



FACULTY OF SCIENCE

CHEMISTRY

Chemistry is the study of the composition and properties of matter, the transformations they undergo, and the associated energies. Chemistry is the essential science to the building blocks of life and spans all aspects of our lives, from health and nutrition to scientific discoveries and management of an environmentally sustainable world.

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.

The Chemistry Department at The University of Winnipeg is a nationally recognized program. Students graduating from our 4-year, Honours, and Joint (Applied) programs receive a formal accreditation certificate from the Canadian Society for Chemistry (CSC).

Our Chemistry Department is renowned for its high quality instruction and small class sizes. It also offers opportunities for undergraduate students to participate in cutting-edge faculty-led research programs. Other research opportunities are available through summer jobs and a "Research Projects in Chemistry" course.

This program leads to a **Bachelor of Science degree (3-year, 4-year, or Honours)**. Students may also add a Business Stream, which provides them with the skills needed to succeed in industry and business. Visit: <https://www.uwinnipeg.ca/academics/calendar/docs/sci-bus.pdf>.

Also, please see related fact sheets on "BioChemistry" and "Applied Chemistry."

SAMPLE CAREERS

Chemists are involved in many fields including environmental protection, pharmaceutical science, forensic science, toxicology, agricultural science, food science, education, geochemistry, biochemistry, materials science, biotechnology, oceanography, computer modelling, and plant management.

Graduates with a 3-year BSc may proceed to professional schools in a health-related area (such as pharmacy, medicine, veterinary medicine, or dentistry), or to careers such as education, library science, business administration, public administration, engineering and law. Graduates with 4-year or Honours degrees may proceed to employment or go on to graduate school to obtain an MSc or PhD.

As a "central science," chemistry provides excellent preparation for a career in science as a teacher, technician, manager, consultant or research scientist in industry or government labs (such as hospital and forensics), 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 basic techniques.

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.

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)

9 credit hours Humanities or Electives

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 204.786.9844. 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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