

UNIVERSITY OF WATERLOO | FACULTY OF SCIENCE

ENVIRONMENTAL SCIENCE

UNIVERSITY OF
WATERLOO



Jordan examines his D-net, after kicking up sediment in Laurel Creek, looking for insects, fish, and other creatures that live under the water's surface.

ENVIRONMENTAL SCIENCE

uwaterloo.ca/future/programs/environmental-science

A good planet is hard to find.

Explore Earth processes as they relate to human activities to better understand the impacts of human (and natural) influences on environmental sustainability, biodiversity, and hydrology/hydrogeology.

Environmental science applies geologic knowledge to address and solve problems related to the more than seven billion humans occupying the Earth. Topics you'll learn include climate change, groundwater flow and contamination, environmental impacts of pollution, responsible extraction of Earth resources, waste disposal, and human engineering of Earth processes. Enjoy examining the interactions between and within the Earth's four spheres that include both living and non-living components.

Train with cutting-edge professors and the latest technologies, at Canada's most innovative university, to directly address challenges facing humanity today and future generations.

uwaterloo.ca/science

SAMPLE CO-OP POSITIONS

- › Research and Development Technician
- › Undergraduate Research Assistant
- › Environmental Services and Approvals Assistant
- › Water Treatment Project Assistant
- › Urban Education Assistant

SAMPLE CO-OP POSITIONS

- › Public Works and Government Services Canada
- › Environment & Climate Change Canada
- › Agriculture & Agri-Foods Canada
- › City of Toronto
- › Natural Resources Canada

POSSIBLE CAREER FIELDS/PATHS

- › Environmental consultation and assessment
- › Geoscience research
- › Environmental conservation
- › Teaching
- › Government and regulatory agencies



6 QUADRILLION GALLONS
One-fifth of the world's fresh water is contained in the Great Lakes

SPECIALIZATIONS IN ENVIRONMENTAL SCIENCE

ECOLOGY

Address ecological sustainability and biodiversity while learning about the fundamental science of life on Earth. Delve into environmental disciplines that examine the history, interaction, and possible future of the Earth's species and ecosystems.

GEOSCIENCE

Focus on the interactions among the geosphere, hydrosphere, atmosphere, and biosphere as well as the human activities that encompass the complex and dynamic Earth System. Study topics such as surface and subsurface contamination, urbanization, impacts of agriculture, and mining.

WATER SCIENCE

Investigate the unique properties of water, the distribution and movement of fresh and salt water above, on, and within the Earth, and the quality and quantity of water that humans depend upon to survive and thrive on this planet.

BREWSTER CONANT JR.

ADJUNCT PROFESSOR, PHYSICAL AND
CONTAMINANT HYDROGEOLOGY

This course really seems to energize the students and they love being in the field. They learn not only valuable techniques and skills but also how to be good scientists and critical thinkers when interpreting hydrologic data.

WATER IS LIFE

EARTH 223 FIELD METHODS IN HYDROLOGY

Experience hydrology up close! This course consists of field exercises, lectures, and laboratory experiments designed to provide students with hands-on learning of hydrological monitoring techniques. Gain skills in the practical aspects of collecting, interpreting, and reporting of groundwater, surface water, meteorological, and water quality data.

SKILLS ATTAINED WITHIN THIS MAJOR

- › Critical thinking
- › Problem solving
- › Communication
- › Fieldwork capabilities, including skills such as ground water and surface water sampling, as well as geological mapping

“WATER WILL BE MORE IMPORTANT THAN OIL IN THIS CENTURY.”

- Boutros Boutros Ghali, 2003

Within the current geopolitical environment, it will be extremely important to have people who are highly skilled and knowledgeable about water resources.

BECOMING A PROFESSIONAL GEOSCIENTIST

means you are qualified and licensed to sign proposals and designs into action.

* *Applies to the Geoscience specialization*



Available in both the
**CO-OP AND
REGULAR**
streams of study



Apply via the
**ENVIRONMENTAL
SCIENCE**
entry program on
OUAC, selecting one of
the specializations listed
here as your subject of
major interest



OPTIONAL DIPLOMA IN ENVIRONMENTAL ASSESSMENT

Learn about the environmental assessment process in Canada. This is very useful when preparing for a career in consulting or government.

25+ field courses are offered
by the Faculty of Science

3rd in Ontario for
Environmental
Sciences

WATER SCIENCE SPECIALIZATION*

COURSE OUTLINE

YEAR 1 (FALL)

BIOL 150 Organismal and Evolutionary Ecology

CHEM 120/120L General Chemistry 1/Lab

EARTH 121/ 121L Introductory Earth Sciences/Lab

PHYS 111 Physics 1
1 Elective

YEAR 1 (WINTER)

BIOL 165 Diversity of Life

CHEM 123/123L General Chemistry 2/Lab

EARTH 122 /122L Introductory Environmental Sciences /Lab

ENGL/SPCOM 193 Communication in the Sciences

MATH 127 Calculus 1 for the Sciences

YEAR 2

BIOL 240/240L Introduction to Microbiology/Lab

BIOL 241 Introduction to Applied Microbiology

BIOL 354 Environmental Toxicology

CHEM 220/220L Intro Analytical Chemistry/Lab

EARTH 123 Introductory Hydrology

EARTH 221 Geochemistry 1

EARTH 223 Field Methods in Hydrology

GEOG 201 Fluvial Geomorphology

1 Elective

YEAR 3

BIOL 350 Ecosystem Ecology

BIOL 351 Aquatic Ecology

BIOL 447 Environmental Microbiology

EARTH 358 Earth System Science

EARTH 444 Applied Wetland Science

ERS 316 Urban Water and Waste Water Systems: Integrated Planning and Management

GEOG 407 Environmental Hydrology

STAT 202 Introductory Statistics for Scientists

2 Electives

YEAR 4

BIOL 361 Biostatistics and Experimental Design

BIOL 447 Environmental Microbiology

BIOL 450 Marine Biology

BIOL 470 Methods of Aquatic Ecology

EARTH 342 Geomorphology and GIS Applications

EARTH 458/458L Physical Hydrogeology/Lab

GEOG 453 Urban Storm Water Management

1 Earth Elective

1 Program Elective

3 Electives

SAMPLE FIRST-TERM SCHEDULE

* Labs

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Physics 1 hr		Physics 1 hr	Earth 3 hrs *	Physics 1 hr
Chemistry 1 hr		Chemistry 1 hr		Chemistry 1 hr
	Chemistry 3 hrs *			
Ecology 1 hr		Ecology 1 hr		Ecology 1 hr
Elective 1 hr		Elective 1 hr		Elective 1 hr
Earth 1 hr		Earth 1 hr		Earth 1 hr

Course outline and schedule are subject to change at any time.

*Note that this course outline is for the Water Science specialization. Please see the undergraduate calendar for the Ecology or Geoscience specialization outlines. Course sequence may vary for students who choose the co-op system of study.

ugradcalendar.uwaterloo.ca/group/uwaterloo-faculty-of-science

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