DISCOVER YOUR STORY IN COMPUTER SCIENCE
YOU + WATERLOO

Join a program with an international reputation. The David R. Cheriton School of Computer Science is the largest academic computer science research centre in Canada. With access to 16 research areas and deep connections to Canada’s growing tech sector, you’ll have the chance to pursue cutting-edge research and build your own entrepreneurial adventure, while taking courses taught by leading experts.

Let’s explore your story in the David R. Cheriton School of Computer Science.

#23 IN THE WORLD FOR COMPUTER SCIENCE
(2021 QS World University Subject Rankings)

#1 IN CANADA for computer science, mathematics, and engineering (Maclean’s 2021)
You’re in the Driver’s Seat

Ray
Honours Computer Science, Co-op

Ray arrived at Waterloo ready to make his mark and tackle every opportunity he could find. Things really took off when he saw a call for student applications for WATonomous, Waterloo’s first undergraduate student-run autonomous car team.

He put his coding skills to work and quickly earned top spot as Team Captain. His experience with WATonomous has illuminated a new passion: management. Ray’s future plans have expanded to include an MBA and consulting work, in addition to starting his own business. “If there’s any advice I would give to a first-year student, it’s to constantly search for and go after the many opportunities that Waterloo has to offer,” he reflects. “That’s how I’ve discovered what I want to do.”

More to Explore

Meet us online for more tips and stories:

Facebook: waterloo.math
Twitter: WaterlooMath
Instagram: waterloomath
CREATE REAL-WORLD CHANGE

It’s more than just theory and practice at the David R. Cheriton School of Computer Science. It’s about creating an impact that can change the world. Through a wide variety of courses, combined programs, and options, you’ll apply computer science to help solve today’s pervasive problems.

A DEGREE TAILORED TO YOU

With world-leading research, 70+ courses, and tons of options and electives to choose from, Waterloo offers a degree unique to your interests. From artificial intelligence to quantum computing, to cybersecurity and beyond, explore over a dozen in-demand research areas.

SUPPORT YOU CAN DEPEND ON

Making the leap to university is exciting but it can also be a big change. At Waterloo, we have the resources to help you succeed. Get academic support through the Computer Science Consulting Centre, academic advisors, and the Student Success Office. Professional and peer counselling services are also available whenever you need support with any aspect of life.

IN-DEMAND JOB SKILLS

Today’s employers look for strong technical skills and effective communication – we have you covered. After completing two communications courses, you’ll expand your knowledge and develop skills that will set you up for success.

uwaterloo.ca/math/communication-skills
Take your application to the next level.

Interested in applying to a computer science program at Waterloo? Here are some tips.

GET THE INSIDE SCOOP
Did you know Waterloo offers free, open courseware that can teach you new skills and supplement your programming knowledge? You have access to lessons designed by world-class instructors, interactive worksheets, and unlimited opportunities for practice!

uwaterloo.ca/mathematics-online-learning

BECOME A WARRIOR FOR A DAY
Experience the Waterloo difference firsthand! See our facilities, hear from our students, and get a taste of life as a Warrior, through a campus visit or from home. Check out our website for information on in-person and virtual tours, and follow us on Instagram @waterloomath.

TAKE THE CHALLENGE
You’re good at math, but do you really know how good you are? Test your problem-solving skills and have fun doing it by entering a math contest! It’s not mandatory, but it’s a great way to stand out from the competition – and you’ll need it to be considered for all Faculty of Mathematics scholarships. Find more information and contest dates on page 17.

› Algorithms and complexity
› Artificial intelligence
› Bioinformatics
› Computer algebra and symbolic computation
› Computer graphics
› Cryptography, security, and privacy
› Data systems
› Formal methods
› Health informatics
› Human-computer interaction
› Machine learning
› Programming languages
› Quantum computing
› Scientific computing
› Software engineering
› Systems and networking
COMPUTER SCIENCE
You’re unique – and we love that about you! Our Computer Science students focus their studies with upper-year courses that draw from our 16 unique research areas.

Take this opportunity to combine your skills and interests to create the right program for you.

Eve came to Waterloo because of the world-class Computer Science program, but she found her perfect blend after she got here. She’s combining her artistic talent with her love of programming in our Computational Fine Arts specialization. While gaining experience with deep learning and software engineering in her co-op roles, Eve gets creative by programming interactive works of art and still finds time to send home sketches she’s drawn of her family.

From machine learning to cybersecurity, you’ll explore how computer science is changing our world.

Using a combination of theory, practice, and application, you’ll develop a broad understanding of systems and networks, algorithms, and software engineering, with the opportunity to explore your interests through more in-depth areas of study. Be a part of solving real-world problems by applying mathematical and computer science skills in a wide variety of fields.

› Co-op or regular
› Earn your Bachelor of Computer Science (BCS) degree

BEYOND BASICS

Pursue your passion with our interdisciplinary specializations:

› Artificial Intelligence
› Bioinformatics
› Business
› Computational Fine Arts
› Digital Hardware
› Human-Computer Interaction
› Software Engineering

CAREER POSSIBILITIES

Software architect or developer

Business or risk modelling analyst
SOFTWARE ENGINEERING

New technologies are being developed every day, and software engineers are the driving force behind making these advancements more affordable, faster to build, and easier to maintain.

In Waterloo’s Software Engineering program, you’ll apply computer science and engineering principles and practices to design, create, and maintain computer software. Through project-intensive classes and co-op, you’ll learn to develop complex software systems that ensure the reliability, performance, and usability expected by today’s industrial and business applications. Through teamwork and collaboration, you’ll hone skills in communication, business, and strategy.

› Co-op only
› Earn your Bachelor of Software Engineering (BSE)

CAREER POSSIBILITIES

Full-stack or simulation software developer | Android developer

1,500+ technology companies in Waterloo Region means many co-op and employment opportunities
DISCOVERING DATA

MEAGAN
DATA SCIENCE, CO-OP

University is about discovery. Find your path at Waterloo! Meagan explored multiple program options before she found her perfect fit with Data Science. She’s now studying artificial intelligence, machine learning, and how to manage the exponentially growing data sets that we collect today.

“I think once I decided I wanted to do data science, my motivation and drive to succeed changed a lot. I’m really interested in the statistics behind things because I’ve done a lot of programming courses and I’ve taken stuff like artificial intelligence with a little bit of machine learning. It’s fun to write programs that do really cool things and solve problems. And it’s interesting to be able to understand why it works.”

DATA SCIENCE

2.5 quintillion bytes – that’s the amount of data people produce every day. Learn how every industry – from medicine, to business, to advertising and entertainment – is using this information to take data-driven approaches to strategic planning and decision making.

Dive into data science by taking courses in computer science and statistics to master the methods used to analyze large data sets. You’ll help predict future trends to improve medicine, public health, business strategy, products and services, marketing campaigns, and safety.

› Co-op or regular
› Earn your Bachelor of Computer Science (BCS) or Bachelor of Mathematics (BMath), apply to either program

CAREER POSSIBILITIES

Business analyst
Machine learning researcher/practitioner

DATA SCIENTIST NAMED SEXIEST JOB OF THE 21ST CENTURY
(Harvard Business Review)
BUSINESS ADMINISTRATION AND COMPUTER SCIENCE DOUBLE DEGREE

Combine the worlds of bytes and business in this program. In just five years, you’ll earn two degrees – a Bachelor of Computer Science degree from the University of Waterloo and a Bachelor of Business Administration degree from nearby Wilfrid Laurier University. Learn about software development, algorithms and data structures, and artificial intelligence, while sharpening your business acumen in brand communication, accounting, human resources, marketing, and finance.

› Co-op only

› Earn two degrees: your Bachelor of Computer Science (BCS) from Waterloo, and your Bachelor of Business Administration (BBA) from Laurier

2 FULL DEGREES in five years
Fintech (financial technology) is a trillion-dollar industry that needs professionals who have a unique skill set: a thorough understanding of complicated financial concepts and the technical knowledge needed to create software tools that solve complex problems.

Major in both computer science and finance to grow your skills for the ever-evolving fintech industry. Work with insurance companies, banks, or technology firms during co-op terms to develop your talents for the real world.

› Co-op only

› Earn your Bachelor of Computing and Financial Management degree

› Become a Chartered Financial Analyst (CFA). Your finance courses will prepare you to write Level 1 CFA exam as early as your fourth year.
EARN AS YOU LEARN
MAKE YOUR MARK

JONATHAN
COMPUTER SCIENCE, CO-OP

At Waterloo, you'll take on new challenges and make an impact through our renowned co-op program — the largest network of employers of any university in North America. Jonathan made his mark during a recent co-op term at one of Canada's largest food retailers. He was a back-end developer for online grocery ordering services that supported communities across Canada during the COVID-19 pandemic. He saw first hand how his education and co-op experiences will open a world of opportunities for him in the future.

“I've really enjoyed learning the coding and theoretical underpinnings and then getting to put that knowledge to work in my co-op terms. With the skills I've developed in classes and in my co-op terms, I could get a software engineering job, I could go to grad school, or I could even create my own tech startup.”

Get ahead of the competition with up to two years of work experience on your résumé when you graduate. Co-op is a great way to explore potential careers, build your network, master new skills, and earn a salary.

HOW CO-OP WORKS
You'll alternate between study terms and work terms. Computer Science has multiple study/work sequences available, which you will request during course selection.

The Centre for Career Action is there for you every step of the way — whether you choose co-op or regular. We can help with everything from polishing your résumé to developing your interview skills and offering advice as you navigate your career path.

uwaterloo.ca/co-operative-education

EXPERIENCE MATTERS
Waterloo pioneered the groundbreaking concept of co-operative education and is still a global leader.

TYPICAL POSITIONS INCLUDE:
› Bioinformatics database developer
› Data management officer
› Mobile/cloud developer
› Software engineer
› Software designer
› Software developer
› Web developer/architect

7,100+ employers across the globe
EXPERIENTIAL LEARNING

BRING YOUR LESSONS TO LIFE
BIG IDEAS, BIGGER REWARDS

ALYSSA, TRINITY, SUSAN, AND ANGIE
SAFELANE

Put your great ideas into action at Waterloo. Solve today’s problems by diving deep into data, pushing your programming skills to the limit, or hacking to help the world.

Alyssa, Trinity, Susan, and Angie met on campus and decided to take on Hack the Valley in their first year – and won! They created SafeLane, a web interface designed to protect drivers by helping them pick the safest route while on the road, which won them Best Mapping and Travel Hack. They tested their knowledge and expanded their skills to bring their idea to life, and it paid off.

“The hackathon was our first step into the real world, really seeing how to apply our knowledge and learn new things from mentors, and put it all into a great project,” says Alyssa.

Go beyond the classroom with experiential learning.

Our students are taking their technical skills beyond the classroom to show the world the power of computing. We’re the home of Hack the North, StarterHacks, WATonomous, The Data Open, ASA DataFest, iGEM, and more.

JUMPSTART INNOVATION

Waterloo is home to a thriving entrepreneurial community. If you have a brilliant idea that you want to develop, we’ll give you the resources and support you need to turn it into a reality.

YOUR IDEA COULD EARN YOU $5,000!

Our students are teaming up and pitching their innovative business ideas through our pre-incubator program, Concept.

#1 in Canada for experiential learning (Maclean’s Student Satisfaction Ranking – Comprehensive Universities 2021)
COMMUNITY

FIND BALANCE AT WATERLOO

Life is more than just work.

We want Waterloo to feel like a home away from home – so when you’re ready to put the books down to re-energize, there’s something for everyone. With more than 200 clubs and student groups on campus, you can meet new friends with similar interests.

“I love participating in Waterloo Women’s Impact Network events. It’s a wonderfully supportive community that discusses current topics and holds interesting talks for the network. I encourage every woman in math, and allies, to attend an event or become a member to see themselves represented and hear inspiring stories. Representation matters.”

— SOPHIE

“MathSoc hands out about 1,400 slices of pie on Pi Day. That’s a heck of a lot of pie! It’s a fun event to volunteer at because you get to meet so many Math students excited to celebrate.”

— ROSIE

“Not only did going to the gym help maintain my health, it also helped me beat some of the stress and take my mind off a lot of the work. It helps me get a clear head afterward.”

— RYAN

“CS 246 (Object-Oriented Software Development) is my favourite course as it’s the first deep dive into software development. I learned about designing, testing, and debugging programs and applicable, tangible skills like Git, Valgrind, and testing suites that I continue to use daily and on co-op.”

— KESHAV
“It’s really special to be a part of a group of people who are like me and are passionate about math and computer science in the same way I am.”

“What sets Waterloo apart is the focus not only on application, but also the theoretical skills needed to succeed. We’re encouraged to approach problems by understanding the theory behind them.”

“The Math CnD is one of my favourite places on campus! Most of my time between classes is spent there, grabbing a quick coffee, attending a board games night, or simply catching up with friends while working on assignments – the relaxed atmosphere is a welcome change from my usual study spaces.”

“Orientation Week is one of the most blissful parts of first year. While not in the itinerary, getting lost around campus, meeting new people, and sporadic game nights all frequently occurred. The real value of Orientation was the social aspect to meet new people from other programs and faculties.”

“My time with the Problem Lab, UW Data Science Club, and undergraduate research has been influential – expanding my CS academic exposure with the tenacity to execute my ideas and the experience to design rapid-prototyping processes for innovation.”
HOW TO APPLY

1. Apply online and pay fees through the Ontario Universities’ Application Centre (OUAC).
2. Watch for an acknowledgment email with your next steps and Waterloo ID number.
3. Submit any additional required documents, including your AIF, on time.
4. Accept your Offer of Admission through OUAC and submit your Residence Community Ranking Form and deposit.

For detailed info: uwaterloo.ca/math/future

AN ADMISSION INFORMATION FORM IS REQUIRED FOR ADMISSION!

Your Admission Information Form (AIF) is submitted through Quest after you complete your OUAC application. It includes questions about your extracurriculars and work experience. It’s your opportunity to tell us what makes you a unique and well-rounded student and will help us make admissions decisions.

2022 REQUIREMENTS

<table>
<thead>
<tr>
<th>PROGRAM (apply to)/ System of Study</th>
<th>REQUIRED COURSES Grade 12 U unless otherwise specified. Minimum requirements: 6 Grade 12 U or M courses, including all required courses</th>
<th>ADMISSION AVERAGE (includes required courses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Administration (Laurier) and Computer Science (Waterloo) Co-op</td>
<td>Advanced Functions, Calculus and Vectors, any 12 U English, one other Grade 12 U course, Admission Information Form</td>
<td>Individual selection* from the mid 90s</td>
</tr>
<tr>
<td>Computer Science Co-op or regular</td>
<td></td>
<td>Individual selection* from the low-to-mid 90s</td>
</tr>
<tr>
<td>Computing and Financial Management Co-op</td>
<td>Advanced Functions, Calculus and Vectors, any 12 U English (min 75%), one other Grade 12 U course, Admission Information Form</td>
<td>Individual selection* from the low-to-mid 90s</td>
</tr>
<tr>
<td>Software Engineering Co-op</td>
<td>Advanced Functions (min 70%), Calculus and Vectors (min 70%), Chemistry (min 70%), English (min 70%), Physics (min 70%), Admission Information Form, experience in developing well-structured modular programs is also required</td>
<td>Individual selection* from the low-to-mid 90s</td>
</tr>
</tbody>
</table>

*Individual selection refers to content submitted on the AIF. Admission decisions are strongly based on academic performance, but extracurricular activities and listed on the AIF and a good contest score (if applicable), are also taken into consideration.

IT’S WORTH THE WAIT!

In an effort to base our decisions on the most relevant grades possible, most Offers of Admission are made in mid-May. We base our final decisions on your interim or final grades in your admission average and your AIF. In some cases, a strong score on the CSMC and/or Euclid contest can also improve your chances of admission.

› Show us how you’re involved in activities outside of the classroom and in the world around you
› Demonstrate your ability to manage multiple activities and priorities while performing at a high level
› Use the “Additional Information” fields to highlight what’s special or different about your extracurriculars, awards, and/or employment
› Strongly consider writing our Euclid Math Contest, Canadian Senior Math Contest, and/or Canadian Computing Competition

TIPS
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 one of these English language test scores.

<table>
<thead>
<tr>
<th>Internet-based TOEFL</th>
<th>IELTS</th>
<th>CAEL</th>
<th>PTE (academic)</th>
<th>DUOLINGO</th>
<th>Cambridge Assessment (C1 or C2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 overall; 6.5 writing; 25 speaking</td>
<td>6.5 overall; 60 per band; 65 writing; 65 speaking</td>
<td>70 overall; 70 writing; 70 speaking</td>
<td>120 overall; 65 writing; 65 speaking</td>
<td>180 overall; 176 writing; 176 speaking; 176 reading; 176 listening</td>
<td></td>
</tr>
</tbody>
</table>

If you're applying to the Faculty of Mathematics and achieve an overall IELTS score of 7.0 (with no band score below 6.0), you meet the requirements needed for admission. Get deadlines and other details: uwaterloo.ca/future/elr

MATH/Bridge to Academic Success in English (Math/Base)

Strong applicants who need additional training to meet our English language requirements may receive an alternate offer of admission to Math/Base, instead of a direct offer of admission to the program they applied to. Find out more: uwaterloo.ca/base/math

CONTESTS

Get contest preparation resources, registration details, and deadlines: cemc.uwaterloo.ca

EUCLID MATHEMATICS CONTEST

While the Euclid Mathematics Contest is not required for admission, your participation is strongly encouraged and is an asset to your application. You must participate in the Euclid Contest or CSMC to be considered for a math entrance scholarship. The contest will be written in your high school in early April 2022.

CANADIAN SENIOR MATHEMATICS CONTEST (CSMC)

While the CSMC is not required for admission, your participation is strongly encouraged and is an asset to your application. You must participate in the CSMC or Euclid Contest to be considered for a math entrance scholarship. The contest will be written in your high school in mid-November 2021.

CANADIAN COMPUTING COMPETITION (CCC)

The CCC is not required for admission, but a high score may be an asset for admission to Computer Science programs. The CCC will be written in mid-February 2022.

FINANCING YOUR EDUCATION

When thinking about university, it's important to prepare a realistic budget for your first eight months (two terms).

- List your financial needs: tuition and other student fees, residence fees, books, supplies, and living expenses.
- List the financial resources available to fund your education: savings, RESP, and co-op earnings (if applicable).
- If you're eligible, augment your resources with scholarships, provincial financial aid (such as the Ontario Student Assistance Program), and a Waterloo Entrance Bursary.
- You pay only four months (one term) at a time.
- Participate in contests and apply for entrance scholarships.

ENTRANCE SCHOLARSHIPS

<table>
<thead>
<tr>
<th>Scholarships</th>
<th>Value</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>President's and Merit Scholarships</td>
<td>Scholarships ranging in value from $1,000 to $5,000 - awarded to all students who meet marks criteria</td>
<td>Based on marks: 85-89.9% - $1,000; 90-94.9% - $2,000; ≥95% - $2,000 (up to $5,000*).</td>
</tr>
<tr>
<td>Faculty of Mathematics Scholarships</td>
<td>Scholarships ranging in value from $10,000 to $25,000</td>
<td>Based on application, high academic performance, and outstanding extracurricular achievements</td>
</tr>
<tr>
<td>Faculty of Mathematics Entrance Scholarships</td>
<td>200 scholarships ranging in value from $1,000 to $15,000</td>
<td>Based on marks, AIF, Euclid Contest and/or CSMC score</td>
</tr>
</tbody>
</table>

*Entrance scholarship plus $1,500 International Experience Award and/or $1,500 Research Award. 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 it is situated on the Haldimand Tract, land granted to the Haudenosaunee of the Six Nations of the Grand River in the Haldimand Treaty of 1784. The Haldimand Tract and surrounding area, including our Stratford campus, is the traditional territory of the Attawandaron, Anishinaabeg, and Haudenosaunee.