CHEMISTRY AND BIOCHEMISTRY

The Department of Chemistry and Biochemistry at the University of Regina, provides quality education opportunities through dedicated classroom teaching and innovative research programs. The department offers BSc, MSc, and PhD degrees in chemistry and biochemistry.

Interdisciplinary research areas in our department include:

- **Biochemistry**: elucidating biosynthetic pathways by understanding enzyme mechanisms.
- **Biophysics**: using microscopy and biochemistry to understand the structure and function of cellular membranes.
- **Computational Chemistry**: simulating catalytic systems with molecular dynamics simulations.
- **Environmental Analytical Chemistry**: identifying and quantifying pesticides in our environment.
- **Photochemistry**: developing photochromic materials and photoresponsive nanoparticles.
- **Synthetic Chemistry**: developing catalysts using organic, inorganic and organometallic chemistry.
- **Systems Biology**: characterizing comprehensive networks of protein-protein and gene-gene interactions to identify therapeutic treatments for disease.

For more details about our graduate research opportunities, visit our graduate research page. Undergraduate students also have many opportunities to participate in research through research-based courses, summer internships and our honours program.
CAREER POSSIBILITIES
Analytical Chemist
Biochemist
Biotechnology
Chemical Technologist
Clinical Chemist
Environmental Chemist
Food Scientist
Forensics
Gene Technologist
Laboratory Analyst
Health/Safety Inspector
Health Professional
Industrial Chemist
Pharmaceutical Chemist
Pharmacologist
Plant Physiologist
Pollution Control
Research Chemist
Toxicologist

THE DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY OFFERS THE FOLLOWING ACADEMIC PROGRAMS:
Diploma in General Science

Biochemistry
BSc Biochemistry
BSc Hons Biochemistry

Chemistry
BSc Chemistry
BSc Hons Chemistry
BSc Chemical Technology (Joint program with Saskatchewan Polytechnic, Kelsey Campus)

COURSE HIGHLIGHT
BIOC 330 - Enzymes
Lectures will discuss the fundamentals of enzyme chemistry: kinetics, inhibition, structure and mechanism, activity control, and protein folding and evolution.

BIOC 340 - Biophysics
This introductory biophysics course examines the theoretical concepts and instrumentation design for microscopic techniques used to probe biological systems. We will investigate the key biological questions that can be addressed with each method. We will mainly focus on light-, fluorescence-, transmission electron-, and scanning electron microscopies with a brief introduction to atomic force microscopy.

CHEM 441 - Modern Organic Synthesis
This course will discuss the concepts and strategies in synthesis of organic molecules. Lab component: Synthesis of compounds that are either naturally occurring or structurally interesting.

RECOMMENDED FIRST YEAR COURSES
Biology 100
Biology 101
Chemistry 104
Chemistry 105
Chemistry 140
Computer Science 110
English 100
English 110
Mathematics 102
Mathematics 110
Mathematics 111
Mathematics 122
Statistics 100
Statistics 200

*Always check that you meet course prerequisite requirements.

HIGH SCHOOL ADMISSION REQUIREMENTS FOR THE FACULTY OF SCIENCE
5 Grade 12 courses including:
• English A30
• English B30
• Pre-Calculus 30

and at least two of:
• Biology 30
• Calculus 30
• Chemistry 30
• Computer Science 30
• Physics 30

A High School Average of 70% across these five courses is required.

Note: Students who are missing a course, or who have an average between 65% and 69.9% are eligible for the Faculty of Science Qualifying Program.