the processes that drive severe weather, climate and climate change. You can top off your degree with an included Certificate in Meteorology.

In Geomatics Science you will study about modern geophysics, Earth’s gravity field, satellite geodesy, reference systems, plus surveying and mapping with emphasis in the areas of geospatial science and applications. Our program provides you the knowledge and skills to work with terrestrial, aerial and space observing platforms. Add depth to your degree with a certificate in Geographical Information Systems and Remote Sensing.

Space Science explores planetary space environments as well as instrument design. You’ll learn from professors involved in international space projects such as WINDII, OSIRIS, Phoenix Mars Lander, and OSIRIS-REx. You will gain the knowledge and skills to investigate and establish new satellite programs for optical aeronomy, dynamics and chemistry of the upper atmosphere and monitoring the recovering ozone layer.

TECHNICAL SKILLS YOU’LL GAIN
- Weather forecasting and numerical modelling of atmospheric processes
- Understanding the processes that drive climate change, from the surface to the stratosphere
- Developing Remote Sensing techniques for observations from ground, rocket & satellite platforms
- Planning, development and implementation of research projects under the guidance of a faculty mentor
- Opportunities to take (optional):
  - Certificate in Meteorology – recognized by the Meteorological Service of Canada as satisfying one of their entrance requirements to becoming a meteorologist for Environment and Climate Change Canada
  - Certificate in Geographical Information Systems and Remote Sensing

PLACES YOU’LL GO
- Meteorologist
- Geodesist
- Earth/Atmospheric Scientist
- Climate Scientist
- Remote Sensing Specialist
- GIS Analyst
- Cadastral Land and Construction Surveyor

SAMPLE CO-OP EMPLOYERS
- Environment and Climate Change Canada
- Canadian Space Agency
- The Weather Network
- Ontario Ministry of Natural Resources and Forestry
- Ontario Ministry of the Environment, Conservation and Parks

Riley
‘17 Earth & Atmospheric Science Certificate in Meteorology Certificate in Geographic Information Systems and Remote Sensing

Passionate About: Contributing to important issues that have a direct impact on Canadians

My Lassonde Journey:
Profs who helped me make professional connections and peers who kept me motivated
Student Rep, Academic Petitions and Appeals Committee
Student Government Rep, Faculty Council

Life Beyond Lassonde:
Environmental Program Officer, Environment and Climate Change Canada
The most exciting part about transitioning from school to a career has been realizing how well my program, my experiences and my profs at Lassonde prepared me.
Our classrooms are a place where students come to discuss the concepts they have learned, absorb ideas from each other, and engage directly with professors and mentors from industry. Together we learn by doing.
APPLYING TO LASSONDE

1. Choose your programs and ensure that you have met or will meet the admission requirements (see below).
2. Submit your application for admission online via OUAC (ouac.on.ca).
3. Submit any requested documents. Current Ontario high school students have their grades submitted by their school.
4. Engineering applicants only – submit your Engineering Program Choices to be considered for an Engineering Program Guarantee.

ENGINEERING PROGRAM GUARANTEE

Secure your spot in your preferred Engineering program before you have to accept your offer of admission. This way you’ll know if you have a space reserved for you in your program of choice for your second year.

If you change your mind about your program during your first year, or if you aren’t sure now which Engineering program you are most interested in – that’s ok – we guarantee that some of the spaces in each program will be available for students to choose after their first year. You can apply to change programs for your second year. These spaces are allocated based on your performance in your first year.

To be eligible for the Engineering Program Guarantee you will need to meet the required deadlines. Visit discover.lassonde.yorku.ca/engpg for info on the Engineering Program Guarantee deadlines. When we receive your application, you’ll be sent details on how to let us know what your preferred programs are.

ACADEMIC REQUIREMENTS

<table>
<thead>
<tr>
<th>CURRICULUM</th>
<th>ENGINEERING</th>
<th>COMPUTER SCIENCE</th>
<th>DIGITAL MEDIA</th>
<th>EARTH &amp; ATMOSPHERIC SCIENCE</th>
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</thead>
<tbody>
<tr>
<td>Ontario</td>
<td>English, Chemistry, Physics, Advanced Functions, Calculus &amp; Vectors</td>
<td>BA/BBA: English, Advanced Functions, One other 12U Math course</td>
<td>English, One 12U Math course (minimum grade of 75%)</td>
<td>English, Physics, Advanced Functions, Calculus &amp; Vectors</td>
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<tr>
<td></td>
<td>Minimum grade of 70% in each required course</td>
<td>BSc/iBSc: English, Advanced Functions, One other 12U Math course, Chemistry OR Physics</td>
<td>One 12U arts course or equivalent training recommended</td>
<td>Chemistry recommended for Atmospheric and Space streams</td>
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<tr>
<td>American/AP</td>
<td>Physics, Chemistry, Algebra, Calculus</td>
<td>BA/BBA: Algebra, Math (Calculus recommended)</td>
<td>Math</td>
<td>Algebra, Math, Physics</td>
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<tr>
<td>Standard-level</td>
<td>BSc/iBSc: Algebra, Math (Calculus recommended), Chemistry OR Physics</td>
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<td></td>
<td>Chemistry recommended for Atmospheric and Space streams</td>
</tr>
<tr>
<td>IB (Standard or Higher-Level)</td>
<td>Physics, Chemistry, Math1</td>
<td>BA/BBA: Math1</td>
<td>Math</td>
<td>Physics, Math1</td>
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<tr>
<td>Indian (Grade XII)</td>
<td>BA/BBA: Math1, BSc/iBSc: Math1, Chemistry OR Physics</td>
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<td>Chemistry recommended for Atmospheric and Space streams</td>
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<tr>
<td>CAPE (2-Unit)</td>
<td>Physics, Chemistry, Math1</td>
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<td>Chinese (Grade 12)</td>
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<td>WAEC (WAEC Exam Results)</td>
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For information about important dates, deadlines, and requirements (including proof of English facility) visit discover.lassonde.yorku.ca

Please Note: SATs/ACT exams are only required of students studying in the US, Puerto Rico and Guam.

1. For all curriculum, Math Studies and not widely math requirement
2. Arts training recommended
We recognize that many Indigenous nations have longstanding relationships with the territories upon which York University campuses are located that precede the establishment of York University. York University acknowledges its presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, the Huron-Wendat, and the Métis. It is now home to many Indigenous Peoples. We acknowledge the current treaty holders, the Mississaugas of the Credit First Nation. This territory is subject of the Dish with One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.