Faculty of Science

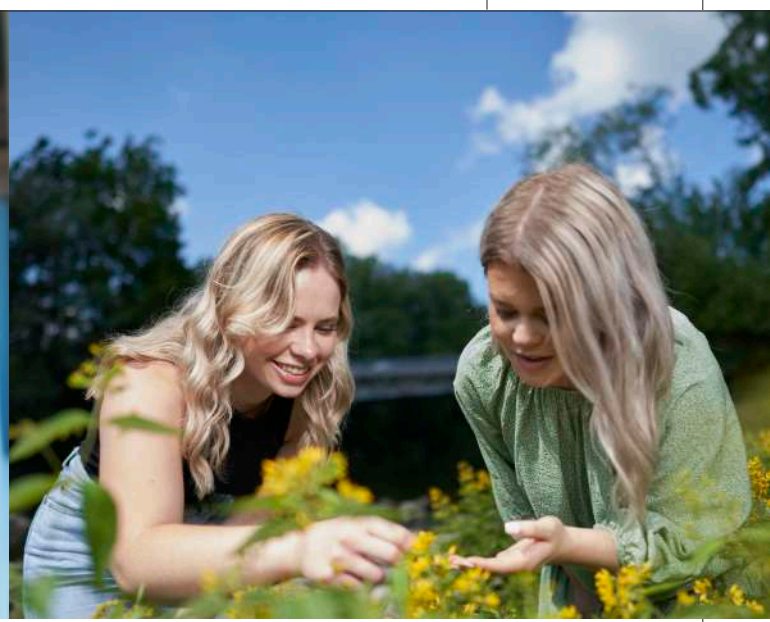
Undergraduate Viewbook ‘26–27

Western UNIVERSITY · CANADA


Where an exceptional student life meets a rewarding and impactful science education.
Expect excellence.
Experience more.
Experiment with what you love.
At Western Science.

Western Science

Contents



WHY WESTERN SCIENCE?

04

1

Strong Academic Reputation With World-Class Faculty

Join one of Canada's top science faculties, known for academic excellence and research innovation. At Western Science, you'll receive the support you need to excel and graduate with credentials that carry global recognition.

2

Unique Program Offerings

Looking for more than a traditional degree? Dive into our interdisciplinary programs like integrated science and data science. You'll tackle complex challenges, gain hands-on experience and excel in your field when you graduate.

3 Flexible Degree Options

It can take time to discover your academic passion. Our modular degrees evolve with you, allowing you to tailor your studies as your interests develop. Whether you're exploring life sciences, chemistry, mathematics or a blend, Western Science enables you to create a customized degree that fits your particular interests and career goals.

4

Experiential Learning

Take your science learning outside the classroom by engaging in a range of opportunities to help shape your career path. Enroll in a laboratory-only course, participate in a co-op or take a field course led by renowned researchers. Western Science provides transformational experiences that prepare you for a dynamic career.

5

Enriching Social Opportunities

Embrace the full university experience while pursuing your passion for science. Join over 180 student clubs, play for a varsity or intramural sports team or showcase your musical talents in our vibrant music ensembles. At Western, you'll build lifelong connections and find your community, ensuring a rich and rewarding student life alongside your academic journey.

“Your degree will lay the foundation for a career path that can twist and turn. Developing the breadth of knowledge and basic fundamentals taught at Western puts you in the driver’s seat to navigate these changes.

Jeremy Trader, BSc ‘13
Chief Actuary at Knighthead Annuity & Life Insurance Company

YOUR FUTURE STARTS HERE

Admission

Science

OUAC Code: ES

Mandatory

- English (ENG4U)
- Calculus and Vectors (MCV4U)

Plus Two From

- Advanced Functions (MHF4U)
- Biology (SBI4U)
- Chemistry (SCH4U)
- Computer Science (ISC4U)
- Earth and Space Science (SES4U)
- Mathematics of Data Management (MDM4U)
- Physics (SPH4U)

Computer Science

OUAC Code: ECS

Mandatory

- English (ENG4U)
- Calculus and Vectors (MCV4U)
- Advanced Functions (MHF4U)

Plus One From

- Biology (SBI4U)
- Chemistry (SCH4U)
- Computer Science (ISC4U)
- Earth and Space Science (SES4U)
- Mathematics of Data Management (MDM4U)
- Physics (SPH4U)

Basic Medical Sciences

OUAC Code: ESM

Mandatory

- English (ENG4U)
- Calculus and Vectors (MCV4U)
- Biology (SBI4U)
- Chemistry (SCH4U)

Recommended

- Physics (SPH4U)

NOTES:

1. First-year biology and chemistry courses require Grade 12 Biology (SBI4U) and Grade 12 Chemistry (SCH4U), respectively.

2. For admission into integrated science, Grade 12 Chemistry is also mandatory.

Learn more about Admission Requirements

Start

Offer Accepted!

Once you have accepted your offer, you will have access to the services of Science Academic Advising.

Year 1

Build Your Base

As a first-year Science student, you will take prerequisite courses along with electives that spark your interests.

CHOOSE YOUR OWN ADVENTURE

Thousands of Module Options

At Western, you can customize your academic journey with our flexible module system. A module is a focused set of courses within a specific area of study. Most modules begin in year two. Choose from Honours Specialization, Specialization, Major or Minor modules. You can even combine two modules, or mix a science module with one from another faculty (e.g., Ivey Business School, Arts and Humanities or Social Science.) The possibilities are endless! For more details on each module type, scan the QR code.

Year 2

Enter Module

You will enter your chosen module in year two and begin taking more specialized courses.

Stay or Shift

Year 3

In year three, you can stay in your current module or shift your science discipline.*

Co-op

Option to enter a 12 to 16-month paid co-op.

Year 4

Prepare to Graduate

In year four, you can complete your module, often with unique capstone experiences.

Year 5
Optional

You may need additional time to finish your degree (e.g., you complete a co-op or dual-degree.)

+

Unlimited Career Options

A degree from Western Science will prepare you for a range of future pathways, including industry careers, graduate school and professional programs such as medicine, law, business and teacher's college.

*If you are interested in switching your module, you will need to meet the new module requirements for graduation. Please consult with Science Academic Advising.

Computer Science

Explore a dynamic blend of traditional and cutting-edge disciplines with Western's Computer Science program. Led by internationally recognized faculty, dive into the theoretical foundations of computer science while gaining hands-on experience in high-demand fields such as game design, cybersecurity, robotics and artificial intelligence. From software development to advanced studies in databases and cloud computing, you'll acquire the skills to solve complex challenges at the forefront of technology. A degree from Western opens doors to diverse career opportunities in the ever-evolving world of computer science.

Modules

- Computer Science
- Data Science*
- Game Development
- Software Engineering

*See Data Science program information on page 28

Popular Courses

- Artificial Intelligence
- Computer Graphics I
- Databases
- Game Programming
- Human-Computer Interaction
- Introduction to Machine Learning
- Network Security

WHO HIRES COMPUTER SCIENCE GRADUATES?

- Aerospace Industry (e.g., Boeing, Lockheed Martin, Airbus)
- Big Tech (e.g., Google, Facebook, Amazon)
- Telecommunications (e.g., Rogers, Bell, Telus)
- Video Game Developers (e.g., Big Blue Bubble, EA, Digital Extremes)

Mathematics

School of Mathematical and Statistical Sciences

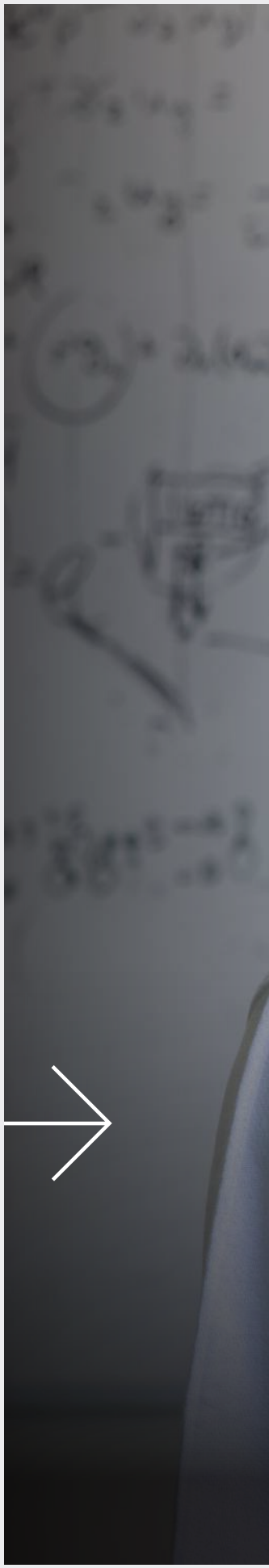
Mathematics serves as the universal language that unlocks our understanding of numbers, shapes and the world around us. At Western, our Mathematics program goes beyond calculations—it cultivates computational skills and sharpens your ability to analyze and interpret complex patterns using this powerful language. From theoretical insights to practical applications in fields ranging from economics to biology and information technology, graduates with expertise in mathematics are in high demand. Prepare for a career where logical thinking, problem-solving and data analysis are key, and where your skills will make a significant impact.

Modules

- Applied Mathematics
- Mathematics
- Mathematical and Statistical Sciences

Popular Courses

- Differential Equations
- Computer Algebra
- Topology
- Game Theory
- Cryptography
- Mathematical Biology



The Faculty of Education at Western offers a direct pathway to the Teacher Education program for qualified candidates from Western's mathematics, actuarial science, financial modelling, data science, and statistics programs.

WHO HIRES MATHEMATICS GRADUATES?

- Banking and Finance (e.g., Royal Bank of Canada, TD, Manulife)
- Big Tech (e.g., Google, Facebook, Amazon)
- Government
- Insurance (e.g., Canada Life, Intact, Sun Life, Desjardins)

Statistical and Actuarial Sciences

School of Mathematical and Statistical Sciences

How do you make the best decision when given data? Statistics is the science of extracting meaningful information from data and evaluating the level of uncertainty in a given conclusion. From designing experiments to evaluate the effectiveness of a new drug to predicting stock market prices and modelling life insurance and pension plans, the teaching and research carried out by the Statistical and Actuarial Sciences program have many real-world applications. All modules combine application, technical skills and theory to prepare graduates for careers in a diverse range of sectors.

Modules

- Actuarial Science
- Applied Financial Modelling
- Applied Statistics
- Data Science*
- Financial Modelling
- Statistics

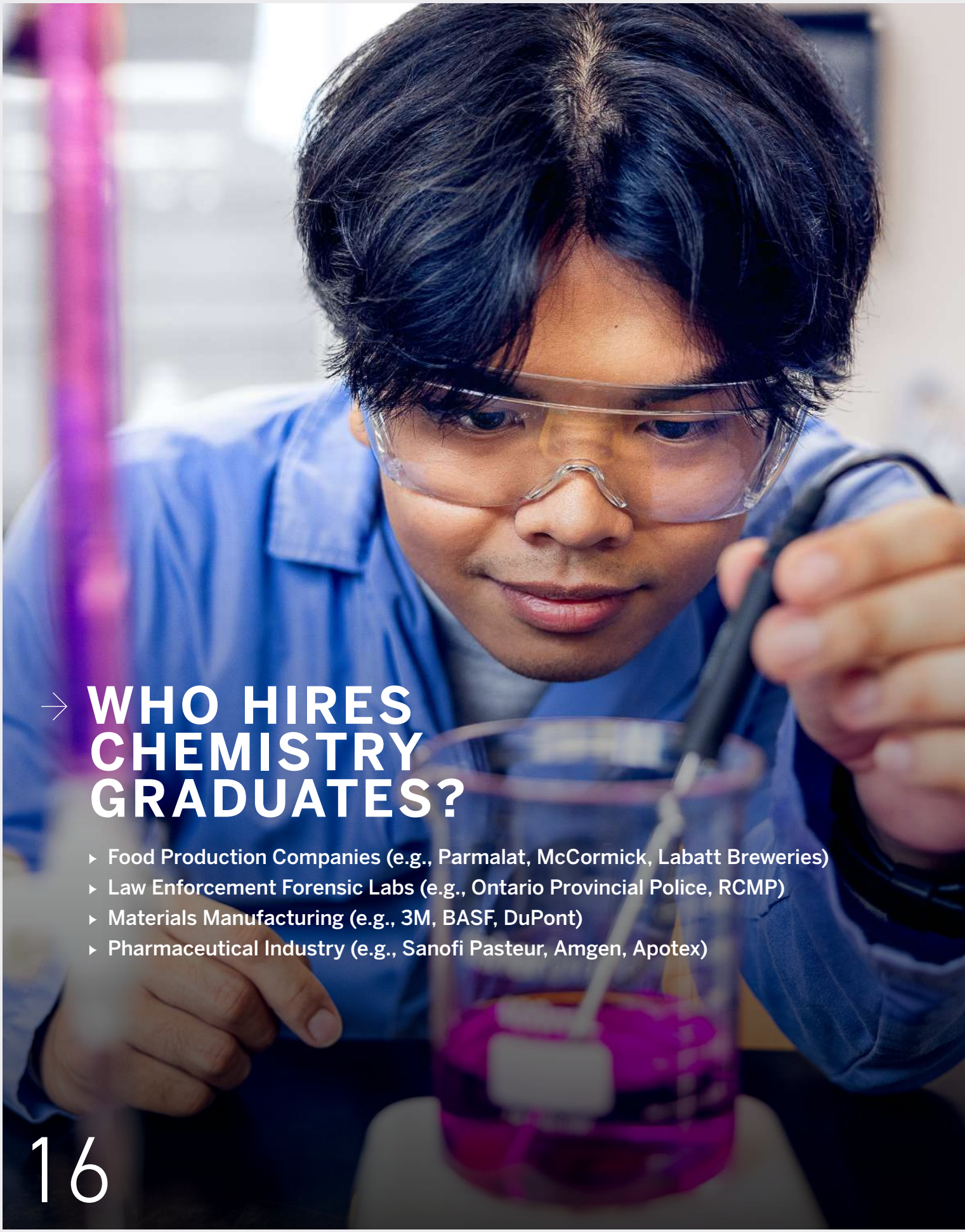
*See Data Science program information on page 28

Popular Courses

- Actuarial Mathematics
- Business Skills
- Corporate Finance
- Financial Modelling
- Generalized Linear Models
- Mathematics of Finance
- Statistical Programming

WHO HIRES STATISTICAL AND ACTUARIAL SCIENCES GRADUATES?

- Banking and Finance (e.g., Royal Bank of Canada, TD Canada Trust, Manulife)
- Big Tech (e.g.,Google, Facebook, Amazon)
- Government
- Insurance (e.g., Canada Life, Intact, Sun Life, Desjardins)



WHO HIRES CHEMISTRY GRADUATES?

- Food Production Companies (e.g., Parmalat, McCormick, Labatt Breweries)
- Law Enforcement Forensic Labs (e.g., Ontario Provincial Police, RCMP)
- Materials Manufacturing (e.g., 3M, BASF, DuPont)
- Pharmaceutical Industry (e.g., Sanofi Pasteur, Amgen, Apotex)

Chemistry

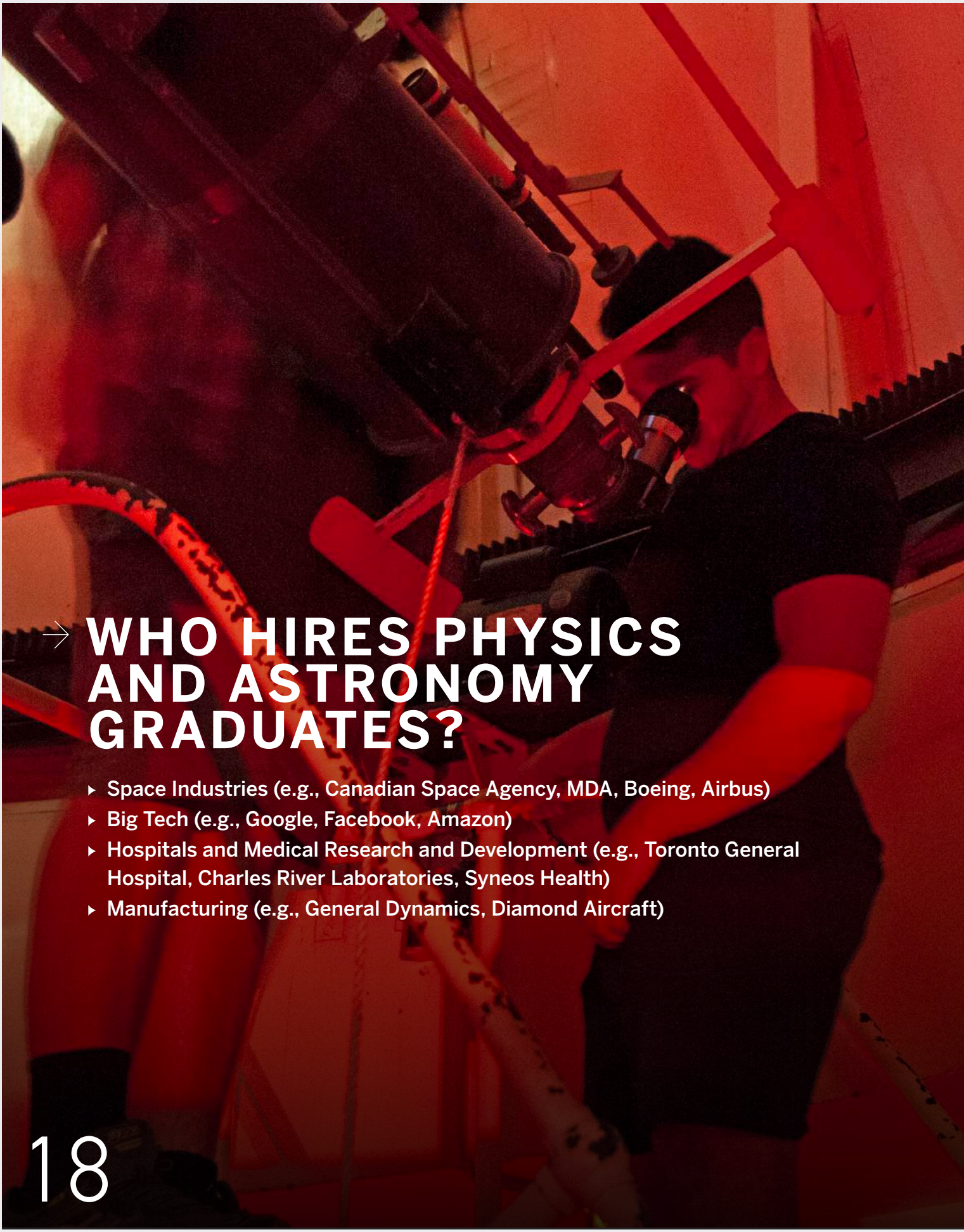
Known as the central science, chemistry explores the interactions of atoms, molecules and materials, forming the foundation of disciplines ranging from engineering to medicine. Western's Chemistry program provides hands-on learning essential for mastering this interdisciplinary field. With over 600 hours spent in state-of-the-art labs, students gain proficiency in cutting-edge tools and techniques of organic, physical and computational chemistry. This immersive approach not only prepares graduates for advanced studies and research but also opens doors to diverse career opportunities in industries where chemistry plays a crucial role—such as pharmaceuticals, manufacturing and alternative energy generation.

Modules

- Biochemistry and Chemistry
- Chemistry

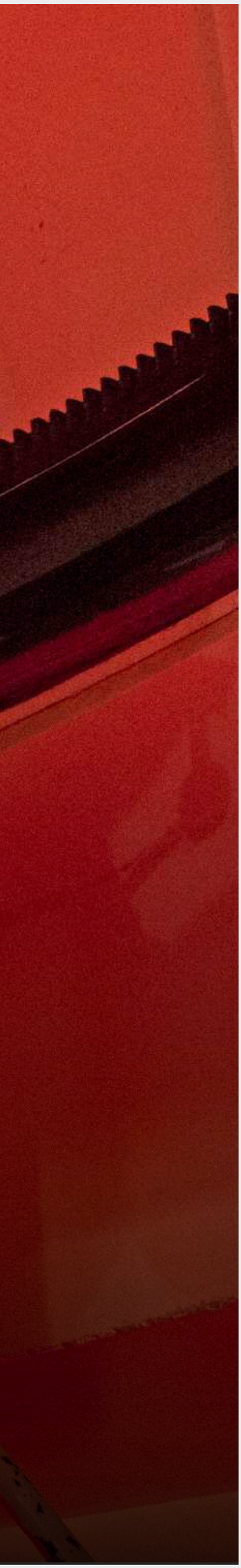
Popular Courses

- Medicinal Chemistry
- Modern Chemical Synthesis
- Polymer Chemistry
- Molecular Structure and Simulation
- Radiation, Nuclear and Radiopharmaceutical Chemistry
- Transition Metals and Catalysis
- Chemical Research, Discovery and Scientific Communication



WHO HIRES PHYSICS AND ASTRONOMY GRADUATES?

- Space Industries (e.g., Canadian Space Agency, MDA, Boeing, Airbus)
- Big Tech (e.g., Google, Facebook, Amazon)
- Hospitals and Medical Research and Development (e.g., Toronto General Hospital, Charles River Laboratories, Syneos Health)
- Manufacturing (e.g., General Dynamics, Diamond Aircraft)



Physics and Astronomy

From the smallest scales of the atom to the vast expanses of the cosmos, the Physics and Astronomy program explores how matter, forces and energy shape our world. Our interdisciplinary research spans from developing cutting-edge medical imaging techniques to analyzing data from space telescopes like the James Webb. As an undergraduate, you'll play a pivotal role in groundbreaking discoveries, honing your problem-solving and critical thinking skills. Graduates embark on diverse careers—from advancing medical imaging to tackling environmental challenges like climate change—pioneering both in basic science and applied fields.

Modules

- Advanced Physics
- Astrophysics
- Conceptual Astronomy
- Medical Physics
- Physics
- Scientific Computing and Numerical Methods

Popular Courses

- Astrophysics of Interstellar Space
- Oscillations and Waves
- Quantum Mechanics
- Radiological Physics
- Search for Life in the Universe
- Quantum Computation
- Space Flight Experiments

Biology

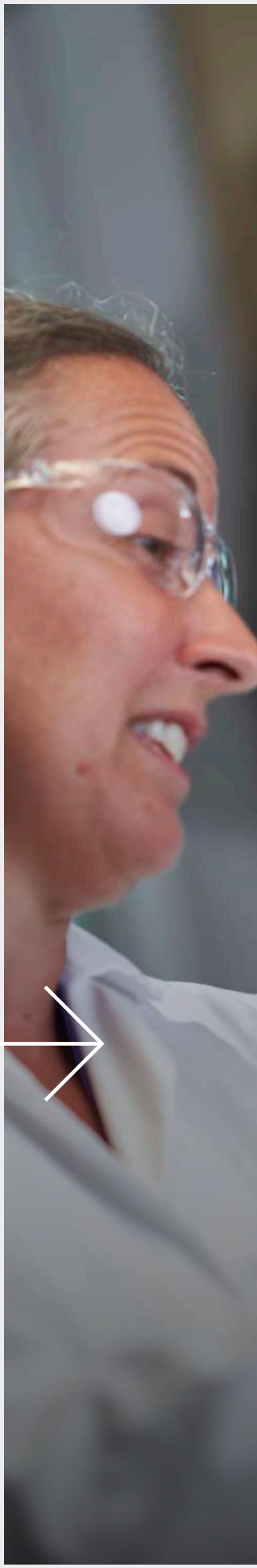
Dive deep into the complexities of life itself with Western's Biology program. Our research programs explore a wide range of topics, from single genes and organism development to the responses of plants and animals to climate change, population dynamics and the ecology of insects, birds and fish. The program covers the breadth of modern biology. With a focus on innovative teaching strategies, our 78 diverse courses offer hands-on learning experiences, including immersive field studies and impactful capstone thesis projects. At Western, the undergraduate biology experience prepares you for a wide range of career opportunities, equipping you with the knowledge and skills to make a meaningful impact across industries.

Modules

- Animal Behaviour
- Biodiversity and Conservation
- Biology
- Ecosystem Health
- Genetics
- Genetics and Biochemistry
- Synthetic Biology

Popular Courses

- Animal Diversity: Ancestral Vertebrates to Jellyfish
- DNA: Genome Organization, Mutagenesis and Repair
- Evolution of Plants
- Global Change Biology
- Physiology of Animal Migration
- Principles of Human Genetics



WHO HIRES BIOLOGY GRADUATES?

- Biotechnology Companies (e.g., Novo Nordisk, Thermo Fisher Scientific)
- Food Production Companies (e.g., Parmalat, McCormick, Labatt Breweries)
- Government (e.g., Ministry of Natural Resources)
- Pharmaceutical Industry (e.g., Sanofi Pasteur, Amgen, Apotex)

Basic Medical Sciences

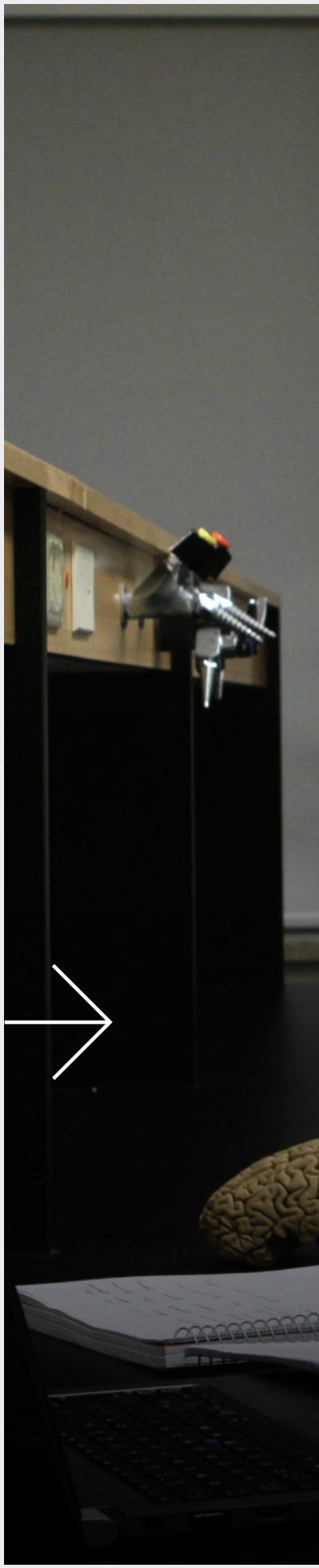
The Bachelor of Medical Sciences (BMSc) program is a collaboration between the Faculty of Science and the Schulich School of Medicine & Dentistry. This program merges scientific principles with practical applications in the diagnosis, prevention and treatment of human diseases. In your first two years, you'll build a strong foundation in biology, chemistry, physics and mathematics with the Faculty of Science. As you progress to your third year, you'll transition into the BMSc program, where you'll explore the complexities of human health and disease through specialized courses offered by our Faculty of Medicine and Dentistry. Whether you choose to keep your studies broad with an interdisciplinary focus or specialize in areas like biochemistry or epidemiology, the BMSc program prepares you for medical or dental school, graduate training or a variety of health care careers.

Modules

- Biochemistry
- Epidemiology and Biostatistics
- Interdisciplinary Medical Sciences
- Medical Bioinformatics
- Medical Biophysics
- Medical Cell Biology
- Microbiology and Immunology
- Neuroscience (BSc degree)
- One Health
- Pathology
- Physiology and Pharmacology

Popular Courses

- Cadaveric Anatomy
- Human Pharmacology and Therapeutic Principles
- Medical Imaging
- Microbiology and Immunology
- Neurobiology of Mental Illness
- Translation in Cancer Biology



Many graduates of the basic medical sciences program go on to pursue professional programs such as medicine, dentistry, nursing and optometry.

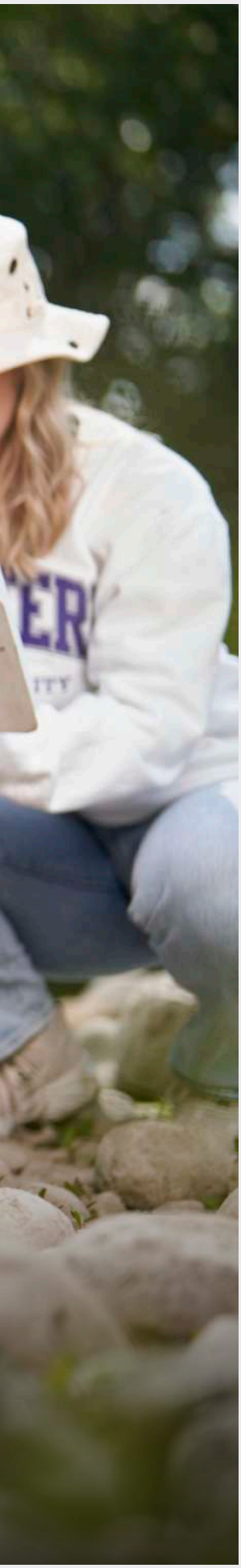
WHO HIRES BASIC MEDICAL SCIENCES GRADUATES?

- Biotechnology Companies (e.g., Novo Nordisk, Thermo Fisher Scientific, Moderna)
- Health Care, Health Services or Public Health (e.g., Public Health Agency of Canada)
- Medical Research and Development (e.g., Charles River Laboratories, ICON, Syneos Health)
- Pharmaceutical Industry (e.g., Sanofi Pasteur, Amgen, Apotex)

Pursuing modules in geology, geophysics or environmental geoscience will help you meet professional registration qualifications to become a licensed geoscientist after graduation.

WHO HIRES EARTH AND ENVIRONMENTAL SCIENCE GRADUATES?

- Conservation (e.g., The Nature Conservancy of Canada, Green Communities Canada)
- Energy Sector (e.g., Shell, Chevron, General Electric)
- Government (e.g., Ministry of Natural Resources, Environment and Climate Change Canada)
- Mining and Exploration (e.g., Teck Resources, Kirkland Lake Gold)



Earth and Environmental Science

Delve into the dynamic processes that shape our planet and examine how human activity influences vital resources such as critical minerals, energy sources, clean water and arable land. Western's Earth and Environmental Science programs offer a comprehensive understanding of the physical, chemical and biological forces driving Earth's evolution and the environmental challenges we face today—including climate change, biodiversity loss and pollution. As an undergraduate student, you can study anything from foundational geology and geophysics to cutting-edge sustainability practices. Domestic and international field courses provide immersive, hands-on learning experiences that bring classroom concepts to life.

Modules

- Environmental Science
- Geology
- Geology and Biology
- Geophysics
- Planetary Science and Space Exploration

Popular Courses

- Catastrophic Events in Earth History
- Earth Rocks!
- Environmental Science and Sustainability
- Geomicrobiology
- Life on Planet Earth
- Geochemistry
- Physics of the Earth

Integrated Science

An Interdisciplinary Program

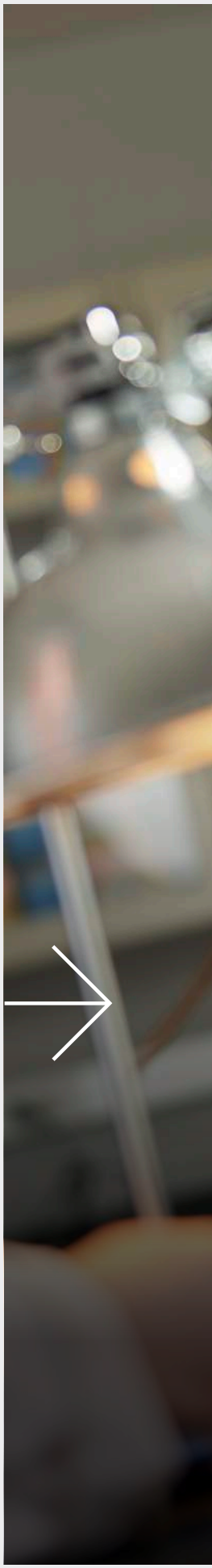
Tackling today's biggest challenges—like climate change, renewable energy and antibiotic resistance—requires a multidisciplinary approach. Western's Integrated Science (WISc) program combines in-depth coursework with a dynamic blend of integrated science courses, emphasizing the interconnected nature of science. This program not only provides specialized knowledge but also fosters a broad perspective, essential for collaborating with experts across various fields. With small class sizes and a focus on teamwork, WISc hones your critical thinking, problem-solving and leadership skills while covering a wide range of scientific disciplines. Prepare to innovate and lead in a complex world with WISc.

Integrated Science Modules

- Astrophysics
- Biology
- Chemistry
- Earth Sciences
- Environmental Science
- Genetics
- Mathematical & Statistical Sciences
- Physics
- Synthetic Biology

Popular Courses

- What Scientists Do
- Exploring Science
- Sustainability and the Environment
- Discovering Research
- Science in Your Community
- Peer Mentoring and Leadership
- Integrated Research Project



WHO HIRES INTEGRATED SCIENCE GRADUATES?

- Integrated Science graduates are employable in a wide range of industries and professions. The Integrated Science module in which you choose to specialize will best determine your potential career trajectory. Many Integrated Science students also continue to pursue graduate and professional programs, such as medicine and law.

Admission

Visit the Ontario Universities' Application Centre and apply to Science (code ES). Choose Western Integrated Science (WISc) as your "Subject of Major Interest" and complete the WISc supplemental application. In addition to the general Science requirements, you need Grade 12 Chemistry (SCH4U or equivalent).

WHO HIRES DATA SCIENCE GRADUATES?

- Banking and Finance (e.g., Royal Bank of Canada, TD, Manulife)
- Big Tech (e.g., Google, Facebook, Amazon)
- Insurance Companies (e.g., Canada Life, Intact, Sun Life, Desjardins)
- Telecommunications (e.g., Rogers, Bell, Telus)

Data Science

An Interdisciplinary Program Offered Jointly by the Department of Computer Science and the Department of Statistical and Actuarial Sciences

In our data-driven world, understanding and interpreting vast amounts of information is more important than ever. Western's Data Science program prepares you to navigate this complexity by teaching you a wide range of tools and techniques for collecting, analyzing and modelling data. This program merges computer science with statistical science, providing you with a comprehensive skill set that spans both disciplines. As a student, you'll gain hands-on experience with real-world data and learn how to uncover valuable insights. Data science is a dynamic and growing field, with data scientists being highly sought after in today's job market. At Western, you'll be well-equipped to excel in this impactful and evolving profession.

Popular Courses

- **Artificial Intelligence**
- **Data Structures and Algorithms**
- **Discrete Structures for Computing**
- **Introduction to Machine Learning**
- **Software Project Management**
- **Software Tools and Systems Programming**

STUDENT LIFE AT WESTERN

Experience the vibrant life of Western Science outside the classroom.

Science Students' Council

Step into a leadership role with the Science Students' Council! Join a passionate team of 64 students advocating for your peers and shaping the future of the Faculty of Science. It's a fantastic chance to develop leadership skills, connect with fellow science enthusiasts and make a real impact on campus life.

Science Clubs

Enhance your university experience and expand your network with one of our 21 science clubs. Find academic support, join exciting events, connect with professors and make lasting friendships. Plus, you can take on an executive role to build valuable leadership skills.

Launch into Western!

Don't wait until September to get to know Western! Our Western Launch program offers an immersive summer experience, where you can spend the day or stay overnight on campus. Explore Western's community and get an early start on your university journey.

Mentorship Program

Transitioning to university is a breeze with our Launch Peer Mentorship Program. Connect with upper-year mentors from your faculty who will guide you through academic challenges and social experiences, helping you feel right at home from day one.

Residence Living Learning Floors

Imagine living in a residence where your floor is filled with fellow science students! Western's themed living floors—Medway-Sydenham Hall for science, Perth Hall for computer science, Ontario Hall for integrated science and Elgin Hall for medical sciences—offer a unique opportunity to form study groups, gain insights from upper-year mentors and build lasting friendships.

Your journey at Western is supported every step of the way. Our dedicated team is here to guide you!

Academic Advising

Starting university is a big step, and the Science & Basic Medical Sciences Academic Advising team is here to guide you through it. Whether you need help mapping out your academic path, managing coursework or ensuring you stay on track for graduation, our team is dedicated to your success.

Department Advising

For tailored advice on your specific module, our Department Advisors are your go-to experts. With in-depth knowledge of their departments, they'll assist you with course selection and help you navigate your academic journey with confidence.

The Math-Physics Accelerator

Struggle with math or physics? No worries! The Math-Physics Accelerator provides free, one-on-one support from graduate student Teaching Assistants. Get the help you need to excel in these crucial subjects.

Learning Development & Success

Balancing university demands can be tough. The Learning Development & Success team is here to help you build essential skills, manage stress and thrive academically. Discover your strengths and find effective strategies to succeed.

Scholarships

We believe in supporting your achievements. Explore numerous scholarships and awards designed to help you excel, including the RBC Scholarship in Data Science and the WSIB Scholarships aimed at supporting students in Statistical and Actuarial Sciences, Computer Science and Data Analytics.

SUPPORTING YOUR ACADEMIC SUCCESS

PREPARING YOU FOR YOUR FUTURE

Margaret Weryk, BSc ‘15
12-month co-op as a Microbiology Technician at Labatt Brewing Company

Science Co-op Program

Gain hands-on, career-focused experience through the Science Co-op Program. You'll work with an organization on projects that make a real impact. Work terms range from 4 to 16 months and can begin as early as the summer after your second year, with most students completing 12 to 16 months of co-op following their third year. By the end of your co-op, you'll not only have practical experience under your belt but also a strengthened resume that sets you apart in the competitive job market.

Career Support

Be ready to enter the workforce after graduation with career planning assistance from the Science Careers and Professional Experience team. In addition to helping you answer career-related questions, our team will provide access to job fairs and information sessions, networking opportunities, as well as resume and interview preparation.

Experiential Learning

Round out your lectures with real-world experience. There are countless opportunities over the course of your undergraduate experience for high-impact learning opportunities.

- **Summer Research:** Explore your interests and develop technical skills by working in a lab for the summer, mentored by world-class researchers and their graduate students
- **Capstone Projects:** Finish your final year with your own research project to explore an area of interest
- **Lab Courses:** Use experimentation to bring lecture material to life in one of many lab courses offered
- **Field Courses:** Travel, explore and do research locally or internationally while getting credit for it
- **International Learning Opportunities:** Go abroad to further your skills with exchanges and study abroad programs, summer research, internships or volunteer opportunities
- **Community Engaged Learning:** Collaborate with a community partner to use your learnings to improve their business operations

WHICH LIFE SCIENCE PROGRAM IS BEST FOR YOU?

Each of Western's life science programs has a unique focus, but they all are designed to prepare you for graduate studies or professional paths in fields like medicine, dentistry, education and therapy.

Biology

Faculty of Science

Are you fascinated by how life works? The Bachelor of Science (BSc) program lets you explore life in all its forms, from entire ecosystems down to the tiniest genes. You'll learn how plants, animals and microorganisms interact with each other and their environments, making this program perfect if you're curious about nature and living organisms.

Medical Sciences

Faculty of Science and Schulich School of Medicine & Dentistry

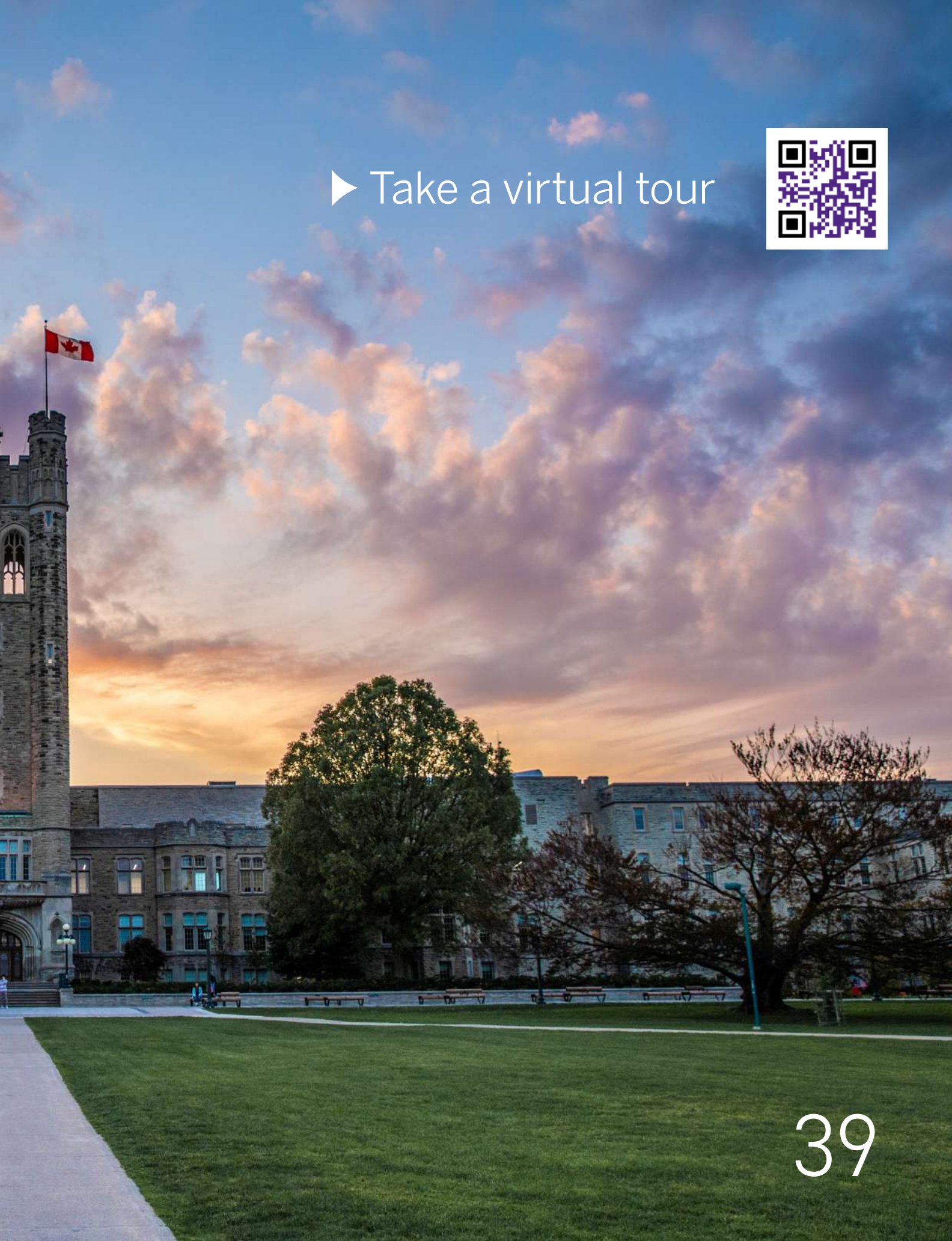
If you're interested in understanding how the human body works and how it fights diseases, the Bachelor of Medical Sciences (BMSc) is for you. This program dives into the molecular, cellular and systemic levels of the body by focusing on how the body adapts to challenges like illness and environmental changes.

Health Sciences

Faculty of Health Sciences

Want to study how health and wellness are managed in today's world? The Bachelor of Health Sciences (BHSc) program covers a wide range of topics from health promotion to aging, rehabilitation and even global health systems. It's the ideal program if you're interested in improving health outcomes and exploring how society deals with health challenges both locally and globally.


A world of possibilities in a place
that feels like home.
Discover the
community and
support that is
Western Science.


Take a virtual tour

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