

INSTRUMENTAL CHEMICAL ANALYSIS

MASTERS DEGREE (M.ICA) AND GRADUATE DIPLOMA (G.Dip.)

Gain the theoretical understanding of how modern instruments work and the skills to operate them in this one-of-a-kind program



TRENT UNIVERSITY

SCHOOL OF GRADUATE STUDIES

TRENTU.CA/MICA

CHALLENGE THE WAY YOU THINK

Instrumental Chemical Analysis M.ICA & G.Dip.

A GRADUATE PROGRAM THAT IS THE FIRST OF ITS KIND IN NORTH AMERICA

The only one of its kind in North America, the Instrumental Chemical Analysis graduate program provides students with advanced theoretical knowledge of and extensive practical hands-on experience with sophisticated pieces of analytical instrumentation, which our graduates often encounter in their careers in various types of government, industry, commercial and academic laboratories. Within only one year (M.ICA) or 8 months (G.Dip.), students will learn from Trent's leading faculty and expert staff how to operate, maintain, and troubleshoot such instruments, which facilitates a smooth transition of our graduates into the laboratories that are looking to employ them.

Two Degree Options

In the Instrumental Chemical Analysis graduate program, you have options:

1 12-month Masters (M.ICA):

September – August; includes four month practicum in a participating partner laboratory); aimed primarily at recent graduates without extensive laboratory experience

2 8-month Graduate Diploma (G.Dip.):

September – April; course-based; aimed primarily at practicing professionals who want to update their theoretical foundations of modern instrumentation developments

A photograph of three scientists in a laboratory setting. On the left, a man with glasses and a beard, wearing a white lab coat over a blue shirt, smiles. In the center, a woman with blonde hair, wearing a white lab coat, safety glasses, and blue gloves, stands with her hands on her hips. On the right, another woman with blonde hair, wearing a white lab coat, safety glasses, and blue gloves, smiles with her arms crossed. The background shows various laboratory equipment, including a large piece of machinery and a fume hood.

COMBINE AN IN-DEPTH UNDERSTANDING OF HOW MODERN ANALYTICAL INSTRUMENTS WORK WITH THE PRACTICAL SKILLS TO OPERATE THEM IN THIS FIRST-OF-ITS-KIND PROGRAM.

State-of-the-Art Facilities Await

STUDY IN ONE OF THE MOST ADVANCED ENVIRONMENTAL RESEARCH CENTRES IN THE WORLD

Welcome to the Water Quality Centre at Trent University

This state-of-the-art research centre hosts one of the most diverse collections of mass spectrometers dedicated to environmental research in the world. While the focus in the Water Quality Centre is on environmental applications (including solid and gaseous samples), the available instrumentation is equally relevant in other application areas, such as biochemistry and biotechnology, chemical and pharmaceutical production, and materials production and characterization. The 13 currently operated instruments span almost the entire range of currently commercially available instrumentation for both atomic and molecular mass spectrometry. Trent faculty and students have access to this instrumentation for their research, and now this facility is also available for training the students in Trent's Instrumental Chemical Analysis graduate program.

trentu.ca/wqc



Learn Alongside the Experts

In this groundbreaking program, you will learn from the experts in their respective analytical fields, all with longstanding experience, including:

DR. DAVID ELLIS

Analysis of fluorinated organic chemicals

DR. DOUG EVANS

Analysis of trace elements, including radionuclides; isotope ratio measurements

DR. KARLA GEORG

Analysis of trace elements; analytical instrument design

DR. HOLGER HINTELMANN

Analysis of mercury, including its chemical compounds and isotopes

DR. CHRIS METCALFE

Analysis of emerging organic contaminants

DR. NAOMI STOCK

Analysis of organic chemicals

DR. DIRK WALLSCHLÄGER

Analysis of metalloids, including their chemical compounds

For a more comprehensive look at faculty and staff research areas of specialization and analytical expertise, visit trentu.ca/wqc/facultystaff



LEARN FROM EXPERTS IN THE FIELD. MASTER STATE-OF-THE-ART ANALYTICAL INSTRUMENTATION. PREPARE FOR SEAMLESS ENTRANCE INTO CAREERS IN ANALYTICAL LABORATORIES.

Program Pathway

Fall term

ICAN 5001H Principles of Mass Spectrometry
ICAN 5002H Principles of Chromatography
ICAN 5003H Quality Assurance and
Good Laboratory Practice
ICAN 5004H Quality Control and
Data Manipulation
ICAN 5005H Instrument Maintenance
and Repair

Winter term

ICAN 5110H Troubleshooting Analytical
Methods and Instruments
ICAN 5111H Project Planning for Practicum
ICAN 5120H Sample Preparation
ICAN 5121H Advanced Spectrometry:
ICP-MS and LC-MS-MS
ICAN 5122H Other Analytical Methods
Overview

Summer term (M.ICA only)

ICAN 5200H Practicum

A Future of Possibility: What Career Will You Choose?

The Instrumental Chemical Analysis graduate program was specifically designed to allow graduates to enter directly into career opportunities in laboratories using advanced instrumentation. Career paths include:

- government research and monitoring laboratories
- commercial service laboratories
- pharmaceutical and biotechnology research laboratories
- chemical industry characterization laboratories
- academic research laboratories

Admission Requirements

- Students admitted to either the M.ICA degree or the Graduate Diploma will hold a B.Sc. honours degree in chemistry or a relevant science, including forensic science, biology, environmental science, physics or health science
- Minimum B+ (77%) or equivalent in the work of the last four semesters or the last two undergraduate years (last ten full credits)
- Practical or theoretical experience with instrumental chemical analysis, especially chromatography and mass spectrometry, is considered an asset for this program

Apply today: trentu.ca/mica

Investing in Your Professional Future

As a student in the Instrumental Chemical Analysis graduate program, you may qualify for partial financial support, including:

- Graduate Teaching Assistantships
- Summer Internships (M.ICA candidates only)

For more information on the funding structure for this graduate program, visit trentu.ca/graduatestudies



The School of Graduate Studies

The School of Graduate Studies at Trent is home to about 600 students. Here, you will become part of the community as you build relationships and interact in small classes and with faculty members and advisors. Trent offers you a unique educational experience, where collaboration and an interdisciplinary approach see students of all ages and from all around the world come together in scholarship. And these are the ties that bind – our alumni stay in touch with the School and with each other, oftentimes connecting through their professional pursuits.

Study at One of Canada's Most Research-Intensive Universities

Trent University is recognized consistently as a centre of high-calibre research and scholarship. The total research funding at Trent has more than doubled over a five-year period, and the success of Trent faculty in attracting research funding from diverse sources continues to be remarkable. At the same time, Trent faculty has been extremely successful at building world-class research infrastructure to conduct state-of-the-art research. As trendsetters in their respective fields, Trent faculty members develop in analytical approaches that our graduates subsequently encounter in their field of employment.

Explore The Best Of Both Worlds

As a graduate student at Trent, you will become a member of a closely-knit community and study with world-renowned researchers. Here, students and faculty members interact one-on-one and learn from each other as they explore, share perspectives and collaborate across areas of study.

Our Peterborough Campus: An Inspiring Place to Learn

Trent's Symons Campus in Peterborough is an inspiring place to learn. Set on the east and west banks of the Otonabee River, a stunning natural landscape provides an environment where you can live, learn and connect. Just 90 minutes from downtown Toronto, the campus blends award-winning architecture with state-of-the-art teaching, learning and research facilities.





INSTRUMENTAL CHEMICAL ANALYSIS GRADUATE PROGRAM

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