

Bachelor of Science

Why do a Bachelor of Science (BSc) at CMU?

Natural science, like the solar system, encompasses worlds of worlds all waiting to be explored. From the macro- to the micro-levels of biology, chemistry, mathematics and physics, natural science is about the search not only for knowledge, but for better questions and new frontiers. In your science studies at CMU, you will probe some of what we know about the universe, its contents and its ways; you will learn to see the everyday in new ways, to analyze mathematical data in the abstract, and understand your world on a deeper level. You will be encouraged to draw connections between science and other disciplines, and develop your own questions to pursue. The questions of science are the big, open-ended ones—the perpetual "how's" and "why's" of life, matter, motion, and change. If these are the questions you find yourself asking often, consider studying natural science at CMU.

Program Strengths

CMU BSc degrees are distinctive in their inclusion of a broad interdisciplinary base, helping students to see the beauty and complexity of the world from various perspectives within science, biblical and theological studies, humanities, and social sciences. We emphasize care and compassion for the earth and everything that it sustains – plants, animals, humans. Our passion is to make the world a better place. This is not unique to us, but is core to who we are as a Christian University.

CMU has an academically rigorous program, where the smaller program allows for professors to mentor their cohort of students, aiding in individual growth and opportunities in the future. Labs are taught by researching professors or lab instructors, and provide a space for every student to gain hands-on experience. CMU's Science program is nimble, allowing us to do research work in class, because we can ask new questions each year, and partner with community stakeholders (examples: partnering with City of Winnipeg and Charleswood Rotary in a project to study an invasive species of plant in the Assiniboine Forest, and partnering with A Rocha Manitoba to work on their baseline ecological survey on the East Braintree property they are stewarding).

Career Paths

- BSc degrees provide a variety of options for students to acquire pre-requisite courses for professional programs and graduate degrees at other institutions, leading to careers including: nursing, medicine, veterinary medicine, data science, statistics, healthcare, education, administration, agroecology, and natural resources management.
- BSc graduates will also be well-suited to pursue further careers in areas other than science including, law, ministry, politics, journalism, or any other field that requires a broad set of skills.

Skills Developed

- Reading and interpreting texts
- Communicating complex ideas
- Thinking creatively and critically
- Communicating effectively, both orally and in writing
- Formulating and testing hypotheses
- Quantitative data analysis
- Effective research design
- Presenting and persuading
- Analytical reasoning
- Managing time and meeting deadlines
- Developing cross-cultural awareness
- Working independently

Bachelor of Science Majors

CMU offers majors within the BSc including:

- Three-year General Science
- Three-year Mathematics
- Four-year Biology
- Four-year Mathematics

Examples of CMU Science Courses

Biology

- The Genetic Revolution
- Cells and Energy
- Cell Biology
- The Evolutionary and Ecological Revolution
- The Diversity of Life
- Genetics of Eukaryotes and Bacteria
- Introduction to Global Health
- Quantitative Research Methods in Ecology
- Ecology I & II
- Cellular & Molecular Laboratory Methods

Chemistry

- Structure and Modelling in Chemistry
- Physical Chemistry
- Organic Chemistry: Structure and Function
- Organic Chemistry: Reactivity and Synthesis
- Biochemistry : Biomolecules and Metabolic Energy
- Biochemistry: Catabolism, Synthesis and Metabolic Pathway

Mathematics

- Basic Statistical Analysis
- Introduction to Calculus
- Calculus II
- Ordinary Differential Equations
- Vector Geometry and Linear Algebra
- Chaos Theory
- Introduction to Computer Science

Physics

- Physics I: Mechanics
- Electromagnetic Field Theory
- Physics II: Waves & Modern Physics

In addition to science courses, students will take courses in the humanities, arts, social sciences and biblical and theological studies as part of their degree programs.

Course descriptions can be found on the CMU website. Contact the admissions office with further questions.

A work-integrated learning course is required in every degree at CMU. This practicum can be done as an intensive 12-week placement or a once-a-week placement over 20 weeks during the school year. The work placement can help students explore the field they are majoring in for career possibilities or it can provide a way to expand their experiences in a field they haven't thought about before.

Entrance Requirements:

Mathematics major: 70%\$ in grade 12 Pre-Calculus Mathematics and two of the following grade 12 subjects: Biology, Chemistry, Physics

General Science:70% in three of the following grade 12 subjects: Biology, Chemistry, Physics, Pre-calculus Mathematics

Biology: 70% in three of the following grade 12 subjects: Biology, Chemistry, Physics, Pre-calculus Mathematics (Note: these are entrance requirements only. To complete all required courses in the Biology major, students will need to have completed all four grade 12 courses listed above.)