



THE UNIVERSITY OF WINNIPEG

For more information visit www.uwinnipeg.ca or contact a student recruitment officer at welcome@uwinnipeg.ca or 204.786.9844. In any case where The University of Winnipeg Course Calendar and this fact sheet differ, the current Calendar takes precedence.

Applied Biology

Biology is the study of any form of life, from the DNA molecule to the interactions of organisms within the various ecosystems of the Earth.

This joint program, known as the **Applied Biology program**, is offered by The University of Winnipeg in conjunction with Red River College. It allows you to obtain a 4-year bachelor of science (general) from the University.

Applied Biology provides an education in molecular and cellular biology and is designed to address the need for qualified biotechnologists in Manitoba. Biotechnologists must have the basic laboratory skills required for the job. This includes a theoretical background to be able to expand the investigation, to troubleshoot, or to take a leadership role in the laboratory.

The Applied Biology program prepares you to meet these requirements by combining the specialties of The University of Winnipeg and Red River College. Students start by completing 60 credit hours of course work at The University of Winnipeg, followed by 30 credit hours in Chemical and Biosciences Technology at Red River College, and then their final 30 credit hours are taken back at the University of Winnipeg. Between the two institutions, you will receive an enhanced level of both theoretical and applied education. When this is coupled with the liberal studies component of the program, you are assured of a flexibility that will encourage success in an ever-changing job market.

Students who enter the Applied Biology Program may choose either the **traditional path** or one with a **cooperative education component**. The co-op component includes three to four paid work terms for a total of at least 12 months on-the-job experience. This stream has limited enrolment that is determined by a selection committee, with representatives from both The University of Winnipeg and Red River College. There are many benefits of a co-op education including the opportunity to “try on” a career and develop valuable contacts in your field. It can improve your chances of being actively sought by employers.

Applied Biology is a **4-year program that leads to a joint degree parchment from The University of Winnipeg and Red River College.**

SAMPLE CAREERS

Applied Biology prepares graduates for work in the food industry, agriculture, and medical research laboratories. Many find employment with government departments, private research laboratories, scientific consulting organizations, and pharmaceutical companies.

SAMPLE UNIVERSITY OF WINNIPEG COURSES

Cells and Cellular Processes, a first-year course, introduces the cellular level of organization. It covers cytology, cell metabolism, patterns of inheritance, and mechanisms of cellular control.

Evolution, Ecology, and Biodiversity, another first-year course, emphasizes the evolutionary and ecological processes that underlie the relationship between an organism and its environment. Topics include natural selection and the origin of species, systematics and taxonomy, the origin of biological diversity, growth and reproductive strategies, and communities and ecosystems.

Molecular Genetics and Genomics, a third-year course, deals with basic genetic techniques and phenomena

at the molecular level. Topics covered include transcription, translations, and the genetic code; organization of genetic material in prokaryotes and eukaryotes; and recombinant DNA plus its applications.

Molecular Cell Biology covers cell signalling, the cytoskeleton, extracellular matrices and cell adhesion, cell division, apoptosis and cell death, the immune system, and the genetic basis of cancer.

MORE SAMPLE COURSES

Animal Physiology
Developmental Biology
Immunology
Microorganisms and Disease
Prokaryotes and Viruses

3-YEAR DEGREE PLUS DIPLOMA IN 4 YEARS

In addition to the Applied Biology program, The University of Winnipeg and Red River College also have a cooperative agreement for a program of studies designed to afford students the opportunity to obtain both the BSc General 3-year degree and the Diploma in Chemical and Biosciences Technology in four years, by allowing credit for work completed at the alternate institution.

PROGRAM REQUIREMENTS

For the 4-year program in Applied Biology, of the 120 credit hours required, 90 credit hours must be completed at The University of Winnipeg.

Alternatively, graduates of the Chemical and Biosciences diploma program at Red River College who wish to obtain their 3-year bachelor of science must complete a minimum of 60 credit hours at The University of Winnipeg, including:

21 credit hours in Biology at the 2000 level

12 credit hours in the Humanities

A minimum of 18 credit hours selected from at least two of the following departments: Chemistry, Geography, Mathematics, Physics, and Statistics

WHAT OUR STUDENTS SAY...

"I credit a lot of my success to the personal attention and research opportunities at The University of Winnipeg. Because this is a university with an undergraduate focus, professors are very accessible to undergraduate students." - *David Selchen (BA '97 Psychology and Biology), Rhodes Scholar*

SAMPLE FIRST YEAR

NOTE: *This sample first year is the one recommended for this program. For many of our programs, you may choose another set of courses and it may still be possible to earn a degree. Also, for most programs you do not have to take 30 credit hours (five full courses) in your first year. Note that in the Applied Program, you must begin your studies at The University of Winnipeg.*

BIOL-1115(3) Cells and Cellular Processes

BIOL-1116(3) Evolution, Ecology, and Biodiversity

CHEM-1111(3) Introduction to the Chemical Properties of Matter

CHEM-1112(3) Basic Principles of Chemical Reactivity

STAT-1301(3) Statistical Analysis I and STAT-1302(3) Statistical Analysis II OR

STAT-1501(3) Elementary Biological Statistics I and STAT-2001(3) Elementary Biological Statistics II

RHET-1103(3) Academic Writing: Science or any other section of Academic Writing (if required)

ACS-1453(3) Intro to Computers OR ACS-1903(3) Programming Fundamentals I

6 credit hours Humanities

3-6 credit hours Electives

REQUIRED HIGH SCHOOL COURSES

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

HOW TO APPLY – Domestic Student

Apply online at uwinnipeg.ca or pick up an Application for Admission from your high school counsellor's office or the Admissions Office at The University of Winnipeg. To meet Scholarship deadline submit your application and \$80 application fee by **March 1st**.

HOW TO APPLY – International Student

Apply online at uwinnipeg.ca/index/intl-apply and submit all official documents by mail. To meet Scholarship deadline submit application, fee, and documents by **March 1st**. International application fee is \$100, which includes a one-time courier fee.

Admission to the program must be made through The University of Winnipeg. Contact our Admissions Office at **204.786.9159** for detailed information.

***NOTE:** Some courses can be completed at either institution, while others will be offered at only one. For convenience, students will find it easier to concentrate their courses in any given term at one of the institutions.*

CONTACT US

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<http://www.uwinnipeg.ca/index/biology-index>



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