The David R. Cheriton School of Computer Science has grown to become the largest academic computer science research centre in Canada. Here, you are in charge of your ideas. With 16 research areas and deep connections to Canada’s growing tech sector, you’ll have the chance to help uncover the newest research, and to venture out on your own entrepreneurial adventure while working alongside leading experts.

Computer Science has helped me to develop a great work ethic. It is sort of a tough love.

ANDRÉS
HONOURS COMPUTER SCIENCE

Waterloo offers an unique program called Student Life 101 for both local and international students. This program is all about helping you transition to university and starting off on the right foot.

For Andrés, it was the Student Life 101 program for international students that helped him feel comfortable during his first year.
When you choose the David R. Cheriton School of Computer Science, you’re choosing to study and work with inspiring thinkers at the world’s largest centre for mathematics and computer science. More than 3,200 undergraduate students are enrolled full time in our programs, led by our award-winning faculty.

**OUR WORLD-CLASS REPUTATION**

Computer Science programs at Waterloo have an international reputation for leadership and innovation in research and education.

**EDUCATION AT ITS BEST**

During your studies, you’ll choose from a large variety of courses, combined programs, and options to broaden your understanding of the science of computing. You’ll learn the theory, practice, and application of computer science to help solve today’s pervasive problems and change the world.

**FIRST YEAR CORE COURSES**

- Introductory Computer Science courses
- Algebra
- Calculus

**COMMUNICATION COUNTS**

Employers are looking for more than just technical skills when recruiting. Strong communication skills are becoming a top priority, and we’re doing everything we can to help you develop these skills in order to succeed academically and professionally.

Through small classes, you’ll complete 2 communication courses that will expand on your current skill set and prepare you for success.

[luwaterloo.ca/math/communication-counts](luwaterloo.ca/math/communication-counts)

**16 RESEARCH AREAS**

Explore these areas through course choices in your upper years of study:

- **Algorithms and Complexity**: Develop and study the methods behind fast searching, scheduling, and efficient data representation and manipulation.
- **Artificial Intelligence**: Gain theoretical and experimental knowledge of what makes computers able to act “intelligently.”
- **Bioinformatics**: Apply the latest computer science developments to biological data.
- **Computer Algebra and Symbolic Computation**: Use the power of computers to solve complex mathematical problems.
- **Computer Graphics**: Explore visual perception as you learn to create 3D imagery for entertainment and scientific visualization.
- **Cryptography, Security, Privacy**: Protect Internet users against a range of threats, while maintaining privacy and usability.
- **Data Systems**: Model, store, manage, search, and retrieve large collections of structured and unstructured data.
- **Formal Methods**: Use mathematical modelling and analysis to prevent errors during the software development process.
- **Health Informatics**: Apply computer science to enhance the delivery of health care.
- **Human Computer Interaction**: Combine psychology, physiology, and design principles to improve computer usability.
- **Machine Learning**: Understand and develop systems that use data to learn how to make predictions and decisions.
- **Programming Languages**: Design, implement, and execute computer languages.
- **Quantum Computing**: Design, study, and analyze algorithms for quantum computers.
- **Scientific Computing**: Develop fast and accurate numerical software for scientific, engineering, medical, and financial applications.
- **Software Engineering**: Build practical software for the real world.
- **Systems and Networking**: Develop software and techniques for today’s and tomorrow’s distributed and cloud computing environments.
Which program is right for you?

COMPUTER SCIENCE | BCS

Using a combination of theory, practice, and application, you'll develop a broad understanding of computer science in areas including systems and networks, algorithms, and software engineering, with the opportunity to explore more in-depth areas of study. Learn how to solve real-world problems by applying mathematical and computer science skills. Waterloo graduates can apply their broad and deep knowledge to many areas of computer science to provide solutions to a wide variety of fields.

CUSTOMIZE YOUR DEGREE: SPEAK WITH AN ADVISOR ABOUT ADDING AN OPTION TO YOUR PROGRAM

Design your own interdisciplinary program by choosing from one of our pre-tailored options below.

- Bioinformatics option: Learn how to solve important biological problems by applying large-scale computation and analysis to biological data.
- Business option: Understand the world of business with courses in accounting, marketing, economics, and management sciences.
- Computational Fine Arts option: Learn about art history, theory, and studio practice with a focus on applying your computer science skills to create computational works of art.
- Digital Hardware option: Learn more about the electrical engineering aspects of computer systems.
- Health Informatics option: Develop your skills in the health sector with courses that offer you a broad coverage of health studies, research methods, and business information systems.
- Human Computer Interaction option: Learn how people interact with computers and computational systems, and explore how to design and build systems that improve these interactions.
- Software Engineering option: Meet industry demands with a better understanding of the software engineering life cycle, processes, and methodologies.

LEARN how to program using Racket

approximately 100 students in a first-year class

SOFTWARE ENGINEERING | BSE, Co-op

Software Engineering applies computer science and engineering principles and practices to design, create, and maintain computer software. In a world where new technologies are developed every minute, software engineers are in demand for their ability to make software more affordable, faster to build, and easier to maintain. You'll instantly experience the benefits of Waterloo's program, which combines the university's strengths in computer science and computer engineering. You'll study courses offered by the David R. Cheriton School of Computer Science and the Faculty of Engineering. Through project-intensive classes and co-op, you'll learn to develop complex software systems that ensure the reliability, performance, and usability demanded by today's industrial and business applications.

You'll gain skills in communication, business, and reasoning and benefit from our focus on teamwork and collaboration.

BEYOND CODE

LEARN

125 first-year students

IBM

Be part of a cohort: You'll share all of your required courses and co-op terms with your classmates throughout your degree. Build study groups, future business partnerships, and friendships.

Explore entrepreneurship by taking courses to combine your technical background with business knowledge and skills.

uwaterloo.ca/conrad-business-entrepreneurship-technology

DATA SCIENCE | BCS

SECOND YEAR ENTRY

APPLY TO COMPUTER SCIENCE

Data Science is the study, application, and development of methods to understand, predict, and improve business strategy, products, and services, marketing campaigns, medicine, public health, and safety. These methods include elements of computer science and statistics.

Bachelor of Mathematics program also available
BUSINESS ADMINISTRATION AND COMPUTER SCIENCE DOUBLE DEGREE, BBA/BCS, Co-op

With this exclusively co-op program you’ll get both a full honours computer science degree (BCS) from Waterloo and a full honours business administration degree (BBA) from Wilfrid Laurier University’s Lazaridis School of Business and Economics. This program will allow you to meet the demands of today’s information-rich society with both computer science and business administration knowledge.

FOCUS YOUR STUDIES IN ONE OF THE FOLLOWING AREAS

Wilfrid Laurier University’s Lazaridis School of Business and Economics
- Accounting
- Entrepreneurship
- Finance
- Financial Planning
- Human Resource Management
- International Business
- Marketing Communications
- Marketing
- Supply Chain Management

David R. Cheriton School of Computer Science
- Algorithms
- Computer Organization
- Computer Programming
- Data Structures
- Fundamental Mathematics
- Operating Systems
- Social Implications of Computing
- Software Engineering

We recommend that you apply to both Waterloo and Laurier to maximize your chances of admission. The academic programs are identical, regardless of which university you call home.

COMPUTING AND FINANCIAL MANAGEMENT, BCFM, Co-op

In Computing and Financial Management, you’ll develop expertise in both computer science (using technology to solve real-world problems) and finance (the science of managing money). The financial industry needs professionals who understand complicated business and financial management concepts and know how to design and create the software tools that get the job done. Know both and you’ll be in demand.

If you’re thinking of a career in computer science but looking for that competitive edge, CFM can help you stand out in the marketplace. Combine your knowledge of finance and computer science with 6 co-op work terms and you’ll have the know-how, the networks, and the professional experience to become a future leader in the computer science and finance industries.

18 FROM MATH (including the David R. Cheriton School of Computer Science) with strong emphasis on computer science, mathematics, and statistics

18 FROM ARTS (including the School of Accounting and Finance) with strong emphasis on finance, accounting, and economics

A balanced education

40 COURSES

4 general electives

2 DEGREES in 5 years upon graduation

Scholarships, residence, and co-op are organized through your home institution
We know you play as hard as you work. At Waterloo you’ll be able to study what you love while keeping up with your favourite hobbies. Take a look at how some of our students spend their time.

8 A.M. Head to the Math Coffee and Donut shop to grab a coffee before class.

9:30 A.M. Check in with your friends in the computer science club office to see what events are happening this week.

11:30 A.M. Visit the Math and Computer comfy lounge after morning classes to catch up on some work before your afternoon tutorial.

2:30 P.M. Time to apply for co-op jobs on Waterloo Works.

5 P.M. Time for a quick club executive meeting before dinner.

7 P.M. Check out the HeForShe sponsored lecture on gender diversity in tech before heading home for the night.

Waterloo is home to both the Computer Science Club and the Women in Computer Science Committee. Both student-run organizations offer events, seminars, and opportunities to network with industry specialists.
My advice for students who are interested in a career in computer science: do a side project. Even if it fails, you will learn from the failure, and it will help prepare you for life after school.

VERONICA, BCS, BA ’16
DATA SPECIALIST, THALMIC LABS, KITCHENER, ON

VERONICA, BCS, BA ’16
DATA SPECIALIST, THALMIC LABS, KITCHENER, ON

#BEYONDIDEAS

Academic advisors are on hand to help you reach your academic, co-op, and career goals. Veronica worked closely with advisors to manage her course load, plan out each term, and find unique co-op jobs to ensure that she could be successful in reaching her goals. Now, Veronica uses both her Computer Science and Psychology degrees to research and collect data with scientific integrity while working for Thalmic Labs as a data specialist.

We’ll teach you how to harness your passion to create new ideas and tools in your field of choice. Here are a few examples of computer science graduates who are doing just that.

Joanna Ritchie
BCS 1993
Vice President, Emerging Technologies, SAP

Amjad Ashraf
BCS 2000
Senior Technology Consultant, United States Patent and Trade Office

Jonathan Robinson
BCS 2007
Software Development Manager, FlightNetwork.com

Kyle Lemoire
BCS 2012
Software Development Engineer, Microsoft

Salma Suliman
BCS 2012
Software Engineer, Google

Michelle Chen
BCS 2014
UX Designer, Dolby Laboratories
**ENGLISH LANGUAGE REQUIREMENTS**

If English is not your first language and your 4 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>Program</th>
<th>Required Courses</th>
<th>Admission Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Administration</td>
<td>Grade 12 English (90%), Calculus &amp; Vectors (65%), Chemistry (70%), Physics (70%)</td>
<td>English language test scores are required for admission to Math/ELAS. Students may be penalized on their Admission Information Form (AIF) score for repeated courses and required courses taken outside of regular day school.</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Grade 12 English (90%), Calculus &amp; Vectors (65%)</td>
<td>The AIF is to be submitted after applying through the Ontario Universities’ Application Centre (OUAC). The AIF includes questions about your extracurricular activities and work experience. Completion of an AIF is required for admission to all programs.</td>
</tr>
<tr>
<td>Computing and Financial</td>
<td>Grade 12 English (90%), Calculus &amp; Vectors (65%)</td>
<td>If you’re not offered admission to the program of your choice, you may be considered for other Mathematics programs. Participation in the Euclid and the Canadian Senior Mathematics Contests is strongly recommended.</td>
</tr>
<tr>
<td>Engineering</td>
<td>Grade 12 English (90%), Calculus &amp; Vectors (65%), Chemistry (70%), Physics (70%)</td>
<td>Regular takes less than 4 years to complete and you’ll have summers off between academic terms to work, study, or travel.</td>
</tr>
</tbody>
</table>

**CO-OP OR REGULAR?**

Not sure if you want to choose co-op? We’ve made it easy for you to compare the differences.

**REGULAR** — FAST TRACK TO GRADUATION

If you want to graduate sooner, to start your career or attend graduate school, then the regular system of study is an option for you. The Centre for Career Action can help you find a great summer job or make sure you’re on the right career path. Get the details: uwwaterloo.ca/career-action

**CO-OP — EARN AS YOU LEARN**

Through co-op you’ll have opportunities to explore potential career paths.

- You’ll make career contacts and pick up transferrable skills that will be an asset after graduation.
- Get the details: uwwaterloo.ca/co-op

**ENTRANCE SCHOLARSHIPS**

Through co-op you’ll have opportunities to explore potential career paths. You’ll make career contacts and pick up transferrable skills that will be an asset after graduation. Get the details: uwwaterloo.ca/co-op

**PICK THE STUDY/WORK SEQUENCE YOU PREFER**

In co-op, you’ll alternate study and paid work terms. The honours Computer Science program has multiple study/work sequences available. You will be able to choose your sequence when you make your course selections. This table shows a sample of the sequences that are available.

- Over 4,000 co-op employers worldwide
- $50,000–$120,000 potential earnings over 6 work terms

**ADMISSION NOTES**

- Admission decisions are based on your high school grade average, including required courses. Students may be penalized on their Admission Information Form (AIF) score for repeated courses and required courses taken outside of regular day school.
- The AIF is to be submitted after applying through the Ontario Universities’ Application Centre (OUAC). The AIF includes questions about your extracurricular activities and work experience. Completion of an AIF is required for admission to all programs.
- If you’re not offered admission to the program of your choice, you may be considered for other Mathematics programs.
- Participation in the Euclid and the Canadian Senior Mathematics Contests is strongly recommended.

**CONTESTS**

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

**CANADIAN COMPUTING COMPETITION (CCC)**

The CCC is not required for admission, but a high score may be an asset for admission to the Cheriton School of Computer Science programs. The CCC will be written on February 14, 2018.

**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 — more than 65% of our incoming class for Fall 2017 wrote the Euclid. The contest is required for Math Entrance Scholarship consideration. The contest will be written in your high school on April 11, 2018.