



FACULTY OF SCIENCE

CHEMISTRY

Chemistry is the study of the composition and properties of matter, the transformations they undergo, and the associated energies.

Chemists are at the forefront of unravelling the mysteries of the most complex chemical systems. If you are interested in understanding the structure of matter and how it behaves on a molecular level, you may be drawn to the field of chemistry. Chemical science plays a role in dealing with many challenges today, from pollution and the scarcity of fresh water, to food production and the development of vaccines and drugs.

At The University of Winnipeg you can specialize in analytical, organic, inorganic, or physical chemistry; or in biochemistry.

The Chemistry Department at UWinnipeg offers research and work opportunities through summer jobs and a fourth year "Research Projects" course. The skills gained through these research and work opportunities are valuable in future employment and for admission to graduate and professional schools.

This program leads to a **Bachelor of Science degree (3-year, 4-year, or Honours)**. *Also, please see related fact sheets on "BioChemistry" and "Applied Chemistry" (a joint program with Red River College).*

SAMPLE CAREERS

As a "central science," chemistry provides excellent preparation for a career in science as a teacher, a professional (e.g. medical doctor, pharmacist), a technician, or a researcher/academic. Chemistry graduates may find employment in federal or provincial government laboratories, industrial laboratories, hospital laboratories, or with pharmaceutical or chemical companies.

SAMPLE COURSES

Introduction to the Chemical Properties of Matter and Basic Principles of Chemical Reactivity are first-year courses that examine the principles of the four core areas of chemistry: organic, inorganic, analytical, and physical. Laboratory work introduces some of the basic techniques of practical chemistry.

Organic Chemistry I and II are second-year courses that introduce the chemistry of carbon and describe the nature of organic compounds and their behaviours. Nomenclature and stereochemistry are described, as well as methods for the synthesis and characterization of these compounds.

Intermediate Biochemistry I and II are two third-year courses that describe the structures of biologically important compounds and deal with chemical processes of living materials such as digestion, absorption, respiration, and metabolism.

MORE SAMPLE COURSES

- **Atoms, Molecules, and Spectroscopy**
- **Quantitative Chemical Analysis**
- **Molecular Enzymology**
- **Methods in Biochemistry**
- **Organic Synthesis**
- **Thermodynamics and Kinetics**

SAMPLE FIRST YEAR

CHEM-1111(3) Introduction to the Chemical Properties of Matter
CHEM-1112(3) Basic Principles of Chemical Reactivity
BIOL-1115(3) Cells and Cellular Processes
BIOL-1116(3) Evolution, Ecology, and Biodiversity
MATH-1101(6) Introduction to Calculus OR Math 1103-(3) Introduction to Calculus I and Math-1104 (3) Introduction to Calculus II
RHET-1103(3) Academic Writing: Science or any other section of Academic Writing (if required)
6 credit hours Humanities
3 credit hours Elective

***NOTE:** This sample first year is representative of the courses you may take. For many of our programs, you may choose another set of courses and still be well on your way to a degree. Also, for most programs you do not have to take 30 credit hours (five full courses) in your first year.*

“The small size of the Chemistry department allowed me to gain access to the professors, get valuable hands-on experience in the labs as both a student and a lab teaching assistant, and participate in the organization of an undergraduate chemistry conference.”

-Angele Maki (BSc Chemistry), who completed her PhD in Chemistry at Stanford University.

REQUIRED HIGH SCHOOL COURSES

In addition to meeting The University of Winnipeg's general admission requirements, you must have Chemistry 40S and either Pre-Calculus Mathematics 40S or Applied Mathematics 40S.

HOW TO APPLY

For details on application requirements and deadlines, and to apply online, please visit: uwinnipeg.ca/apply

For more information contact a student recruitment officer at welcome@uwinnipeg.ca or 204.786.98444. In any case where the University's Academic Calendar and this fact sheet differ, the current Calendar takes precedence.

CONTACT US

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