

FACULTY OF SCIENCE

2026-2027 VIEWBOOK



UNIVERSITY
OF ALBERTA



WE ARE

Making discoveries.

Pushing boundaries.

Responding to global and societal changes.

We are training the next generation of scientists to meet the challenges on the horizon.

Territorial Acknowledgement

The University of Alberta respects the sovereignty, lands, histories, languages, knowledge systems and cultures of all First Nations, Métis and Inuit nations.

The University of Alberta, its buildings, labs and research stations are primarily located on the territory of the Nêhiyaw (Cree), Niitsitapi (Blackfoot), Métis, Nakoda (Stoney), Dene, Haudenosaunee (Iroquois) and Anishinaabe (Ojibway/Saulteaux), lands that are now known as part of Treaties 6, 7 and 8 and homeland of the Métis.



Outside the Centennial Centre for Interdisciplinary Science (CCIS) building at the U of A.

Our Programs Are Top Ranked



#1
IN CANADA FOR
EARTH SCIENCES



#1
IN CANADA FOR
ARTIFICIAL INTELLIGENCE



#2
IN CANADA FOR
COMPUTING SCIENCE



#2
IN CANADA FOR
BIOLOGICAL SCIENCES



#3
IN CANADA FOR
CHEMISTRY



#4
IN CANADA FOR
PALEONTOLOGY



#4
IN CANADA FOR
GEOLOGY
AND GEOPHYSICS



#4
IN CANADA FOR
ENVIRONMENTAL SCIENCE



\$10.4M
IN FINANCIAL SUPPORT
AWARDED ANNUALLY



\$80M
IN RESEARCH FUNDING
THIS YEAR

Our undergraduate Science degrees are extraordinarily customizable programs. Topics span 12 teaching departments and 29 areas of study.



Inside the CCIS Building.

DEPARTMENTS



Biological Sciences



Chemistry



Computing Science



Earth and Atmospheric Sciences



Mathematical and Statistical Sciences



Physics



Psychology



Medical and Health Sciences

Degree types

You can choose from three degree types. Each degree provides a holistic understanding of the chosen field and can be applied to numerous industries.

BSc (MAJOR)

- Major, double major or major/minor for most subject areas
- Choose from full-time or part-time course load
- Internships available

BSc (HONORS)

- Honors or Honors/minor for most subject areas
- Double honors not permitted
- Includes a mandatory capstone or research experience
- Higher level of academic performance is expected
- More specialized courses required
- Choose from full-time or part-time course load
- Internships available

BSc/BEd

- 5 year program
- Dual degree (BSc Specialization in Science and Education and BEd in Secondary Education)
- 7 major/minor combinations
- Highly structured, full-time course load only
- Internships available

DID YOU KNOW?

Optional minors are available for Major/Honors programs from Science, Arts, Native Studies, Agriculture, Nutrition, Human Ecology and Business!



Thea, an Immunology and Infection student on internship at the Northern Forestry Centre, with supervisor, Forest Pathology Technical Expert, Colin L. Myrholm.



U of A Science students working in a chemistry lab.

The accredited degree option can lead to designation as a Professional Chemist!

CAREERS

- _____ Aquatic technician
- _____ Environmental consultant
- _____ Environmental law enforcement
- _____ Food and water quality technician
- _____ Forensic biologist
- _____ Government of Canada research assistant
- _____ Medical librarian
- _____ Outdoor education specialist
- _____ Pest management

Biological Sciences



Ranked #2 in Canada, this program studies the environment, climate change and its effects on life and biodiversity. This includes plants, animals, microorganisms and ecosystems, genetics, health, cellular structures, past life forms and evolution. Approximately half of our biology-related courses contain a laboratory component for valuable, hands-on work. Enhance your learning by visiting our various teaching museums with millions of specimens ranging from mammals and reptiles to dried plants and insects.

Available Majors/Honors:

- Biological Sciences
- Ecology, Evolution & Environmental Biology
- Integrative Physiology
- Molecular, Cellular & Developmental Biology

DID YOU KNOW?

16 courses can be used towards a Biological Sciences degree: Biochemistry, Botany, Genetics, Immunology & Infection, Microbiology, Neuroscience and Zoology... to name a few!

Chemistry



Chemistry is connected to all scientific disciplines in one way or another, making it a highly practical degree to branch out to almost anything. As one of the most active chemistry research departments in North America (and **ranked #3** in Canada) we are home to several state-of-the-art instrumentation laboratories and focus on significant time in the lab perfecting techniques and experimentation to optimize training. Courses span general, analytical, organic and physical chemistry, as well as mathematics and the environment.

Available Majors/Honors:

- Chemistry (accredited & non-accredited options available)

CAREERS

- _____ Brewing industry laboratory technician
- _____ Cosmetic chemist
- _____ Food & drug inspector
- _____ Forensic laboratory analyst
- _____ Gilead nanomaterial processor
- _____ Hazardous waste management technologist
- _____ Quality control manager

Four undergraduate Chemistry students who completed CHEM 299 & 399 research courses were selected amongst other students from around the globe to participate in the esteemed DAAD: RISE (Research Internships in Science and Engineering) in Germany in summer 2024.



CAREERS

- Animator
- Application analyst
- Corporate security specialist
- Database design and management
- Healthcare analyst
- Software or interface developer
- Video game developer

DID YOU KNOW?

Computing Science offers unique certificates in Artificial Intelligence, Applied Data Science and Computer Game Development that any student can add to their degree!

Emma, a computing science student, working in the Rutherford Library on U of A's North Campus.

Computing Science



The first of its kind established in Canada, this program is **ranked #2** in Canada for computer science. You can combine a computing science background with another topic of your choice to create a flexible and applied program. Students build strong theoretical and mathematical foundations, including hardware and software design and processes. You can even train in artificial intelligence, user interface design and telecommunications.

Available Majors/Honors:

- Computing Science
- Computing Science – Artificial Intelligence option
- Computing Science – Software Practice option (5 year)



Select program streams lead to designations as a Professional Geoscientist or Registered Professional Planner

Undergraduate students in the mineralogy lab.

Earth and Atmospheric Sciences



Ranked #1 in Canada, our programs examine the Earth, its structure and evolution, and the atmosphere above us. Experiential learning is enhanced by diverse specimens in labs and museum collections, plus our students have access to the most coveted field locations in the world.

Available Majors/Honors:

- Earth Sciences
- Environmental Earth Sciences
- Geology
- Paleontology
- Planning (Honors – non-direct entry from high school)

CAREERS

- Atmospheric scientist
- City planner
- Coal & diamond exploration specialist
- Energy policy analyst
- Environmental health officer
- Government of Canada environmental consultant
- Museum curator
- Oil sands data and decision specialist
- Pollution control technologist

Introducing our new minor, Climate Dynamics:

Explore ocean physics and chemistry, and learn about weather prediction models and atmospheric composition.



Students in an undergraduate mathematics class on U of A's North Campus.



Jasmine, a third-year astrophysics major, using 3D modeling software in The Shack, a cutting-edge makerspace located in the CCIS building.

CAREERS

- Apprentice economist
- Biostatistician
- Economic forecaster
- Financial risk manager
- Government of Canada data analyst
- Statistics Canada enforcement investigator

Mathematical and Statistical Sciences



Consistently ranked in the **Top 5** in Canada, our program provides fundamental tools for analyzing and addressing some of today's most pressing issues, like climate change, epidemiology and economic forecasting. Whether it is the application of mathematics and statistics to real-world problems or the foundational tools of analysis, courses will challenge your imagination and increase your capacity for independent and creative thinking.

Available Majors/Honors:

- Applied Mathematics
- Mathematics
- Mathematics & Economics
- Mathematics & Finance (non-direct entry from high school)
- Statistics

Physics



One of the **Top 10** physics programs in Canada. Students build a strong background in modern physics, mechanics, thermodynamics, electromagnetism, relativity, quantum mechanics, statistical physics and laboratory work. Topics in the fields of laser spectroscopy, optics, electronics, nuclear physics, particle physics, stellar atmospheres and interiors, field theory, condensed matter and fluid dynamics are introduced in later years of the program.

Available Majors/Honors:

- Astrophysics
- Geophysics
- Mathematical Physics
- Physics

CAREERS

- Diagnostic imaging physicist
- Laser spectroscopy specialist
- Nanotechnology research scientist
- Nuclear energy worker
- Radioactive waste technician
- Satellite systems developer

DID YOU KNOW?

Our Geophysics program can lead to designation as a Professional Geophysicist!



U of A student Makboolee in the neurology lab using an electroencephalogram on a fellow researcher.



Medical sciences student working in a cell biology lab.

CAREERS

Community engagement specialist
 Employment counsellor
 Group home coordinator
 Probation officer
 Psychometrist

Introductory Psychology courses require students to act as research participants. It's a great way to learn about current research being conducted by the department!

Psychology



Shared between the Faculty of Science and the Faculty of Arts, our Department of Psychology offers students comprehensive opportunities to study two different aspects of the field. A science degree in psychology focuses on how the brain functions as well as how we perceive, learn and forget things. Students study perception and motivation, behaviour and cognitive development with emphasis on the physical, biological and mathematical sciences.

Available Majors/Honors:

- Psychology (Honors – non-direct entry from high school)

Medical and Health Sciences



In collaboration with the Faculty of Medicine & Dentistry, we offer a number of outstanding programs in health.

Available Majors/Honors:

- Biochemistry:** Explore complex chemical reactions that occur in a wide range of biological systems.
- Cell Biology:** Integrates all life sciences to study cells and how they function.
- Immunology & Infection:** Focus on infectious diseases from pathogen and host immune systems.
- Neuroscience:** Interdisciplinary program covering all aspects of brain function.
- Pharmacology:** Explore the chemical substances that affect living organisms.
- Physiology:** Immersive study of cellular and whole-body function.

CAREERS

Food science technologist
 Forensic laboratory analyst
 Health Canada product compliance officer
 Healthcare consultant
 Medical librarian
 Pharmaceutical sales
 Quality control manager
 Research assistant

DID YOU KNOW?

You can apply to the Doctor of Medicine Program with **any** Bachelor of Science program.



U of A students learning VR teaching technology in the Education building.

Bachelor of Science (Specialization in Science and Education) / Bachelor of Education (Secondary) Combined

Would you like to teach science at the secondary education level? The BSc/BEEd combined degree is a dual program offered jointly with the Faculty of Education. Students spend the first two years studying in the Faculty of Science and the remaining three in the Faculty of Education. At graduation, they receive both a science specialization degree and a secondary education degree.

Degree Features:

- 2 degrees in 5 years
- Secondary education only (grades 7-12)
- Structured course curriculum (requirements for both degrees and teacher certification must be completed within 5 years)

Major and Minor combinations:

- Biological Sciences Major/ Mathematical Sciences Minor
- Biological Sciences Major/ Physical Sciences Minor
- Mathematical Sciences Major/ Biological Sciences Minor
- Mathematical Sciences Major/ Physical Sciences Minor
- Physical Sciences Major/ Biological Sciences Minor, chemistry concentration
- Physical Sciences Major/ Biological Sciences Minor, physics concentration
- Physical Sciences Major/ Mathematical Sciences Minor

The major and minor combinations accommodate the variety of subject studies needed in secondary school teaching.



My perception of the university experience was flipped on its head when I enrolled in a basic virology course. As I sat in class delving into the intricacies of the COVID-19 pandemic, learning about the future of cancer treatment using oncolytic viruses and hearing amazing stories from physicians in my field, my passion for science was re-ignited."

MEGAN

4th year, BSc Honors Immunology and Infection



I took part in the Science Internship Program and completed two impactful placements, including as a Software Automation Developer for the City of Edmonton. These experiences helped me grow both personally and professionally and inspired me to apply the technical skills I've developed during my time at the U of A to create real-world impact."

KARTHIK

5th year, BSc Computing Science



I know a lot of people say this, but stepping outside your comfort zone really is a game changer and can transform your life. My advice to anyone reading this is: If you're feeling nervous when making a decision, you are probably on the right track."

KHUSHI

4th year, BSc Psychology



STUDENT GROUPS + CLUBS

To get the most out of your degree, we highly encourage participation in our student groups – there are numerous ways to connect with others through your passion for science!

Interdepartmental Science Students Society (ISSS)

As an undergraduate student in the Faculty of Science, you're automatically a member of the Interdepartmental Science Students Society – the official voice of students within the faculty. Run entirely by students, ISSS (pronounced "ICE") delivers useful services and fun events to the science community. This includes locker rentals, science-specific orientation and other community-building events.

Other clubs:

- Chemistry Students' Association
- Immunology and Infection Students' Association
- Indigenous in STEM Student Association (ISSA)
- Mathematical Sciences Society
- Molecular Biology Student Association
- Organization of Botany Students
- P.S. Warren Undergraduate Geological Society
- Undergraduate Association of Computing Science
- Undergraduate Physics Society
- Undergraduate Psychology Association
- University of Alberta Chapter of The Wildlife Society
- University of Alberta Paleontological Society

Department clubs run fun events throughout the year; the Chemistry Students' Association hosts an annual lab coat tie-dye event and the Organization of Botany Students hosts an annual plant sale and River Valley scavenger hunt!



Student Supports

Students can access a dedicated team of advisors and academic support services, including:

- Science Student Services Office
- Decima Robinson Support Centre
- Chemistry Tutorial Centre
- Physics Tutorial Centre

Science Mentor Program

All incoming Science students have the opportunity to be paired with a mentor! The Science Mentor Program connects new students to a senior student for one-on-one, non-academic support during the first fall semester. uab.ca/sciencementor

The Central Academic Building, a favourite study spot.

Decima Robinson Support Centre

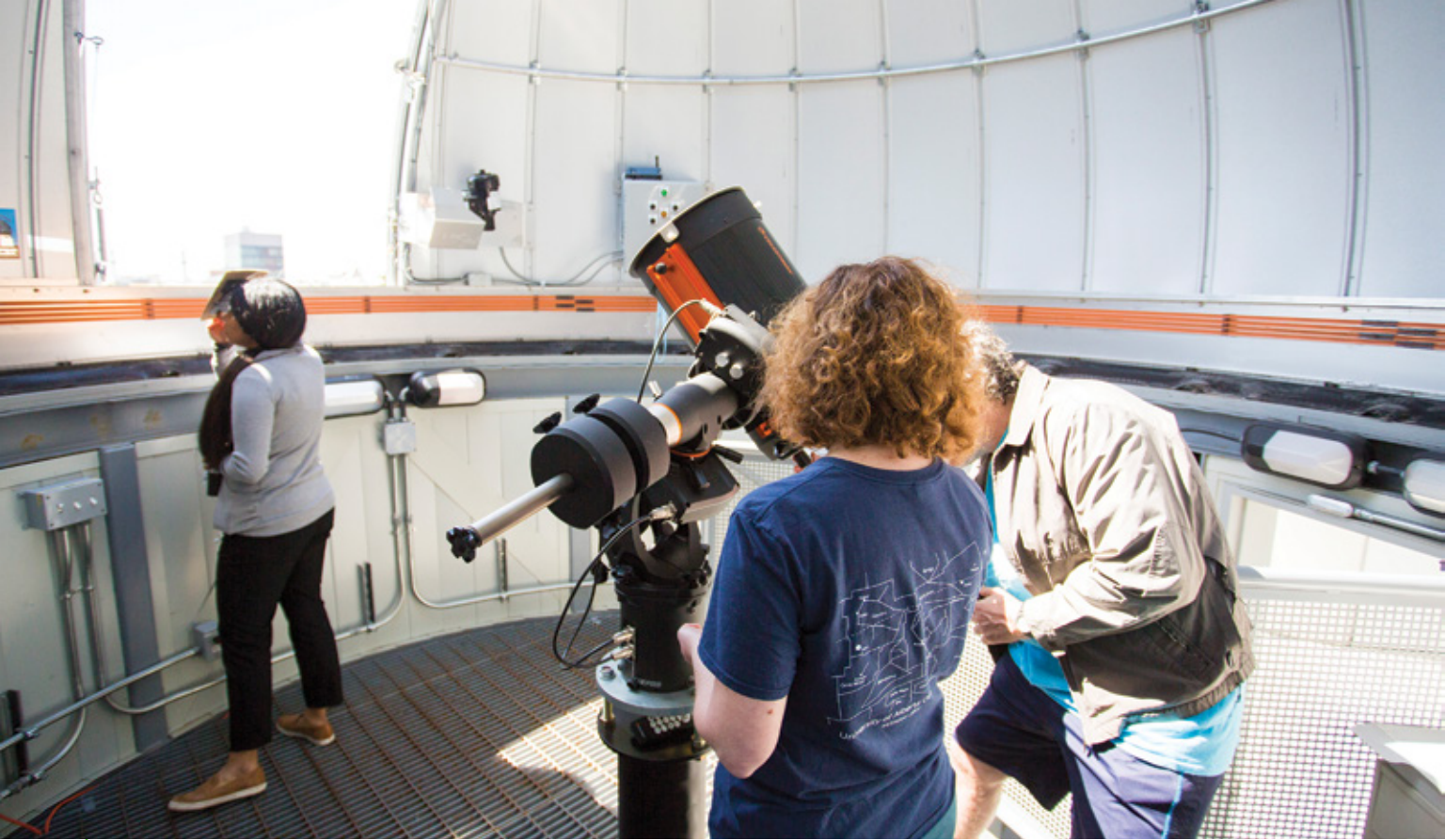
DROP-IN HELP. WEEKLY REVIEW SEMINARS. EXAM STUDY SESSIONS.

What more could students taking introductory mathematics and statistics courses want? This centre also offers mathematics primer courses to help high school students make the transition to university.

Students receive math and statistics tutoring assistance at the Decima Robinson Support Centre.

DID YOU KNOW?

Decima Eveline Robinson was the very first Bachelor of Science in Mathematics graduate at the University of Alberta in 1911!



Students using the U of A Astronomical Observatory, located on the roof of the Centennial Centre for Interdisciplinary Sciences.

Spaces for Undergraduates

We have a multitude of lab spaces and special facilities to support learning. Hands-on experiences are important, and we have unique facilities to provide practical training in a safe environment.

Take a virtual tour: uab.ca/scitours

- **The Science Hardware Makerspace, AKA the Shack**, is a student hackerspace equipped with 3D printers, CNC milling machines, computers and electronics.
- **The Department of Physics Astronomical Observatory** houses three telescopes for solar and evening observing on the roof of the Centennial Centre for Interdisciplinary Sciences.
- **The Petrology Undergraduate Laboratory** helps students refine their petrographic skills in igneous, metamorphic and sedimentary petrology using one of 20 polarizing microscopes.
- **The Planning Studio and Teaching Space** houses state-of-the-art equipment for teaching and ongoing studio projects in the Urban Planning program.
- **The Virtual Environments and Spatial Cognition Lab** is where we investigate human spatial cognition using behavioural and neuroimaging methods, including augmented reality (virtual reality), eye tracking, fMRI and ERP.
- **The Biotron** consists of an aquatic facility, a greenhouse complex and a large controlled environment facility. Tightly controlled environmental conditions are for the study of animal and plant life.

Student Innovation Centre

The Student Innovation Centre is a collaborative workspace in the Faculty of Science for you to take your ideas beyond the classroom and create real-world impact. Students from all types of programs use this space to collaborate on projects in areas like:

- Artificial Intelligence
- Synthetic Biology
- Space Science
- Media (visual and audio) Design and Production
- Virtual Reality
- Game Development

This cutting-edge project space boasts:

- Drop-in space for planning and building your next prototype
- Breakout rooms for collaborations
- Ongoing workshops, events and seminars to boost creativity and ideation
- Access to technology including:
 - High-performance computing stations
 - Podcast studio space (including professional sound mixers)
 - Microsoft HoloLens
 - And more!
- Resources for groups transitioning to entrepreneurship

uab.ca/innov8



The Student Innovation Centre (SIC) was pivotal in scaling the U of A's International Genetically Engineered Machine (iGEM) student project which landed the team a silver medal at the 2023 Global iGEM Grand Jamboree in Paris. The SIC provided collaborative spaces, computing resources, a production studio for promotional videos and other essential assets for the project!

Students walking through the Student Innovation Centre.



RECENT INTERNSHIP PLACEMENTS

Agriculture & Agri-Food Canada

Boyle Street

Gilead

CIBC

City of Edmonton

Government of Canada

INVIDI

PCL Construction Management

Sanofi Pasteur

Shopify

Suncor Energy

Frances, a current computing science student, on internship with the City of Edmonton as part of the Science Internship Program (SIP). During her internship she built applications and performed data analysis to help the horticultural and snow removal teams optimize their day-to-day operations.

Internships During Your Degree

Science Internship Program

Explore career options with our Science Internship Program (SIP) and gain real-world work experience before you graduate.

Students in all science degrees are eligible to participate in 4, 8, 12 or 16-month paid work terms starting as early as second year.

SIP placements allow you to:

- Apply classroom knowledge to hands-on, real-life situations.
- Build your strengths, and clarify your interests and goals.
- Graduate with a resume packed with relevant work experience.
- Boost your chances of landing a great job after graduation.
- Begin growing a professional network.

uab.ca/sip

Robert, a current science student, on internship with the RCMP forensics team as part of the Science Internship Program (SIP).

Research, Certificates and Online Learning

At the University of Alberta, research isn't limited to graduate students and faculty. We encourage our undergraduate students to ask their own questions and to get involved with research early in their careers. Our training services, courses and certifications will teach you about scientific inquiry, data collection, analysis and reporting.

Certificates

Certificates allow for further study in a special area of interest that is not easily identifiable on a student's transcript. Our certificates are embedded, meaning they are taken alongside regular courses and completed over the course of your degree. By obtaining a certificate, you will enhance your degree and receive official recognition for the high level of skills you have developed.

We offer the following embedded certificates:

- Artificial Intelligence Everywhere
- Certificate in Applied Data Science
- Certificate in Computer Game Development
- Research Certificate in Science (Biological Sciences)
- Research Certificate in Science (Psychology)

Science students can also earn a certificate offered through other faculties. Examples include:

- Certificate in Biomedical Research
- Certificate in Innovation & Entrepreneurship
- Certificate in Sustainability

Online Learning

Since 2014 and the launch of our first Massive Open Online Course (MOOC), Dino 101 – recently named one of the Top 50 MOOCs of all time – the Faculty of Science has cemented its place as a world leader in the production of MOOCs (which are free to anybody in the world with internet access) and as accredited undergraduate options for Faculty of Science students.

Beyond the release of this first, trailblazing MOOC, the faculty has produced eight more general science MOOCs:

- Astro 101: Black Holes
- Bugs 101: Insect-Human Interactions
- Introduction to the Arctic: Climate
- Paleontology: Ancient Marine Reptiles
- Paleontology: Early Vertebrate Evolution
- Paleontology: Theropod Dinosaurs and the Origin of Birds
- Problem Solving, Programming, and Video Games (PVG)
- Understanding Video Games

Check out the growing list uab.ca/mooc

Undergraduate Research

Add research to any science degree by taking courses (as early as year 1), a research certificate, working or volunteering in a departmental research lab, taking on a research internship term or completing research abroad.

The Undergraduate Research Initiative (URI) supports students' through hands-on research and creative activities. uab.ca/uri



STUDY ABROAD PROGRAM

90 Science students attended our Education Abroad program in 2024-25!

IF YOU ARE A FIRST OR SECOND YEAR SCIENCE STUDENT, explore the exciting opportunities offered through Education Abroad, and plan your degree with an academic advisor. The U of A has over **240 study abroad programs** in **over 45 countries**, with over a million dollars in funding available.

Recent study abroad opportunities:

- University of Oslo Canorock Step Exchange
- City University of Hong Kong Science Exchange
- DAAD RISE Research Internship in Germany
- KAUST – Visiting Student Research Program in Saudi Arabia

uab.ca/goabroad



“

My work in the German Academic Exchange program DAAD involves a lot of fun training using positive reinforcement to provide enrichment for each animal while teaching commands relevant to our research methods. I have been enjoying the hands-on nature of my research, as well as the applicability of this experience to all aspects of my degree (double major in biology and psychology with certificates in sustainability and international learning).”

KIARRA

Recent graduate, Biological Sciences, Psychology Major

Bamfield Marine Sciences Centre

Your oceanside campus.

Attend Canada’s premier coastal research and training facility, located on the exposed west coast of Vancouver Island. Earn credit while taking unique undergraduate field courses during the summer and fall semesters in coastal marine sciences. Live on-site and learn in a first-class, experiential environment with state-of-the-art research facilities. This partnership maximizes marine science opportunities for U of A students!





Class change in the CCIS Building. This LEED-certified building hosts cutting-edge research and collaboration across all science departments.



JENNY
2nd Year, BSc Computing Science,
Geophysics Minor, from South Korea

“
Early in university, from sun-up to sun-down, I would have my nose in my iPad or textbooks studying. After finding my step academically, I began to open myself to the university community around me, from working as a research assistant to volunteering as a campus ambassador.

I now continuously look forward to coming to campus every single day, and it has become one of the places I feel most myself. I highly recommend you always say yes to the opportunities or people life sends your way; you're a mosaic of the people you meet and experiences you have, and you'll never know how much good it will bring you until you take that leap of faith.”

XAVIER
4th Year, BSc Honors Neuroscience, from Spruce Grove, AB



“
Ever since I was young, I was interested in the coding used in web design. I spent hours upon hours fiddling with code and watching YouTube tutorials, captivated by the thousands of options for customization.

Now, I see the increased use of artificial intelligence and want to forge a path in the field that will best benefit people. Receiving the Schulich Leader Scholarship is the greatest honour. Being recognized for my hard work encourages me more than ever to pursue my passions in STEM, and this award has equipped me with the resources I need to realize my dreams.”

READY, SET, APPLY!

Engage in Scientific Discovery

Join us in the Faculty of Science for an unparalleled education, and let our world-renowned instructors teach you, train you and help you develop the specific skills needed to excel in your discipline.

SEE YOURSELF HERE!

Students in a CCIS lecture hall – the largest on North Campus.

ACADEMIC REQUIREMENTS

Admission to the Faculty of Science is competitive, and requirements vary depending on applicant type (directly from high school or post-secondary transfer) and program.

Required Alberta Grade 12 Courses (or equivalents)

- English 30-1
- Math 30-1
- Two Science courses from:
 - Biology 30
 - Chemistry 30
 - Physics 30
 - Math 31
 - Computing Science ADV (CTS - 5Cr)
- One additional course:
 - Fine Arts
 - Humanities
 - Languages other than English
 - Math/Sciences

* In addition to admission requirements, programs may require specific Grade 12 prerequisites to register in university courses: uab.ca/sciprereq

** BSc/BEd requires the two science courses to be Biology 30 & Chemistry 30

Programs and admission requirements (including non-direct entry programs): uab.ca/programs

Historical admission averages by faculty: uab.ca/averages

Apply for scholarships and awards: uab.ca/awards

University access program for Indigenous students Transition Year Program: uab.ca/typ

Important deadlines and to apply: uab.ca/apply




FIND YOUR PURPOSE

uab.ca/science

ASK US

You've got questions
and we've got advisors.
science.recruiting@ualberta.ca
uab.ca/advising

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OF ALBERTA**