Master of Science in Chemistry

Chemistry at Brock offers graduate students the opportunity to work in a friendly, supportive environment and gain experience with large, state of the art instrumentation that includes NMR spectroscopy, X-ray crystallography, mass spectrometry, EPR spectroscopy, gas chromatography and HPCl. Faculty members specialize in Organic/Bio-organic Chemistry, Analytical Chemistry, Inorganic Chemistry and Physical/Theoretical Chemistry.

PROGRAM DURATION: 2 years (6 terms)

RESEARCH FIELDS/SPECIALIZATIONS:

- Organic Chemistry
- Inorganic Chemistry
- Bioanalytical Chemistry
- Physical and Computational Methods

ADMISSION REQUIREMENTS:

Successful completion of an Honours Bachelor's degree, or equivalent, in Chemistry or a cognate discipline such as Biochemistry or Biotechnology normally with a minimum 75% (mid-B) average over the last two years of full-time undergraduate study. We recommend that students provide results from a completed Graduate Record Examination (GRE) test in chemistry. Agreement from a faculty supervisor to supervise the student is required for admission to the program. Those lacking sufficient background preparation may be required to complete a qualifying term/year to upgrade their applications. Completion of a qualifying term/year does not guarantee acceptance into the program.

Application deadline: Considered when received

Entry: January, May, September

FUNDING:

This is a funded program.

Our funding packages consist of a combination of different sources of funding including graduate fellowships and graduate assistantships. This year, graduate students enrolled in a full-time, research-based Master's program will typically receive:

FUNDING PACKAGES	
Domestic Students	**$15,576**
International Students	**$22,076**

Students are eligible to apply for scholarships. For more info visit: brocku.ca/graduate-studies/scholarships-awards/

ARE YOU INTERESTED IN:

- Synthetic organic/inorganic chemistry
- Bioanalytical chemistry
- Organometallic chemistry
- Coordination chemistry
- Molecular magnetism
- Medicinal and bio-inorganic chemistry
- Biochemistry
- Catalysis
- Biocatalysis
- Computational chemistry
- EPR spectroscopy of biological systems

CAREER OPPORTUNITIES:

- PhD. Programs in Chemistry
- Professional degree programs: MBA, Pharmacy, Medical School, Law School
- Analytical chemist
- Research Scientist in Pharmaceutical/Biotechnology/ Petroleum and Food Science Industries
- Laboratory technician
- Product/Process Development Chemist
- Healthcare Scientist
- Science writer
- School teacher
- Intellectual property specialist

TRANSFERABLE SKILLS:

- Analysis and problem-solving
- Critical thinking
- Time management and organization
- Written and oral communication
- Monitoring/maintaining records and data
- Teaching and mentorship within a team environment
- Practical skills, research and presentation
- Scientific writing skills

CONTACT INFORMATION

Graduate Program Director
Melanie Pilkington
905-688-5550 x3403
mpilkington@brocku.ca

Graduate Administrative Coordinator
Elena Genkin
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egenkin@brocku.ca

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CURRENT FACULTY/STAFF RESEARCH INTERESTS:

F. Li	Bioanalytical Chemistry, DNA Nanotechnology, Biotechnology, Disease Diagnostics, Cell imaging
M.T. Lemaire	The preparation and properties of new hybrid inorganic/organic materials. This work encompasses basic and advanced organic synthetic techniques, in particular, for the preparation of new ligands, as well as coordination and polymer chemistry.
G.I. Nikonov	Organometallic chemistry; Transition metal hydrides; Homogeneous catalysis; New ligand environments; Nonclassical bonding
M. Pilkington	Synthesis and study of molecule-based materials with interesting chemical, biological and physical properties. This work includes Ligand design and Synthesis, particularly in the area of Molecular magnetism, Coordination chemistry, Macrocyclic chemistry and Medicinal inorganic chemistry, where we are developing and studying a new family of MRI contrast agents.
P. Zelisko	Silicon Biotechnology; Silicone and Silicone-Modified Materials; Silicon-Based Coatings; Siloxane-Containing Phospholipids; Self-Healing and Recyclable Silicone Elastomers; Macrocyclic and Branched Silicone-Based Systems; Janus Siloxane Systems; Green Methodologies in Silicon Chemistry
J. Atkinson	Organic Chemistry; Vitamin E Biochemistry; Lipid bioconjugates and reactive probes, Lipid transfer proteins, Protein-membrane interactions
T. Hudlicky	Total synthesis of Amaryllidaceae alkaloids and morphine; synthesis and biological evaluation of oligoinositols; microbial dihydroxylation of aromatic substrates; electrochemical oxidation and reduction of organic molecules
C. Metallinos	Annulated Chiral NHCs: Benzimidazolylidenes Derived from Phenanthrolines; Stereoslective Synthesis of Pyrroloimidazol(in)ylidenes. Aminoferrocenes. L-Proline Hydantoin-Derived Chiral Auxiliaries
H. Yan	Natural and modified nucleic acids (light-responsive nucleic acids, glycosylated nucleic acids, sequence specific modification of nucleic acids); mucosal vaccine adjuvant development; colorimetric and fluorescent labeling of nucleic acids; DNA damage in bacterial spores
T. Dudding	Synthetic organic chemistry, organometallic chemistry, physical organic chemistry, computational chemistry, and computer programming
A van der Est	Photosynthesis; time resolved EPR spectroscopy; electron transfer reactions; light-induced electron spin polarization
H. Gordon	Statistical mechanical investigations, via Monte Carlo and molecular dynamics simulations, of biologically relevant molecules.

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