

DISCOVER YOUR STORY IN ENGINEERING

ADMISSIONS 2023

UNIVERSITY OF
WATERLOO



YOU+ WATE

uwaterloo.ca/engineering

Shape your future.

A TOP 50

Engineering School in the world
(*QS World University Rankings, 2022*)

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TAKE A TOUR

of our campus and discover
the Faculty of Engineering



TAKE OUR QUIZ

to discover which Engineering
program may be right for you



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Shape your future.

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Challenge the status quo, collaborate, innovate, and learn to create. You might just change the world. Waterloo combines North America's best engineering and architecture programs with a hands-on, immersive learning experience that will take you beyond the classroom.

You'll gain valuable work experience in our world-renowned co-op program, develop your skills in state-of-the-art facilities using real-world processes and technology, and learn from cutting-edge startups in the heart of Canada's most entrepreneurial region. By graduation, you'll be creating the technologies of the future.

Let's explore your story in the Faculty of Engineering at Waterloo.



BUILD YOUR FOUNDATION

AILEEN
ENVIRONMENTAL ENGINEERING

“The Engineering community is very tight-knit. And I think the Faculty has done a really good job of being aware of how strenuous the degree can be and providing resources and people to talk to. With your cohort, you all go through it together and you don’t feel alone.” Aileen says she’s found wrap-around support, inclusion, and community on campus, including friendship through the Christian students’ club Power to Change, academic and social support in residence, and entrepreneurial guidance from GreenHouse, Velocity, and the Conrad School of Entrepreneurship and Business.

MORE TO EXPLORE

Join us online for more tips and stories:

 [UWaterlooEng](#)

 [WaterlooENG](#)

 [UWaterlooEngineering](#)

SHAPE THE FUTURE

Waterloo Engineering is a global leader in engineering education and research, attracting the most intelligent and curious students from around the globe, ready to improve the world by advancing technology. With a strong engineering foundation built on real-world experience, our students are sought after by renowned technology and engineering companies.

YOUR WORK, YOUR PROPERTY

100%

of the ideas developed at Waterloo are owned by their creators



YOUR FIRST YEAR

DIRECT ENTRY

With our direct entry programs, you'll be pursuing your passions from the beginning. You choose your specialty when you apply, allowing you to gain tailored knowledge and a robust, field-specific skill set from day one. In first year you'll expand your learnings in math and science, while diving into the elements unique to the type of engineer you'll become.

COHORTS

We're Canada's largest faculty of engineering, but our class sizes – or cohorts – never exceed 150 students. From your first day of class, you'll share all required courses with your program cohort and build unbeatable friendships. They may even lead to future business ventures.

FIRST-YEAR ENGINEERING OFFICE

GET ADVICE FROM EXPERIENCED PROS

The First-Year Engineering Office is your one-stop shop for both academic and personal support – from study schedules to counselling services.

BROADEN YOUR STUDIES

RESEARCH OPPORTUNITIES

Are you driven by unanswered questions and passionate about new discoveries? Dive deeper and pursue research with some of our leading experts. With both full-time opportunities (Undergraduate Student Research Award during a co-op term) and part-time opportunities (Undergraduate Research Assistantship during an academic term), you can even be paid for your work while you study.

INTERNATIONAL OPPORTUNITIES

Take part in Canada's largest engineering exchange program. Expand your horizons and learn from other cultures by taking advantage of more than 80 exchange opportunities in 27 countries.

uwaterloo.ca/engineering/international

GRADUATE STUDIES: YOUR PROFESSIONAL EDGE

At Waterloo, you can tap into the world of graduate studies and speed up your academic career with the Accelerated Master's program. You'll take graduate-level courses and gain research experience before finishing your bachelor's degree! Plus, you'll shorten the time spent earning a master's degree by up to a year. Your dedication will impress employers and give you a greater depth of knowledge within a specialized field.

A CULTURE OF INNOVATION

Waterloo engineers are known for launching top technology ventures across the globe. Our policies, programs, funding opportunities, and culture all help support these innovators throughout their entire journey.

CAPSTONE DESIGN

Capstone Design is the culmination of the undergraduate student experience. Supported by numerous financial awards, these final year design projects require student teams to conceptualize and design a project related to their chosen discipline. Capstone also challenges student teams to push their own boundaries while applying the knowledge and skills learned in the classroom and on co-op work terms.

uwaterloo.ca/capstone-design

CO-OP: EARN AS YOU LEARN

100% of Waterloo Engineering and Waterloo Architecture students participate in co-op. The jobs you complete through co-op will put you on the fast track to a great career after graduation. You'll be able to try a variety of roles in different industries or, if you've already got a specific field in mind, you can focus your skills there and build expertise over multiple work terms – the experience is what you make it!

YOUR FIRST JOB

Presenting your knowledge and skills to an employer is an art. That's why we created Co-op Fundamentals for Engineering. Before you jump into the hiring process, you'll receive guidance on résumés, interviews, and our WaterlooWorks employment system.

CO-OP FOR ENTREPRENEURS

ENTERPRISE CO-OP

Enterprise Co-op (E Co-op) is exclusively offered at Engineering's Conrad School of Entrepreneurship and Business. The program enables entrepreneurial students to use a work term to start their own business. You'll gain full access to the University's entrepreneurial ecosystem – including mentors, awards, and networking opportunities – while earning a co-op credit.

BRIDGING ENTREPRENEURS TO STUDENTS (BETS)

This specialized co-op program – also offered through The Conrad School of Entrepreneurship and Business – brings together first-year co-op students and early-stage startups. BETS students have one week of focused workshops and seminar training, followed by a 12-week startup placement, giving you valuable, transferable employment skills.

LEARN TO NAVIGATE THE JOB MARKET BEFORE YOU ENTER IT

Grow your professional network, gain valuable experience, and move seamlessly into your career. Many co-op work terms result in immediate, full-time job opportunities after graduation.

93.4% of graduates were employed within six months of graduation

\$8,400–\$19,950 CAD

average earnings domestically in 2021

REAL-WORLD EXPERIENCES

JERIANN
NANOTECHNOLOGY ENGINEERING

“In each co-op job, I worked on cutting-edge technology, from 3D-printing circuits, to transparent OLED screens, to at-home hormone detection. When I first began my degree I didn’t think I would be directly contributing to the advancement of these types of products, but with each work term I practically applied my nanotechnology engineering class and lab theory to design, build, and improve products that are now used by people every day.”

HOW CO-OP WORKS

Alternate between school and work terms, supplementing academic study with high-quality, paid work. Your co-op schedule depends on your program. Here are the two primary Engineering streams, or co-op sequences:

YEAR	TERM	STREAM 4 (S4)	STREAM 8 (S8)
1	Fall	Study	Study
	Winter	Work	Study
	Spring	Study	Work
2	Fall	Work	Study
	Winter	Study	Work
	Spring	Work	Study
3	Fall	Study	Work
	Winter	Work	Study
	Spring	Study	Work
4	Fall	Work	Study
	Winter	Study	Work
	Spring	Work	Study
5	Fall	Study	Work
	Winter	Study	Study

PROGRAM STREAMS

PROGRAM	S4	S8
Architectural	*	
Biomedical		*
Chemical	*	*
Civil		*
Computer	*	*
Electrical	*	
Environmental	*	
Geological	*	
Management		*
Mechanical	*	*
Mechatronics	*	*
Nanotechnology		*
Software		*
Systems Design	*	

Many programs have unique variations on these standard streams. You can find all the details online.

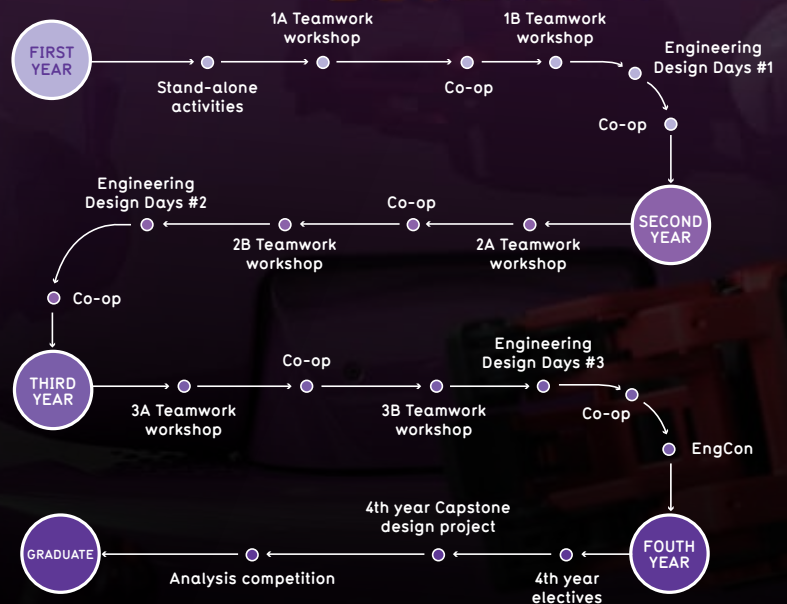
uwaterloo.ca/engineering/streams

DEGREE ENHANCEMENTS

uwaterloo.ca/engineering/programs-and-options

ENHANCE YOUR EDUCATION

Bring the real world into the classroom. Early experiential education is what makes Waterloo Engineering extraordinary. From first year to fourth year you'll be given real-world problems inside the classroom, providing you with practical skills and developing your critical engineering judgment. Engineering Design Days, Teamwork Training, and stand-alone activities are uniquely integrated into the curriculum across all disciplines and throughout your entire education.



ONE OPTION, ENDLESS POSSIBILITIES

Artificial Intelligence (AI) is changing our lives, transforming everything from how we communicate and interact to how we predict natural disasters and treat diseases.

Our AI degree option equips you with the technical skills to apply AI in virtually any industry, giving you a valuable edge.

ENGINEERING OPTIONS

Expand your perspective and gain unique expertise in another subject or career area. While specializations are offered based on your specific engineering discipline, the options below are open to all students within the Faculty. Options can be completed using elective courses either within or outside of your discipline.

- > Artificial Intelligence
- > Biomechanics
- > Computer Engineering
- > Computing
- > Entrepreneurship
- > Environmental Engineering
- > International Studies in Engineering
- > Life Sciences
- > Management Sciences
- > Mechatronics
- > Physical Sciences
- > Software Engineering
- > Statistics

uwaterloo.ca/engineering/options

MAKE IT OFFICIAL

Engineering options and program-specific specializations are recognized directly on your diploma upon graduation and help highlight your technical expertise to potential employers!

STUDENT SPACES

YOUR SPACE TO CREATE

Design,
prototype,
and develop.



● **THE IDEAS CLINIC**

In the IDEAs Clinic, you'll put your creativity to the test solving real-world problems. This unique learning space gives you hands-on experience through group activities. You could work to reverse-engineer engines, construct a brushless DC motor from scratch, or develop biomaterials.

uwaterloo.ca/engineering-ideas-clinic



● **DESIGN TEAM GARAGES**

Become part of a team working on launching rockets at international competitions, racing a concrete toboggan, or building a Formula One car. In the Sedra Student Design Centre, you'll get practical team experience and follow your passion for engineering.

uwaterloo.ca/student-design-centre



● **LABS**

With exceptional teaching and research facilities, we ensure our students have access to cutting-edge equipment and laboratories.



● **MACHINE SHOPS**

Discover fully-equipped facilities with a team who are ready to assist you with your class projects and design teams.



● **STUDIOS**

Studios, maker spaces, and facilities with laser cutters, 3D printers, CNC machines, and a range of high-end digital fabrication equipment will enhance your learning experience.

GET IN ON THE ACTION



ENGINEERING SOCIETY

“EngSoc is where I found my engineering family. Their first-year mentorship program helped to get me on the right track right away.”



PRIDE PARADE

“Once a year we march in the Toronto Pride parade, but every day we work to build an inclusive community.”



ORIENTATION

“That first week is really overwhelming, but Orientation helped me make friends fast as we all started the journey together.”



25+ student design teams with projects from solar cars to genetically engineered machines

17% of all varsity athletes are Engineering students

CANADA'S MOST ACTIVE STUDENT SOCIETY

The Waterloo Engineering Society (EngSoc) aims to promote a positive undergraduate experience. On top of providing academic, professional, and social support, EngSoc will represent your interests and opinions. In your first week of classes, you'll have access to EngSoc's résumé critiques and mock interviews from upper-year students. Throughout your time here, you'll also discover many EngSoc traditions: acting in theatre productions, hosting charity events, proudly wearing your coveralls, and celebrating the EngSoc mascot – The Tool (a giant wrench). There are endless ways to get involved.

A SUPPORTIVE COMMUNITY

The student-led and student-supported Waterloo Engineering Endowment Foundation (WEEF) provides funding each term to enhance lab equipment, purchase computer upgrades and other academic tools, and support student design teams. The First-Year Office also hires upper-year teaching assistants who dedicate a work term to teaching first-year students. They'll be available to help you with projects and assignments.

AN EMPHASIS ON DIVERSITY

At Waterloo we are committed to improving equity, diversity, and inclusion.

There are many student groups and peer support programs on campus that celebrate and advocate for diversity in all forms. This includes campus-wide initiatives like Racial Advocacy for Inclusion, Solidarity, and Equity (RAISE) and the Waterloo Indigenous Student Centre (WISC), as well as engineering-specific groups like the American Indian Science and Engineering Society (AISES), EngiQueers, the National Society of Black Engineers (NSBE), and Women in Engineering (WiE).

uwaterloo.ca/engineering/student-life



"WiE is a key support for women, trans and nonbinary students to confidently pursue careers in engineering."



"So proud to mark this Canadian Engineer rite of passage committing to our professional obligations; my iron ring is a reminder of that oath."



"We really get purple and celebrate on Engineering Day with inflatable games, yummy treats and a Dunk Your Prof Water Tank."

PROGRAMS



uwaterloo.ca/architectural-engineering

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ARCHITECTURAL
ENGINEERING
VIDEO



ARCHITECTURAL

CAREER POSSIBILITIES



Structural and architectural design projects



Retrofitting older buildings to be more environmentally friendly



Construction and design of net-zero buildings



Building performance consulting

A PERFECT HYBRID

This program combines world-class co-op opportunities, design-driven studio courses each term, and a year of study at Waterloo's School of Architecture in Cambridge.

Explore the science of design. Combine robust technical engineering and architectural thinking with a unique focus on communication, collaboration, and design. As an architectural engineer, you'll be equipped with the necessary tools to address some of society's most pressing issues, such as the impact of design choices on a building's energy efficiency and carbon footprint and the challenge of what to do with our aging buildings.

Graduates of this program will be full-fledged engineers, able to uniquely collaborate with architects and other key stakeholders on building projects. This program provides students with knowledge encompassing the whole scope of building design, construction, assessment, and refurbishment, plus the communication skills needed for leadership in the construction industry.

CIVIL

Develop solutions for a better tomorrow. Population growth, climate change, and aging infrastructure are some of the grand challenges that today's civil engineers tackle in the quest for smart cities and a sustainable future. As a civil engineer, you'll lead the creation, maintenance, and management of the large-scale infrastructure we all depend upon.

This is a degree with lots of flexibility; you'll have access to a wide range of electives, allowing you to customize your education to suit your interests and career goals. By the end of your degree, you'll be ready to design, analyze, construct, and manage everything from airports and skyscrapers to bridges, transportation networks, municipal water systems, and more.

uwaterloo.ca/cee/civil-engineering

SPECIALIZATIONS

- > Geotechnical engineering
- > Structural engineering
- > Transportation engineering
- > Water resources engineering

CAREER POSSIBILITIES



Construction engineering and management for infrastructure projects



Design of buildings, bridges, and underground networks



Planning and implementation of public transportation systems



Design of municipal water networks



PROGRAMS

CLOSE TO HOME

REBECA
RECENT ALUMNUS

You won't have to travel far to put your knowledge to work in the real world. With the largest group of environmental engineering professors in Canada and several unique bodies of water close at hand, you'll be able to learn from the best and quickly build your skills.

Rebeca argues this hands-on experience is the best part of the program. "In the labs, we are able to practise the concepts we have learned in class – this aspect is what helps us understand how to operate in the real world."

ENVIRONMENTAL

SCAN TO
WATCH THE
ENVIRONMENTAL
ENGINEERING
VIDEO



SPECIALIZATIONS

- > Pollutant treatment and control
- > Applied hydrology
- > Environmental energy systems

CAREER POSSIBILITIES



Design and management of water, air, and land treatment processes



Protection and revitalization of ecosystems



Public health engineering



Industrial sustainability and compliance

Create impact on a global scale. As climate change and resource scarcity accelerate at an alarming rate, it's critical that we design solutions that protect the planet we all call home. In this program, you'll gain the skills needed to design smarter water treatment and distribution, clean contaminated soil, or even prevent *E. coli* outbreaks. As an environmental engineer, you can help combat the unique and critical environmental challenges facing our natural and built structures.

The demand for cleaner, more resource-efficient production and consumption is growing faster than ever. At Waterloo, you can nurture your passion for sustainability, mathematics, and science and learn how to apply them to our built environment, water systems, atmosphere, and energy infrastructure. You'll develop the robust skills needed to lead and innovate smart environmental design in any sector.

uwaterloo.ca/cee/environmental-engineering

GEOLOGICAL

The world is your office. From some of the farthest corners of the Earth to the most tech-savvy environments, Geological Engineering offers adventure and the ability to make a difference. This program merges geoscience with innovative design to guide humanity's interaction with Earth materials and Earth system processes. You'll engineer smart and sustainable solutions for natural hazards, infrastructure design, and natural resource development, all while incorporating the latest innovations including integrated sensor technology, artificial intelligence for analyzing complex environmental and spatial data, and high-resolution satellite imagery to mitigate natural disasters.

Don't want to be stuck at a desk all day? You'll have the opportunity to examine geological processes first-hand through foundational field courses. Our experienced graduates are in demand in the fields of natural resource exploration, infrastructure, energy, natural disasters, and environmental assessment.

uwaterloo.ca/cee/geological-engineering

SCAN TO
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GEOLOGICAL
ENGINEERING
VIDEO



SPECIALIZATIONS

- > Geology
 - > Soil, rock, and structures
 - > Hydrogeology
-

CAREER POSSIBILITIES

-  Designing sustainable mines for critical materials
 -  Geotechnical consulting
 -  Earthquake and landslide risk assessment
 -  Resource exploration and risk management
-

DOUBLE THE OPPORTUNITY!

Geological Engineering grads can qualify for both the Professional Engineer (P.Eng.) and Geoscientist (P.Geo.) designations.

GEOHAZARD INVESTIGATION

LAKE PALCACOCHA, PERU

The chance to get outdoors and learn through hands-on field trips is one of the highlights of the Geological Engineering program. Trips can range from Northern Ontario to exotic destinations like Lake Palcacocha in the Peruvian Andes.

Due to climate change, this glacial lake has now become a geohazard. On this trip, students investigated the impact and risks that a potential outburst would have on the nearby city of Huaraz.

CHEMICAL

Unlock the future and realize unlimited possibilities! Lead the engineering disciplines in the solution of pressing global challenges in response to the United Nations' Sustainable Development Goals. As experts in the transformation of matter at a large scale, chemical engineers discover, design, and manage processes to enable a circular economy, producing practically everything, from vaccines and pharmaceuticals to renewable energy, fuels, and chemicals.

Study with our world-renowned researchers and award-winning instructors in labs equipped with cutting-edge technology. Graduate with a degree that affords a great deal of flexibility that can open up many exciting career paths in industry and government, all the while making a difference globally!

uwaterloo.ca/chemical-engineering



SPECIALIZATIONS

- > Chemical process modelling, optimization and control
- > Energy and environmental systems and processes
- > Materials and manufacturing processes

CAREER POSSIBILITIES



Design, manage, and control projects and processes



Develop and process environmentally sustainable polymers



Develop processes for pharmaceutical and food production



Develop and enhance renewable and conventional energy systems



Design processes to remove contaminants from wastewater



Harness energy from electrochemical reactions

NANOTECHNOLOGY

Why are nanotechnology engineers so valuable? Because every industry today requires their interdisciplinary knowledge and innovation. While learning about chemistry and chemical and electrical engineering, you'll explore your passions and realize the vast potential of the advanced materials needed for tomorrow's technologies. With the support of Waterloo's research and entrepreneurial ecosystems, you can bring your ideas to life. It's no coincidence that many of our students and alumni pursue life-changing research and create successful entrepreneurial ventures – their broad knowledge and ability to innovate in many areas is unique to nanotechnology.

Put yourself at the forefront of innovation by learning how to engineer solutions measured in billionths of a metre.

uwaterloo.ca/nanotechnology-engineering



**SCAN TO
WATCH THE
NANOTECHNOLOGY
ENGINEERING
VIDEO**

SMALL WORK, BIG IMPACT







Focus on the nanoscale as you attend classes and use state-of-the-art equipment in specialized labs at the Mike & Ophelia Lazaridis Quantum-Nano Centre. Hone your micro- and nano-fabrication skills in the cleanroom.

You'll start by learning the fundamentals of chemistry, physics, electrical engineering, and applied science. By graduation, you'll have the technical expertise in materials science, circuit design, micro- and nano-fabrication, and biotechnology to apply your knowledge and create innovative solutions to real problems.

AREAS OF STUDY

- > Nano-electronics
- > Nano-instrumentation
- > Nano-biosystems
- > Nano-engineered materials

CAREER POSSIBILITIES

-  Discover advanced energy-storage materials
-  Research and develop integrated circuit processes
-  Design and fabricate medical devices
-  Manufacture microelectronics
-  Formulate new pharmaceutical products
-  Support FinTech innovation through analytics and risk assessment



PROGRAMS

ELECTRICAL

Our modern world is built on electricity – learn to harness its power to create the next generation of electronics, sensors, and information networks. In the Electrical Engineering program, you can choose to specialize and gain advanced experience in power generation and clean energy, electric vehicles, Internet of Things, quantum computing, integrated circuit design, and machine learning. You'll learn from leading professors and get more hands-on experience in state-of-the-art labs than in any other engineering program. By graduation, you'll be armed with real industry knowledge and ready to jump into an in-demand and rewarding career.

AREAS OF STUDY

- > Control and robotics
- > Digital communication systems
- > Electronic devices, circuits, and systems
- > Energy distribution, motors/generators, power electronics, and energy marketing
- > Microwave (radio frequency) or photonic devices and systems
- > Networks and distributed computing
- > Signal processing

CAREER POSSIBILITIES



Design and fabrication of CPUs and GPUs



Creation of communications and wireless devices and networks



Design and maintenance of energy distribution systems

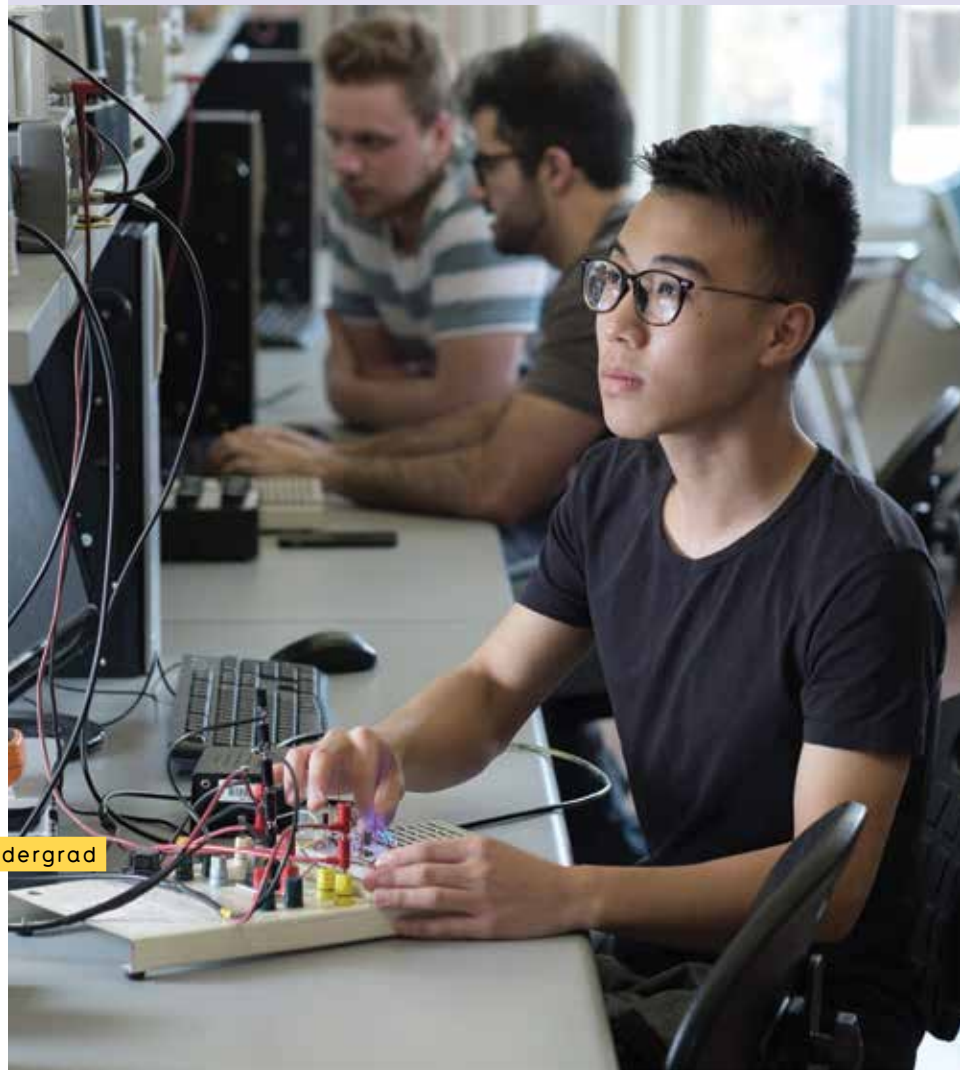


Development of medical and biochemical sensors and imaging systems

DISCOVER YOUR PASSION

With the largest group of electrical engineering professors in Canada, you'll have more upper-year electives to choose from.

uwaterloo.ca/ece/electrical-engineering-undergrad





COMPUTER





uwaterloo.ca/ece/computer-engineering-undergrad

Tech is one of the fastest moving industries and a pillar of modern society – in the Computer Engineering program, you'll learn to create and manage it. Become an expert in computer hardware-software interactions and create the computer systems that meet real-world performance needs. At Waterloo, you'll have access to multimillion-dollar labs where you'll gain experience with cutting-edge technologies, such as embedded systems and wireless technology. Thanks to a focus on design and a wide variety of upper-year electives, you'll stay ahead of the curve in an ever-changing industry and be able to apply your knowledge to a variety of advanced digital systems: enterprise software, automotive, aerospace, automation and robotics, networks and databases, health care, and security.

AREAS OF STUDY

- > Artificial intelligence
- > Computer architectures and embedded systems
- > Control and robotics
- > Networks and distributed computing
- > Signal processing and computational intelligence
- > Software design and architecture
- > Software security and embedded software

CAREER POSSIBILITIES

-  Design of embedded systems
-  Design of computer architecture
-  Full-stack software development
-  Development and analysis of application and embedded software



THE BEST OF BOTH WORLDS

Software Engineering benefits from world-renowned experts in our Department of Electrical and Computer Engineering and the Faculty of Math's David R. Cheriton School of Computer Science.

SOFTWARE

uwaterloo.ca/software-engineering

Solve real-world problems using algorithms. Use computer programming and engineering problem-solving to create usable, reliable, and efficient software. You'll develop in-depth technical skills in computer science while learning the fundamentals of computer hardware, giving you the ability to bridge the gap between people and machines through programming.

You'll learn how to develop software systems that ensure the reliability, performance, and usability demanded by today's industrial and business applications. You'll understand the importance of identifying and meeting user needs and optimizing a user's experience. As an added bonus, our program's focus on teamwork and collaborative learning will enhance your communication, business, and reasoning skills, preparing you for the workforce you'll encounter in co-op and after graduation.

CAREER POSSIBILITIES



Design of Internet-scale software systems



Development and analysis of application software



Development of programming tools



Software consulting

MANAGEMENT

Management engineers design and optimize processes in modern, data-driven organizations.

The program uniquely integrates knowledge and skills from advanced analytics and operations research, software and information systems, and organization science. You'll gain the experience and confidence to implement solutions to complex socio-technical and operational problems. This distinctive skill set is broadly applicable in a variety of industries, including software, finance, supply chain and logistics, manufacturing, and health care.

uwaterloo.ca/management-engineering

AREAS OF STUDY

- > Big data analytics
- > Operations management and optimization
- > Logistics and supply-chain management
- > Software and user experience (UX)
- > People, organizations, and technology

CAREER POSSIBILITIES



Operations analyst



Business analyst



Consultant



Project and product manager



Data engineer

OPTIMIZE OPPORTUNITY

MYLENE
RECENT ALUMNUS

The versatility within Management Engineering has provided Mylene the opportunity to work at EdTech startups from coast to coast, working as a technical project coordinator and project lead. These experiences, coupled with the Option in Entrepreneurship, equipped Mylene to create her own startup, Lumaki Labs, where she applies her skills to help employers streamline and scale their early-talent pipelines.



MECHANICAL

uwaterloo.ca/mme/mechanical-engineering-undergrad

Create systems that improve the world. In the Mechanical Engineering program, you'll get a hands-on experience from the beginning and become a skilled problem solver and mechanical system expert ready to build the technologies that improve society. You'll learn and use a broad, multidisciplinary set of skills – in areas such as control, materials, solid mechanics, and fluid and energy systems – while considering the impact of your work on the environment, public health, and available resources. Mechanical Engineering is a flexible program, setting you up for endless career possibilities.

AREAS OF STUDY

- > Fluid mechanics
- > Machine design and solid mechanics
- > Materials engineering and processing
- > Automation and control
- > Thermal engineering

CAREER POSSIBILITIES



Manufacturing and next-generation material design



Design of next-generation renewable energy systems



Engineering of automotive and aerospace systems



Development of robotic and biomechanical systems

MECHATRONICS

Use a multidisciplinary and systems-based approach to develop the intelligent electromechanical devices and integrated systems present in our daily lives – including smartphones, 3D printers, satellite systems, intelligent vehicle systems, and wearable devices. In Mechatronics Engineering, you'll combine the powerful elements of machines, electronics, machine learning, and software. You'll learn in the classroom, in hands-on labs, and during co-op work terms. Multi-faceted mechatronics grads are prepared for the integrated nature of real-world engineering.

uwaterloo.ca/mme/mechatronics-engineering-undergrad



CAREER POSSIBILITIES



Design and implementation of robotic-control systems



Design and creation of wearable devices



Development of next-generation additive manufacturing (3D printing) systems



Design and development of electric, hybrid, and autonomous vehicles

BIOMEDICAL

Engineer innovative solutions for health. Combine biology with applied sciences and engineering to solve health-related problems and develop tools for medical diagnosis, treatment, and prevention. In the Biomedical Engineering program, you'll develop knowledge in engineering fundamentals, physiology, and design. Hands-on labs will give you experience modelling, prototyping, and testing biomedical systems. You'll have a broad knowledge base, helping you communicate across the many areas of expertise used in this field. By graduation, you'll be ready to design and build tomorrow's innovative technologies and engineering solutions – from new diabetic monitoring and cancer-imaging systems to the latest sporting equipment.

SPECIALIZATIONS

- > Neural engineering
- > Sports engineering

CAREER POSSIBILITIES



Biomedical data analysis and machine learning



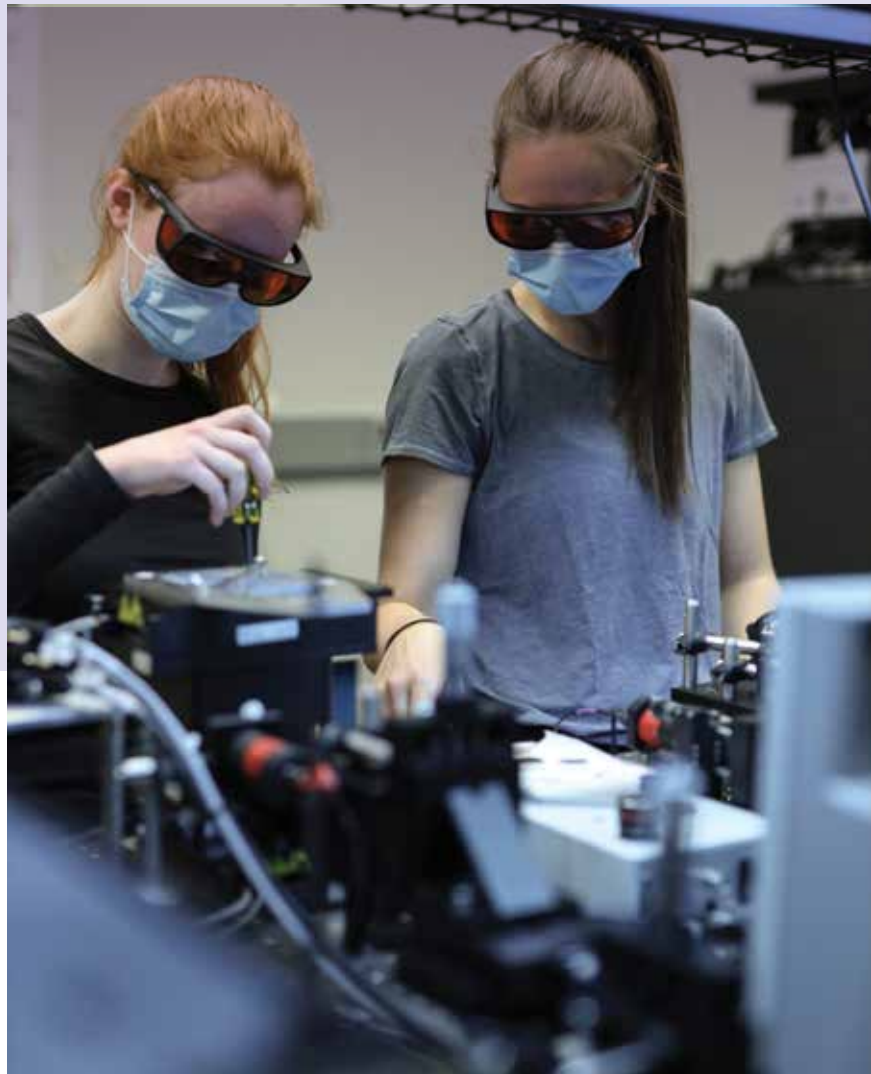
Research and development of medical devices



Design of sporting equipment



Development of pathology imaging systems



uwaterloo.ca/biomedical-engineering



SYSTEMS DESIGN

uwaterloo.ca/systems-design-engineering

AREAS OF STUDY

- › Human systems engineering
- › Intelligent systems
- › Societal and environmental systems
- › Systems modelling and analysis

CAREER POSSIBILITIES



Design and creation of wearable tech



Product design of medical devices



Machine learning and artificial intelligence



Human factors engineer

Enjoy unlimited innovation opportunities. Everything on our planet interacts – transportation networks, water resources, and ecology. How they interact is critical to solving global challenges. In Systems Design Engineering, you'll learn the fundamentals of several traditional engineering fields with an overarching focus on engineering design methodology and systems-driven thinking. You'll learn how to develop interdisciplinary solutions to small-scale and large-scale problems, putting you on the fast track to a career filled with many leadership opportunities. By graduation, you'll be ready to develop comprehensive, groundbreaking solutions for society's toughest engineering problems; think everything from health-care management to advanced cyber-physical security and energy systems.

PROGRAMS

SCHOOL OF ARCHITECTURE

Design our future. At Waterloo's internationally renowned School of Architecture, you'll design at all scales: from small prototypes to high-rises. You'll learn about architectural design, structures, materials, and sustainable practices and technologies.

Waterloo Architecture is located in a stunning location on Ontario's Grand River in the historic centre of Cambridge, a 35-minute drive from Waterloo's main campus. The building has all the tools to inspire you: design studios, computer labs, a library, and a fabrication lab and workshop. Top students choose our program for its integrated design curriculum, strong student body, award-winning professors, and international co-op experiences, as well as its unique cultural history stream and campus in Rome, Italy.

LOCAL AND GLOBAL ENGAGEMENT

You can work for distinguished international firms as early as second year, immerse yourself in history when partaking in the fourth-year Rome program, and learn about architects' key environmental roles both locally and globally.

uwaterloo.ca/architecture

AREAS OF STUDY

- > Architectural design
- > Cultural history and theory
- > Technology and environment
- > Urbanism and landscape
- > Visual and digital media

CAREER POSSIBILITIES



Architecture and urban design



World heritage and sustainable development



Construction industry and restoration



Landscape and regional planning

CONRAD SCHOOL OF ENTREPRENEURSHIP AND BUSINESS

Learn entrepreneurship. Entrepreneurs aren't just born – many of them are made at the Conrad School of Entrepreneurship and Business. At the Conrad School you can learn the vital lessons of entrepreneurship and business with our specialized courses and programs designed to complement and enhance your undergraduate degree. Our programs build upon Waterloo's reputation for excellence in experiential education to create high-impact learning experiences.

MORE TOOLS TO SUCCEED

Whether it's entrepreneurship or intrapreneurship, you will add valuable skills that are immediately applicable for startups or co-op terms. Plus, we are the only engineering school in Canada with its own embedded business school, so you have a distinct advantage if you want to start a venture or become a strategic thinker and decision-maker in a business.

PROGRAMS AND COURSES

- > Enterprise Co-op
- > Entrepreneurship Options in Engineering
- > Entrepreneurship Minor
- > Bridging Entrepreneurs to Students (BETS)
- > Business, Entrepreneurship, and Technology (BET) courses



YOUR PATH TO A MASTER'S

The Conrad School offers a Master of Business, Entrepreneurship and Technology (MBET) program focused on commercializing your ideas to build a venture. Offered in one-year full-time or three-year part-time formats.

uwaterloo.ca/conrad

ADMISSIONS

HOW TO APPLY

1. Apply online and pay application fees by February 1, 2023 for Engineering through the Ontario Universities' Application Centre (OUAC).
2. Watch for an acknowledgement email with your next steps and Waterloo ID number.
3. Submit all required documents by February 17, 2023.
4. Accept your Offer of Admission through OUAC and submit your Residence Guarantee Application Form with a deposit by June 1, 2023.

QUESTIONS?

enginfo@uwaterloo.ca

[uwaterloo.ca/engineering/
undergraduate-students/
application-process](https://uwaterloo.ca/engineering/undergraduate-students/application-process)

AN ADMISSION INFORMATION FORM (AIF) IS REQUIRED FOR ADMISSION

IT'S WORTH THE WAIT!

We take the time to learn all about you through the AIF and online video interview. This information is significantly factored into our admission decisions. That's why Engineering applicants often have to wait a little longer for an offer of admission.

ADMISSION REQUIREMENTS

	ONTARIO	OTHER CANADIAN PROVINCES AND TERRITORIES	INTERNATIONAL BACCALAUREATE	AMERICAN SYSTEM
Minimum Requirement	6 4U/4M courses	5 or 6 Grade 12 academic courses	6 IB courses at the Higher or Standard Level	6 senior academic courses, plus SAT or ACTs recommended
Architecture (Required Subjects)	English (minimum 75%)	English (minimum 75%)	English A1	English (minimum 80%)
	Physics	Physics	Physics (HL recommended)	AP Physics (or equivalent)
	Advanced Functions	Mathematics/ Pre-Calculus	Mathematics: Analysis and Approaches (HL recommended)	Pre-Calculus (Algebra)
Engineering Programs* (Required Subjects)	Calculus & Vectors	Calculus	-	AP Calculus (or equivalent)
	English	English	English A1	English
	Physics	Physics	Physics (HL recommended)	AP Physics (or equivalent)
	Chemistry	Chemistry	Chemistry	Chemistry
	Advanced Functions	Mathematics/ Pre-Calculus	Mathematics: Analysis and Approaches (HL recommended)	Pre-Calculus (Algebra)
Minimum Grades in Each Course	70%	70%	4 with minimum total of 32 (excluding Diploma points)	75%

*Applicants to Software Engineering must demonstrate experience in developing modular programs through courses, contests, projects, or employment. Programming experience is also recommended for all Engineering programs.

NOTE: For other countries or educational system requirements, visit us online.

uwaterloo.ca/future/requirements

TELL US MORE

uwaterloo.ca/engineering/aif

Are you an athlete or musician? Are you a leader or an entrepreneur? Do you have special skills or training from volunteer experience or work experience? Tell us what makes you uniquely qualified to be a Waterloo Engineer on the AIF. We review AIFs and use them to make informed admission decisions. Here's what you need to include:

- > Your alternate program choice for Engineering (the program you indicate on your OUAC application is your first choice)
- > Your extracurricular activities, awards, experiences, and interests

If you do not submit your AIF, you won't be considered for admission to Engineering.

ONLINE VIDEO INTERVIEW

This is your chance to showcase your ability to respond to questions in an interview setting. After being given a short amount of time to prepare for two questions, you'll have one chance to record each answer. The interview requires less than 20 minutes to complete. It's optional for admission but required for scholarship considerations.

uwaterloo.ca/engineering/online-video-interview



ARCHITECTURE ADMISSION PROCESSES AND TIMELINES DIFFER

Please refer to the School of Architecture website for detailed information

uwaterloo.ca/architecture/future-undergraduate-students

ADMISSION PROBABILITIES

ENGINEERING PROGRAMS	GRADE RANGE	PROBABILITY OF ACCEPTANCE
Biomedical, Software	95+	29%
	90-94	11%
	85-89	2%
Computer, Electrical, Mechanical, Mechatronics, Systems Design	95+	66%
	90-94	22%
	85-89	2%
Architectural, Chemical, Civil, Environmental, Geological, Management, Nanotechnology	95+	90%
	90-94	62%
	85-89	17%

- > Architecture uses a special admission process, so it is not included in this table.
- > Admission averages reflect the averages of Ontario secondary school students admitted during the 2022 admission cycle.
- > Admission averages do not include adjustment factors or other assessments.
- > The probabilities of acceptance for visa students and out-of-province students will often vary from those shown above based on the competitiveness of the applicant pool.

WHAT IF I REPEAT A COURSE?

Repeating a required course will result in a penalty of five per cent off your overall admission score. Seeing the material a second time will likely improve your grade, but it doesn't help you prepare for university.

WHAT IF I TAKE A SUMMER OR NIGHT SCHOOL COURSE?

Unless a suitable explanation is provided on your AIF, grades for courses taken outside of regular day school will be adjusted. This includes grades for summer courses and night school courses.

CAN I SWITCH TO ANOTHER ENGINEERING PROGRAM ONCE I'M ADMITTED?

Switching between engineering programs is challenging and rarely possible. Accepting an offer of admission should be done with the understanding that a future transfer may not be possible. Do not accept an offer of admission if your goal is to transfer programs.

ENGLISH LANGUAGE REQUIREMENTS

If English is not your first language and your four most recent years of full-time education have not been taught in English, you'll be required to submit a test of English language proficiency.

OPTION 1	OPTION 2	OPTION 3	OPTION 4	OPTION 5	OPTION 6
Internet-based TOEFL (iBT)	IELTS	CAEL	PTE (Academic)	Cambridge Assessment (C1 or C2)	Duolingo
90; 25 writing; 25 speaking	6.5 overall; 6.5 writing; 6.5 speaking; 6.0 reading; 6.0 listening	70 overall; 60 per band; 70 writing; 70 speaking	63 overall; 65 writing; 65 speaking	180 overall; 176 writing; 176 speaking; 176 reading; 176 listening	120 overall; subscore results must be submitted

uwaterloo.ca/future/elr

ENGLISH LANGUAGE SCORE A LITTLE LOW?

You may be eligible for admission through Waterloo's Bridge to Academic Success in English (BASE) program or intensive summer iBASE program.

uwaterloo.ca/future/base

FINANCING YOUR EDUCATION

PROGRAMS	ANNUAL EXPENSES	CANADIAN CITIZEN OR PERMANENT RESIDENT	INTERNATIONAL
Architecture	Tuition*	\$12,000	\$64,000
	Books/supplies	\$2,100	\$4,100
Engineering	Tuition*	\$18,000	\$66,000
	Books/supplies	\$2,100	\$4,100

*Additional costs include co-op fee (\$745).

Amounts shown are estimated based on 2021-22 figures. Exact amounts for 2023-24 will be available in July 2023.

ENTRANCE SCHOLARSHIPS

	REQUIREMENTS	AMOUNTS	SEPARATE APPLICATION?
Waterloo entrance scholarships	85% to 89.9%	\$1,000	No. Considered automatically.
	90% to 94.9%	\$2,000	
	95%+	\$2,000 Entrance Scholarship plus \$1,500 International Experience Award and/or \$1,500 Research Award*	
Engineering entrance scholarships	Demonstrated strength on the AIF, interview, and coursework.	\$1,000 to \$18,000	No. Considered automatically based on admission score.

*International Experience and Research Awards are available in upper years, should you choose to claim them. Students must complete their first-year courses with an 80% average.

uwaterloo.ca/future/scholarships

ACKNOWLEDGEMENT OF TRADITIONAL TERRITORY

The University of Waterloo acknowledges that much of our work takes place on the traditional territory of the Neutral, Anishinaabeg, and Haudenosaunee peoples. Our main campus is situated on the Haldimand Tract, the land granted to the Six Nations that includes six miles on each side of the Grand River.



Our greatest impact happens together

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Waterloo is committed to acting on the climate emergency and is working toward carbon neutrality and zero waste in our own practices. The paper this publication is printed on contains 100% post-consumer fiber, is manufactured using renewable energy and is Forest Stewardship Council® (FSC®) certified.