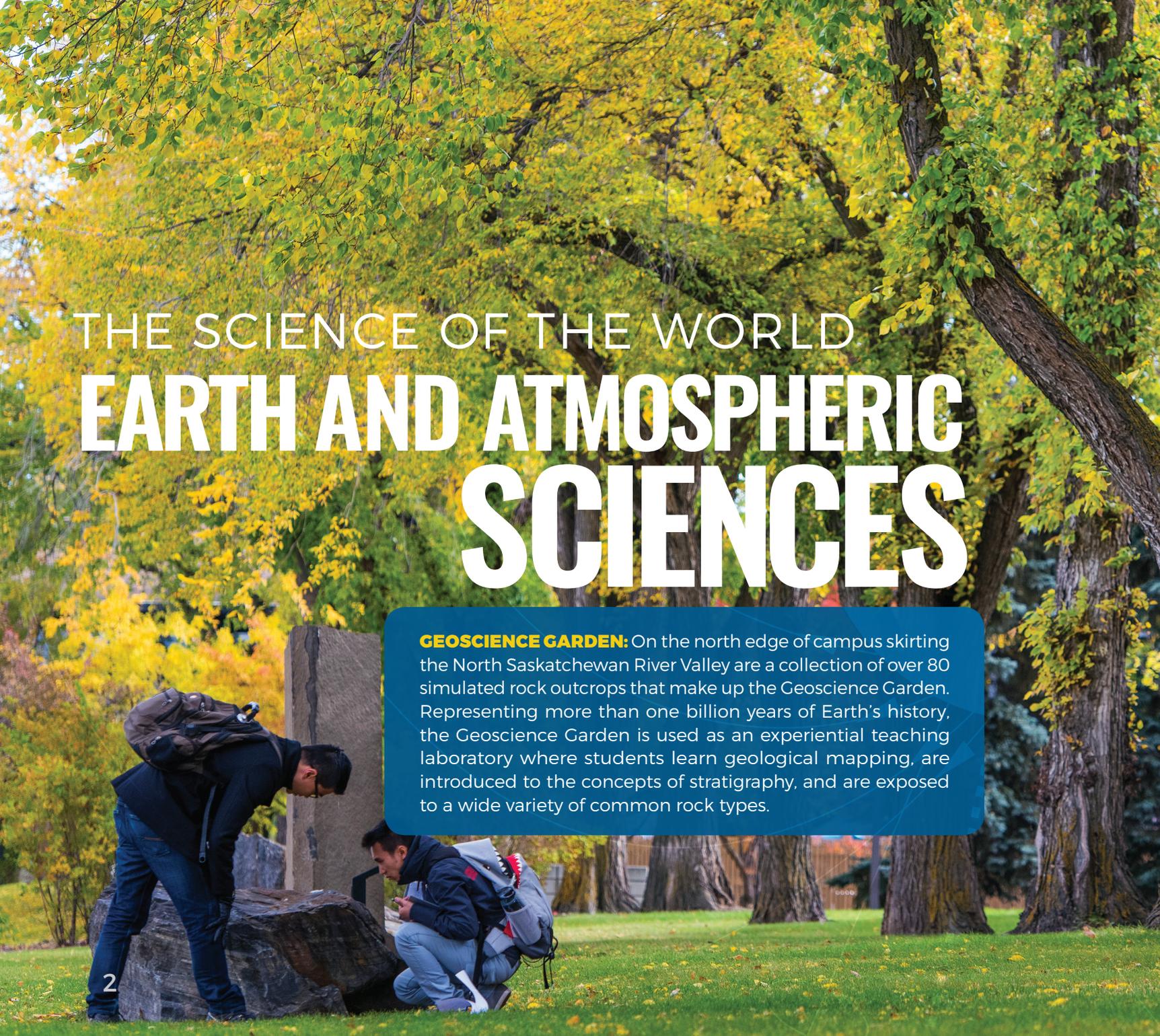


DISCOVER

**EARTH AND
ATMOSPHERIC
SCIENCES**

UNDERGRADUATE
STUDIES

Faculty of
SCIENCE
University of Alberta



THE SCIENCE OF THE WORLD

EARTH AND ATMOSPHERIC SCIENCES

GEOSCIENCE GARDEN: On the north edge of campus skirting the North Saskatchewan River Valley are a collection of over 80 simulated rock outcrops that make up the Geoscience Garden. Representing more than one billion years of Earth's history, the Geoscience Garden is used as an experiential teaching laboratory where students learn geological mapping, are introduced to the concepts of stratigraphy, and are exposed to a wide variety of common rock types.

OUR PROGRAMS

WE OFFER HONORS AND SPECIALIZATION DEGREES in the disciplines below. Students can also select an Earth and Atmospheric Sciences major or minor in the Bachelor of Science General degree.

ATMOSPHERIC SCIENCES

Atmospheric Science programs centre on the study of the Earth's atmosphere, weather and climate including weather forecasting and the dynamic, physical and chemical processes that control winds, clouds and storms. The study of atmospheric science offers the opportunity to investigate the forces that shape weather and climate and the ways in which human activities can affect our weather and climate through the introduction of pollutants into the atmosphere. Computer models of weather and climate play an essential role.

SAMPLE CAREERS: Broadcast Meteorologist, Meteorologist, Oceanographer, Climatologist.

ENVIRONMENTAL EARTH SCIENCES

Environmental Earth Science programs focus on the study of interactions between humans and Earth's natural environment. Students study the influence of human activities on the local and global environment as well as how human actions are shaped and controlled by the geologic and geomorphic processes occurring around us. Environmental Earth science is of global importance as we face challenging environmental issues.

SAMPLE CAREERS: Environmental Consulting, Terrain Analysis, Hydrogeologist.

GEOLOGY

Geology is the study of the planet Earth, the materials of which it is made, the processes which affect these materials, and the origin and evolution of life. Our Geology degree is certified by the Association of Professional Engineers and Geoscientists of Alberta (APEGA) and you will participate in a number of field placements as part of your education.

SAMPLE CAREERS: Geologist, Minerals or Petroleum Explorationist, Hydrogeologist, GIS Specialist.

FOR ADMISSIONS REQUIREMENTS SEE [ADMISSIONS.UALBERTA.CA](https://www.ualberta.ca/admissions)

OUR PROGRAMS

DID YOU KNOW

The Department of Earth and Atmospheric Sciences is a leader in natural resource extraction research? **DAN ALESSI, ENCANA CHAIR IN WATER RESOURCES**, is heading up an interdisciplinary team to research and inform best practices for hydraulic fracturing, which is widely used for petroleum extraction.

Recently awarded over \$2 million in funding, the team aims to investigate the chemistry, microbiology and toxicity of water used in the 'fracking' process as well as ways to reduce overall water usage.

OUR PROGRAMS

PALEONTOLOGY

Paleontology programs are concerned with the evolutionary history of life beginning billions of years ago, when matter and energy first organized life out of chaos, to the present day's astonishing diversity of living things.

As a science, paleontology examines and explains the patterns and processes of evolution as preserved in the fossil record. Students are required to have a broad base of biological and geological knowledge. Areas of study include vertebrate and invertebrate paleobiology, paleobotany, evolutionary biology, systematics, functional morphology, sedimentology, stratigraphy, and plate tectonics.

SAMPLE CAREERS: Museum Curator, Field Researcher, Professor, Educator, Invertebrate or Vertebrate Paleontologist.

PLANNING (BACHELOR OF SCIENCE SPECIALIZATION; BACHELOR OF ARTS, MAJOR)

The Planning program educates students in the scientific, aesthetic, and orderly disposition of land, resources, facilities and services with a view to securing the physical, economic and social efficiency, health and well-being of communities.

Bachelor of Science Specialization in Planning focuses on natural science elements of planning, including environmental management and the use of geographic information sciences.

Bachelor of Arts Major in Planning focuses on the aesthetic, economic, and social issues of planning.

SAMPLE CAREERS: City Planner, Environmental Planner, Transit/Transportation Planner

HUMAN GEOGRAPHY (BACHELOR OF ARTS, MAJOR OR MINOR)

Human geography is a branch of social science that focuses on relationships between human societies and the built and natural environments in which they operate. Human geographers understand these relationships by being attentive to the location, space and scale of social phenomena. A contextual approach is often adopted, in which academic theories are applied, developed and modified in light of 'real world' issues and challenges. In other words, 'thinking spatially' can involve synthesizing the theoretical and the practical.

SAMPLE CAREERS: Sustainability Coordinator, Policy Development Officer, Affordable Housing Project Lead.

SEE [ADMISSIONS.UALBERTA.CA](https://admissions.ualberta.ca) FOR ADMISSION REQUIREMENTS.



HANDS-ON LEARNING

THE FACULTY OF SCIENCE offers one of the most comprehensive and extensive undergraduate field school experiences in Canada. Our students have unparalleled access to the most coveted field locations in the world, thanks not only to the university's physical proximity to unique learning sites, but also to the international partnerships fostered all over the globe through researcher and faculty connections.

UPPER-YEAR GEOLOGY STUDENTS EXPLORE the landscape of the Northwest Territories as part of an advanced practical field school course.

FIELD-BASED COURSES

THE FIELD EXPERIENCE IS CRUCIAL TO THE TRAINING OF STUDENTS in an Earth and Atmospheric Science or Planning program. Many programs require one or more field based courses where students are immersed in the environment to carry out experiments and apply what has been learned in the classroom. With world-class field sites at our doorstep including the North Saskatchewan River valley, the Danek bonebed and the Rocky Mountains, students benefit from our commitment to planning, paleontological and geological field schools.

EXPERIENTIAL LABS

TEACHING OUR STUDENTS TO THINK LIKE SCIENTISTS IN A LAB ENVIRONMENT makes our undergraduate programs second to none. Our active and collaborative labs enrich the educational experience and foster the analytical, experimental, and observational skills that are the forefront of a science degree. To ensure quality, labs are limited to a maximum of 30 students and are enhanced by the diverse specimens and collections that are housed within the department.

MUSEUMS AND COLLECTIONS

COLLECTIONS

- Drill Core Collection
- Invertebrate Paleontology Collection
- Meteorite Collection
- Mineralogy and Petrology Collection
- Trace Fossil Collection

MUSEUMS

- Mineralogy/Petrology Museum
- Paleontology Museum

JUST NORTH OF BRUDERHEIM, about an hour from Edmonton, was the site of the largest recovered meteorite fall in Canadian history. Based on site data and research, meteorite fragments fell to earth at speeds of up to 320 km/hr. Although this spectacular event occurred in 1960, it catalyzed the **University of Alberta Meteorite Collection** (housed in the Department of Earth and Atmospheric Sciences) and helped grow into the largest university-based meteorite collection in Canada.



A FUTURE IN EARTH AND ATMOSPHERIC SCIENCES

An engaging, challenging and inspiring Science Internship with Environment Canada set **KYLE FOUGERE'S ('05 BSC)** career path as a Meteorologist on track, leading him to become the head of the Summer Severe Weather Program at the Prairie and Arctic Storm Prediction Centre in Edmonton.

A FUTURE IN EARTH AND ATMOSPHERIC SCIENCES

SCIENCE INTERNSHIP PROGRAM

THE SCIENCE INTERNSHIP PROGRAM (SIP) is a paid work experience opportunity combining classroom study with a 4-16 month work term. Students are assigned robust projects and make valuable contributions to their employers. Past and present employers include:

- Environment and Climate Change Canada
- Shell
- Imperial Oil
- Cenovus Energy
- City of Edmonton.

VISIT UAB.CA/SCIENCEINTERNSHIP TO LEARN MORE

ARTS WORK EXPERIENCE (BA HUMAN GEOGRAPHY, BA PLANNING)

Work experience opportunities for the BA Human Geography and the BA Planning are available through **ARTS WORK EXPERIENCE (AWE)**.

VISIT UAB.CA/AWE TO LEARN MORE.

PROFESSIONAL ASSOCIATIONS

STUDENTS WHO HAVE COMPLETED THE HONORS OR SPECIALIZATION DEGREE in Geology, Environmental Earth Science or Paleontology may take the required coursework to qualify for registration with the Association of Professional Engineers and Geoscientists of Alberta (APEGA), which regulates the practice of Geoscience Professionals in Alberta.

A FUTURE IN EARTH AND ATMOSPHERIC SCIENCES

DID YOU KNOW?

WE ARE THE HOME OF THE CANADIAN ICE CORE ARCHIVE, representing 10,000 years of ice accumulation. Spearheaded by acclaimed glaciologist Martin Sharp, the ice core collection will form an international centre for research on topics such as the history of the atmospheric nitrogen cycle, organic contaminant and black carbon deposition in the Arctic, and reconstructing past variations of Arctic sea ice.

Field school students studying **THE CARDIUM FORMATION** on the shore of the Bow River near Seebe, Alberta.

SKILLS

OUR STUDENTS DEVELOP A DIVERSE SKILL SET that can be applied in a variety of careers and advanced degrees.

- Ability to collect, interpret and classify rock samples and cores
- Adaptability to different work environments
- Experimental design
- Laboratory equipment operation
- Organize, analyze, & interpret scientific data
- Project management
- Scientific writing
- Stamina & endurance for field work

ADVANCED DEGREES

AN UNDERGRADUATE DEGREE IN EARTH AND ATMOSPHERIC SCIENCES provides a solid foundation that can be furthered through advanced education. Students may continue to graduate programs leading to careers in industry, research, and academia.

DISCOVER EARTH AND ATMOSPHERIC SCIENCES

CONTACT

Questions about programs?

Contact a Faculty of Science recruiter.

Email: science.recruiting@ualberta.ca

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UNIVERSITY OF ALBERTA

DEPARTMENT OF EARTH AND ATMOSPHERIC SCIENCES