WELCOME TO SCIENCE & BASIC MEDICAL SCIENCES
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## Admission Requirements

### For SCIENCE (OUAC code: ES) INTEGRATED SCIENCE (OUAC code: ES)

<table>
<thead>
<tr>
<th>MANDATORY</th>
<th>+ TWO COURSES FROM</th>
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<tbody>
<tr>
<td>English (ENG4U)</td>
<td>Advanced Functions (MHF4U)</td>
</tr>
<tr>
<td>Calculus and Vectors (MCV4U)</td>
<td>Biology (SBI4U)</td>
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<td></td>
<td>Chemistry (SCH4U)</td>
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<td>Computer and Information Science (ICS4U)</td>
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<td>Earth and Space Sciences (SES4U)</td>
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<td>Math and Data Management (MDM4U)</td>
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<tr>
<td></td>
<td>Physics (SPH4U)</td>
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Note: First-year Biology and Chemistry courses require Grade 12 Biology (SBI4U) and Grade 12 Chemistry (SCH4U), respectively. First-year Biology and Chemistry courses are required for all modules offered by the Department of Biology and some modules offered by the Department of Chemistry and other Science departments.

Integrated Science students must complete Grade 12 Chemistry (SCH4U).

### For BACHELOR OF MEDICAL SCIENCES PROGRAM (OUAC code: ESM)

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<tbody>
<tr>
<td>English (ENG4U)</td>
<td>Biology (SBI4U)</td>
</tr>
<tr>
<td>Calculus and Vectors (MCV4U)</td>
<td>Chemistry (SCH4U)</td>
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Note: Although Western offers first-year physics courses that do not require high school physics as a prerequisite, it is strongly recommended that students complete Grade 12 Physics (SPH4U).

### Once You Have Been Granted Admission to Western

Assistance with course selection is available during Summer Academic Orientation and is highly recommended. This service provides you the opportunity to discuss your courses, attend learning skills sessions and a student panel, take a tour of the campus and residences, set up a timetable and a Western email account, and register for your courses.

FOR MORE INFORMATION:
www.WesternuScience.ca/Admission
www.westerncalendar.uwo.ca

FOR MORE INFORMATION:
www.westerncalendar.uwo.ca/FirstYear
STUDENT SNAPSHOTs

The Western Experience begins with our students. Bright, focused and driven, they represent a rich mosaic of cultures, interests, aspirations and achievements. Meet a few members of our outstanding student body. Next year, one of these snapshots could be yours.

For more information:
www.WesternuScience.ca/Snapshots
**Devanshi**

**Favorite subject in high school:** Biotechnology

“I loved the applied approach to learning science. Hands-on exploration was exciting and it taught me to focus on process rather than just results.”

**The award of which I am most proud:** The Weizmann Summer Institute Scholarship

“The scholarship allowed me to work in a lab in Israel with students from Europe and the U.S. and experience the challenges and opportunities of science research in a multi-cultural and multi-disciplinary environment.”

**Most Interesting Experience at Western:** Leading a research team during a virtual internship with the Rare Genomic Institute.

**Clubs:**

- Hindu Students’ Association – Director and organizer of cultural events including the Indian Trivia Olympics
- Gujarati Students’ Association – General member and participant in Garba (dance) in celebration of Divali.

**Leadership:**

- VP, External Relations for the Regional HIV/AIDS Connection

**Clubs:** Western Volleyball and Dodgeball Intramurals; baking chocolate chip cookies and reading historical fiction, like *All the Light We Cannot See*, by Anthony Doerr

**Kate**

**Favorite subject in high school:** History

**The award of which I am most proud:** 3rd place at Hack Western 2015

“I enjoy competition, especially when it means being able to create practical tools and viable solutions that could one day be commercialized.”

**Leadership:**

- President Elect for the Western Founder’s Network, a business/technology entrepreneurship club for which he provided operations support for a tech consulting case competition and Initiated an “ideathon”.

**Second-Year Scholar’s Project:**

Machine Learning and Natural Language Processing

“Disambiguating words with multiple meanings could eventually improve search engine accuracy.”

**Nicholas**

**Year 1 - Integrated Science and Scholar’s Electives**

**Favorite subject in high school:**

- Biochemistry

**Most Interesting Experience at Western:**

- Leading a research team during a virtual internship with the Rare Genomic Institute.

**Clubs:**

- Hindu Students’ Association – Director and organizer of cultural events including the Indian Trivia Olympics
- Gujarati Students’ Association – General member and participant in Garba (dance) in celebration of Divali.

**Leadership:**

- VP, External Relations for the Regional HIV/AIDS Connection

**Clubs:** Western Volleyball and Dodgeball Intramurals; baking chocolate chip cookies and reading historical fiction, like *All the Light We Cannot See*, by Anthony Doerr

**Year 2 - Scholar’s Electives, Pursuing a Dual Degree in Science and Business**

**Favorite subject in high school:**

- History

**Second-Year Scholar’s Project:**

CTLH Complex

“I like to understand the root cause for things that happen. The purpose of this project was to understand whether the overexpression of particular proteins cause apoptosis, the initiation of cell death, which could offer meaningful insight into efforts to cause death among cancerous cells.”

**Second-Week Scholar’s Project:**

Machine Learning and Natural Language Processing

“Disambiguating words with multiple meanings could eventually improve search engine accuracy.”

**Motivation:**

“I want the opportunity to explore a variety of learning paths in order to find what interests me most and best applies my areas of strength. This was the one school that would allow me to shape my degree.”

**The award of which I am most proud:**

- Biochemistry Undergraduate Summer Research Program (Scholarship)

“I never thought that I would spend time working in a lab, but I really enjoyed developing bonds with my lab mates and applying the techniques I had learned in class on a meaningful problem – the co-localization of proteins involved in the characterization of Alzheimer’s.”

**Leadership:**

- VP, External Relations for the Regional HIV/AIDS Connection

**Clubs:**

- Western Volleyball and Dodgeball Intramurals; baking chocolate chip cookies and reading historical fiction, like *All the Light We Cannot See*, by Anthony Doerr

**Year 3 - Scholar’s Electives - Pursuing a Dual Degree in Interdisciplinary Medical Sciences and Business**

**Motivation:**

“I want the opportunity to explore a variety of learning paths in order to find what interests me most and best applies my areas of strength. This was the one school that would allow me to shape my degree.”

**The award of which I am most proud:**

- Biochemistry Undergraduate Summer Research Program (Scholarship)

“I never thought that I would spend time working in a lab, but I really enjoyed developing bonds with my lab mates and applying the techniques I had learned in class on a meaningful problem – the co-localization of proteins involved in the characterization of Alzheimer’s.”

**Second Year Scholar’s Project:**

CTLH Complex

“Disambiguating words with multiple meanings could eventually improve search engine accuracy.”
Jonathan

**Favorite subject in high school:**
Math

“All great ideas stem from mathematics!”

**The award of which I am most proud:**
Governor General’s Bronze Medallion

“My family emigrated from China and they sacrificed a lot so that I would have a promising future. I had never taken my studies seriously before high school. So this was my chance to show them that I understood the value of effort and was being recognized for it.”

**Motivation:**

“I want to help people by making a lasting positive impact on their lives.”

“One day, a close friend of mine told me his grandfather experienced a stroke while he was sleeping. When this happens, it is difficult for physicians to estimate the time of onset of the stroke, which has terrible implications for prognosis. We spent months conceiving a research project that investigates the possibility of determining the onset of wake-up stroke by detecting irregularities in heart rate variability. A neurologist at University Hospital accepted and further guided the focus of the project to predict the onset of atrial fibrillation, a leading risk factor for stroke. If our data-driven approach proves to be promising, we hope to integrate this system into wearable technology in order to detect the early onset of atrial fibrillation in patients.”

**Third Year Scholar’s Project:**
Using Machine Learning to Predict Response to Chemotherapy

“I used the application of quantitative techniques to predict whether a cancer patient is resistant to a particular chemotherapy drug by looking at the genomic properties of the tumour. Having the opportunity to contribute my mathematical insight to such a worthy endeavour gives me great satisfaction.”

**What’s Next?**

“In the upcoming school year, I plan on meeting with doctors in London hospitals to advocate the use of deep learning in medical diagnostics and to encourage the mass-collection of imaging data for deep learning research.”

**Clubs:**

- Western Intramural Badminton Club
  “Badminton is the only sport I know how to play and it is my favourite way to de-stress. I like the delicate nature of the game. To play well requires a great deal of finesse and consistency rather than brute force.”

- Western Chess Club – Canadian University Chess Championship
  “I am not the best player but I am definitely developing patience and strategic thinking, while meeting some incredible people.”

Emily

**Favorite subject in high school:**
Biology

“This was the first time I was exposed to real and relatable science. I loved exploring the physiological, anatomical and even molecular components of life.”

**The award of which I am most proud:**
The Killam Fellowship

“This award funded an opportunity for me to attend Vanderbilt University in Tennessee, where I was able to study the social determinants of public health while I was also completing independent research at Western on Indigenous diabetes care in Canada. The learning was extraordinary and helped me become more discerning in my own research.”

**Leadership:**

- Co-ordinator for the Scholar Mentorship Connection Program – Selects and trains upper year Scholar’s Electives students to assist first year students with their transition into university life.

- Certified Interpreter for the Vietnamese community
  Provides facilitation services for new arrivals to secure accommodations, in medical settings and during parent-teacher interviews.

**Clubs:**

- Western Organization of Philippinos (WOOF)
  “I am not from the Philippines but I love to dance Hiphop and so do the members of this club, so they adopted me! We perform on campus, at an annual fashion show and have even competed with other troops at a provincial competition.”

**What’s Next?**

“First, I am going to return to Vietnam to get in touch with my roots, after which I intend to begin Medical School so that one day, I can be a physician who practices in remote areas and supports the delivery of healthcare to Indigenous peoples.”
Western’s Modular Degree Structure – Giving You the Power of Choice

A module is a collection of courses that defines an area of concentration. The number of courses included in the module is defined by the amount of specialization in the topic. Western’s modular degree structure gives you the opportunity to combine various subjects from different departments and faculties. The specific courses included in each module are determined by the Department.

You Have Thousands of Options

Western’s modular system allows you to combine a Science module with a module in another Science or non-Science discipline to tailor your degree to fit your interests and aspirations. For example, if you are planning to complete a four-year Honors Bachelor Degree, you can pursue an Honors Specialization in Earth Sciences, combined with a Minor in Philosophy. An honors degree can also be constructed from two different major modules, either both in Science or one in Science plus a non-Science. At Western, there are literally thousands of possible combinations of modules.

Dual Degree Programs

There are cases where reaching a career goal requires more than one degree or certificate. Western offers several combined and concurrent programs so you can earn two degrees in less time, extend the scope of your marketable skills and cross traditional borders in your future careers.

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<thead>
<tr>
<th>COMBINED DEGREE OPTIONS</th>
<th>CONCURRENT DEGREE OPTIONS</th>
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<tbody>
<tr>
<td>Science/Medical Sciences and Business (Ivey)</td>
<td>Science/Medical Sciences and Engineering</td>
</tr>
<tr>
<td>Science and Nursing</td>
<td>Science and Music</td>
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ACADEMIC PATHS
BIOLOGY, HEALTH SCIENCES, MEDICAL SCIENCES...

WHAT’S THE DIFFERENCE?

<table>
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<tr>
<th>BIOME SCIENCE</th>
<th>HEALTH SCIENCES</th>
<th>MEDICAL SCIENCES</th>
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<tr>
<td>At Western University, programs in Biology are offered by the Faculty of Science. Modules offered by the Department of Biology allow for the study of organisms at different levels of biological organisation – from how organisms interact with each other and the environment at the level of the ecosystem through to the study of individual genes in fruit flies in the laboratory.</td>
<td>The Faculty of Health Sciences at Western University is distinct from the Faculty of Science and the Schulich School of Medicine &amp; Dentistry. The Bachelor of Health Sciences (BHSc) program focuses on the interdisciplinary study of health and wellness in an ever-changing society, in addition to domestic and international health systems.</td>
<td>The Bachelor of Medical Sciences (BMSc) Program is offered jointly by the Faculty of Sciences and the Schulich School of Medicine &amp; Dentistry. Modules offered by the Basic Medical Sciences explore the molecular, cellular and systematic organisation of the human body and the biological mechanisms it uses to adapt to environmental changes and the challenge of disease.</td>
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CAREER OPPORTUNITIES

Many graduates with Honors degrees in Biology go on to graduate studies (MSc and/or PhD) and professional schools. There is a broad range of employment opportunities for graduates with a Biology background at all levels (BSc, MSc or PhD), including:

- Government: agriculture, environment, fisheries, and health
- Business and Industry: research, development and marketing in biotechnology, consulting and healthcare
- Teaching: elementary, secondary or post-secondary institutions

Graduates of the BHSc program have successfully established careers in a wide variety of health-related fields, including:

- Physical, Occupational, Massage, Radiation & Respiratory Therapy
- Community Public Health
- Public Sector Administration and Government Policy development
- Biomedical Ethics
- Business (Wellness and Rehabilitation, Pharmaceuticals)
- Graduate Studies (Health Administration, International Health Policy, Epidemiology, Clinical Anatomy, Global Health)
- Non-profit sector (e.g., Heart and Stroke Foundation, Canadian Cancer Society)
- Occupational Health & Safety and Clinical Trials Management
- Education and Healthcare Law

Many graduates with BMSc degrees in Basic Medical Sciences modules go on to professional schools (e.g., medicine, dentistry, etc.) and graduate studies (MSc and/or PhD). Other career/employment opportunities include:

- Law: bioethics, patent development for medical products
- Business: biotechnology, marketing, research and development, quality control
- Government laboratories: agriculture, marine, and environmental sciences
- Industry: pharmaceuticals, biotechnology, biosafety, regulation and enforcement
- Teaching: elementary, secondary or post-secondary institutions
Science Academic Counselling

Science Academic Counselling is your one-stop shop for academic support in Science and the Basic Medical Sciences at Western. Our counsellors focus their expertise on critical areas to address those issues of greatest importance to our students, so they can proactively support your academic journey toward the degree of your choice.

We understand the post-secondary context and will help you navigate the system. Our team provides a confidential and secure environment for discussion while guiding you through academic challenges, identifying options and helping you through the decision-making process.

Our team offers year-round individual and group counselling to facilitate your introduction to university life, help you transition into second year by addressing issues like course and program selection and guide your way to graduation in the final year of your undergraduate studies.

Academic Counselling collaborates with Western International and Indigenous Services to offer culturally sensitive interactions.

Our strong connection with Student Health Services ensures that the organisation works in concert to support good physical and psychological wellness within the student body.

Transfer and mature students are provided tailored services to facilitate the evaluation of courses from other institutions to ensure you have the prerequisites you need to progress or receive appropriate credit toward your degree at Western.

CONTACT US:
Academic Counselling
scbmsac@uwo.ca
www.WesternuScience.ca/Academic_Counselling
**Science Internships**

Students in Science and Basic Medical Science who have completed their third year of undergraduate study have the option to participate in the Science Internship Program, which prepares them to undertake a paid career-related placement for a term ranging from eight to sixteen months.

A dedicated group of science, engineering, communications and business professionals with technical and industry experience supports students in their quest to develop marketable skills, gain work experience and be in a position to gain employment post-graduation.

**INDUSTRY PLACEMENT OPPORTUNITIES**

- Pharmaceuticals
- Specialty Chemicals
- Software Development
- Insurance and Financial
- Medical Imaging
- Resource Exploration
- Food and Beverage
- Agriculture and Environment
- Fibre Optics
The Science Internship Program was a fantastic opportunity to apply my course-based knowledge in a real world setting. It opened the door for me to present at conferences, meet professionals in the field, and was a great chance to gain valuable work experience before graduation.

– Dennis He

The Science Internship Program allowed me to get involved in research beyond my imagination! Medical imaging combined with machine learning had me exploring two new disciplines and learning so much that I was eventually able to present and publish my work. It was amazing to be able to contribute to science in such an advanced research setting.

– Sachi Elkerson

Career Services

Transitioning from school to the workplace requires a plan that can begin as soon as your first year on campus – and Western Science Career Services can help you.

Our services range from providing tips on self-marketing strategies in professional circles to guidance regarding job-search techniques to facilitating network development through events like: networking breakfasts; What to do with a Science Degree panel sessions; and industry-specific Career Nights – all with prospective employers, influential alumni, and industry experts. Jump-start your career search here!

CONTACT US:
Science Career Services
scicareers@uwo.ca
www.WesternuScience.ca/Career_Services
Capstone Projects

Both the BSc and BMSc programs offer mentored research projects in a world-class professors’ labs. This could be your hands-on introduction to our cutting-edge facilities, science research, and may even result in your first technical publication.

Science Internship Program

Gain significant work experience, ‘try on’ a career, and make valuable contacts — all while earning a full salary. These 8- to 16-month paid positions in industry and government are open to Year 3 students.

Authentic Learning Contexts

- Take courses that simulate the development arm of software companies and game studios.
- Develop an innovative business plan to commercialize novel science and emerging technologies by competing in the Proteus competition.
- Experience interdisciplinary science problem-solving as a participant in the annual multi-university SCINAPSE Science Case Competition or in Industry Problem-Solving Week.
- Receive course credit while attending the National Undergraduate Capstone Open Source Project.
- Apply academic knowledge to exciting projects on the ground in national and international locales: study forest ecology in the Adirondacks, desert ecology in the American southwest, tropical marine environments in Belize, and craters in the Sultanate of Oman.

HIGH-IMPACT LEARNING AT WESTERN SCIENCE

The university experience is far more than the sum of your lectures and textbooks. At Western Science, you’ll experience research, hone practical skills with labs and field courses and build communications skills through written reports and presentations. We call it high-impact learning. You’ll call it highly rewarding.
Integrated Science
(WISc)

Combine all of the specialized knowledge of an honors degree with a broad general science background and add marketable corporate skills to work on cutting-edge problems that span the traditional science disciplines leveraged in industry and academia.

www.uwo.ca/sci/WISc

Summer Research

Working in a lab over the summer is a great way to explore your research interests, develop technical skills, expand your network and be mentored by world-class researchers and their graduate students. The NSERC Undergraduate Summer Research Award, Western programs, and individual researcher’s grants combine to offer a wide variety of opportunities. You may even end up authoring your first professional research paper!

FOR MORE INFORMATION
www.WesternuScience.ca/High_Impact

In the summer of my third year, I was awarded a fellowship under AAPM, which allowed me to contribute to proton therapy research at the Massachusetts General Hospital. In addition to providing me with the opportunity to work with brilliant scientists from all over the world, this experience gave me the freedom to independently explore a different environment and culture. This fellowship opened my eyes to a world of possibilities as well as the value of international collaboration.

– Kimberley Lam
(Year 4 BMSc – Honors Specialization in Medical Biophysics)

International Learning Opportunities

Interested in experiencing a new culture, language or exotic venue while developing your knowledge, skills and network? Western encourages global exploration through exchanges and study-abroad programs with other universities, field schools, summer research, internships and volunteer opportunities.

Learning in the Field

Add first-hand problem-solving experience to your academic portfolio through field courses. From virtual field trips in Computer Science and tropical marine exploration in Belize with Biology, to studying impact craters in Oman with Earth Sciences, there are so many options to explore!
SCIENCE DEPARTMENTS
The Department of Applied Mathematics is a close-knit community with faculty who are passionate about their discipline and who care about my success.

“I consider myself lucky to be part of it.”

– Chris Robert Brimacombe
APPLIED MATHEMATICS

Applied Mathematics is the language of science. At Western, the Department of Applied Mathematics models phenomena occurring in the natural or social sciences in order to understand them and make predictions. These phenomena occur in such widely differing areas such as the dispersal of pollutants in the environment, the flow of blood in arteries, interactions among subatomic particles, and the behaviour of financial markets. Our small class sizes provide our undergraduates with enhanced opportunities to work closely with world-class faculty who are genuinely interested in fostering discussion and problem-solving ingenuity.

What You’ll Learn

Our department offers undergraduate students a warm, friendly and creative environment in which to learn about mathematical biology, dynamical systems, scientific and symbolic computing, theoretical physics and computational materials science. You will acquire the necessary expertise and have access to powerful tools to solve complex industry, business, natural, social and applied science-relevant problems.

Careers

The acquired skills of an applied mathematician are in demand in almost every area of science and industry. Matrix algebra and calculus can be used to build mathematical and computational models for pure scientific research and industrial process innovation. They are used in areas ranging from cancer therapy treatment design and liquid crystals development to tracking evolutionary resistance to drug therapy. Many of our graduates choose to pursue a graduate degree to specialize further in a specific domain where their education enables them to work on the leading edge of innovation.

DISTINGUISHING FEATURES

Interdisciplinary Study
We offer, among others, modules that focus on interdisciplinary connections such as the Honors Specialization in Mathematical Science, a Major in Scientific Computing and Numerical Methods, and a Major in Theoretical Physics. Students can also pursue a concurrent degree in Engineering and Applied Mathematics.

Research Opportunities
Students who are in their fourth year of an Honors Specialization are offered opportunities to work on research projects in close association with faculty members, leading to an expanded applied skill set and the potential to be included in the publication of project results.

Model Champions
Students from Applied Mathematics compete each year in the international COMAP Mathematical Contest in Modeling against over 2,000 teams worldwide. Western is consistently in the top 20 and twice have been world champions.

FOR MORE INFORMATION:
www.WesternuScience.ca/Applied_Math
I came to Western knowing I liked biology, but the highlight of my undergraduate degree was becoming involved in research. This opportunity allowed me to present at conferences, collaborate with faculty and graduate students, and hone my laboratory skills.

In my final year, I discovered my passion for stem cell research.

– Alexandra Kozlov
The breadth of modern biology is reflected in the more than seventy courses that are offered by the Biology Department. Courses span the whole range of student engagement from intensive laboratory-only offerings that start in second year to small fourth-year seminars where the focus is on refining communication skills. Students have the freedom to focus on a particular sub-discipline (e.g., genetics, animal behaviour) or receive a broad education that touches many areas of biology.

What You’ll Learn

In Biology, emphasis is placed on developing critical thinking and communication skills, expertise in experimental design and a strong foundation in data analysis. Depending on the area of concentration, more specific skills acquired include the ability to assess ecosystems, identify flora and fauna, effectively implement tools of molecular biology and microscopy and gain experience with the use of analytical instrumentation.

Careers

The breadth of courses in the Biology curriculum prepares graduates for a wide range of research careers in the public and private sectors. Many of our graduates also go on to professional programs in medicine, dentistry, law and teaching.

DISTINGUISHING FEATURES

Excellence in Teaching and Learning
Led by Tom Haffie, a 3M National Teaching Fellow, faculty in our department strive for excellence in undergraduate teaching and learning. Whether it’s engaging 800 students in a first-year course by using cell phones or small fourth-year offerings that focus on community-based group projects, Biology instructors employ novel and innovative approaches to help students learn more effectively.

Unique Modules
The Department of Biology offers thirteen different modules in a wide range of biology disciplines. Here we highlight just two of these modules:

Honors Specialization in Genetics
This module reflects one of the core research strengths of the Department. Students take a range of courses focused on gene structure, function and regulation that introduce modern ‘omic’ approaches (e.g., genomics, transcriptomics, proteomics) that are taught using a range of animal, plant and microbial systems. Related topics such as genetic engineering and developmental genetics form the basis of additional courses.

Honors Specialization in Biodiversity and Conservation
Students in this module will gain an understanding of the forces that are shaping Earth’s ecosystems, including the impact of climate change on biological diversity. Capstone courses in biodiversity science and restoration ecology, as well as opportunities to do field research, are highlights of the module. Graduates will be prepared to pursue a diverse array of careers from basic research to public policy in a range of fields that are particularly pertinent in today’s rapidly changing world.

Field Courses in Unique Locations
As a Biology undergraduate, you will have the opportunity to do a research project in an exotic location and get credit for it. The Department of Biology at Western is a member of the Ontario Universities’ Program in Field Biology, which offers about 30 different field courses each year for academic credit. Examples of recent offerings include: Rainforests and Reef Biology in Costa Rica; Tropical Marine Biology in Belize; Forest Ecology in the Adirondacks; Field Ornithology in Virginia; and Tropical Biodiversity in Ecuador.

FOR MORE INFORMATION:
www.WesternuScience.ca/Biology
What I love about the program is that it is helping me to develop both technical and transferable skills, like communicating effectively, which will be valuable in any career I choose to pursue.

Success in chemistry requires a lot of time in the laboratory, but the extra focus has made me a better scientist.

– Robert Nanni
Chemistry at Western is designed to provide a foundation in the major themes of modern chemistry as applied to the natural, industrial and commercial worlds. This foundation allows for advanced studies in a wide range of research areas, from materials to energy, synthesis, biology, and biochemistry.

What You’ll Learn
A degree in Chemistry at Western means learning the tools and techniques of chemistry along with the theoretical background required to interpret experimental results and develop new reaction pathways and compounds. The broad range of knowledge acquired and the numeracy, deductive and inductive skills secured are key in the development of our ‘career-ready’ graduates.

Careers
In addition to the option of entering professional areas such as finance, law, medicine, business and teaching, options for Chemistry graduates include research in government, industry and academic laboratories; process development and control work; detection and characterization of trace substances; and technical sales and service.

DISTINGUISHING FEATURES

Community Mentorship
Explore Chemistry is a mentorship initiative designed to help first-year science students explore their interest in the discipline. Participants are paired with senior students early in the fall term to get a sneak preview of the Chemistry experience. They are invited to meet with and learn from industry guest speakers and, later in the year, shadow a fourth-year student engaged in their honors thesis research in the lab.

Facilities Tailored for Optimal Learning
Our first-year labs are flooded with natural light, offer large workstations designed to support learning collaborations and are fitted with computer-controlled modular equipment to simulate an authentic lab environment found in government and industry.

Professional Development
Chemistry students are highly sought interns in industry and government. The Science Internship Program facilitates discipline-relevant placements for 8 to 16 months. Those students completing a senior thesis project also acquire both research and corporate skills, in particular in their preparation for mock interviews, with representatives from our alumni and industry community.

Authentic Learning
Part of becoming a professional chemist involves gaining hands-on research experience, preparing technical manuscripts and presenting posters at discipline-specific conferences. On average, 25 chemistry students secure summer research positions with the department each year. All of our students acquire experience in poster development and presentation in analytical chemistry, while students in the Undergraduate Thesis course routinely participate in the annual Southwestern Ontario Undergraduate Student Chemistry Conference (SOUSCC).

Honors Specialization Modules
In addition to Chemistry modules, we offer two Honors Specializations modules jointly with the Department of Biochemistry. The Biochemistry and Chemistry module has an emphasis in chemistry and is available to students enrolled in the Science Program. The Chemical Biology module has an emphasis in biochemistry, and is offered to students enrolled in the Basic Medical Sciences Program. These modules consist of courses from both disciplines, and offer senior thesis courses enabling students to gain experience in interdisciplinary research laboratories.

FOR MORE INFORMATION:
www.WesternuScience.ca/Chemistry
Not only have I developed valuable research skills, published my work and presented at conferences, research during my undergraduate studies has given me the opportunity to contribute to efforts in stroke prediction!

There is a wide range of research opportunities for students at Western.

— Vivian Tan
Computer science drives innovation in the 21st Century. From influencing the space program and contributing to models of personalized medicine, to solving life and business challenges through big data applications, computer science is all about exploring possibilities and influencing outcomes. The Department of Computer Science at Western is responsive to rapidly changing business, social and natural landscapes. As such, we provide students with innovative programs, courses, internships and extracurricular learning opportunities that reflect focus areas of greatest interest to students and their potential employers.

What You’ll Learn

The work of a computer scientist falls into several categories, and students in the Department of Computer Science at Western acquire skills and experience in all. Undergraduates learn skills that will allow them to design and build software as well as develop effective ways to solve computing problems, including storing information in databases, sending data over networks, and providing new solutions to cyber-security issues. Our students also acquire the expertise needed to devise new and better ways to address challenges in big data, game development, medical imaging, social and mobile computing and in bioinformatics.

Careers

Our flagship programs in Computer Science grant degrees that are accredited by the Computer Science Accreditation Council (CSAC) and the Canadian Information Processing Society (CIPS), facilitating subsequent professional certification as an Information Systems Professional and Information Technology Certified Professional.

Computer Science graduates at Western are prepared for careers in the following fields:

- Database Administrator
- Data Modeller
- Data Scientist
- E-Commerce Analyst
- Game Developer
- Mobile Developer
- Multimedia Programmer
- Network Administrator
- Network Analyst
- Programmer Analyst
- Researcher
- Security Analyst
- Software Engineer
- Systems Analyst
- Systems Engineer
- Technology Manager
- User Interface Designer
- Web Developer

DISTINGUISHING FEATURES

Minor in Game Development and Software Engineering

In 2016, the Princeton Review named Western Computer Science among the top destinations in the world to study game design. Our Minor in Game Development examines the design and programming of games, leveraging the latest engines and technologies, and culminating in a year-long game development project modelled after industry practices. Western was one of the first universities in Canada and around the world to introduce studies in gaming.

Honors Specialization in Medical Health Informatics

Medical Health Informatics sits at the intersection of information and computer science, medicine and healthcare. This interdisciplinary module explores how data are collected, processed and used in a healthcare setting, while developing an applied expertise in a rapidly emerging field.

Authentic Learning Contexts

Learning in real-world contexts prepares our students for successful integration into the workforce. Future game developers benefit from courses set up as game development studios. Students take on leadership roles in simulated consultant firms and assume ownership of technical deliverables and project management responsibilities, from the determination of requirements and production of timelines to communications with the client.

Entrepreneurship

You don’t have to wait until the completion of your degree to get started on a career in computer science. At Western, the Propel program provides institutional support and guidance to students who are prepared to take their innovations to market through tech transfer facilitation, intellectual property protection, or business planning, resulting in a start-up enterprise.

FOR MORE INFORMATION:

www.WesternuScience.ca/Computer_Science
I had the opportunity to gain extensive fieldwork and laboratory experience, collaborate with industry professionals and to share my research findings at schools and conferences. This truly enhanced my undergraduate experience and has provided me with a strong network, transferable skills and practical experience to apply after graduation!

Completing original undergraduate research revealed the diverse opportunities within Environmental and Earth Sciences at Western.

– Kelly Ryan
Earth Sciences is the study of the history, structures and processes that shape planet Earth. Earth Sciences involves a significant breadth of topics from planetary structure and composition, plate tectonics, earthquakes and volcanoes, natural resources, and the history of life on Earth. Although the profession focuses on opportunities to explore, extract, analyze, understand and monetize raw planetary materials, an equally important and rapidly evolving segment of an Earth Scientist’s career focuses on the protection of Earth and its most precious natural resources.

What You’ll Learn

- The tectonic mechanisms that create earthquakes and volcanic eruptions
- The processes that occur within the planet, that shape its surface, and that control its atmosphere
- The origin, occurrence, extraction and conservation of Earth’s natural resources, including minerals, fossil fuels, soils, and water
- The role of Earth within the Solar System, and the history of life on Earth

Careers

There is a major demand for geoscientists worldwide. Careers in the Earth Sciences are quite diverse, ranging from work in high-tech industrial research laboratories to corporate and government offices, and to field programs in some of the most remote areas of the world.

Options:

- Petroleum Industry: Exploration and Development
- Natural Hazards Research
- Metal and Industrial Mining and Exploration
- Satellite and land-based imaging for exploration
- Resource evaluation for private and public sector organizations
- Management of water resources and remediation of contaminated sites

DISTINGUISHING FEATURES

Professional Programs

The Department of Earth Sciences offers Honors degrees in Geology, Geophysics, and Environmental Geoscience that fulfill the requirements for professional registration as set by the Association of Professional Geoscientists of Ontario (APGO) and the Canadian Council of Professional Geoscientists (CCPG). Students graduating from one of our professional programs will meet all knowledge requirements toward becoming a professional geoscientist qualified to practice in Ontario and Canada.

Field Courses Across the Globe

Western’s Department of Earth Sciences offers more undergraduate field courses than any other similar department in Canada. All of our modules involve field components with opportunities for travel within Ontario and the Maritimes, as well as abroad to places such as South Africa, Brazil, the Philippines, and Finland.

Interdisciplinary/Collaborative Programs

The Earth Sciences are highly interdisciplinary, using elements of all of the other sciences in studying Earth and other planets. Our department offers collaborative programs in Geology and Biology, Environmental Geoscience and Planetary Science and Space Exploration.

FOR MORE INFORMATION:

www.WesternuScience.ca/Earth_Sciences
I cannot say enough about the benefits of doing an academic internship within your degree, even if it means taking an extra year. The networking and hands-on experience really sets you up for career success after graduation.

My Western experience has taught me to be confident in myself and pursue my goals relentlessly.

– Andrew Murphy
ENVIRONMENTAL SCIENCE

Western provides and fosters an interdisciplinary platform for teaching and research on environment and sustainability. Interdisciplinary is the key to environmental science and our modules bring together the strengths of the Faculties of Science, Engineering, Social Science, Arts and Humanities, Information and Media Studies, the Schulich School of Medicine and Dentistry, the Richard Ivey School of Business and the Faculty of Law. Our students take courses that bring them a wide variety of outlooks on processing environmental issues ranging from biodiversity loss, access to safe and clean water, energy, renewable resources, to ecosystem health, natural disasters, and sustainable business practices.

What You’ll Learn

Our students learn to communicate environmental science across disciplines and to apply knowledge from these different fields to develop solutions to real-world issues. Building on a solid core of science – including content in biology, chemistry, mathematics, earth sciences, geographic information science and physical geography – Environmental Science students have the added benefit of access to training in other disciplines ranging from anthropology, business, and economics, to First Nations studies, philosophy, political science, human geography and sociology.

Careers

The environmental sector is one of the fastest growing and most diverse job markets in Canada. Our students go on to careers in resource industries, sustainability positions in businesses of all kinds, conservation, environmental policy, environmental research, and environmental education.

DISTINGUISHING FEATURES

Research Opportunities

All of our undergraduate students pursuing an Honors Specialization in Environmental Science undertake a two-semester research project with a Western faculty member engaged in environmental science research in focal areas of biology, chemistry, earth science, geography, engineering or business. Students pursuing the Specialization or Major modules may conduct a one-semester research project. Many of our faculty members also hire students to work as research assistants during the summer months. The opportunity to work in state-of-the-art research facilities, like the BIOTRON for climate change research, is one of the benefits that sets Environmental Science at Western apart.

Practical Experience

Field courses at Western provide some of the best hands-on learning opportunities for environmental science students. The range of topics and destinations is broad, but all yield unforgettable experiences in building character, knowledge, and practical skills for successful careers in environmental science. Our students also have the opportunity to take paid, 8–16 month Science Internship placements with government or industry in the critical areas of environmental policy, management, and science.

Bridging Programs with Colleges

Students with a two-year Environmental Technician or three-year Environmental Technology Advanced Diploma from most Ontario colleges can receive advanced standing credits toward an Environmental Science degree. This is an excellent way to broaden your theoretical and interdisciplinary understanding of environmental science.

FOR MORE INFORMATION:
www.WesternuScience.ca/Environmental_Science
The Mathematics program at Western has allowed me to explore, learn and find my own pathway that leads where I want to go.

Like any complicated math problem, there are various ways to arrive at a solution.

– Briana Lovato
Mathematics is the rigorous study of quantity, structure, space and change. In 1623, Galileo wrote that mathematics is the language of science, and it is no less true today. Research in pure mathematics is more active now in the 21st century than ever in the past. While a beautiful and intriguing subject of study in itself, contemporary mathematics provides a solid foundation for every modern scientific endeavour from quantum mechanics to quantitative finance.

What You’ll Learn

Modern mathematics is classified into broad divisions: foundations, algebra, analysis, combinatorics, and geometry and topology. Students will gain a working knowledge of each of these subjects. For example, logic and the concept of mathematical proof are a part of foundations, while number theory, group theory and cryptography are fields in modern algebra.

Topics of Study:

- Mathematical reasoning
- Discrete mathematics
- Combinatorial mathematics
- Game theory
- Linear algebra
- Number theory
- Group, ring and field theory
- Cryptography
- Calculus
- Real and complex analysis
- Metric spaces and topology
- Functional analysis

Careers

The analytical and problem-solving skills students learn in mathematics can apply to all disciplines. Mathematicians conduct research in any environment where information is analyzed and used to identify patterns. Due to the increased importance placed on technology, big data and economic efficiency by all kinds of organizations across the globe, mathematicians are increasingly in demand.

Some Options:

- Financial Analyst
- Information technology
- Management Consultant
- Systems Analyst
- Cryptologist
- Data Scientist
- Geophysical Analyst
- Information security
- Operations research
- Intelligence Analyst
- Statistical research
- Market research

Many students graduating from our programs choose to pursue graduate degrees in mathematics while others go on to careers in business, economics, investment banking, law or medicine.

DISTINGUISHING FEATURES

Mathematics in Society

This module is perfect for students considering a career or graduate degree in any logically or analytically intensive field, such as economics, finance, business, and law. In addition to a set of core Mathematics courses, a broad spectrum of mathematically-oriented courses from other disciplines can be counted toward this module, including particular courses in Applied Mathematics, Computer Science, Earth Sciences, Economics, Financial Modelling, Philosophy, and the Actuarial and Statistical Sciences.

In Forbes Magazine, Data Scientist, Statistician, Information Security Analyst, Mathematician, and Actuary were all among the top 10 Best Jobs in 2016.

FOR MORE INFORMATION:
www.WesternuScience.ca/Mathematics
With useful yet intriguing courses offered ranging from scientific computing to quantum mechanics, students are always provided an exciting challenge to grow in Physics & Astronomy.

“An essential lesson Western has taught me these past four years is that you can learn as much as you dedicate yourself to learn.”

– Abhilash Mathews
PHYSICS & ASTRONOMY

Physics and astronomy involve the study of matter, forces, and energy as they relate to the understanding of our environment from Earth to the distant reaches of the universe. The Department of Physics & Astronomy at Western studies natural phenomena such as star formation, the Earth’s atmosphere, and meteors as well as applications of physics to medicine in the form of imaging, and radiotherapy, and technology – specifically, nanofabrication, optoelectronic devices, and biomaterials.

What You’ll Learn

Physics is a foundational discipline of STEM careers and enables students to develop logical reasoning skills based on underlying principles. Our undergraduates also acquire proficiency in problem-solving, mathematics, experimental design, computer simulation, and data analysis while experiencing the tools and techniques of modern high technology.

Careers

All of our students are well-prepared to enter graduate school to become professionals in rapidly evolving disciplines. Graduates are employed worldwide in fields as diverse as pure and applied research, medicine, engineering, teaching, science journalism, and finance.

Career examples include:

- Academic and industrial scientist
- Science Educator
- Entrepreneur tech start-up
- Financial analyst
- University/College Professor
- Government scientist in Weather Forecasting and Climate Prediction
- Imaging Medical Physicist
- Radiation oncologist
- Data Scientist

Recent graduates have gone on to work as industry scientists at medical imaging companies, software specialists working with Big Data and completing MD degrees at Ontario medical schools.

DISTINGUISHING FEATURES

Astrophysics

Our Astrophysics modules emphasize the study of the physics of the universe and its components. Offering a combination of Astronomy and Physics courses, students learn about a wide range of topics, including the life of stars and black holes and the evolution of the universe, from the most diverse astronomy group in Canada. With the skills acquired in this module, our graduates stand out with their involvement in cutting-edge research, including the recent discovery of gravitational waves and new planets beyond our solar system.

Medical Physics

Western is home to one of the largest groups of medical physics researchers in Canada, with instrumentation, experimental, clinical and theoretical research interests. Our modules in Medical Physics are perfect for students who are interested in medicine or medical imaging, captivated by physics and who look forward to gaining hands-on lab experience with world-class medical physicists.

Faculty mentorship and research skill development

In their final year, students synthesize their experience by undertaking a significant research project with a member of our faculty. Financial support for undergraduate research is made available each summer to support experiential learning and the development of professional skill sets and network development.

Developing skills, networks, and confidence

The ability to share scientific understanding within and well beyond the scientific community is one of the hallmarks of success for our students. The undergraduate seminar course brings together students in all years of the Physics and Astronomy modules to train confident and effective speakers and presenters of complex material. Our Physics and Astronomy Student Association (PASA) hosts an annual research conference and multiple social events throughout the year.

FOR MORE INFORMATION:
www.WesternuScience.ca/Physics_Astronomy
I have had the amazing experience of working closely with faculty on research projects in financial optimization.

I have found that, without exception, my supervisors have had my best interests in mind. They are very approachable and friendly.

— David Itkin
STATISTICAL & ACTUARIAL SCIENCES

Statistics is the art and science of making conclusions from data. Our undergraduate statistics programs instruct students in these techniques that are particularly useful when deciding how to manage complicated systems, and essential to decide questions like: Is this medical treatment worth doing? Is my investment advisor adding value?

Our department also trains future actuaries: statistically sophisticated business professionals who assess the probability and financial impacts of personal challenges such as premature death, major illness, disability, car crash, or property damage due to wind, fire, or flood.

Financial risks also come from markets, such as rising interest rates when it’s time to renew a home mortgage, changing interest rates negatively impacting vacation plans, or a stock market crash requiring a delayed retirement. Our program in financial modeling teaches how to quantify, hedge, and manage such financial risks.

What You’ll Learn

Courses in statistics give you the tools to collect, analyze and interpret data using probability and other mathematical tools while also enabling you to develop mathematical and stochastic models for phenomena occurring in business, engineering, medicine and government using modern computer-based statistical methods.

Our actuarial science courses teach you to apply existing and develop new models and methods used in the analysis and management of risk associated with adverse life events like premature death and disability. We also have courses that investigate the complexities of modeling life expectancy for the purposes of setting insurance premiums.

A Financial Modelling education will train you to apply advanced mathematical, computational and statistical techniques to problems arising in modern financial markets, along with teaching a quantitative understanding of the stocks, bonds, and options traded on worldwide financial markets, and how to price and hedge derivative securities, such as options.

Careers

Acquiring expertise in statistical methods positions our students to pursue careers in engineering, politics, financial management, insurance, marketing, medicine and social science. Future actuaries will apply their knowledge of mathematics, probability, and statistics to financial problems in the insurance, pensions, and employee benefits fields. Financial modeling graduates are primed to succeed in the pricing and hedging of portfolios of stocks, bonds, and their derivative securities as well as in the analysis and quantification of financial risk in large financial institutions.

DISTINGUISHING FEATURES

Industry Responsive
Taking an integrated approach to learning about actuarial science and financial modeling helps our students to respond successfully to the evolving needs of financial institutions that increasingly manage fiduciary and investment risk simultaneously.

The Department of Statistical and Actuarial Sciences at Western is the only department of its kind in Canada to focus on soft-skill development by offering a dedicated business skills course. Our students are also encouraged to broaden their corporate skills during an 8–16-month industry internship between their third and fourth year.

Several actuarial scholarships are awarded yearly that provide for an aggregate payout of up to $45,000 annually to undergraduate students in our Actuarial Science modules. Included are exclusively merit-based and industry-sponsored scholarships that consider other attributes such as leadership skills. Currently, there are three London Life Actuarial Career Scholarships and one Manulife Financial Scholarship awarded annually, the Freeman of the City of London of North America Scholarship that provides $5,000 for a student pursuing an exchange program in London England as well as the Morneau-Shepell and the Mercer Consulting scholarships.

Western is designated as a Centre of Actuarial Excellence by the Society of Actuaries (SOA) and is accredited by the Canadian Institute of Actuaries (CIA). Students pursuing professional qualification in the CIA may receive exam exemptions for courses taken at Western. The Statistical Society of Canada (SSC) also accredits our university, and students completing a degree in Statistics may receive accreditation as an Associate Statistician.

FOR MORE INFORMATION: www.WesternuScience.ca/Stats_Act_Sciences
My science professors have been valuable sources of knowledge and mentorship. As a result, I secured several research positions throughout my undergraduate studies, during which I gained hands-on skills, deepened my interest in science, and contributed to scientific innovations. These experiences have kick-started my research career.

– Emma Bluemke
The basic medical sciences look at the molecular, cellular and systems organization of the human body and the biological mechanisms it uses to adapt to environmental changes and disease. The Medical Sciences Program leads to the four-year BMSc degree, which is offered jointly by the Faculty of Science and the Schulich School of Medicine & Dentistry, and is designed for students interested in advanced study of one or more of the basic medical sciences. This joint program focuses on the application of science to the diagnosis, prevention, and treatment of human disease.

What You’ll Learn

The BMSc program provides the opportunity to learn and understand the interrelationship between the basic and clinical medical sciences and to explore one or more of the disciplines in depth.

Students interested in the BMSc Program should select ESM (Medical Sciences) on the Ontario Universities’ Application Centre (OUAC) application.

In Medical Sciences 1 and 2, students are registered in the Faculty of Science, and develop a foundation in several science disciplines (biology, chemistry, physics, math and statistics, genetics, cell biology) in preparation for their transition to the Basic Medical Sciences courses with the Schulich School of Medicine & Dentistry in year 3.

Careers

Students with a degree from the Basic Medical Sciences have a wide range of choices as they consider their career options. Many go on to pursue health professional programs in Medicine, Dentistry, Nursing, Pharmacy, Optometry or the allied health professions such as Audiology, Physiotherapy or Occupational Therapy. More than one-third move on to Graduate Studies here at Western in one of the basic medical sciences departments or at other universities across the province and country. Some of our graduates have gone onto careers in the Pharmaceutical and Biotechnology Industries or in sales and marketing roles for scientific and medical suppliers. A BMSc or BSc-Neuroscience degree provides the foundation and skills for a number of different careers.
DISTINGUISHING FEATURES

Interdisciplinarity
Students who want to experience an interdisciplinary approach to learning science have several options to consider within the BMSc Program. Those wishing a broader education across the basic medical sciences may choose the Interdisciplinary Medical Sciences (IMS) modules. Other opportunities include One Health, which focuses on the intricate link between animal health, environmental health, and physical and social determinants of human health, and Medical Health Informatics, which brings together computer science, medical sciences and health care to achieve better health for Canadians.

Research Experience
The BMSc Program offers 20 different discipline-specific Honors Specialization modules, allowing students to perform novel research under the supervision of a faculty member in Year 4.

Undergraduate Research
Opportunities to acquire state of the art research skills and discover the value of pursuing a biomedical research career following completion of an undergraduate degree are available each summer for outstanding undergraduate students at the end of Year 3, through the Biochemistry Undergraduate Summer Research Program. If you are interested in experiencing the culture of a developing nation while broadening your research skills, the Department of Microbiology and Immunology also offers unique research experiences on the African continent as well as fellowships for second- and third-year students to perform independent research over the summer.

Dual Degrees
If the study of both the basic medical sciences and business are of interest, you can combine the HBA degree (Business Administration) from the Ivey Business School with either the Honors Specialization in Biochemistry or the Honors Specialization in Interdisciplinary Medical Sciences (IMS) and graduate with two honors degrees in five years.

Accelerated Master’s Programs for Future Researchers or Academics
Fast-track your second degree by considering an Accelerated Master’s program offered by the Departments of Physiology and Pharmacology, Biochemistry or Microbiology and Immunology. Students perform their undergraduate research project course (thesis) in the summer before Year 4, and are then able to complete their MSc in 12-16 months following graduation.

Honors Specialization in Neuroscience
A BSc degree conferred by the Schulich School of Medicine & Dentistry, Neuroscience at Western is another interdisciplinary program that brings together the strengths of many fields to investigate the fundamental biology and structure of the nervous system; the neural mechanisms of perception, memory and consciousness; and the causes and treatment of diseases and disorders of the brain and nervous system. Western faculty from Psychology, Science, and the Schulich School of Medicine & Dentistry collaborate to offer a wealth of knowledge through courses and research opportunities in this rapidly evolving field. Admission to the program in Year 2 is competitive and limited to 30 students. 
www.schulich.uwo.ca/neuroscience

FOR MORE INFORMATION:
www.WesternuScience.ca/Medical_Sciences
I chose WISc as a way for me to continue all of the things I loved about high school sciences: small class sizes, familiarity with professors and a sense of community with my peers, but at a university level.

“The experience has been amazing – we get to learn how science is interconnected and then learn that science itself, all while being provided with a challenging environment where we are encouraged to think as scientists and question our learning.”

– Jared Sanders
Integrated Science at Western (WISc) is a four-year, limited-enrolment, honors program that combines the rigour and focus of a traditional science degree with an innovative and diverse curriculum to expand the scientific breadth of students with a keen interest in science. Many of today’s most pressing scientific problems, like climate change, must be addressed from the vantage point of multiple disciplines, and so there is a growing demand for individuals with specialized expertise, combined with a broad scientific perspective along with strong teamwork and leadership skills. As participants in this flagship program, WISc graduates are prepared to tackle the challenges and take full advantage of the opportunities of a new and dynamic scientific landscape.

What You’ll Learn

In the first year of the program, WISc students are introduced to a wider range of disciplines than most students. In addition to the core subjects of mathematics, physics, chemistry, and biology, students expand their range of science-specific knowledge through exposure to earth sciences, astronomy, statistics, and computer science. Starting in second-year, the program introduces students to the integrated subjects of environmental sustainability, data analysis, scientific modeling, and materials science. The development of discipline-specific expertise also begins in second-year when students enter one of the many Integrated Science Honors Specialization modules. By year three, students have opportunities to engage with local community organizations and companies. Capping off the program in fourth-year are opportunities to refine mentoring and leadership skills through interactions with the first-year class, and an independent theoretical or experimental research project mentored by faculty members.

Careers

Graduates of the Integrated Science program are prepared to tackle cutting-edge problems that span the traditional science disciplines. Whether the goal is to pursue a graduate degree, industrial research or a professional program such as medicine or law, the thorough scientific background and unique skill set provided by this transformative program will position students for a successful career.

FOR MORE INFORMATION:
www.WesternuScience.ca/Integrated_Science
A module is a collection of courses that defines an area of study. The number of courses included in the module is defined by the amount of specialization in the topic.

There are four possible modules of study which may be entered after First-Year:

- Honors Specialization (9.0 or more specified courses)
- Specialization (9.0 or more specified courses)
- Major (6.0 – 7.0 specified courses)
- Minor (4.0 – 5.0 specified courses)

Modules can be combined in three different degree-types:

<table>
<thead>
<tr>
<th>DEGREE TYPE</th>
<th>MODULE COMBINATIONS</th>
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<tbody>
<tr>
<td><strong>Honors Bachelor Degree</strong> (4 Years/20 Courses)</td>
<td>• Honors Specialization&lt;br&gt;• Honors Specialization–Major&lt;br&gt;• Honors Specialization–Minor&lt;br&gt;• Major-Major</td>
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<tr>
<td><strong>Bachelor Degree</strong> (4 Years/20 Courses)</td>
<td>• Specialization&lt;br&gt;• Specialization–Major&lt;br&gt;• Specialization–Minor&lt;br&gt;• Major&lt;br&gt;• Major–Minor&lt;br&gt;• Major–Minor–Minor</td>
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<tr>
<td><strong>Bachelor Degree</strong> (3 Years/15 Courses)</td>
<td>• Major&lt;br&gt;• Major–Minor&lt;br&gt;• Minor–Minor</td>
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For more information:
www.WesternuScience.ca/Modules
### Applied Mathematics

<table>
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<th>MODULE</th>
<th>HONORS SPECIALIZATION</th>
<th>SPECIALIZATION</th>
<th>MAJOR</th>
<th>MINOR</th>
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<tbody>
<tr>
<td>Applied Mathematics</td>
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<td>Advanced Chemistry</td>
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<td>Mathematical Sciences</td>
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<td>Mathematical and Numerical Methods</td>
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<td>Scientific Computing and Numerical Methods</td>
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<tr>
<td>Theoretical Physics 1</td>
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1. Can only be completed in combination with a Minor or Major in Applied Mathematics.

### Biology

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<th>MODULE</th>
<th>HONORS SPECIALIZATION</th>
<th>SPECIALIZATION</th>
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<tbody>
<tr>
<td>Biology</td>
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<td>Animal Behaviour</td>
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<td>Biodiversity and Conservation</td>
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<td>Ecosystem Health</td>
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<td>Genetics</td>
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<tr>
<td>Genetics and Biochemistry</td>
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### Chemistry

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<th>MODULE</th>
<th>HONORS SPECIALIZATION</th>
<th>SPECIALIZATION</th>
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<tr>
<td>Chemistry</td>
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<tr>
<td>Advanced Chemistry 1</td>
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<tr>
<td>Biochemistry and Chemistry</td>
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1. Can only be completed in combination with an Honors Specialization in Chemistry, a Specialization in Chemistry or an Honors Specialization in Biochemistry and Chemistry.

### Computer Science

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<tr>
<th>MODULE</th>
<th>HONORS SPECIALIZATION</th>
<th>SPECIALIZATION</th>
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<tr>
<td>Computer Science 1</td>
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<tr>
<td>Bioinformatics</td>
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<tr>
<td>Information Systems</td>
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<tr>
<td>Applications of Computer Science</td>
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<tr>
<td>Software Engineering 2,3</td>
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<tr>
<td>Computer Algebra 4</td>
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<tr>
<td>Theoretical Computer Science 4</td>
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<td>Game Development 5</td>
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<tr>
<td>High-Performance Computing</td>
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</table>

1. The Honors Specialization and Specialization lead to accredited degrees by the Computer Science Accreditation Council.
2. Can only be completed in combination with an Honors Specialization or Specialization in Computer Science.
3. Leads to accredited degrees by the Computer Science Accreditation Council.
4. Can only be completed in combination with an Honors Specialization in Computer Science.
5. Can only be completed in combination with an Honors Specialization, Specialization or Major in Computer Science.
# Physics and Astronomy

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<th>MODULE</th>
<th>HONORS SPECIALIZATION</th>
<th>SPECIALIZATION</th>
<th>MAJOR</th>
<th>MINOR</th>
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<tr>
<td>Geology</td>
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<tr>
<td>Environmental Geoscience</td>
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<td>Geology and Biology</td>
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<td>Geophysics</td>
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<tr>
<td>Planetary Science and Space Exploration</td>
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</table>

1. May only be completed in combination with an Honors Specialization or Specialization in Physics, Astrophysics or Medical Physics.

2. May only be completed in combination with an Honors Specialization or Specialization in Physics.

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# Earth Sciences

<table>
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<th>MAJOR</th>
<th>MINOR</th>
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# Mathematics

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# Statistical and Actuarial Sciences

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1. Pending Senate approval

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These programs fulfill requirements for professional registration as set by the Association of Professional Geoscientists of Ontario (APGO) and the Canadian Council of Professional Geoscientists (CCPG).
# Basic Medical Sciences

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# Modules Leading to a BSc Degree

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<td>Genetics and Biochemistry</td>
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<tr>
<td>Medical Biophysics (Biological Concentration)</td>
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<tr>
<td>Medical Biophysics (Physical Science Concentration)</td>
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<td>Neuroscience</td>
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<tr>
<td>Medical Sciences</td>
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The Major in Medical Sciences cannot be completed in combination with any of the following Majors: Biochemistry, Medical Biophysics, Medical Cell Biology, Microbiology and Immunology, Pharmacology.

### Integrated Science (WISc)

<table>
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<tr>
<th>MODULE</th>
<th>HONORS</th>
<th>SPECIALIZATION</th>
<th>MAJOR</th>
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<td>Integrated Science with Computer Science</td>
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<td>Integrated Science with Earth Sciences</td>
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<td>Integrated Science with Environmental Science</td>
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<td>Integrated Science with Genetics</td>
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<tr>
<td>Integrated Science with Mathematics</td>
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<tr>
<td>Integrated Science with Physics</td>
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**Note:** A degree containing one of the Honors Specialization modules above will lead to a BMSc (Honors) degree. Students completing one of the Specialization modules above will graduate with a 4-year BMSc (non-Honors) degree. Completion of two of the Majors above will lead to either a BMSc (Honors) or a 4-year BMSc degree, depending on the marks achieved. The IMS and Pathology Major modules must be completed in a BMSc degree. Any of the other Major modules or a Minor module(s) above can be completed in other degree types, such as Bachelor of Science (BSc) or Bachelor of Arts (BA). The majority of BMSc students choose to complete Honors Specialization modules and some elect to complete an additional Major or Minor module from either the Basic Medical Science or another faculty.
Science Students’ Council

A fundamental element of the Western student experience is the broad range of activities available to students. There are plenty of clubs, societies, and organizations that offer many possibilities for students with varied interests. These extracurriculars are closely intertwined with and managed by student governance.

The University Students’ Council (USC) is the student government for all Western undergraduates. The USC provides extensive services and programming including a very successful and exciting orientation program, the largest of its kind in Canada.

The Science Students’ Council (SSC) is a subset of the USC and represents all Science and Basic Medical Sciences undergraduates. It serves as an important link to faculty, academic counselors, and program-specific clubs. The council provides information and services to inform and engage undergraduates in their current education and future career goals. The SSC also offers a new service called Sci-Wiki that provides the student perspective on courses science students are likely to take.

The SSC organizes events that allow students to showcase their talents, raise money and awareness for noteworthy causes, enjoy fun times and make lasting memories. The SSC has also hosted a series of esteemed speakers over the past few years, including Bill Nye the Science Guy, Canadian astronaut Col. Chris Hadfield and most recently Dr. David Suzuki. Our website keeps science students apprised of opportunities available to you.

In general, the SSC is composed of elected representatives and appointed commissioners. Representatives are tasked with voicing the students’ opinions to the SSC and other university bodies while commissioners are responsible for specific events or services.

Several opportunities exist for first-year students to participate in Council. They may run for first-year representative positions or take part in many committees. SSC committees manage events like Science Homecoming and Science Formal, allocate financial awards to deserving students, and much more!

CONTACT US:
www.westernssc.ca
Extracurricular Clubs

There are almost 170 official clubs covering a wide range of interests along with 38 varsity sports teams, and an intramural sports program at Western. Students interested in varsity athletics are advised to contact the appropriate coach or the Intercollegiate Athletics Office www.westernmustangs.ca as soon as possible, as many sports have try-outs well before September.

Many departments have clubs and associations run by students. These societies are often a source of academic help, seminars, instructional material, job search information, outreach activities and social events specific to their departments.

Student Science Clubs and Associations

- Undergraduate Society of Applied Mathematics
- The Actuarial and Statistical Undergraduate Association
- Bachelor of Medical Sciences Student Association
- The Biology Undergraduate Society (BUGS)
- The Chem Club
- The Computer Science Undergraduate Society
- The Outcrop Club (Department of Earth Sciences)
- The Physics and Astronomy Student Association
- Pre-Medical Society
- Pre-Dental Society

FOR MORE INFORMATION:
www.westernusc.ca/clubs
LEGEND & PARKING

- Parking available in every lot
- Free weekend parking available (Fridays 5pm - Sunday evening)
- Visitor parking
- Metered parking
- Pay and display parking (credit card capable & exact change)
- Science building
- Medical Science building
- Traffic Light
- Welcome Centre and Information Booth (Mon. - Fri.)
- Wayfinding map
- Campus tours start at Cronyn Observatory

- One-way traffic
- Paved walkway
- Gravel path

Approximate Distance: 250 metres
Approximate Walking Time: 3 - 4 Minutes