

# PROGRAM DETAILS

## THE FINER POINTS

### LEGEND

- ✳ Only offered at the University of Waterloo
- ⓔ Available online
- E = Entry-level program: apply directly through Ontario Universities' Application Centre (OUAC)
- M = Major: subject of major interest, apply through an entry-level program
- Sample courses
- ▲ Specializations
- Career possibilities

Use the program descriptions together with the admission charts to choose a program that suits your interests and academic strengths. Every program has minimum course and grade requirements you'll need to meet, so take your time, do your research, and always check the asterisks!

[uwaterloo.ca/future/programs](http://uwaterloo.ca/future/programs)

#### A / PAGE 41

- > Accounting and Financial Management
- > Actuarial Science
- > Anthropology
- > Applied Mathematics
- > Architectural Engineering
- > Architecture

#### B / PAGE 41

- > Biochemistry
- > Biology
- > Biomedical Engineering
- > Biomedical Sciences
- > Biostatistics
- > Biotechnology/Chartered Professional Accountancy
- > Business Administration (Laurier) and Computer Science (Waterloo) Double Degree
- > Business Administration (Laurier) and Mathematics (Waterloo) Double Degree

#### C / PAGES 41-42

- > Chemical Engineering
- > Chemistry
- > Civil Engineering
- > Classical Studies
- > **NEW!** Climate and Environmental Change\*
- > Combinatorics and Optimization
- > Communication Studies
- > Computational Mathematics
- > Computer Engineering
- > Computer Science
- > Computing and Financial Management

#### D / PAGE 42

- > Data Science

#### E / PAGES 42-43

- > Earth Sciences
- > Economics
- > Electrical Engineering
- > English
- > Environment and Business
- > Environment, Resources and Sustainability
- > Environmental Engineering
- > Environmental Science

#### F / PAGE 43

- > Fine Arts
- > French

#### G / PAGE 43

- > Gender and Social Justice
- > Geography and Aviation
- > Geography and Environmental Management
- > Geological Engineering
- > Geomatics
- > German
- > Global Business and Digital Arts

#### H / PAGES 43-44

- > Health Sciences
- > History
- > Honours Arts
- > Honours Arts and Business
- > Honours Science

#### I / PAGE 44

- > Information Technology Management
- > International Development

#### K / PAGE 44

- > Kinesiology
- > Knowledge Integration

#### L / PAGE 44

- > Legal Studies
- > Liberal Studies
- > Life Physics
- > Life Sciences

#### M / PAGES 44-45

- > Management Engineering
- > Materials and Nanosciences
- > Mathematical Economics
- > Mathematical Finance
- > Mathematical Optimization
- > Mathematical Physics (BMath)
- > Mathematical Physics (BSc)
- > Mathematical Studies
- > Mathematics
- > Mathematics/Business Administration
- > Mathematics/Chartered Professional Accountancy
- > Mathematics/Financial Analysis and Risk Management
- > Mathematics/Teaching
- > Mechanical Engineering
- > Mechatronics Engineering
- > Medicinal Chemistry
- > Medieval Studies
- > Music

#### N / PAGE 45

- > Nanotechnology Engineering

#### O / PAGE 46

- > Optometry

#### P / PAGE 46

- > Peace and Conflict Studies
- > Pharmacy
- > Philosophy
- > Physical Sciences
- > Physics
- > Physics and Astronomy
- > Planning
- > Political Science
- > Psychology (BA)
- > Psychology (BSc)
- > Public Health
- > Pure Mathematics

#### R / PAGES 46-47

- > Recreation and Leisure Studies
- > Recreation and Sport Business
- > Religious Studies

#### S / PAGE 47

- > Science and Aviation
- > Science and Business
- > Sexuality, Marriage, and Family Studies
- > Social Development Studies
- > Social Work
- > Sociology
- > Software Engineering
- > Spanish
- > Statistics
- > **NEW!** Sustainability and Financial Management\*
- > Systems Design Engineering

#### T / PAGE 47

- > Theatre and Performance
- > Therapeutic Recreation

**\*NOTE ABOUT NEW PROGRAMS:** Prospective students are advised that offers of admission to a new program may be made only after the University's own quality assurance processes have been completed and the Ontario Universities Council on Quality Assurance (OUCQA) has approved the program.

## A

### **\* ACCOUNTING AND FINANCIAL MANAGEMENT / FACULTY OF ARTS AND SCHOOL OF ACCOUNTING AND FINANCE**

(E, Bachelor of Accounting and Financial Management) Co-op only

Shape the future of business and communities by becoming a professional with expertise in business, accounting, and financial management. Lead change by applying and extending your learning with co-op, career specializations, and extra- and co-curriculars while working toward a Chartered Professional Accountant (CPA) and/or Chartered Financial Analyst (CFA) designation.

- Financial Accounting, Global Financial Markets, Business Analytics, International Business
- Accountant, auditor, investment banker

### **ACTUARIAL SCIENCE / FACULTY OF MATHEMATICS**

(M, Bachelor of Mathematics) Co-op available

Predict the future – without a crystal ball. In one of North America's top-ranked actuarial science programs, you'll use math and statistics to predict uncertain events such as stock market performance or an insurance company's payouts. Prepare for your professional actuary designation with courses in finance, risk theory, pensions mathematics, and more.

- Corporate Finance, Applied Linear Models, Investment Science
- Actuarial analyst, consultant, financial analyst

### **ANTHROPOLOGY / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

From Neanderthals to Gen Z, discover what it means to be human. Explore evolution and early societies, or tackle contemporary issues such as violence and media. Whether you're examining fossils and bones in the lab or conducting fieldwork in the Mediterranean, the Arctic, or Africa, you'll learn more about how the human race has evolved over time.

- Biological Anthropology; Skeletal Biology and Forensics; Archaeological Field School
- Archaeologist, curator of natural property, heritage planner

### **APPLIED MATHEMATICS / FACULTY OF MATHEMATICS**

(M, Bachelor of Mathematics) Co-op available

Apply your knowledge of mathematical concepts and computational tools to complex issues in areas such as communications engineering or climate change.

- Computational Methods for Differential Equations, Introduction to Mathematical Biology, Calculus of Variations
- ▲ Biology, Economics, Engineering, Physics, Scientific Computation
- Researcher, software developer, analyst

### **ARCHITECTURAL ENGINEERING / FACULTY OF ENGINEERING**

(E, Bachelor of Applied Science) Co-op only

Build better buildings (and a bright career in the process). In this program, you'll cover the science of good building design, including mechanics, building systems, structural analysis, and structural design – and round it out with courses in aesthetics, culture, and other design elements at our world-class School of Architecture.

- Structural Design Studio; History of the Built Environment; Architectural Graphics Studio; Electrical Circuits and Instrumentation
- ▲ Building Structures, Building Systems
- Building design consultant, project manager, designer, construction consultant

### **ARCHITECTURE / SCHOOL OF ARCHITECTURE** (E, Bachelor of Architectural Studies) Co-op only

Create the framework for a great career in one of North America's top schools of architecture. From day one, you'll have your own dedicated studio space to develop your ideas as you explore the relationship between architecture, technology, the environment, and society. In fourth year, study at our studio in Rome. Questions? Email [architecture@uwaterloo.ca](mailto:architecture@uwaterloo.ca).

- Design Studio; Introduction to Cultural History; Visual and Digital Media; Environmental Building Design; Building Construction; Digital Fabrication
- Architect, project manager, urban designer, industrial designer, sustainable development and heritage professional

## B

### **BIOCHEMISTRY / FACULTY OF SCIENCE** (M, Bachelor of Science) Co-op available

Play with the building blocks of life. Combine classroom courses in biology and chemistry with extensive lab work (where you'll learn things like chromatography, electrophoresis, and protein analysis). You'll graduate ready for careers in forensic science, pharmaceuticals, medical diagnostics, agriculture, biotechnology, and more.

- Fundamentals of Metabolism, Intro Analytical Chemistry, Genetics
- ▲ Biotechnology
- Toxicologist, biomaterials researcher, health care professional

### **BIOLOGY / FACULTY OF SCIENCE** (M, Bachelor of Science) Co-op available

Study life: it's in your DNA. With more than 80 courses available – including labs and fieldwork – this program gives you lots of opportunity to explore the functions of living organisms, where they come from, and how they evolve. You can also choose our Bioinformatics Option, combining biological analysis with computer science.

- Fundamentals of Microbiology, Principles of Human Physiology, Diversity of Life
- Biologist, veterinarian, environmental consultant, physician, pharmacist, optometrist

### **BIOMEDICAL ENGINEERING / FACULTY OF ENGINEERING**

(E, Bachelor of Applied Science) Co-op only

Create tomorrow's life-saving and life-enhancing innovations. In this interdisciplinary program, you'll study engineering principles in biology, mechanics, physics, systems analysis, and design. With plenty of hands-on experience in biological and medical systems, you'll graduate ready to develop new technology for health care or athletics.

- Introduction to Biomedical Design, Engineering Biology, Physiological Systems Modelling
- ▲ Neural Engineering, Sports Engineering
- Research and development of medical devices, biomedical data analysis, product design of sporting equipment

### **BIOMEDICAL SCIENCES / FACULTY OF SCIENCE**

(M, Bachelor of Science) Regular system of study only

Paging future doctors – and dentists and chiropractors and other health care professionals. This flexible program provides the foundation and experience required to succeed in virtually any professional health program in North America. Plus, it gives you room to add a minor or pursue a variety of personal interests to round out your degree.

- Human Anatomy; Introductory Developmental Biology and Embryology; Principles of Molecular Biology
- Dentist, optometrist, pharmacist, physician

### **BIostatistics / FACULTY OF MATHEMATICS** (M, Bachelor of Mathematics) Co-op available

Fight illness with a healthy dose of data. You'll focus on clinical, public, and population health statistics. You'll also take specialized upper-year courses, graduating with the strong data-based decision-making skills you need to be part of an effective health-care research team.

- Introduction to Biostatistics, Statistical Methods for Life History Analysis, Applied Linear Models
- Medical researcher, data analyst, biostatistician

### **\* BIOTECHNOLOGY/CHARTERED PROFESSIONAL ACCOUNTANCY / FACULTY OF SCIENCE AND SCHOOL OF ACCOUNTING AND FINANCE**

(E, Bachelor of Science) Co-op only

Spreadsheets plus science and paid co-op experience equals career success. This unique program prepares you for professional accountancy and advisory roles in the growing biotech sector. After graduation, earn your Master of Accounting (MAcc) degree in only eight months – an optional next step in becoming a Chartered Professional Accountant (CPA).

- Analytical Methods in Molecular Biology, Business Strategy, Fermentation Biotechnology
- Accountant, finance coordinator, analyst

### **\* BUSINESS ADMINISTRATION (LAURIER) AND COMPUTER SCIENCE (WATERLOO) DOUBLE DEGREE / DAVID R. CHERITON SCHOOL OF COMPUTER SCIENCE** (E, Bachelor of Business Administration and Bachelor of Computer Science) Co-op only

Combine the worlds of bytes and business – and earn two degrees in five years. In one of the top computer science programs in Canada, you'll learn about software development, algorithms and data structures, and artificial intelligence. At nearby Wilfrid Laurier University, you'll study business essentials like brand communication, accounting, and marketing.

- Designing Functional Programs; Understanding the Business Environment; Computer Organization and Design
- Business analyst, software engineer, application developer

### **\* BUSINESS ADMINISTRATION (LAURIER) AND MATHEMATICS (WATERLOO) DOUBLE DEGREE / FACULTY OF MATHEMATICS**

(E, Bachelor of Business Administration and Bachelor of Mathematics) Co-op only

Five years, two degrees, one serious edge. Combine Waterloo's strength in mathematics with the business expertise of Wilfrid Laurier University, and earn two prestigious degrees in the time it takes to earn one co-op degree. You'll graduate from one of Canada's most technical business programs with analytical and problem-solving skills that will set you apart.

- Financial Mathematics, Management Information Systems, Introduction to Optimization
- Securities trader, management analyst, corporate strategist

## C

### **CHEMICAL ENGINEERING / FACULTY OF ENGINEERING**

(E, Bachelor of Applied Science) Co-op only

Discover how to transform raw materials while putting your creativity and problem solving to the test. You'll learn to design, implement, and supervise the processes that transform fuel into energy, waste into resources, and raw materials into useful products in almost any industry: biotechnology, pollution control, green fuels, power storage, health care, food production, and more.

- Chemical Reaction Engineering, Electrochemical Engineering, Bioprocess Engineering, Air Pollution Control, Food Process Engineering, Process Optimization, Process Data Analysis
- ▲ Energy and Environmental Systems and Processes; Materials and Manufacturing Processes; Process Modelling, Optimization and Control
- Pharmaceutical design and production, microelectronics manufacturing, process systems engineering, process safety management

**CHEMISTRY / FACULTY OF SCIENCE** (M, Bachelor of Science) Co-op available

Fire up the Bunsen burners in one of Canada's top chemistry programs. You'll learn from leading experts in the industry, work with advanced chemical instrumentation in our labs, and participate in cutting-edge research. This program is accredited by the Canadian Society for Chemistry and the Chemical Institute of Canada.

- Multi-Component Analysis; Structure and Bonding; Introductory Quantum Mechanics

- ▲ Computational Chemistry, Biobased Chemistry

- Analytical chemist, chemistry patents agent, forensic scientist

**CIVIL ENGINEERING / FACULTY OF ENGINEERING**

(E, Bachelor of Applied Science) Co-op only

Make the world your sandbox in Canada's largest civil engineering program. Learn to design, construct, and manage the infrastructure we all depend on: bridges, highways, dams, pollution-control facilities, and more.

- Structure and Properties of Materials; Engineering and Sustainable Development; Civil Systems and Project Management

- ▲ Geotechnical, Transportation, Structural, Water Resources

- Design and construction of roadways, buildings, urban transportation, and water systems

**CLASSICAL STUDIES / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

Delve into the roots of Western civilization. Gain a deep understanding of history, culture, literature, religion, art, philosophy, and society in ancient Greece and Rome – cultures that continue to shape our thinking and our society today. Take advantage of study-abroad opportunities in the Mediterranean. Language courses are optional. Choose Classics or Classical Studies as your major (Classics includes learning Greek and Latin).

- Greek Art and Architecture; Astrology and Magic; Roman History

- Teacher, reference librarian, technical writer

**\* NEW! CLIMATE AND ENVIRONMENTAL CHANGE\* / FACULTY OF ENVIRONMENT** (E, Bachelor of Science) Co-op available

Get ready to tackle the world's biggest environmental crisis. Gain deep scientific knowledge in climate change, master practical tools like computer modelling, and hone the skills to build a low-carbon future. You'll combine classroom learning with hands-on experience in labs and fieldwork – and paid work experience through the co-op option.

- Physical Climatology; Earth's Future Climates; Ice Sheets and Glaciers

- ▲ Aviation, Economy and Society, Geomatics

- Climate modeller, climate risk scientist, policy analyst, carbon market analyst, renewable energy specialist, environmental consultant

**COMBINATORICS AND OPTIMIZATION / FACULTY OF MATHEMATICS** (M, Bachelor of Mathematics) Co-op available

Master two of math's most powerful techniques. Combinatorics focuses on finite structures, while optimization explores ways to make an operation more efficient. Through courses in cryptography, graph theory, and linear programming, you'll learn how to apply these ideas to problems in areas ranging from security to scheduling to risk analysis.

- Introduction to Combinatorics, Introduction to Optimization, Coding Theory

- Developer, operations research analyst, cryptographer

**COMMUNICATION STUDIES / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

In this exciting, highly interactive program, you'll explore how our everyday forms of communication create meaning and shape our perspective of the world. Through creative, collaborative, and critical engagement, you'll prepare for a career in public relations, broadcasting, teaching, or marketing. Choose Communication Arts and Design Practice as your major for a stronger emphasis on how meaning is created through creative digital design.

- Persuasion, Crisis Communication, Digital Presentations

- Strategic planning officer, communications officer, digital media coordinator

**COMPUTATIONAL MATHEMATICS / FACULTY OF MATHEMATICS** (M, Bachelor of Mathematics) Co-op available

Get ready to solve industrial-sized problems. In one of the world's top schools for math and computer science, learn to analyze data sets and formulae to better understand the world around us. You'll develop computer modelling skills to tackle mathematical problems found in business, economics, engineering, finance, medicine, and science.

- Data Structures and Data Management; Logic and Computation; Stochastic Simulation Methods

- Project manager, enterprise architect, software developer

**COMPUTER ENGINEERING / FACULTY OF ENGINEERING**

(E, Bachelor of Applied Science) Co-op only

Why choose? Develop software savvy and hardware know-how. Build and test computer hardware and software in our state-of-the-art labs. You'll work with everything from smartphones to massive engineered systems in networked environments. Plus, gain valuable work experience in Waterloo Region: a high-tech hub home to more than 1,500 technology companies.

- Systems Programming and Concurrency; Computer Networks; Computational Intelligence

- ▲ Communications and Signal Processing

- Full stack software development, embedded platform engineering, data analytics

**COMPUTER SCIENCE / DAVID R. CHERITON SCHOOL OF COMPUTER SCIENCE** (E or M, Bachelor of Computer Science or Bachelor of Mathematics) Co-op available

Earn a degree that computes. At one of the world's best schools for computer science, you'll develop a broad understanding in areas including systems and networks, algorithms, and software engineering. With 70+ computer science courses and loads of options and electives, you'll have lots of freedom to explore your interests. Questions? Email [future-ugrad@cs.uwaterloo.ca](mailto:future-ugrad@cs.uwaterloo.ca).

- Designing Functional Programs; Data Structures and Data Management; The Social Implications of Computing

- Software developer, web developer, business or risk modelling analyst

**\* COMPUTING AND FINANCIAL MANAGEMENT / SCHOOL OF ACCOUNTING AND FINANCE AND DAVID R. CHERITON SCHOOL OF COMPUTER SCIENCE** (E, Bachelor of Computing and Financial Management) Co-op only

Develop the know-how, networks, and experience to land a career in computer science or finance – or both. Combine your interdisciplinary studies with six co-op work terms in software development, banking, investments, risk management, or insurance to set yourself apart in a competitive marketplace. Questions? Email [cfm@uwaterloo.ca](mailto:cfm@uwaterloo.ca).

- Object-Oriented Software Development; Regression and Forecasting Methods in Finance; Equity Investments

- Software developer, quantitative analyst, investment banking analyst

**D****DATA SCIENCE / DAVID R. CHERITON SCHOOL OF COMPUTER SCIENCE** (M, Bachelor of Computer Science or Bachelor of Mathematics) Co-op available

Make sense of the tsunamis of data produced by business, scientific, and social activity. Develop the foundation in computing systems, data analytics, statistics, and machine learning you need to extract meaningful information from data. You'll graduate with the skills to predict trends and help governments and businesses make better decisions.

- Computer Organization and Design; Data Visualization; Data Structures and Data Management

- Data scientist, statistician, business analyst

**E****EARTH SCIENCES / FACULTY OF SCIENCE** (M, Bachelor of Science) Co-op available

Launch a career that rocks. Explore the world under your feet in close-knit classes and through field experiences led by professors known internationally for their geological and water research. You'll graduate ready to develop meaningful environmental protection plans, predict natural disasters, advance health standards for water, and more.

- Earth System Science, Petrography, Mineralogy

- ▲ Geology, Geophysics, Hydrogeology

- Hydrogeologist, geologist, geophysicist

**ECONOMICS / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

From piggy banks to the World Bank, learn how wealth is produced, distributed, and consumed – and how it shapes society, politics, and culture. You'll cover the fundamentals of micro- and macro-economics and analyze how those principles play out in a wide range of sectors, including finance, public policy, and international economics.

- Economics of Sport, Business Finance, Environmental Economics

- ▲ Econometrics, Finance, Public Policy

- Financial planner, marketing research manager, economist, financial analyst, international finance manager

**ELECTRICAL ENGINEERING / FACULTY OF ENGINEERING**

(E, Bachelor of Applied Science) Co-op only

Set yourself up for an electrifying future – explore electronic devices, control systems, and digital systems in some of North America's best electrical engineering student labs. By mastering the design principles required to build the latest technologies in power, information, and energy, you'll open the door to hundreds of possible careers!

- Semiconductor Physics and Devices; Power Systems and Smart Grids; Electromagnetic Fields and Waves

- ▲ Communications and Signal Processing

- Autonomous vehicle control, renewable energy development, sensor and actuator design

**ENGLISH / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

Go beyond emojis. Our 150+ undergraduate courses give you all kinds of opportunities to explore the written word. Examine English literature, language, and new media while honing your skills as a communicator. Choose one of three majors: Literature; Literature and Rhetoric; or Rhetoric, Media, and Professional Communication.

- Popular Potter, Introduction to Critical Game Studies, Global Shakespeare

- ▲ Creative Writing, Digital Media Studies, Global Literatures, Technical Writing, Communication Design

- Communications manager, media relations specialist, technical writer, publisher, social media strategist

**\* ENVIRONMENT AND BUSINESS / FACULTY OF ENVIRONMENT**  
(E, Bachelor of Environmental Studies) Co-op only

Eco-warrior, meet business mogul. The only program of its kind in Canada, this degree gives you in-depth knowledge of environmental issues and the business world. Cover everything from stakeholder engagement and industrial ecology to finance, project management, marketing, and more. Then, put it all into practice in co-op work terms.

● International Corporate Responsibility, Green Entrepreneurship, Business Finance

■ Sustainability analyst, environmental stewardship manager, environmental policy advisor

**ENVIRONMENT, RESOURCES AND SUSTAINABILITY / FACULTY OF ENVIRONMENT** (E, Bachelor of Environmental Studies) Co-op available

Become a sustainability superhero. Use insights from the natural, physical, and social sciences to help solve some of the world's biggest environmental challenges – from water scarcity to pollution to loss of biodiversity. Learn about conserving and restoring ecosystems, and explore issues in environmental politics, policy, and governance.

● Communities and Sustainability; Environmental and Sustainability Assessment; Ecosystem Assessment

■ Terrestrial and wetland biologist, sustainability policy analyst, sustainable energy consultant

**ENVIRONMENTAL ENGINEERING / FACULTY OF ENGINEERING**  
(E, Bachelor of Applied Science) Co-op only

Save the planet with a degree from Canada's largest environmental engineering program. Combine the technical rigour of engineering with a broad education in chemistry, biology, geology, and more. You'll graduate ready to clean up the world's water, soil, and air pollution – and to prevent future environmental problems.

● Air Quality Engineering; Environmental and Sustainability Assessment; Environmental Modelling

▲ Energy, Hydrology, Pollution Treatment and Control

■ Product design for air pollution control systems, process design for water treatment, protection and revitalization of ecosystems

**ENVIRONMENTAL SCIENCE / FACULTY OF SCIENCE**  
(E, Bachelor of Science) Co-op available

Earn a science degree. Protect the Earth. Ranked among the top 10 in Canada, this program gives you a scientist's perspective of ecological and geological systems. You'll graduate with the knowledge, creativity, and expertise to create a more sustainable world.

● Organismal and Evolutionary Ecology; Environmental Toxicology; Applied Wetland Science

▲ Ecology, Geoscience, Water Science

■ Geoscientist, ecologist, environmental consultant

**F**

**FINE ARTS / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

Explore the power of visual communication. Develop a critical understanding of art through painting, drawing, sculpture, printmaking, computer imaging, art history, and film studies. Choose Visual Culture or Studio Practice as your major. Want more? Add the Teaching Preparation Specialization to land a spot in teacher's college at Nipissing University.

● History of Film and Visual Media; Observational Drawing; Digital Imaging

▲ Teaching Preparation, Digital Art

■ 3D visual effects artist, illustrator, teacher, web designer, curator, interior designer, art therapist

**FRENCH / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

*Chez Waterloo, les possibilités sont infinies.* A French degree gives you a valuable edge in almost any field. Include a year of study in Québec or France, or live on the French-language residence floor on campus. And if you choose our French Teaching Specialization, you'll guarantee yourself a spot in teacher's college at Nipissing University.

● Introduction to Translation, Business French, Children's Literature in French

▲ Professional French; French Teaching; Intensive French and Francophone Literatures and Cultures

■ Director of international sales, immigration officer, translator, teacher

**G**

**GENDER AND SOCIAL JUSTICE / FACULTY OF ARTS**  
(M, Bachelor of Arts) Co-op available

Be an advocate for equity, justice, and positive change. Explore multi-layered marginalization and understand cultural patterns of oppression based on attributes such as gender, sexual orientation, race, and disability. Learn how you can contribute to building just and inclusive communities.

● Gender and Social Justice in Popular Culture; The Waves of Feminist Thought; Global Queer Cinema

■ Counselling coordinator, social worker

**\* GEOGRAPHY AND AVIATION / FACULTY OF ENVIRONMENT**  
(E, Bachelor of Environmental Studies) Regular system of study only

Take to the skies with Canada's largest university-level aviation program. You'll earn a degree from one of the country's top-ranked geography departments – plus your Commercial Pilot Licence. Between the classroom and the cockpit, you'll explore landforms, weather patterns, Geographic Information Systems (GIS), and more.

● Global Environmental Systems, Introduction to Geographic Information Systems, Professional Pilot Program Course

■ Pilot, first officer, flight training instructor

**GEOGRAPHY AND ENVIRONMENTAL MANAGEMENT / FACULTY OF ENVIRONMENT** (E, Bachelor of Environmental Studies) Co-op available

Join the movement, meet the moment. Explore how people shape our planet as you delve into Earth's physical and human systems and hone your technical skills in environmental analysis. Learn about climate change, landforms, population growth, Geographic Information Systems (GIS), and other key topics in one of Canada's top-ranked geography programs.

● Global Environmental Systems; Environment and Development in a Global Context; Earth's Future Climates

■ Environmental stewardship coordinator, sustainability consultant, teacher

**GEOLOGICAL ENGINEERING / FACULTY OF ENGINEERING**  
(E, Bachelor of Applied Science) Co-op only

Put your future on solid ground – and help the world do the same. You'll combine earth sciences with civil engineering to design smart foundations, mitigate and reduce losses during natural disasters, and contribute to sustainable resource development globally. Meanwhile, with a ton of field courses, you'll spend more time outside the classroom than in any other engineering program.

● Structural Geology, Applied Geophysics, Rock Mechanics

▲ Geology; Hydrogeology; Soil, Rock and Structures

■ Design of terrain sensors, hazard assessment of landslides and earthquakes, surface and subsurface infrastructure

**GEOMATICS / FACULTY OF ENVIRONMENT** (E, Bachelor of Environmental Studies) Co-op available

Geotag, you're it! Tap into Waterloo's world-class computer science expertise when you join this fast-growing field that combines the power of computing with geographic and environmental analysis. Learn to use tools such as remote sensing, computer mapping, GPS, and Geographic Information Systems (GIS) to analyze data and make meaningful decisions.

● Earth from Space Using Remote Sensing; Geodesy and Surveying; Geoweb and Location-based Services

■ Data analyst, GIS operator, remote sensing specialist

**GERMAN / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

Get an education that's *wunderbar*. We offer way more than just German language courses. Explore German culture, film, literature, and linguistics, or add classes in Slavic languages like Russian and Croatian. You can even earn credits studying in Germany. You'll graduate with valuable skills for careers in education, business, and government.

● German through Comics, German for Professional Purposes, German Filmmakers in Hollywood

■ Editor and communications manager, business analyst, sales manager

**\* GLOBAL BUSINESS AND DIGITAL ARTS / FACULTY OF ARTS**  
(E, Bachelor of Global Business and Digital Arts) Co-op only

Lead business into the future through the power of digital media. Explore cross-cultural communication and management, digital design, and emerging technologies. Spend your upper years at the Stratford School of Interaction Design and Business, and enhance your learning with co-op. Questions? Email stratfordprograms@uwaterloo.ca.

● Introduction to Digital Media Design; Marketing in the Digital World; Working in Teams and Project Management

■ User experience designer, social media manager, digital marketing specialist, project manager

**H**

**HEALTH SCIENCES / FACULTY OF HEALTH**  
(E, Bachelor of Science) Co-op available

It's true: an ounce of prevention is worth a pound of cure. Learn how to promote healthy lifestyles and improve health-care systems by combining the science and social aspects of health. You'll graduate ready to tackle global epidemics, transform public health policy, and more – or pursue further studies in medicine, epidemiology, or nursing.

● Principles of Pathobiology, Global Health, Epidemiology of Communicable Diseases

▲ Addictions, Mental Health, and Policy; Gerontology; Health Informatics; Health Research; Pre-Clinical

■ Health professional (e.g., medical doctor, nurse, epidemiologist, occupational therapist, midwife, genetic counsellor), research coordinator, health informatics consultant

**HISTORY / FACULTY OF ARTS** (M, Bachelor of Arts)

Co-op available

Develop a worldview that goes back centuries. With support from award-winning professors, you'll develop analytical skills and a knack for seeing patterns from the past that can make sense of the present and influence the future. Focus on Canadian, American, European, or international history.

- Rock 'n' Roll and US History; Russia: From Tsars to Putin; Indigenous Histories of Canada
- ▲ Digital and Public History; Global Interactions; International Relations; Revolution, War, and Upheaval
- Government affairs manager, executive researcher, lawyer, director of government relations

**HONOURS ARTS / FACULTY OF ARTS** (E, Bachelor of Arts) Co-op available

Pursue your passions. Shape your future. Explore a variety of subjects, or immerse yourself in one of 29 Arts majors. Choose to add co-op and get up to 20 months of paid work experience before you graduate. Refer to your specific major of interest (M) for more details. Also offered at St. Jerome's University and Renison University College, smaller academic communities on Waterloo's campus.

**HONOURS ARTS AND BUSINESS / FACULTY OF ARTS** (E, Bachelor of Arts) Co-op available

Combine valuable business studies with one of 29 Arts majors. Opt for co-op and gain nearly two years of paid work experience. Refer to your major of interest (M) for details. After applying, you may co-register with St. Jerome's University or Renison University College, smaller academic communities on Waterloo's campus.

**HONOURS SCIENCE / FACULTY OF SCIENCE** (E, Bachelor of Science) Regular system of study only

Deciding is difficult. If you're still exploring the sciences that intrigue you most, Honours Science is a brilliant choice. You'll have the flexibility to take the courses you want or hand-pick the ones you need, which is convenient if you plan to apply to a professional school with prerequisite course requirements.

- Fundamentals of Microbiology, Modern Physics, Geochemistry
- Physician, optometrist, pharmacist, genetic counsellor, teacher

**INFORMATION TECHNOLOGY MANAGEMENT / FACULTY OF MATHEMATICS** (M, Bachelor of Mathematics) Co-op available

Become fluent in IT talk and business jargon. Combine computer science studies in systems analysis, e-business, and networks with business courses such as marketing, project management, and statistics. You'll graduate with the ability to apply IT solutions to business processes and bridge the gap between CEO and computer specialist.

- Management Information Systems, Electronic Business, Computer Applications in Business: Databases
- Business systems analyst, web developer, database administrator

**INTERNATIONAL DEVELOPMENT / FACULTY OF ENVIRONMENT** (E, Bachelor of Environmental Studies) Regular system of study only

Get the toolkit you need to build a better world. Tackle issues of economic inequality, social injustice, and environmental change, and apply your skills on an eight-month overseas placement. You'll graduate knowing how to design development projects that are ethical, environmentally sustainable, culturally responsible, and evidence-based.

- Problem-Solving for Development, Global Cities in Global Development, Introduction to Social Entrepreneurship
- Not-for-profit program manager, international partnership manager, grant officer

**K****KINESIOLOGY / FACULTY OF HEALTH** (E, Bachelor of Science) Co-op available

Make a smart play: study the science of human movement. In this multidisciplinary program, you'll gain hands-on skills in preventing, assessing, and treating movement-related illness and injury (and study anatomy on real human cadavers!). Choose from four specializations to prepare for a career or professional programs like medicine, chiropractic, or physiotherapy.

- Human Anatomy; Fundamentals of Neuroscience; Musculoskeletal Injuries in Work and Sport
- ▲ Ergonomics and Injury Prevention, Human Nutrition, Medical Physiology, Rehabilitation Sciences
- Health professional (e.g., medical doctor, physical therapist, occupational therapist, athletic therapist, kinesiologist, chiropractor), ergonomist, clinical research associate, exercise physiologist

**\* KNOWLEDGE INTEGRATION / FACULTY OF ENVIRONMENT** (E, Bachelor of Knowledge Integration) Regular system of study only

Pursue all your passions. More than a mix of arts and science, this program is built around a core set of skills that equip you to understand and solve tough problems, communicate effectively, and make a difference in a complex and changing world. Choose a traditional specialization or create one that is uniquely yours.

- Collaboration, Design Thinking, and Problem Solving; Nature of Scientific Knowledge; Creative Thinking
- ▲ Collaborative Design; Science, Technology, and Society
- Business analyst, design strategist, user experience researcher, lawyer, physician

**L****LEGAL STUDIES / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

Judge the impact of the legal system (no gavels required). Explore the law and courts from the viewpoint of political science, history, sociology, philosophy, and peace and conflict studies. Because law touches almost every aspect of society, this degree is great preparation for a career in government, business, law enforcement, or the law itself.

- Criminology; Women and the Law; Children's Rights in Canada
- Legal assistant, records clerk, executive researcher, probation and parole officer, lawyer

**LIBERAL STUDIES / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

Who says you can't have it all? With Liberal Studies, explore different subjects in the humanities, social sciences, languages and cultures, and fine and performing arts – plus courses you'd like to take from some of Waterloo's other faculties.

- Introduction to Microeconomics, Conflict Resolution, Basic Human Resources Management, Introduction to Legal Studies
- Publisher, digital marketing specialist, teacher, human resources manager, library technician

**LIFE PHYSICS / FACULTY OF SCIENCE** (M, Bachelor of Science) Co-op available

Rocket science, meet medical science. Prepare for professions such as radiation oncology and medical imaging that harness the power of physics. This flexible, interdisciplinary program gives you a solid foundation in physics, chemistry, and biology, with plenty of hands-on labs and opportunities to get involved in research.

- Geometrical and Physical Optics; Modelling Life Physics; Molecular and Cellular Biophysics
- ▲ Biophysics, Medical Physics
- Medical physicist, physician, biophysicist

**LIFE SCIENCES / FACULTY OF SCIENCE** (E, Bachelor of Science) Co-op available for some majors

If you want to study the science of living things, this is your starting point. Apply to this entry program to study these majors (M) starting in first year: Biochemistry, Biology, Biomedical Sciences, or Psychology. Refer to your major of interest (M) for details.

**M****\* MANAGEMENT ENGINEERING / FACULTY OF ENGINEERING** (E, Bachelor of Applied Science) Co-op only

Be the one who always knows the best path forward. You'll study industrial engineering principles, advanced data analytics, mathematical modelling, and computer programming to optimize processes in any organization. You'll become an invaluable asset to employers, solving complex technical and management problems in a variety of industries.

- Advanced Machine Learning; Principles of Software Engineering; Deterministic Optimization Models and Methods; Supply Chain Management; Decision Support Systems
- Data scientist, business intelligence analyst, technical product manager

**MATERIALS AND NANOSCIENCES / FACULTY OF SCIENCE** (M, Bachelor of Science) Co-op available

Tiny subject matter. Huge opportunities. Discover how to manipulate individual atoms and molecules, applying chemistry and physics at the nanoscale. There's no better place to learn than in Canada's Quantum Valley. You'll graduate with the tools and knowledge to work at the forefront of innovation, in fields like renewable energy and nanomedicine.

- Materials and Nanosciences in the Modern World; Chemistry and the Solid State; Biomaterials
- Materials scientist, nanotechnologist, materials process specialist

**MATHEMATICAL ECONOMICS / FACULTY OF MATHEMATICS** (M, Bachelor of Mathematics) Co-op available

Do the math that underpins economies. Learn about the mathematical models that drive economic theory and how to use differential calculus, differential equations, and mathematical optimization to understand and predict economic behaviour. You'll graduate ready for a career with banks, government, or industry, or for a master's or doctoral program.

- Introduction to Microeconomics, Advanced Macroeconomics, Differential Equations for Business and Economics
- Business analyst, econometrician, consultant

**MATHEMATICAL FINANCE / FACULTY OF MATHEMATICS** (M, Bachelor of Mathematics) Co-op available

Study equations that include dollar signs, and join other elite math students in one of the world's most advanced undergrad finance programs. You'll explore the math behind financial markets, study corporate finance, quantitative risk management, statistical forecasting, and more – everything you need for a high-flying career in banking and finance.

- Introduction to Investments, Forecasting, Real Analysis
- Controller, compliance analyst, investment policy analyst

**MATHEMATICAL OPTIMIZATION / FACULTY OF MATHEMATICS**

(M, Bachelor of Mathematics) Co-op available

Find solutions to resource scarcity issues, from streamlining sports team schedules to making factories more efficient. You'll study mathematical modelling in your optimization, probability, statistics, and computer science courses and hone your skills with case studies. Then round out your degree with business, economics, and management science.

● Introduction to Computational Mathematics, Stochastic Simulation Methods, Portfolio Optimization Models

▲ Business, Operations Research

■ Business analyst, information technology architect, risk analyst

**MATHEMATICAL PHYSICS / FACULTY OF MATHEMATICS**

(M, Bachelor of Mathematics) Co-op available

Master advanced math to decode everything from the cosmos to quantum computing. You'll study high-level math and physics at Canada's only faculty of mathematics and one of Canada's most innovative departments of physics. Then choose a career in the semiconductor industry, telecommunications, or medical technology – or go on to graduate studies.

● Waves, Electricity and Magnetism; Introduction to Theoretical Mechanics; Quantum Theory

■ Operations specialist, information technology architect, software modeller

**MATHEMATICAL PHYSICS / FACULTY OF SCIENCE**

(M, Bachelor of Science) Co-op available

Dig deeper into physics with a serious helping of math. Take advantage of Canada's only faculty of mathematics and one of Canada's most innovative departments of physics to explore both subjects in depth. It's great grounding for careers involving anything from the theoretical foundations of quantum technology to the nature of the universe.

● Differential Equations for Physics and Chemistry; Quantum Theory; Classical Mechanics and Special Relativity

■ Theoretical physicist, data scientist, quantitative analyst

**MATHEMATICAL STUDIES / FACULTY OF MATHEMATICS**

(M, Bachelor of Mathematics) Co-op available

Choose your own adventure! You're looking for a degree that covers the full spectrum of math. We're one of the world's top centres for math and computer science. Together, we're a logical match! Waterloo's most flexible math program allows you to study algebra, calculus, combinatorics, computer science, number theory, statistics, and more.

● Mathematical Discovery and Invention, Introduction to Mathematical Biology, Coding Theory

■ Software or database specialist, banking executive, public service analyst

**MATHEMATICS / FACULTY OF MATHEMATICS**

(E, Bachelor of Mathematics) Co-op available

Earn a degree that counts! Apply to Mathematics to study any of the following math majors (M): Actuarial Science, Applied Mathematics, Biostatistics, Combinatorics and Optimization, Computational Mathematics, Data Science, Mathematical Economics, Mathematical Finance, Mathematical Optimization, Mathematical Physics, Mathematical Studies, Mathematics/Teaching, Pure Mathematics, and Statistics.

**MATHEMATICS/BUSINESS ADMINISTRATION / FACULTY OF MATHEMATICS**

(E, Bachelor of Mathematics) Co-op available

It's a simple equation: math + business = career success. Build your degree with courses from two prestigious institutions: math courses from Waterloo's Faculty of Mathematics and business courses from nearby Wilfrid Laurier University. You'll graduate with the technical expertise and analytical know-how to thrive in the world of business.

● Corporate Finance, Introduction to Managerial Accounting, Organizational Behaviour

■ Operations manager, risk modelling analyst, investor relations specialist

⊛ **MATHEMATICS/CHARTERED PROFESSIONAL ACCOUNTANCY / FACULTY OF MATHEMATICS AND SCHOOL OF ACCOUNTING AND FINANCE**

(E, Bachelor of Mathematics) Co-op only

Really understand the numbers. In this one-of-a-kind program, you'll earn a Bachelor of Mathematics as you prepare for a career as a Chartered Professional Accountant (CPA). You'll acquire a strong background in the mathematical field of your choice, along with equally focused studies in accounting, economics, and business.

● Introduction to Financial Accounting, Cost Management Systems, Corporate Finance

■ Accountant, controller, auditor

⊛ ⊕ **MATHEMATICS/FINANCIAL ANALYSIS AND RISK MANAGEMENT / FACULTY OF MATHEMATICS**

(E, Bachelor of Mathematics) Co-op available

Crunch numbers, calculate odds, and create career success in this challenging program – one of just a few across Canada recognized by the CFA Institute and PRMIA. You'll combine mathematics with finance, accounting, economics, and risk management. Specialize in chartered financial analysis or risk management, and graduate ready for your professional exams.

● Computational Methods in Business and Finance; Applied Linear Models and Process Improvement for Business; Commercial and Business Law for Mathematics Students

■ Financial analyst, risk analyst, investment analyst

**MATHEMATICS/TEACHING / FACULTY OF MATHEMATICS**

(M, Bachelor of Mathematics) Co-op only

Inspire the next generation as a high school math teacher. Combine your math, statistics, and computer science courses with eight months of classroom experience – more than any other Bachelor of Education preparatory program in Canada – before you apply to teachers' college. Want to do some of your learning overseas? Opt for our four-month Math in Europe program.

● Introduction to Mathematics Education; Educational Psychology; Mathematical Discovery and Invention

■ Teacher, online learning consultant, instructional media developer

**MECHANICAL ENGINEERING / FACULTY OF ENGINEERING**

(E, Bachelor of Applied Science) Co-op only

Put your career in gear. This program gives you a broad foundation in all aspects of mechanical design – and lots of opportunities to get your hands dirty in our well-equipped labs. You'll study factors like the environment, safety, manufacturing, and materials, so you'll graduate with the knowledge to design everything from switches to spacecrafts.

● Aerodynamics, Industrial Metallurgy, Electromechanical Devices and Power Processing, Heat Transfer

■ Design of aerospace accessories, manufacturing of wind turbines, research and development in automotive technologies

**MECHATRONICS ENGINEERING / FACULTY OF ENGINEERING**

(E, Bachelor of Applied Science) Co-op only

Build the next generation of "smart" machines, emergency response drones, and driverless cars. You'll combine mechanical, electrical, computer, and software engineering to develop robots, intelligent vehicles, and more. With co-op and labs starting in first year, you'll gain lots of experience creating sophisticated electro-mechanical devices.

● Sensors and Instrumentation, Microprocessors and Digital Logic, Structure and Properties of Materials

■ Manufacturing and programming of robotic devices, design of biomedical instruments, design and creation of wearable technology

**MEDICINAL CHEMISTRY / FACULTY OF SCIENCE**

(M, Bachelor of Science) Co-op only

Explore the exciting science of drug discovery. You'll take courses in computer-aided drug design and gain valuable work experience in places like pharmaceutical companies and hospitals. By graduation, you'll understand how to design, synthesize, and evaluate potential medications – ready to create the life-saving treatments of tomorrow.

● Chemical Kinetics; Transition Element Compounds and Inorganic Materials; Fundamentals of Metabolism

■ Medicinal chemist, research chemist, synthetic chemist

**MEDIEVAL STUDIES / FACULTY OF ARTS**

(M, Bachelor of Arts) Co-op available

Immerse yourself in the Middle Ages – minus the dysentery – in Canada's longest-standing medieval studies program. By concentrating on this crucial era in Western civilization, you'll gain insights into European politics, modern gender norms, the connections between Islam and Christianity, and more. (You can even study abroad in a castle!)

● Crusading in the Middle Ages, Medieval Society, The History of Islamic Civilization

■ Professional writer, librarian, historical site manager, teacher

**MUSIC / FACULTY OF ARTS**

(M, Bachelor of Arts) Co-op available

Explore Beethoven to Bieber, solos to software. Learn about the importance of music in today's world through theory, composition, performance, and history. Combine your passion for music with other interests by taking courses that address the vital intersection of music and technology, film, global culture, and psychology.

● Music Cognition, Introduction to Jazz, Soundtracks: Music in Film

▲ Church Music and Worship, Music in Global Context, Music and Peace

■ Teacher, performer, associate pastor of music, music store owner, recording studio owner

**N**

⊛ **NANOTECHNOLOGY ENGINEERING / FACULTY OF ENGINEERING**

(E, Bachelor of Applied Science) Co-op only

Design solutions measured in billionths of a metre in Canada's only undergraduate nanotechnology engineering program. Combining engineering principles with ideas from chemistry, electronics, quantum physics, and biology, you'll create the tiny technologies that are revolutionizing everything from smartphones to food processing to cancer treatment.

● Nanotoxicology, Nano-electronics, Structure and Properties of Nanomaterials

■ Nanomedicine, nano-engineered materials, research and manufacturing of integrated circuits, financial technology

## O

**\* OPTOMETRY / SCHOOL OF OPTOMETRY AND VISION SCIENCE** (Doctor of Optometry) Regular system of study only

Set your sights on a career in vision health. After three years in an accredited Bachelor of Science program, you can apply to Canada's only English-language Doctor of Optometry program. Learn about ocular health and disease, optics, and vision, while applying your knowledge in clinical settings. Questions? Email [opt-admissions@uwaterloo.ca](mailto:opt-admissions@uwaterloo.ca).

● Diseases of the Eye, Practice Management, Neurophysiology of Vision

■ Registered optometrist; careers in private practice, academia, and industry

## P

**PEACE AND CONFLICT STUDIES / FACULTY OF ARTS**

(M, Bachelor of Arts) Co-op available

Choose a degree that can change the world. Develop diverse approaches to understanding conflict and promoting peace through Canada's first peace studies program. Discover how to transform conflict's violent potential into a creative force for positive change. Gain experience through an internship locally or in a former conflict zone abroad.

● Human Rights, Peace, and Business; Conflict Resolution; Restorative Justice; Gender in War and Peace

■ Community development officer, international development specialist, social services worker, policy advisor, mediation consultant, lawyer

**\* PHARMACY / SCHOOL OF PHARMACY** (Doctor of Pharmacy) Co-op only

A prescription for career success! After two years in a Bachelor of Science or other approved post-secondary program, you can apply to Canada's only co-op pharmacy program. Enhance your classroom learning with paid work terms and clinical rotations, developing skills in community practice, hospitals, or family health teams. Questions? Email [pharmacy@uwaterloo.ca](mailto:pharmacy@uwaterloo.ca).

● Integrated Patient Focused Care, Professional Practice, Medical Microbiology

■ Registered pharmacist; work in community practice, hospitals, and family health teams

**PHILOSOPHY / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

Confront some of life's biggest questions. Study ancient texts and modern thinking on topics ranging from the nature of the human mind to emerging issues in science and technology. Learn to analyze other people's arguments and improve your own. You'll develop the critical-thinking skills valued in public policy, industry, and beyond.

● Foundations of Ethics; Probability and Decision Making; Philosophy of Mind

■ Lawyer, public policy analyst, ethicist, corporate archivist

**PHYSICAL SCIENCES / FACULTY OF SCIENCE** (E, Bachelor of Science) Co-op available for all majors

Investigate what makes the physical world tick. Apply to this entry program to study these majors (M) starting in first year: Chemistry, Earth Sciences, Life Physics, Materials and Nanosciences, Mathematical Physics, Medicinal Chemistry, Physics, or Physics and Astronomy. Refer to your major of interest for details.

**PHYSICS / FACULTY OF SCIENCE** (M, Bachelor of Science) Co-op available

Become the next Einstein (wild hair optional). Understand how the universe works: from quantum particles and exotic states of matter to curved space-time and black holes. In one of Canada's largest and most comprehensive physics programs, prepare for graduate studies or a wide range of careers requiring advanced problem-solving skills.

● Modern Physics, Statistical Mechanics, Computational Physics

■ Physicist, research and development scientist, analyst, teacher

**PHYSICS AND ASTRONOMY / FACULTY OF SCIENCE**

(M, Bachelor of Science) Co-op available

Aim for a career with astronomical possibilities. Learn from award-winning professors who are studying some of the most fascinating phenomena in the universe: black holes, the Big Bang, dark matter, and more. It's perfect preparation for careers in optics and space science or for graduate studies in topics such as astrophysics and gravitation.

● Introduction to the Universe, Thermal Physics, Galaxies

■ Astronomer, aerospace scientist, remote sensing scientist

**PLANNING / FACULTY OF ENVIRONMENT** (E, Bachelor of Environmental Studies) Co-op only

Want a career with impact? We've got the plan. Tackle the environmental and social challenges facing our urban and rural areas. Learn about sustainable planning practices, designing effective transit systems, protecting natural areas, and more. You'll graduate ready to help communities create a healthy, prosperous, and sustainable future.

● Social Concepts in Planning; Transportation Planning and Analysis; Urban and Metropolitan Planning and Development

▲ Decision Support and Geographic Information Systems, Environmental Planning and Management, Land Development Planning, Urban Design

■ Environmental planner, land use planner, urban designer, transit planner

**POLITICAL SCIENCE / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

Let's get political! Explore political theory, power, global politics, and governance. Learn how to navigate (and shape) the political terrain and develop the critical-thinking and creative problem-solving skills to land a job in advocacy, politics, or public service.

● Globalization, International Business, and Development; Topics in Politics and Business; Global Environmental Governance

▲ Politics and Business, Global Governance, Canadian Politics, International Relations

■ Civil servant, director of global programs, project manager, senior consultant

**PSYCHOLOGY / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

Get inside people's heads. Explore the intricacies of the brain in this internationally renowned program, consistently ranked among the best in Canada. You'll examine human behaviour through a variety of perspectives, including neuroscience; cognition; and clinical, developmental, industrial/organizational, and social psychology – great preparation for further studies in speech and language, counselling, and marketing.

● Learning Disabilities, Basic Research Methods, Human Neuropsychology

■ Mental health worker, research and development manager, human resources manager

**PSYCHOLOGY / FACULTY OF SCIENCE** (M, Bachelor of Science) Co-op available

Major in the science of the human mind. Investigate areas like neuroscience; cognition; and clinical, developmental, and social psychology in one of North America's top psychology departments. You'll delve into research methods and data analysis – great preparation for further studies in medicine, speech pathology, or other health fields.

● Psychopathology, Advanced Data Analysis, Developmental Psychology

■ Neuroscientist, child psychologist, psychiatrist

**PUBLIC HEALTH / FACULTY OF HEALTH**

(E, Bachelor of Public Health) Co-op available

Study with Canada's leading public health professors. Discover how understanding social, cultural, political, and geographical factors can help us tackle smoking, obesity, infectious diseases, and more. Aiming for grad school? Get a head start by applying for an accelerated master's degree in your third year.

● Social Determinants of Health, Principles of Public and Population Health, Public Health Nutrition

▲ Addictions, Mental Health, and Policy; Gerontology; Health Informatics; Health Research

■ Community relations officer, public health planner, policy developer

**PURE MATHEMATICS / FACULTY OF MATHEMATICS**

(M, Bachelor of Mathematics) Co-op available

Go way beyond basic arithmetic. Pure mathematics studies the boundary of math and pure reason, exploring the "how" and "why" of math. You'll cover the spectrum of mathematics – including algebra, number theory, analysis, geometry, and logic – and gain valuable problem-solving skills that can be applied in your career or graduate school.

● Fields and Galois Theory, Applied Complex Analysis, Differential Geometry

▲ Mathematical Finance, Mathematics/Teaching

■ Data scientist, operations analyst, research and academia

## R

**RECREATION AND LEISURE STUDIES / FACULTY OF HEALTH**

(E or M, Bachelor of Arts) Co-op available

In one of North America's top-rated leisure departments, discover how to plan, manage, and deliver well-designed recreation programs that enhance the well-being of individuals and communities. Gain industry-related experience in your courses, through co-op, or in a 105-hour practicum.

● Program Management and Evaluation; Play, Creativity, and Child Development; Leisure and Social Justice

▲ Event Management, Tourism

■ Community recreation programmer, teacher, municipal recreation manager, policy researcher, director of parks and recreation

**RECREATION AND SPORT BUSINESS / FACULTY OF HEALTH**  
(M, Bachelor of Arts) Co-op available

You love sports. So make it your career with this unique degree. Gain a solid understanding of sport and recreation, and build the business expertise you need to excel in different aspects of the sport industry – including marketing, communications, HR, finance, and strategy. Learn from experts during your classes, co-op, a 105-hour practicum, projects with sport industry partners, or an international exchange program.

- Principles of High Performance Organizations in Recreation and Sport, Innovative Solutions in Recreation and Sport Business, Mobilizing Resources for Recreation and Sport Delivery
- ▲ Event Management, Tourism
- Recreation and events director, marketing and sales manager, sport programming manager, human resources manager

**RELIGIOUS STUDIES / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

Explore the fundamental beliefs that bind us – and divide us. Discover the world's great religions through more than 100 undergraduate courses covering Western and Eastern religions, the history of Christianity, biblical studies, theology, ethics, sociology, and the arts. Round off your degree with an optional four-month trek visiting holy sites across India.

- Religion in Popular Film; Sacred Beauty: Religion and the Arts; Love and Friendship
- Clinical therapist, interfaith chaplain, international development agency director

**S**

✳ **SCIENCE AND AVIATION / FACULTY OF SCIENCE**

(E, Bachelor of Science) Regular system of study only

Is your head in the clouds? Earn a Bachelor of Science degree and your Commercial Pilot Licence through the largest university aviation program in Canada. Customize your studies to include courses from a range of scientific disciplines, such as physics or earth sciences. Whichever courses you choose, you'll graduate with more than 200 flight hours.

- Earth from Space Using Remote Sensing, Physical Climatology, Human Factors in Aviation
- Pilot, flight training instructor, aerial surveyor

**SCIENCE AND BUSINESS / FACULTY OF SCIENCE**

(E, Bachelor of Science) Co-op available

Become a scientist with solid business skills or a business professional who speaks the language of science. This unique program provides a strong foundation in science, along with courses in accounting, economics, marketing, computing, statistics, and human resources.

- Business Law; Entrepreneurship and the Creative Workplace; General Chemistry
- ▲ Biochemistry, Biology, Biotechnology
- Medical information specialist, biotechnology accounts manager, project manager, program analyst

**SEXUALITY, MARRIAGE, AND FAMILY STUDIES / FACULTY OF ARTS**

(M, Bachelor of Arts) Co-op available

Get ready to talk relationships. The only one of its kind in Canada, this program goes far beyond basic anatomical knowledge and sexual health. Drawing upon critical, anti-oppressive, and social justice approaches, you'll study the latest research and theory in sexuality, families, and relationships and how they apply to everyday life.

- Communication and Counselling Skills; Dynamics of Dating; Sexuality and Popular Culture
- ▲ Counselling, Human Services Practicum
- Sexual health educator, youth support worker, mediator, social worker, couples and family therapist

**SOCIAL DEVELOPMENT STUDIES / FACULTY OF ARTS**

(E or M, Bachelor of Arts) Co-op available through Honours Arts or Honours Arts and Business

Solve social issues at the local, national, and global level. Find your voice through the study of psychology, sociology, social development, and social work in this program. Focus your studies by adding a specialization, and gain hands-on experience for your future career. Apply through Renison to begin this major in first year.

- Changing Concepts of Childhood, Social Work with Families, Positive Psychology
- ▲ Diversity and Equity; Education; Individual Well-being and Development; Social Policy and Social Action; Social Work
- Child protection worker, teacher, social policy developer, human resources manager

**SOCIAL WORK / RENISON UNIVERSITY COLLEGE** (Bachelor of Social Work) Regular system of study only

Have a hunger to help others? Prepare for a rewarding career while splitting your time between the classroom and in-field placements. This program is only available to students with an undergraduate degree. For a strong foundation, consider enrolling in Social Development Studies first. Questions? Email [renison.socialwork@uwaterloo.ca](mailto:renison.socialwork@uwaterloo.ca).

- Diversity and Empowerment, Mental Health and Addiction Issues, Social Work with Older Adults
- Social worker, mental health clinician, counsellor, therapist

**SOCIOLOGY / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

Get ready to wrestle with pressing questions, like how might we improve health care, criminal justice, the economy, and our relationships to one another. Explore topics such as age, class, ethnicity, religion, gender, social inequality, and more. When you graduate, apply your research and data analysis skills in government, health, policy and research, law, academia, or non-profit organizations.

- Terrorism; Games and Gamers; Organized Crime
- Youth justice advocate, justice policy analyst, research associate, ESL teacher

**SOFTWARE ENGINEERING / FACULTY OF ENGINEERING AND FACULTY OF MATHEMATICS** (E, Bachelor of Software Engineering) Co-op only

Today, even your fridge is full of software. Learn to create complex programs using math, engineering, and computer science. You'll develop the skills to analyze software architecture, apply algorithms, design human-computer interfaces, and lead major projects.

- Programming Principles; Logic and Computation; Machine Learning; Operating Systems
- ▲ Human-Computer Interaction, Artificial Intelligence, Business
- Design of operating systems, development of security systems, analysis and maintenance of web applications

**SPANISH / FACULTY OF ARTS** (M, Bachelor of Arts) Co-op available

Say *hola* to an in-depth understanding of the Hispanic world. Explore the richness of Hispanic literature and culture while learning one of the world's most popular languages. Take advantage of our exchanges to Spain or Latin America, and consider adding a Diploma in Spanish-English Translation.

- Gender, Power, and Representation in Latin America; Introduction to Spanish Business Translation; Visual Culture in the Contemporary Hispanic World
- ▲ Spanish-English Translation
- Librarian, marketing manager, senior manager, translator

**STATISTICS / FACULTY OF MATHEMATICS** (M, Bachelor of Mathematics) Co-op available

Earn a degree that's highly significant at one of the world's top centres for statistics. Learn about research methods and statistical applications to help engineers develop better AI technologies, researchers evaluate medical treatments, governments shape effective policies, and more. In today's data-driven world, these are skills in high demand!

- Probability Models; Sampling and Experimental Design; Applied Linear Models
- Biostatistician, business intelligence specialist, software quality analyst

✳ **NEW! SUSTAINABILITY AND FINANCIAL MANAGEMENT\* / SCHOOL OF ACCOUNTING AND FINANCE AND FACULTY OF ENVIRONMENT** (E, Bachelor of Sustainability and Financial Management) Co-op only

Become a sought-after expert who can measure profits and planetary health. Through this one-of-a-kind program, you'll master accounting and financial management at Waterloo's world-class School of Accounting and Finance, and study sustainability in Canada's biggest Faculty of Environment. Plus, you'll get up to 16 months of co-op experience.

- Corporate Taxation, Sustainability Economics, Enterprise Carbon Accounting
- ▲ Corporate Sustainability, Government Policy and Financial Markets
- Accountant, financial consultant, sustainability analyst, financial analyst, internal auditor

✳ **SYSTEMS DESIGN ENGINEERING / FACULTY OF ENGINEERING** (E, Bachelor of Applied Science) Co-op only

Take a creative, interdisciplinary approach to solving engineering problems. This flexible program features design courses, labs, and team-based learning that focus on the big picture. You'll develop skills from multiple engineering fields, graduating ready to tackle challenges that lie at the interface of society, technology, and the environment.

- Human Factors in Design, Systems Models, Pattern Recognition, Machine Learning
- Complex systems analyst, physical and digital device designer, product manager

**T**

**THEATRE AND PERFORMANCE / FACULTY OF ARTS**

(M, Bachelor of Arts) Co-op available

All the world's a stage. Find your place on it in one of Canada's most performance-intensive drama programs. Write theatre reviews, study stage direction, and reinvent theatre for today. Focus your studies in acting, directing, technical theatre, or theory; then hone your skills in student-led productions each term. You'll graduate with a rich portfolio!

- Stage Management, Approaches to Directing, Collaborative Creation
- Set designer, actor, floor director, stage manager, general manager

**THERAPEUTIC RECREATION / FACULTY OF HEALTH**

(M, Bachelor of Arts) Co-op available

Help people get more out of life. You'll learn how to enhance quality of life by improving physical and mental health through recreation programs that foster inclusivity and strengthen the cultural fabric of a community. Combine practical courses with hands-on experience through co-op, volunteer opportunities, a required 105-hour practicum, and a required 560-hour internship in fourth year.

- Foundations of Therapeutic Recreation Practice, Therapeutic Recreation Facilitation Techniques, Therapeutic Recreation: Physical Disabilities
- ▲ Event Management, Tourism
- Recreation therapist, elder life specialist, occupational therapist, child life specialist, social worker



# ONTARIO ADMISSION REQUIREMENTS 2022

Admission averages depend on the number of applications we receive and the number of spaces available. The ranges listed below are based on previous years. Visit our website for the most up-to-date 2022 admissions information.

[uwaterloo.ca/future/admissions](http://uwaterloo.ca/future/admissions)

## NOTES

**AIF:** Admission Information Form – submit to tell us who you are outside of academics

† Choose your major: see lists on pages 28 to 39. Some majors are competitive and require an application after first year.

\* Grade 12 U unless otherwise specified. Minimum requirements: six Grade 12 U or M courses, including all required courses.

	PROGRAM/MINIMUM ADMISSION AVERAGE/ADDITIONAL REQUIREMENTS	REQUIRED COURSES*
ARTS	<b>Accounting and Financial Management</b> Mid-80s. Accounting and Financial Management Admissions Assessment (AFMAA) interview and trait assessment required.	Any Grade 12 U English (min. 75%), Advanced Functions (min. 75%), Calculus and Vectors (min. 75%)
	<b>Global Business and Digital Arts</b> Low 80s.	Any Grade 12 U English (min. 75%)
	<b>Honours Arts</b> † (Waterloo, St. Jerome's, Renison), <b>Honours Arts and Business</b> †, <b>Social Development Studies</b> (Renison) Low 80s. <b>Majors:</b> Anthropology; Classical Studies; Communication Studies; Economics; English; Fine Arts; French; Gender and Social Justice; German; History; Legal Studies; Liberal Studies; Medieval Studies; Music; Peace and Conflict Studies; Philosophy; Political Science; Psychology; Religious Studies; Sexuality, Marriage, and Family Studies; Social Development Studies; Sociology; Spanish; Theatre and Performance. After applying to Honours Arts and Business, you may co-register through St. Jerome's or Renison.	Any Grade 12 U English (min. 70%)
CFM	<b>PROGRAM/MINIMUM ADMISSION AVERAGE/ADDITIONAL REQUIREMENTS</b>	<b>REQUIRED COURSES*</b>
	<b>Computing and Financial Management</b> Low to mid-90s. AIF required.	Any Grade 12 U English (min. 75%); Advanced Functions; Calculus and Vectors; one other Grade 12 U course
ENGINEERING	<b>PROGRAM/MINIMUM ADMISSION AVERAGE/ADDITIONAL REQUIREMENTS</b> <b>**FOR ALL ENGINEERING PROGRAMS: AIF REQUIRED**</b>	<b>REQUIRED COURSES*</b>
	<b>Architecture</b> Mid-80s. AIF required. Qualified applicants will be invited to complete an English précis-writing exercise and to submit a portfolio.	English (ENG4U – min. 75%), Advanced Functions (min. 70%), Calculus and Vectors (min. 70%), Physics (min. 70%)
SOFTWARE ENGINEERING	<b>PROGRAM/MINIMUM ADMISSION AVERAGE/ADDITIONAL REQUIREMENTS</b>	<b>REQUIRED COURSES*</b>
	<b>Software Engineering</b> Low to mid-90s. AIF required. Experience developing well-structured modular programs is required. Online video interview is required for Faculty scholarships and strongly recommended for admission. Individual selection may vary.	Advanced Functions (min. 70%), Calculus and Vectors (min. 70%), Chemistry (min. 70%), English (ENG4U – min. 70%), Physics (min. 70%)
ENVIRONMENT	<b>PROGRAM/MINIMUM ADMISSION AVERAGE/ADDITIONAL REQUIREMENTS</b>	<b>REQUIRED COURSES*</b>
	<b>Climate and Environmental Change</b> Low 80s.	English (ENG4U – min. 70%), any Grade 12 U Mathematics (min. 70%), one of Chemistry or Physics, one other 12 U course
	<b>Environment and Business; Environment, Resources and Sustainability; Geography and Environmental Management; International Development</b> Low 80s.	Any Grade 12 U English (min. 70%)
	<b>Geography and Aviation</b> Low 80s. Program Briefing Session and Transport Canada Category 1 Medical Certification required.	English (ENG4U – min. 70%), any Grade 12 U Mathematics (min. 70%)
	<b>Geomatics</b> Low 80s.	Any Grade 12 U English (min. 70%), any Grade 12 U Mathematics (min. 70%)
	<b>Knowledge Integration</b> Low 80s.	Any Grade 12 U English (min. 75%), any Grade 12 U Science (min. 75%), any Grade 12 U Mathematics (min. 75%)
	<b>Planning</b> Low 80s.	Any Grade 12 U English (min. 75%)

## PROGRAMS REQUIRING PREVIOUS UNIVERSITY STUDY

**Optometry** Minimum overall university average of 75%. See School of Optometry and Vision Science website for required courses. Completion of at least three full years of university-level science with specific course requirements, Optometry Admission Test (OAT), Admission Information Form (AIF), online assessment of personal characteristics (CASPer), interview, and optometrist and character references.

**Pharmacy** Minimum overall university average of 75%. See School of Pharmacy website for required courses. Completion of at least two years of university or post-secondary studies with specific course requirements, Admission Information Form (AIF), reference, online assessment of personal characteristics (CASPer), interview, and Fundamental Skills Assessment (FSA). High school students whose admission average is at least 90% may qualify for Conditional Admission to Pharmacy (CAP) status. See CAP website for more information.

**Social Work** Minimum 70% average in university studies. This program is offered through Renison University College. Three- or four-year Bachelor of Arts (or equivalent) with a minimum of six units in the social sciences, including 10 prerequisite courses from the Renison curriculum or equivalents. Required courses and other admission details are available online.

HEALTH	PROGRAM/MINIMUM ADMISSION AVERAGE/ADDITIONAL REQUIREMENTS	REQUIRED COURSES*
	<b>Health Sciences</b> Low 80s regular, mid-80s co-op.	Any Grade 12 U English (min. 70%), Biology (min. 70%), Chemistry (min. 70%), any Grade 12 U Mathematics (min. 70%)
	<b>Kinesiology</b> Low 80s regular, mid-80s co-op.	Any Grade 12 U English (min. 70%); any two of the following: Biology (min. 70%), Chemistry (min. 70%), or Physics (min 70%); and one of the following: Advanced Functions (min. 70%) or Calculus and Vectors (min. 70%)
	<b>Public Health</b> Low 80s regular, mid-80s co-op.	Any Grade 12 U English (min. 75%), any Grade 12 U Mathematics (min. 70%)
<b>Recreation and Leisure Studies<sup>†</sup></b> Low 80s. <b>Majors:</b> Recreation and Leisure Studies, Recreation and Sport Business, Therapeutic Recreation.	Any Grade 12 U English (min. 70%)	

MATHEMATICS	PROGRAM/MINIMUM ADMISSION AVERAGE/ADDITIONAL REQUIREMENTS <b>**FOR ALL MATHEMATICS PROGRAMS: AIF REQUIRED** PARTICIPATION IN THE EUCLID AND CANADIAN SENIOR MATHEMATICS CONTESTS IS STRONGLY RECOMMENDED. INDIVIDUAL SELECTION MAY VARY.</b>	REQUIRED COURSES*
	<b>Business Administration (Laurier) and Computer Science (Waterloo) Double Degree</b> Mid-90s.	
	<b>Business Administration (Laurier) and Mathematics (Waterloo) Double Degree Mathematics/Teaching</b> Low 90s.	
	<b>Computer Science<sup>†</sup></b> Low to mid-90s. <b>Majors:</b> Computer Science, Data Science.	
	<b>Mathematics<sup>†</sup></b> High 80s. <b>Majors:</b> Actuarial Science, Applied Mathematics, Biostatistics, Combinatorics and Optimization, Computational Mathematics, Data Science, Mathematical Economics, Mathematical Finance, Mathematical Optimization, Mathematical Physics, Mathematical Studies, Mathematics/Teaching, Pure Mathematics, Statistics.	Advanced Functions; Calculus and Vectors; any Grade 12 U English; one other Grade 12 U course
	<b>Mathematics/Business Administration</b> High 80s. <b>Major:</b> Information Technology Management.	
	<b>Mathematics/Chartered Professional Accountancy</b> High 80s.	
<b>Mathematics/Financial Analysis and Risk Management</b> High 80s.		

SCIENCE	PROGRAM/MINIMUM ADMISSION AVERAGE/ADDITIONAL REQUIREMENTS	REQUIRED COURSES*
	<b>Biotechnology/Chartered Professional Accountancy</b> High 80s.	
	<b>Environmental Science</b> Low 80s.	
	<b>Honours Science</b> Low 80s.	
	<b>Life Sciences<sup>†</sup></b> Low 80s. <b>Majors:</b> Biochemistry, Biology, Biomedical Sciences, Psychology.	English (ENG4U – min. 70%); Advanced Functions (min. 70%); Calculus and Vectors (min. 70%); any two of the following: Biology, Chemistry, Earth and Space Science, Mathematics of Data Management, or Physics
	<b>Physical Sciences<sup>†</sup></b> Low 80s. <b>Majors:</b> Chemistry, Earth Sciences, Life Physics, Materials and Nanosciences, Mathematical Physics, Medicinal Chemistry, Physics, Physics and Astronomy.	
<b>Science and Business</b> Low 80s.		
<b>Science and Aviation</b> Low 80s. Program Briefing Session and Transport Canada Category 1 Medical Certification required.		

SFM	PROGRAM/MINIMUM ADMISSION AVERAGE/ADDITIONAL REQUIREMENTS	REQUIRED COURSES*
	<b>Sustainability and Financial Management</b> Mid-80s. Accounting and Financial Management Admissions Assessment (AFMAA) and the trait assessment required.	Any Grade 12 U English (min 75%), Advanced Functions (min 75%), Calculus and Vectors (min 75%)

# ADMISSIONS

# OUT-OF-PROVINCE ADMISSION REQUIREMENTS 2022

[uwaterloo.ca/future/admissions](http://uwaterloo.ca/future/admissions)

## NOTES

Complete admission requirements, recommendations, and documents are available online. Advanced Placement courses may be substituted for required courses. Some programs may require higher admission averages based on the competition for available spaces. The admission averages below are based on last year's averages and may change. **AIF**: Admission Information Form

\*Final grade at least 70%

\*\*Final grade at least 75%

† Choose your major: see lists on pages 28 to 39. Some majors are competitive and require an application after first year.

PROGRAM/ADMISSION AVERAGE/ ADDITIONAL REQUIREMENTS	ALBERTA, NORTHWEST TERRITORIES, AND NUNAVUT	BRITISH COLUMBIA AND YUKON	MANITOBA	NEW BRUNSWICK
<b>ARTS</b>				
<b>Accounting and Financial Management</b> <b>Mid-80s.</b> Accounting and Financial Management Admissions Assessment (AFMAA) interview and trait assessment required.	English Language Arts 30-1**, Mathematics 30-1**, Mathematics 31**	English 12**, Pre-Calculus 12**, Calculus 12** or AP Calculus**	English 40S**, Pre-Calculus Mathematics 40S**, Calculus 45A**, 45S** or AP Calculus**	English 121** or 122**, Pre-Calculus 120B**, Calculus 120**
<b>Global Business and Digital Arts</b> <b>Low 80s.</b>	English Language Arts 30-1**	English 12**	English 40S**	English 121** or 122**
<b>Honours Arts</b> <sup>†</sup> (Waterloo, St. Jerome's, Renison), <b>Honours Arts and Business</b> <sup>†</sup> , <b>Social Development Studies</b> (Renison) <b>Low 80s.</b> After applying to Honours Arts and Business, you may co-register through St. Jerome's or Renison.	English Language Arts 30-1*	English 12*	English 40S*	English 121* or 122*
<b>COMPUTING AND FINANCIAL MANAGEMENT</b>				
<b>Computing and Financial Management</b> <b>Low to mid-90s.</b> AIF required.	Mathematics 30-1, Mathematics 31, English Language Arts 30-1**	Pre-Calculus 12; Calculus 12 or AP Calculus; English 12**	Pre-Calculus Mathematics 40S; one of Calculus 45A, 45S, or AP Calculus; English 40S**	Pre-Calculus 120B, Calculus 120, English 121** or 122**
<b>ENGINEERING – For all Engineering programs: AIF required.</b>				
<b>Architecture</b> <b>Mid-80s.</b> AIF required. Qualified applicants will be invited to complete an English précis-writing exercise and to submit a portfolio.	English Language Arts 30-1**, Mathematics 30-1*, Mathematics 31*, Physics 30*	English 12**, Pre-Calculus 12*; Calculus 12* or AP Calculus*; Physics 12*	English 40S**, Pre-Calculus Mathematics 40S*; one of Calculus 45A*, 45S*, or AP Calculus*; Physics 40S*	English 121** or 122**, Pre-Calculus 120B*, Calculus 120*, Physics 121* or 122*
<b>Architectural, Chemical, Civil, Environmental, Geological, Management, Nanotechnology</b> <b>Mid- to high 80s.</b> <b>Computer, Electrical, Mechanical, Mechatronics, Systems Design</b> <b>High 80s to low 90s.</b> <b>Biomedical</b> <b>Low to mid-90s.</b> AIF required. Online video interview required for Faculty scholarships and strongly recommended for admission to all programs. Individual selection may vary.	Mathematics 30-1*, Mathematics 31*, Chemistry 30*, English Language Arts 30-1*, Physics 30*	Pre-Calculus 12*; Calculus 12* or AP Calculus*; Chemistry 12*; English 12*; Physics 12*	Pre-Calculus Mathematics 40S*; one of Calculus 45A*, 45S*, or AP Calculus*; Chemistry 40S*; English 40S*; Physics 40S*	Pre-Calculus 120B*, Calculus 120*, Chemistry 121* or 122*, English 121* or 122*, Physics 121* or 122*
<b>SOFTWARE ENGINEERING</b>				
<b>Software Engineering</b> <b>Low to mid-90s.</b> AIF required. Experience developing well-structured modular programs required. Online video interview required for Faculty scholarships and strongly recommended for admission. Individual selection may vary.	Mathematics 30-1*, Mathematics 31*, Chemistry 30*, English Language Arts 30-1*, Physics 30*	Pre-Calculus 12*; Calculus 12* or AP Calculus*; Chemistry 12*; English 12*; Physics 12*	Pre-Calculus Mathematics 40S*; one of Calculus 45A*, 45S*, or AP Calculus*; Chemistry 40S*; English 40S*; Physics 40S*	Pre-Calculus 120B*, Calculus 120*, Chemistry 121* or 122*, English 121* or 122*, Physics 121* or 122*

**ALBERTA, NORTHWEST TERRITORIES, AND NUNAVUT** High school diploma with five academic courses at the 30 or 31 level. Arrange to have your school send us your official transcripts showing completed and current courses. Physical Education 30 and Career and Technology Studies courses are not acceptable academic courses. For admission purposes, two 3-credit 30-level academic courses may be considered equivalent to one 5-credit 30-level academic course.

**BRITISH COLUMBIA AND YUKON** High school diploma with six courses at the Grade 12 academic level, including all required courses. Academic subjects do not include courses from the Applied Design, Skills, and Technologies (ADST) Curriculum, with the exception of Economics 12 and Financial Accounting 12. While B.C. will automatically send us your marks electronically, they will not arrive in time for our admissions decisions. Applicants will receive instructions by email on how to submit your unofficial marks.

**MANITOBA** High school diploma with five academic courses at the 40 level or higher. For programs requiring English 40S, Language and Technical Communication (40S) will not be accepted.

**NEW BRUNSWICK** High school diploma with six academic courses at the Grade 12, 120, 121, or 122 level.

**NEWFOUNDLAND AND LABRADOR** High school diploma with six academic courses (2-credit) at the 3 level.

**NOVA SCOTIA** High school diploma with five academic or advanced courses at the Grade 12 level.

**PRINCE EDWARD ISLAND** High school diploma with five academic or advanced courses at the 611 or 621 level.

**QUEBEC (CEGEP)** One year of CEGEP with a minimum of 12 semestered academic courses. CEGEP admission averages may differ from high school admission averages: [uwaterloo.ca/future/admissions](http://uwaterloo.ca/future/admissions). Chemistry I and II can also be referred to as General Chemistry and Chemistry of Solutions. Transfer credits may be granted for most programs: [uwaterloo.ca/future/transfer](http://uwaterloo.ca/future/transfer).

**SASKATCHEWAN** High school diploma with five academic courses at the 30 level.

**INTERNATIONAL BACCALAUREATE** Six total IB courses; at least three must be HL. Total scores exclude Diploma points. Subjects required for admission to specific programs should be HL whenever possible. Where there are more than three prerequisite subjects, SL courses will be accepted. For programs listing HL or SL English A, HL English B with min 5 will be acceptable. For programs listing HL or SL Math: Analysis and Approaches, HL Applications and Interpretations will not be accepted unless stated otherwise. SL Applications and Interpretations will not be accepted for any program.

**NOTE:** HL = Higher Level; SL = Standard Level; min = minimum final grade; total = overall minimum grade total.

NEWFOUNDLAND AND LABRADOR	NOVA SCOTIA	PRINCE EDWARD ISLAND	QUEBEC (CEGEP)	SASKATCHEWAN	INTERNATIONAL BACCALAUREATE
English 3201**; one of Advanced Mathematics 3201** or 3200**; one of Mathematics 3208** or AP Calculus**	English 12 Academic**, Pre-Calculus 12**, Calculus 12**	English 621A**, Mathematics 611B**, Mathematics 621B**	Two English 603** or 604** series; Calculus I**; Linear Algebra** or Calculus II**	English Language Arts A30** and B30**; Pre-Calculus 30**; Calculus 30** or AP Calculus**	HL or SL English A, min 4, or HL English B, min 5. Mathematics: Analysis and Approaches HL (recommended) or SL, min 4. Total 28.
English 3201**	English 12 Academic**	English 621A**	Two English 603** or 604**series	Two English 603** or 604**series	HL or SL English A, min 4, or HL English B, min 5. Total 27.
English 3201*	English 12 Academic*	English 621A*	Two English 603* or 604* series	English Language Arts A30* and B30*	HL or SL English A, min 4, or HL English B, min 5. Total 27.
One of Advanced Mathematics 3201 or 3200; one of Mathematics 3208 or AP Calculus; English 3201**	Pre-Calculus 12, Calculus 12, English 12 Academic**	Mathematics 611B, Mathematics 621B, English 621A**	Calculus I; Linear Algebra or Calculus II; two English 603** or 604** series	Pre-Calculus 30; Calculus 30 or AP Calculus; English Language Arts A30* and B30*	Mathematics: HL Analysis and Approaches, min 6. HL or SL English A, min 4, or HL English B, min 5. Total 32.
English 3201**; one of Advanced Mathematics 3201* or 3200*; one of Mathematics 3208* or AP Calculus*; Physics 3204*	English 12 Academic**, Pre-Calculus 12*, Calculus 12*, Physics 12 Academic*	English 621A**, Mathematics 611B*, Mathematics 621B*, Physics 621A*	Two English 603** or 604** series; Calculus I*; Calculus II* or Linear Algebra*; Mechanics*; one of Electricity & Magnetism* or Waves, Optics & Modern Physics*	English Language Arts A30** and B30**; Pre-Calculus 30*; Calculus 30* or AP Calculus*; Physics 30*	Mathematics: Analysis and Approaches and Physics (HL recommended), min 4 in each. HL or SL English A, min 4. Total 32.
One of Advanced Mathematics 3201* or 3200*; one of Mathematics 3208* or AP Calculus*; Chemistry 3202*; English 3201*; Physics 3204*	Pre-Calculus 12*, Calculus 12*, Chemistry 12 Academic*, English 12 Academic*, Physics 12 Academic*	Mathematics 611B*; Mathematics 621B*; Chemistry 611A* or 621A*; English 621A*; Physics 621A*	Secondary V Chemistry*; two English 603* or 604* series; Calculus I*; Calculus II* or Linear Algebra*; Mechanics*; one of Electricity & Magnetism*, Waves, Optics & Modern Physics*, Chemistry I*, or Chemistry II*	Pre-Calculus 30*; Calculus 30* or AP Calculus*; Chemistry 30*; English Language Arts 30A* and 30B*; Physics 30*	Mathematics: Analysis and Approaches and Physics (HL recommended), min 4 in each. Chemistry and English A, min 4 in each. One other HL or SL course, min 4. Total 32. 6s and 7s recommended for competitive programs.
One of Advanced Mathematics 3201* or 3200*; one of Mathematics 3208* or AP Calculus*; Chemistry 3202*; English 3201*; Physics 3204*	Pre-Calculus 12*, Calculus 12*, Chemistry 12 Academic*, English 12 Academic*, Physics 12 Academic*	Mathematics 611B*; Mathematics 621B*; Chemistry 611A* or 621A*; English 621A*; Physics 621A*	Secondary V Chemistry*; two English 603* or 604* series; Calculus I*; Calculus II* or Linear Algebra*; Mechanics*; one of Electricity & Magnetism*, Waves, Optics & Modern Physics*, Chemistry I*, or Chemistry II*	Pre-Calculus 30*; Calculus 30* or AP Calculus*; Chemistry 30*; English Language Arts A30* and B30*; Physics 30*	Mathematics: Analysis and Approaches and Physics (HL recommended), min 4 in each. Chemistry and English A, min 4 in each. One other HL or SL course, min 4. Total 32. 6s and 7s recommended for competitive programs.

# OUT-OF-PROVINCE ADMISSION REQUIREMENTS 2022 CONTINUED

PROGRAM/ADMISSION AVERAGE/ ADDITIONAL REQUIREMENTS	ALBERTA, NORTHWEST TERRITORIES, AND NUNAVUT	BRITISH COLUMBIA AND YUKON	MANITOBA	NEW BRUNSWICK
For additional province-specific information, refer to the notes on page 51. Complete admission requirements, recommendations, and documents are available online.				
<b>ENVIRONMENT</b>				
<b>Climate and Environmental Change</b> Low 80s.	English Language Arts 30-1*; one of Math 30-1*, Math 30-2*, or Math 31*; one of Chemistry 30 or Physics 30	English 12*; one of Grade 12 Math* or AP Calculus*; one of Chemistry 12 or Physics 12	English 40S*; one of Pre-Calculus Mathematics 40S*, Calculus 45A*, 45S*, or AP Calculus*; one of Chemistry 40S or Physics 40S	English 121* or English 122*; one of Pre-Calculus 120B* or Calculus 120*; one of Chemistry 121 or 122 or Physics 121 or 122
<b>Environment and Business; Environment, Resources and Sustainability; Geography and Environmental Management; International Development</b> Low 80s.	English Language Arts 30-1*	English 12*	English 40S*	English 121* or 122*
<b>Geography and Aviation</b> Low 80s. Program Briefing Session, Transport Canada Category 1 Medical Certification required.	English Language Arts 30-1*; one of Math 30-1*, Math 30-2*, or Math 31*	English 12*; one Grade 12 Math* or AP Calculus*	English 40S*; one of Pre-Calculus Math 40S*, Calculus 45A*, 45S*, or AP Calculus*	English 121* or 122*; Pre-Calculus 120B* or Calculus 120*
<b>Geomatics</b> Low 80s.	English Language Arts 30-1*; one of Math 30-1*, Math 30-2*, or Math 31*	English 12*; one Grade 12 Math* or AP Calculus*	English 40S*; one of Pre-Calculus Math 40S*, Calculus 45A*, Calculus 45S*, or AP Calculus*	English 121* or 122*; Pre-Calculus 120B* or Calculus 120*
<b>Knowledge Integration</b> Low 80s.	English Language Arts 30-1**; one of Math 30-1**, Math 30-2**, or Math 31**; one Level 30 or 31 Science**	English 12**, one Grade 12 Math**, one Grade 12 Science**	English 40S**, one Math** at the 40 level or higher, one Science** at the 40 level or higher	English 121** or 122**; Pre-Calculus 120B** or Calculus 120**; one Science** at the 121 or 122 level
<b>Planning</b> Low 80s.	English Language Arts 30-1**	English 12**	English 40S**	English 121** or 122**
<b>HEALTH</b>				
<b>Health Sciences</b> Low 80s regular, mid-80s co-op.	Biology 30*; Chemistry 30*; English Language Arts 30-1*; one of Mathematics 30-1*, Mathematics 30-2*, or Mathematics 31*	Anatomy and Physiology 12*; Chemistry 12*; English 12*; one Grade 12 Mathematics* or AP Calculus*	Biology 40S*; Chemistry 40S*; English 40S*; one of Pre-Calculus Mathematics 40S*, Calculus 45A*, Calculus 45S*, or AP Calculus*	Biology 121* or 122*; Chemistry 121* or 122*; English 121* or 122*; Pre-Calculus 120B* or Calculus 120*
<b>Kinesiology</b> Low 80s regular, mid-80s co-op.	Mathematics 30-1* or Mathematics 31*; two of Biology 30*, Chemistry 30*, or Physics 30*; English Language Arts 30-1*	One of Pre-Calculus 12*, Calculus 12*, or AP Calculus*; two of Anatomy and Physiology 12*, Chemistry 12*, or Physics 12*; English 12*	One of Pre-Calculus Mathematics 40S*, Calculus 45A*, Calculus 45S*, or AP Calculus*; two of Biology 40S*, Chemistry 40S*, or Physics 40S*; English 40S*	One of Pre-Calculus 120B* or Calculus 120*; two of Biology 121* or 122*, Chemistry 121* or 122*, or Physics 121* or 122*; English 121* or 122*
<b>Public Health</b> Low 80s regular, mid-80s co-op.	English Language Arts 30-1**; one of Mathematics 30-1*, Mathematics 30-2*, or Mathematics 31*	English 12**; one Grade 12 Mathematics* or AP Calculus*	English 40S**; one of Pre-Calculus Mathematics 40S*, Calculus 45A*, Calculus 45S*, or AP Calculus*	English 121** or 122**; Pre-Calculus 120B* or Calculus 120*
<b>Recreation and Leisure Studies</b> † Low 80s.	English Language Arts 30-1*	English 12*	English 40S*	English 121* or 122*

NEWFOUNDLAND AND LABRADOR	NOVA SCOTIA	PRINCE EDWARD ISLAND	QUEBEC (CEGEP)	SASKATCHEWAN	INTERNATIONAL BACCALAUREATE
English 3201*; one of Advanced Mathematics 3201* or 3200*, Mathematics 3208* or AP Calculus*; either Chemistry 3202 or Physics 3204	English 12 Academic*; one of Mathematics 12*, Pre-Calculus 12*, or Calculus 12*; one of Chemistry 12 Academic or Physics 12 Academic	English 621A*; one of Mathematics 611B* or Mathematics 621B*; one of Chemistry 611A or 621A or Physics 621A	Two English 603* or 604* series; one of Linear Algebra*, Calculus I*, or Calculus II*; one of: both Chemistry I and II, or Mechanics, plus one of Electricity and Magnetism or Waves, Optics, and Modern Physics	English Language Arts A30* and B30*; one of Pre-Calculus 30*, Calculus 30*, or AP Calculus*; one of Chemistry 30 or Physics 30	HL or SL English A, min 4, or HL English B, min 5. Mathematics: HL or SL Analysis and Approaches or HL Applications and Interpretations, min 4. One of: Chemistry or Physics. Total 27
English 3201*	English 12 Academic*	English 621A*	Two English 603* or 604* series	English Language Arts A30* and B30*	HL or SL English A, min 4, or HL English B, min 5. Total 27.
English 3201*; one of Advanced Mathematics 3201* or 3200*, Mathematics 3208*, or AP Calculus*	English 12 Academic*; one of Mathematics 12*, Pre-Calculus 12*, or Calculus 12*	English 621A*; Math 611B* or 621B*	Two English 603* or 604* series; one of Linear Algebra*, Calculus I*, or Calculus II*	English Language Arts A30* and B30*; one of Foundations of Math 30*, Pre-Calculus 30*, Calculus 30* or AP Calculus*	HL or SL English A, min 4, or HL English B, min 5. Mathematics: HL or SL Analysis and Approaches or HL Applications and Interpretations, min 4. Strongly recommended: one SL course in Physical or Environmental Science. Total 27.
English 3201*; one of Advanced Mathematics 3201* or 3200*, Mathematics 3208*, or AP Calculus*	English 12 Academic*; one of Mathematics 12*, Pre-Calculus 12*, or Calculus 12*	English 621A*; Math 611B* or 621B*	Two English 603* or 604* series; one of Linear Algebra*, Calculus I*, or Calculus II*	English Language Arts A30* and B30*; one of Foundations of Math 30*, Pre-Calculus 30*, or AP Calculus*	HL or SL English A, min 4, or HL English B, min 5. Mathematics: HL or SL Analysis and Approaches or HL Applications and Interpretations, min 4. Total 27.
English 3201**, one Math** at the 3 level, one Science** at the 3 level	English 12 Academic**, one of Mathematics 12**, Pre-Calculus 12**, or Calculus 12**; one Grade 12 Academic Science**	English 621A**, Math 611B** or 621B**; one Science** at the 611A or 621A level	Two English 603** or 604** series, one academic course in Math**, one academic course in Science**	English Language Arts A30** and B30**, one Math** at the 30 level, one Science** at the 30 level	HL or SL English A, min 4, or HL English B, min 5. Mathematics: HL or SL Analysis and Approaches or HL Applications and Interpretations, min 4. HL or SL Science, min 4. Total 27.
English 3201**	English 12 Academic**	English 621A**	Two English 603** or 604** series	English Language Arts A30** and B30**	HL or SL English A, min 4, or HL English B, min 5. Total 27.
Biology 3201*; Chemistry 3202*; English 3201*; one of Advanced Mathematics 3201* or 3200*, Mathematics 3208*, or AP Calculus*	Biology 12 Academic*; Chemistry 12 Academic*; English 12 Academic*; one of Mathematics 12*, Pre-Calculus 12*, or Calculus 12*	Biology 621A*; Chemistry 611A* or 621A*; English 621A*; Mathematics 611B* or 621B*	Biology I* and II*; Chemistry I* and II*; two English 603* or 604* series; Linear Algebra* or Calculus I*	Biology 30*; Chemistry 30*; English Language Arts A30* and B30*; one of Foundations of Mathematics 30*, Pre-Calculus 30*, or Calculus 30*	Mathematics: HL or SL Analysis and Approaches, min 4, or HL Applications and Interpretations, min 4. HL or SL Chemistry, min 4. HL or SL Biology, min 4. HL or SL English A, min 4, or HL English B, min 5. Total 28.
One of Advanced Mathematics 3201* or 3200*, Mathematics 3208*, or AP Calculus*; two of Biology 3201*, Chemistry 3202*, or Physics 3204*; English 3201*	One of Pre-Calculus 12* or Calculus 12*; two of Biology 12 Academic*, Chemistry 12 Academic*, or Physics 12 Academic*; English 12 Academic*	One of Mathematics 611B* or 621B*; two of Biology 621A*, Chemistry 611A* or 621A*, or Physics 621A*; English 621A*	Linear Algebra* or Calculus I*; two of Biology I* and II*, Chemistry I* and II*, or Mechanics* plus either Electricity & Magnetism* or Waves, Optics & Modern Physics*; two English 603* or 604* series	One of Pre-Calculus 30*, Calculus 30*, or AP Calculus*; two of Biology 30*, Chemistry 30*, or Physics 30*; English Language Arts A30* and B30*	Mathematics: HL or SL Analysis and Approaches, min 4, or HL Applications and Interpretations, min 4. Two of HL or SL Biology, HL or SL Physics, or HL or SL Chemistry, min 4 in each; HL or SL English A, min 4, or HL English B, min 5. Total 27.
English 3201**; one of Advanced Mathematics 3201* or 3200*, Mathematics 3208*, or AP Calculus*	English 12 Academic**, one of Mathematics 12*, Pre-Calculus 12*, or Calculus 12*	English 621A**, Mathematics 611B* or 621B*	Two English 603** or 604** series; Linear Algebra* or Calculus I*	English Language Arts A30** and B30**; one of Foundations of Math 30*, Pre-Calculus 30*, or Calculus 30*	Mathematics: HL or SL Analysis and Approaches, min 4, or HL Applications and Interpretations, min 4. HL or SL English A, min 4, or HL English B, min 5. Total 28.
English 3201*	English 12 Academic*	English 621A*	Two English 603* or 604* series	English Language Arts A30* and B30*	HL or SL English A, min 4, or HL English B, min 5. Total 27.

# OUT-OF-PROVINCE ADMISSION REQUIREMENTS 2022 CONTINUED

PROGRAM/ADMISSION AVERAGE/ ADDITIONAL REQUIREMENTS	ALBERTA, NORTHWEST TERRITORIES, AND NUNAVUT	BRITISH COLUMBIA AND YUKON	MANITOBA	NEW BRUNSWICK
For additional province-specific information, refer to the notes on page 51. Complete admission requirements, recommendations, and documents are available online.				
<b>MATHEMATICS – For all Mathematics programs: AIF required. Participation in the Euclid and Canadian Senior Mathematics Contests is strongly recommended.</b>				
<b>Business Administration (Laurier) and Computer Science (Waterloo) Double Degree Mid-90s. Business Administration (Laurier) and Mathematics (Waterloo) Double Degree Low 90s. Mathematics/Chartered Professional Accountancy High 80s.</b> AIF required. Individual selection may vary.	Math 30-1, Math 31, English Language Arts 30-1	Pre-Calculus 12; Calculus 12 or AP Calculus; English 12	Pre-Calculus Math 40S; one of Calculus 45A, 45S, or AP Calculus; English 40S	Pre-Calculus 120B, Calculus 120, English 121 or 122
<b>Mathematics<sup>†</sup>, Mathematics/Business Administration<sup>†</sup>, Mathematics/Financial Analysis and Risk Management High 80s.</b> AIF required. Individual selection may vary.	Math 30-1, Math 31, English Language Arts 30-1	Pre-Calculus 12; Calculus 12 or AP Calculus; English 12	Pre-Calculus Math 40S; one of Calculus 45A, 45S, or AP Calculus; English 40S	Pre-Calculus 120B, Calculus 120, English 121 or 122
<b>Computer Science<sup>†</sup> Low to mid-90s.</b> AIF required. Individual selection may vary.	Math 30-1, Math 31, English Language Arts 30-1	Pre-Calculus 12; Calculus 12 or AP Calculus; English 12	Pre-Calculus Math 40S; one of Calculus 45A, 45S, or AP Calculus; English 40S	Pre-Calculus 120B, Calculus 120, English 121 or 122
<b>SCIENCE</b>				
<b>Biotechnology/Chartered Professional Accountancy Low 90s. Environmental Science, Honours Science, Life Sciences<sup>†</sup>, Physical Sciences<sup>†</sup>, Science and Business Low 80s.</b>	English Language Arts 30-1*; Math 30-1*; Math 31*; two of Biology 30, Chemistry 30, Math 30-2, or Physics 30	English 12*; Pre-Calculus 12*; Calculus 12* or AP Calculus*; two of Anatomy and Physiology 12, Chemistry 12, Geology 12, Physics 12, or either Statistics 12 or Foundations of Math 12	English 40S*; Pre-Calculus Math 40S*; one of Calculus 45A*, 45S*, or AP Calculus*; two of Biology 40S, Chemistry 40S, or Physics 40S	English 121* or 122*; Pre-Calculus 120B*; Calculus 120*; two of Biology 121 or 122, Chemistry 121 or 122, or Foundations of Math 120
<b>Science and Aviation Low 80s.</b> Program Briefing Session and Transport Canada Category 1 Medical Certification required.	English Language Arts 30-1*; Math 30-1*; Math 31*; two of Biology 30, Chemistry 30, Math 30-2, or Physics 30		English 40S*; Pre-Calculus Math 40S*; one of Calculus 45A*, 45S*, or AP Calculus*; two of Biology 40S, Chemistry 40S, or Physics 40S	English 121* or 122*; Pre-Calculus 120B*; Calculus 120*; two of Biology 121 or 122, Chemistry 121 or 122, Physics 121 or 122, or Foundations of Math 120
<b>SUSTAINABILITY AND FINANCIAL MANAGEMENT</b>				
<b>Sustainability and Financial Management Mid-80s.</b> Accounting and Financial Management Admissions Assessment (AFMAA), interview and trait assessment required.	English Language Arts 30-1**, Mathematics 30-1**, Mathematics 31**	English 12**; Pre-Calculus 12**; Calculus 12** or AP Calculus**	English 40S**; Pre-Calculus Mathematics 40S**; Calculus 45A**, 45S** or AP Calculus**	English 121** or 122**, Pre-Calculus 120B**, Calculus 120**

NEWFOUNDLAND AND LABRADOR	NOVA SCOTIA	PRINCE EDWARD ISLAND	QUEBEC (CEGEP)	SASKATCHEWAN	INTERNATIONAL BACCALAUREATE
One of Advanced Mathematics 3201 or 3200; one of Mathematics 3208 or AP Calculus; English 3201	Pre-Calculus 12, Calculus 12, English 12 Academic	Math 611B, Math 621B, English 621A	Calculus I; Linear Algebra or Calculus II; two English 603 or 604 series	Pre-Calculus 30; Calculus 30 or AP Calculus; English Language Arts A30 and B30	Mathematics: HL Analysis and Approaches, min 6. HL or SL English A. Total 32.
One of Advanced Mathematics 3201 or 3200; one of Mathematics 3208 or AP Calculus; English 3201	Pre-Calculus 12, Calculus 12, English 12 Academic	Math 611B, Math 621B, English 621A	Calculus I; Linear Algebra or Calculus II; two English 603 or 604 series	Pre-Calculus 30; Calculus 30 or AP Calculus; English Language Arts A30 and B30	Mathematics: HL Analysis and Approaches, min 6. HL or SL English A. Total 32.
One of Advanced Mathematics 3201 or 3200; one of Mathematics 3208 or AP Calculus; English 3201	Pre-Calculus 12, Calculus 12, English 12 Academic	Math 611B, Math 621B, English 621A	Calculus I; Linear Algebra or Calculus II; two English 603 or 604 series	Pre-Calculus 30; Calculus 30 or AP Calculus; English Language Arts A30 and B30	Mathematics: HL Analysis and Approaches, min 6. HL or SL English A. Total 32.
English 3201*; one of Advanced Mathematics 3201* or 3200*; one of Mathematics 3208* or AP Calculus*; two of Biology 3201, Chemistry 3202, Earth Systems 3209, or Physics 3204	English 12 Academic*; Pre-Calculus 12*; Calculus 12*; two of Biology 12 Academic, Chemistry 12 Academic, Geology 12 Academic, or Physics 12 Academic	English 621A* or 611*; Math 621B*; Math 611B*; two of Biology 621A, Chemistry 611A or 621A, or Physics 621A	Two English 603* or 604* series; Calculus I*; two of Biology I and II, Chemistry I and II, Linear Algebra, or Mechanics plus either Electricity & Magnetism or Waves, Optics & Modern Physics	English Language Arts A30* and B30*; Pre-Calculus 30*; Calculus 30* or AP Calculus*; two of Biology 30, Chemistry 30, Foundations of Math 30, or Physics 30	HL or SL Mathematics: Analysis and Approaches, min 4. HL or SL English A, min 4, or HL English B, min 5. Two of: Biology, Chemistry, or Physics. Total 27, except for Biotechnology/Chartered Professional Accountancy: total 32.
English 3201*; one of Advanced Mathematics 3201* or 3200*; one of Mathematics 3208* or AP Calculus*; two of Biology 3201, Chemistry 3202, Earth Systems 3209, or Physics 3204	English 12 Academic*; Pre-Calculus 12*; Calculus 12*; two of Biology 12 Academic, Chemistry 12 Academic, Geology 12 Academic, or Physics 12 Academic	English 621A* or 611*; Math 621B*; Math 611B*; two of Biology 621A, Chemistry 611A or 621A, or Physics 621A	Two English 603* or 604* series; Calculus I*; two of Biology I and II, Chemistry I and II, Linear Algebra, or Mechanics plus either Electricity & Magnetism or Waves, Optics & Modern Physics	English Language Arts A30* and B30*; Pre-Calculus 30*; Calculus 30* or AP Calculus*; two of Biology 30, Chemistry 30, Foundations of Math 30, or Physics 30	HL or SL Mathematics: Analysis and Approaches, min 4. HL or SL English A, min 4, or HL English B, min 5. Two of: Biology, Chemistry, or Physics. Total 27.
English 3201**, one of Advanced Mathematics 3201** or 3200**, one of Mathematics 3208** or AP Calculus**	English 12 Academic**, Pre-Calculus 12**, Calculus 12**	English 621A**, Mathematics 611B**, Mathematics 621B**	Two English 603** or 604** series, Calculus I**, Linear Algebra** or Calculus II**	English Language Arts A30** and B30**; Pre-Calculus 30**; Calculus 30** or AP Calculus**	HL or SL English A, min 4, or HL English B, min 5. Mathematics: Analysis and Approaches HL (recommended) or SL, min 4. Total 28.