

# FACULTY OF SCIENCE

## General Office

**Dean:** Dr. Brian Mark

**Associate Dean(s):** Krystyna Koczanski, Dr. Ayush Kumar, Dr. Horace Luong, Dr. Sean McKenna, Dr. Steve Whyard

**Campus Address/Student Advising Office:** 404 55 Chancellor's Circle

**Campus Address/Dean's Office:** W230 Duff Roblin Building

**Telephone:** 204 474 8256

**Fax:** 204 474 7618

**Email Address:** Contact a Science Advisor (<https://umanitoba.ca/science/student-experience/academic-advising/>)

**Website:** [umanitoba.ca/science/](https://umanitoba.ca/science/) (<https://umanitoba.ca/science/>)

**Academic Staff:** For complete listings of the Faculty of Science Academic Staff, please refer to departmental websites.

The Faculty of Science is made up of 7 departments, which offer a number of different programs, minors, and concentrations. Departments may also work together to offer joint programs. The departments in the Faculty of Science include Biological Sciences, Chemistry, Computer Science, Mathematics, Microbiology, Physics and Astronomy, and Statistics.

Degree programs offered include: B.Sc. General (with Internship Option), B.Sc. Major (with Co-operative Option), B.Sc. Double Major, B.Sc. Honours (with a Co-operative Option in some programs), B.Sc. Double Honours, and the B.C.Sc. Honours (Computer Science Honours with a Co-operative Option).

Programs of study include offerings in:

- Actuarial Mathematics
- Biochemistry
- Biological Sciences
- Chemistry
- Computer Science
- Data Science
- Genetics
- Mathematics

- Applied Mathematics with Computer Science Option
- Applied Mathematics with Economics Option
- Applied Mathematics with Statistics Option
- Microbiology
- Physics and Astronomy
- Psychology
- Statistics

The Faculty of Science also offers the following Joint Honours.

- Chemistry – Physics Program
- Computer Science – Mathematics Program
- Computer Science – Physics and Astronomy Program
- Computer Science – Statistics Program
- Mathematics – Physics and Astronomy Program
- Mathematics – Economics Program
- Statistics – Actuarial Mathematics Program
- Statistics – Mathematics Program
- Statistics – Economics Program

## Programs

**Note:**

- The B.Sc. (General) program offers a 4-month or 8-month Internship Option.
- Students in the B.C.Sc. (Honours), B.Sc. (Honours) or B.Sc. (Major) Co-operative Options will take longer than 4 years to complete degrees as the time to completion includes 12 months of paid employment.
- Students may elect to pursue a Double Honours or Double Major program in consultation with departments concerned. Years to completion and total credit hours may exceed information provided in the table below.
- Minors (optional or required) are part of degree programs - for program length, refer to the Years to Completion.

| Degree/Diploma  | Years to Completion | Total Credit Hours | Has Co-op Option |
|---|---------------------|--------------------|------------------|
| Actuarial Mathematics, B.Sc. Honours ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/actuarial-mathematics/actuarial-mathematics-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/actuarial-mathematics/actuarial-mathematics-bsc-honours/</a> )  | 4                   | 120                |                  |
| Applied Mathematics with Computer Science Option, B.Sc. Major ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/applied-mathematics-bsc-major-computer-science-option/">https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/applied-mathematics-bsc-major-computer-science-option/</a> ) | 4                   | 120                | Yes              |

|  |   |     |     |
|--|---|-----|-----|
| Applied Mathematics with<br>Economics Option, B.Sc. Major<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/applied-mathematics-bsc-major-economics-option/">https://catalog.umanitoba.ca/<br/>undergraduate-studies/science/<br/>mathematics/applied-mathematics-<br/>bsc-major-economics-option/</a> )    | 4 | 120 | Yes |
| Applied Mathematics with<br>Statistics Option, B.Sc. Major<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/applied-mathematics-bsc-major-statistics-option/">https://catalog.umanitoba.ca/<br/>undergraduate-studies/science/<br/>mathematics/applied-mathematics-<br/>bsc-major-statistics-option/</a> ) | 4 | 120 | Yes |
| Biochemistry, B.Sc. Honours<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/biochemistry/biochemistry-bsc-joint-honours/">https://catalog.umanitoba.ca/<br/>undergraduate-studies/science/<br/>biochemistry/biochemistry-bsc-joint-<br/>honours/</a> )  | 4 | 120 | Yes |
| Biochemistry, B.Sc. Major<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/biochemistry/biochemistry-bsc-joint-major/">https://catalog.umanitoba.ca/<br/>undergraduate-studies/science/<br/>biochemistry/biochemistry-bsc-joint-<br/>major/</a> )  | 4 | 120 | Yes |
| Biological Sciences, B.Sc. Honours<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/biological-sciences/biological-sciences-bsc-honours/">https://catalog.umanitoba.ca/<br/>undergraduate-studies/science/<br/>biological-sciences/biological-<br/>sciences-bsc-honours/</a> )   | 4 | 120 | Yes |
| Biological Sciences, B.Sc. Major<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/biological-sciences/biological-sciences-bsc-major/">https://catalog.umanitoba.ca/<br/>undergraduate-studies/science/<br/>biological-sciences/biological-<br/>sciences-bsc-major/</a> )   | 4 | 120 | Yes |
| Biological Sciences Minor<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/biological-sciences/biological-sciences-minor/">https://catalog.umanitoba.ca/<br/>undergraduate-studies/science/<br/>biological-sciences/biological-<br/>sciences-minor/</a> )  |   | 18  |     |
| Chemistry, B.Sc. Honours<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/chemistry/chemistry-bsc-honours/">https://catalog.umanitoba.ca/<br/>undergraduate-studies/science/<br/>chemistry/chemistry-bsc-honours/</a> )  | 4 | 120 | Yes |
| Chemistry, B.Sc. Major ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/chemistry/chemistry-bsc-major/">https://<br/>catalog.umanitoba.ca/<br/>undergraduate-studies/science/<br/>chemistry/chemistry-bsc-major/</a> )  | 4 | 120 | Yes |
| Chemistry - Physics Joint,<br>B.Sc. Honours ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/chemistry/chemistry-physics-bsc-honours/">https://<br/>catalog.umanitoba.ca/<br/>undergraduate-studies/science/<br/>chemistry/chemistry-physics-bsc-<br/>honours/</a> )  | 4 | 120 |     |
| Chemistry Minor ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/chemistry/chemistry-minor/">https://<br/>catalog.umanitoba.ca/<br/>undergraduate-studies/science/<br/>chemistry/chemistry-minor/</a> )   |   | 18  |     |
| Computer Science, B.C.Sc., Honours<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/computer-science/computer-science-bcsc-honours/">https://catalog.umanitoba.ca/<br/>undergraduate-studies/science/<br/>computer-science/computer-<br/>science-bcsc-honours/</a> )   | 4 | 120 | Yes |

|   |   |     |     |
|---|---|-----|-----|
| Computer Science, B.Sc. Major<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/computer-science/computer-science-bsc-major/">https://catalog.umanitoba.ca/undergraduate-studies/science/computer-science/computer-science-bsc-major/</a> )  | 4 | 120 | Yes |
| Computer Science - Mathematics Joint, B.Sc. Honours ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/computer-science/computer-science-mathematics-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/computer-science/computer-science-mathematics-bsc-honours/</a> )                     | 4 | 120 | Yes |
| Computer Science - Physics & Astronomy Joint, B.Sc. Honours ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/computer-science/computer-science-physics-astronomy-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/computer-science/computer-science-physics-astronomy-bsc-honours/</a> ) | 4 | 120 | Yes |
| Computer Science - Statistics Joint, B.Sc. Honours ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/computer-science/computer-science-statistics-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/computer-science/computer-science-statistics-bsc-honours/</a> )                        | 4 | 120 | Yes |
| Computer Science Minor<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/computer-science/computer-science-minor/">https://catalog.umanitoba.ca/undergraduate-studies/science/computer-science/computer-science-minor/</a> )   |   | 18  |     |
| Data Science, B.Sc. Major<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/data-science/data-science-bsc-major/">https://catalog.umanitoba.ca/undergraduate-studies/science/data-science/data-science-bsc-major/</a> )  | 4 | 120 | Yes |
| General B.Sc. ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/general-bsc/">https://catalog.umanitoba.ca/undergraduate-studies/science/general-bsc/</a> )   | 3 | 90  | Yes |
| Genetics, B.Sc. Honours<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/genetics/genetics-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/genetics/genetics-bsc-honours/</a> )  | 4 | 120 | Yes |
| Genetics, B.Sc. Major ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/genetics/genetics-bsc-major/">https://catalog.umanitoba.ca/undergraduate-studies/science/genetics/genetics-bsc-major/</a> )   | 4 | 120 | Yes |
| Mathematics, B.Sc. Double Honours<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/mathematics-bsc-double-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/mathematics-bsc-double-honours/</a> )  | 4 | 120 | Yes |
| Mathematics, B.Sc. Honours<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/mathematics-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/mathematics-bsc-honours/</a> )   | 4 | 120 | Yes |

|  |   |     |     |
|--|---|-----|-----|
| Mathematics, B.Sc. Major<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/mathematics-bsc-major/">https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/mathematics-bsc-major/</a> )  | 4 | 120 | Yes |
| Mathematics - Economics<br>Joint, B.Sc. Honours ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/mathematics-economics-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/mathematics-economics-bsc-honours/</a> )                                | 4 | 120 |     |
| Mathematics - Physics and<br>Astronomy Joint, B.Sc. Honours<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/mathematics-physics-astronomy-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/mathematics-physics-astronomy-bsc-honours/</a> ) | 4 | 120 | Yes |
| Mathematics Minor ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/mathematics-minor/">https://catalog.umanitoba.ca/undergraduate-studies/science/mathematics/mathematics-minor/</a> )  |   | 18  |     |
| Microbiology, B.Sc. Honours<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/microbiology/microbiology-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/microbiology/microbiology-bsc-honours/</a> )   | 4 | 120 | Yes |
| Microbiology, B.Sc. Major<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/microbiology/microbiology-bsc-major/">https://catalog.umanitoba.ca/undergraduate-studies/science/microbiology/microbiology-bsc-major/</a> )   | 4 | 120 | Yes |
| Microbiology Minor ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/microbiology/microbiology-minor/">https://catalog.umanitoba.ca/undergraduate-studies/science/microbiology/microbiology-minor/</a> )   |   | 30  |     |
| Physics and Astronomy,<br>B.Sc. Honours ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/physics-astronomy/physics-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/physics-astronomy/physics-bsc-honours/</a> )  | 4 | 120 | Yes |
| Physics and Astronomy, B.Sc. Major<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/physics-astronomy/physics-astronomy-bsc-major/">https://catalog.umanitoba.ca/undergraduate-studies/science/physics-astronomy/physics-astronomy-bsc-major/</a> )  | 4 | 120 | Yes |
| Physics and Astronomy Minor<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/physics-astronomy/physics-astronomy-minor/">https://catalog.umanitoba.ca/undergraduate-studies/science/physics-astronomy/physics-astronomy-minor/</a> )   |   | 18  |     |
| Psychology, B.Sc. Honours<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/psychology/psychology-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/psychology/psychology-bsc-honours/</a> )   | 4 | 120 |     |
| Psychology, B.Sc. Major<br>( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/psychology/psychology-bsc-major/">https://catalog.umanitoba.ca/undergraduate-studies/science/psychology/psychology-bsc-major/</a> )   | 4 | 120 | Yes |

|   |   |     |     |
|---|---|-----|-----|
| Psychology Minor ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/psychology/psychology-minor/">https://catalog.umanitoba.ca/undergraduate-studies/science/psychology/psychology-minor/</a> )  |   | 18  |     |
| Statistics, B.Sc. Honours ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/statistics/statistics-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/statistics/statistics-bsc-honours/</a> )   | 4 | 120 | Yes |
| Statistics, B.Sc. Major ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/statistics/statistics-bsc-major/">https://catalog.umanitoba.ca/undergraduate-studies/science/statistics/statistics-bsc-major/</a> )   | 4 | 120 | Yes |
| Statistics - Actuarial Joint, B.Sc. Honours ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/statistics/statistics-actuarial-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/statistics/statistics-actuarial-bsc-honours/</a> )       | 4 | 120 |     |
| Statistics - Economics Joint, B.Sc. Honours ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/statistics/statistics-economics-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/statistics/statistics-economics-bsc-honours/</a> )       | 4 | 120 |     |
| Statistics - Mathematics Joint, B.Sc. Honours ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/statistics/statistics-mathematics-bsc-honours/">https://catalog.umanitoba.ca/undergraduate-studies/science/statistics/statistics-mathematics-bsc-honours/</a> ) | 4 | 120 | Yes |
| Statistics Minor ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/science/statistics/statistics-minor/">https://catalog.umanitoba.ca/undergraduate-studies/science/statistics/statistics-minor/</a> )  |   | 18  |     |

## Admissions Suspended – Students cannot declare the Major

The following programs have been suspended. Please refer to the UM Past Academic Calendars (<https://umanitoba.ca/registrar/academic-calendar/past-academic-calendars/>) for the curriculum of these programs.

- Biotechnology (B.Sc. Major and B.Sc. Honours)

Regarding Biotechnology programs: Admission to this major was suspended effective September 2018. Students admitted to the major prior to September 2018, who are completing one or more of these majors, should contact a Science Advisor for advice.

## Faculty Academic Regulations

### Admission to the Faculty of Science

#### Direct Entry Admissions Requirements

To enter the Faculty of Science directly from high school, a student must have:

1. Manitoba high school graduation with five full credits at the Grade 12 level in courses designated S, G, or U.
2. A minimum 80% average over the following, with no less than 60% in each course:

- a. English 40S
- b. Pre-Calculus Mathematics 40S (recommended) or Applied Mathematics 40S
- c. One of Biology 40S, Chemistry 40S, Computer Science 40S, or Physics 40S
- d. One additional (academic) 40S course

Students admitted as a Direct Entry student will be assigned to the 4-Year undeclared Major Program. See Major (Degree) Academic Regulations (p. 10) for details.

#### Entrance to Science from University 1: Transiting

Students may transit to the Faculty of Science from University 1, prior to Fall Term registration only. The transit function is available on Aurora Student. There are no fees for transiting and there is no application form required.

To be eligible to transit a student must have achieved a minimum cumulative grade point average (CGPA) of 2.00 on 24 credit hours. Students who have completed more than 24 credit hours at the point of transit must have achieved a minimum Adjusted Grade Point Average (AGPA) of 2.00. The AGPA calculation will be on the best graded 24 credit hours at the point of transit.

Students who do not meet the minimum transit eligibility requirements should refer to Admission to Faculties, Schools and Colleges Following

University 1 (<https://catalog.umanitoba.ca/undergraduate-studies/admissions/>) in the Undergraduate Calendar for information regarding how to establish their eligibility.

When a student transits from University 1 to the Faculty of Science, they may choose to transit to a 4-year Major program for which they qualify, or they may choose to transit to the General Degree. If a student wishes to enter an Honours program in the Faculty of Science they should contact the Faculty of Science office for assistance. Students intending to enter a four year Major or Honours program should refer to the program grids (p. 1) for courses required for entry into each program. Completion of these courses in University 1 will prepare a student to complete a four year Major or Honours program in four calendar years.

For further information please contact a Faculty of Science Academic Advisor and/or refer to the Faculty of Science applicant information brochure and the University Admissions website (<https://www.umanitoba.ca/admissions/>).

### Advanced Entry

Students who wish to transfer to the Faculty of Science from another faculty at the University of Manitoba, or another recognized post-secondary institution, must have completed a minimum of 24 credit hours of post-secondary courses and have achieved a minimum adjusted grade point average (AGPA) of at least 2.00 to be eligible.

If a student has completed 24 - 29 credit hours, the AGPA is calculated using all post-secondary course work including original grades of repeated courses.

If a student has completed 30 - 71 credit hours the AGPA is calculated by excluding the lowest credit hours of university level course work in accordance with the following table:

| Credit Hours Completed | Credit Hours Dropped |
|------------------------|----------------------|
| 0-29                   | 0                    |
| 30-35                  | 6                    |
| 36-53                  | 9                    |
| 54-71                  | 12                   |

If a student has completed 72 credit hours or more the AGPA is calculated on the most recent 60 credit hours of university level course work, and the worst 12 credit hours will be dropped from the calculation from within those 60 credit hours.

Students on academic suspension as a result of work completed at another post-secondary institution, or in another unit at the University of Manitoba, will not normally be considered for admission to the Faculty of Science until the suspension has been served.

### Transfer of Credit

*External:* Please refer to the Admissions website (<https://www.umanitoba.ca/admissions/>) or the Admissions section (<https://catalog.umanitoba.ca/undergraduate-studies/admissions/>) in the calendar. Courses completed at an external institution ten years prior to registration in the Faculty of Science are not considered for transfer credit. Students should contact a Science Academic Advisor regarding departmental transfer credit policies. **All courses acceptable to the Faculty of Science must be transferred.**

### Second Degree Students

Students possessing a first degree from a recognized university program and who have a minimum Cumulative Grade Point Average of 2.00 (or a

2.30 adjusted grade point average – see applicant information bulletin for details on AGPA) on all previous university work are eligible for admission as Second Degree students.

Second degree requirements may be shortened by up to 60 credit hours, and once admitted to a Second Degree Program, students will be expected to conform to all continuation, residency and graduation requirements as indicated below.

Specific information on requirements for a Bachelor of Science degree following the completion of a degree in another faculty or school, or at another university, is available in the general office.

### Special Students

#### After Degree Special Students

Students who have successfully completed a first degree from a recognized university program with a Cumulative Grade Point Average of 2.00 or better are eligible for admission as Special Students.

### Auditing Students

Students who wish to audit courses must have written permission from the instructor of the desired course before they can register. Auditing students must register by contacting the Faculty of Science General Office. Students given permission to audit a course will be registered in their course(s) after the initial access period for registration.

### Returning to Science after an Extended Leave

Students who have been away from Science for more than a year are blocked from using **Aurora Student**. They must consult with a Science Academic Advisor. If the student has not attended another post-secondary institution, they are eligible to return. The advisor will determine academic progress, registration date and time, and discuss degree plans. Students planning a return to studies are strongly urged to contact an Advisor well in advance of the start of registration.

Students who have attended elsewhere since their last registration in Science must normally re-apply for admission and be academically competitive for admission on all of their previous academic work. Deadlines for application may be found on the Admissions website (<https://www.umanitoba.ca/admissions/>).

Students who have graduated must re-apply (Applicable deadlines may be found on the Admissions website) and be academically competitive for admission.

### Admission as a Dual Credit High School Student

Dual credit courses in high schools may be offered in partnership with school divisions and high schools. This opportunity is designed for students with particular interest in receiving equivalent to university-level training in a subject area and in receiving university-level credit for the training they receive at the high school level. To complete particular courses for university credit prior to their high school graduation by writing a challenge exam, some students may qualify for admission to the Faculty of Science under our Dual Credit High School Student Admissions Category.

Note that courses offered as dual credit may vary from year to year. Interested high schools should consult the Faculty of Science Dean's Office for course availability and information on the dual credit course approval processes.

All prospective students must provide the following to be eligible for admission as a Dual Credit High School Student:

- evidence of full-time registration in a Manitoba high school,
- written recommendation of academic ability from their high school principal (or designate) confirming that they are academically in good standing and academically prepared to take equivalent to university-level courses,
- written approval of the Department offering the course that they are seeking to challenge and the Faculty of Science Dean's Office,
- completion of course pre-requisites as approved by Senate.

## Academic Regulations

### Regulations Applicable to all Programs

The provisions of the "General Academic Regulations (<https://catalog.umanitoba.ca/undergraduate-studies/general-academic-regulations/>)" and "University Policies and Procedures (<https://catalog.umanitoba.ca/undergraduate-studies/policies-procedures/>)" apply to all students. In addition, the Faculty of Science has regulations and requirements published below that apply specifically to its students.

### Repeating a Course

Permission to repeat a course or a direct equivalent is not required. To take a course that is listed as "mutually exclusive" (see course descriptions) with a previously completed course requires a registration override. Please contact the Faculty of Science General Office prior to registration.

Science students are subject to the University of Manitoba regulations (see General Academic Regulations, Repeating a Course (<https://catalog.umanitoba.ca/undergraduate-studies/policies-procedures/repeated-course-policy/>)) and the Faculty of Science degree regulations regarding eligibility to repeat a course. See below for information on Limited Access (p. 7).

Repeating a course will **not** result in the removal of the first attempt and grade in that course from the student's record. The course will appear on the transcript as many times as it has been repeated. The grade in all attempts of a course will be calculated as part of the student's GPA.

There is a limit on the number of "F" grades permitted in the 4-year Major and Honours programs. All courses with "F" grades that are repeated count towards the limit of "F" grades permitted in a Science degree. See B.Sc. Major (p. 10) and B.Sc. Honours (p. 11) Academic Regulations.

Students who wish to repeat a course for which they have obtained a grade of "C" or better are encouraged to discuss their choice to do so with a Science Academic Advisor prior to registration.

**Note:** In most cases, professional Faculties and Schools have specific rules governing the way repeated courses are treated in their admission process. Check the applicant information bulletin of the appropriate Faculty or School, or with the Admissions Office (424 University Centre), or with a Science Academic Advisor for information regarding how different professional programs treat repeated courses in determining admission.

### Voluntary Withdrawals

The responsibility for initiating withdrawals rests solely with the student. When eligible to do so, Voluntary Withdrawals must be done through Aurora Student. No withdrawals will be permitted after the deadlines posted in the Academic Schedule (<https://catalog.umanitoba.ca/undergraduate-studies/academic-schedule/>). See information on Limited Access (p. 7).

There is no limit on the number of Voluntary Withdrawal hours a student can accumulate.

In exceptional circumstances, Authorized Withdrawals may be permitted on presentation of appropriate documentation. See the "General Academic Regulations," on "Withdrawal from Courses and Programs" (<https://catalog.umanitoba.ca/undergraduate-studies/general-academic-regulations/#Attendance-Withdrawal>) or consult a Science Academic Advisor for information.

### Limited Access

**Limited Access will not affect registration for the current Academic Year, which includes Fall, Winter, and Summer terms. See University Policy and Procedures – Repeat Course Policy – Section 2.5 (a) Limited Access (<https://catalog.umanitoba.ca/undergraduate-studies/policies-procedures/repeated-course-policy/>).**

Limited Access is a registration rule that allows students who have never before completed, or voluntarily withdrawn, from a course (or its equivalent) the opportunity to register for the course before students who are repeating or have previously withdrawn from the course.

If a student has previously taken a course and received a final grade, or voluntarily withdrawn from the course (VW)<sup>1</sup>, any future attempt to take that course or its equivalent is considered a repeated course.

<sup>1</sup> A previous VW is only considered a repeat if the student voluntarily withdrew in Winter 2017 or later.

Limited Access will prevent a student from registering or placing themselves on the waitlist for a course (or equivalent) being repeated until the "Limited Access Term Expiry Date" has passed.

Limited Access applies for three consecutive terms following the term that the course in question was last completed or voluntarily withdrawn (VW).

During these three terms of Limited Access, a student may register to repeat a course, without permission, only when the Limited Access Term Expiry Date has passed.

Once the three terms of Limited Access has expired, any student wishing to repeat a course must request permission to do so from the Faculty of Science General Office prior to registration.

### Attendance at Other Institutions/Letter of Permission

Students wishing to complete courses at another institution for credit at the University of Manitoba must apply for written permission from the Registrar's Office prior to registering at the other institution. Students should apply for the Letter of Permission well in advance of the term in which they wish to register at the other institution, processing time can take up to 8 weeks.

To be eligible to take courses on a Letter of Permission, a Faculty of Science student must:

1. Be in good standing, and not be currently assessed as Academic Warning, On Probation, On Suspension, or Required to Withdraw.
2. Not be under investigation for academic misconduct.

Students who attend other post-secondary institutions without a Letter of Permission must reapply for admission to the Faculty of Science before the application deadline and be academically competitive for admission. Similarly, students registered in the Faculty of Science may not be registered at another academic institution at the same time unless they are registered elsewhere on a Letter of Permission. The penalty for



unauthorized or undisclosed attendance may be disciplinary withdrawal or academic suspension.

For more information on Letters of Permission, please refer to the website (<https://umanitoba.ca/registrar/letter-permission/>).

### Academic Misconduct

Academic misconduct is intentional cheating, fabrication, impersonation, or plagiarism. It is also knowingly or inadvertently helping or attempting to help others to be dishonest. Academic misconduct lowers scholastic quality and defrauds others who will eventually depend on their own knowledge and integrity.

Plagiarism or any other form of cheating on examinations, term tests, or assignments is subject to academic penalty as serious as suspension or expulsion from the faculty or university.

Students who are unsure of what constitutes academic misconduct should refer to the regulations in General Academic Regulations, Academic Integrity (<https://catalog.umanitoba.ca/undergraduate-studies/general-academic-regulations/#Academic-Integrity>), and consult with a Science Academic Advisor or a faculty member. Information about academic penalties for academic misconduct is available on the Faculty of Science website.

### Academic Assessment

Each student in the Faculty of Science who has completed a minimum of 12 credit hours will have their academic performance assessed at the end of each term in which they receive a final grade in a minimum of 1 credit hour.

Notations will appear on a student's transcripts based on their performance. The five categories are: **Minimum Met**, **Academic Warning**, **On Probation**, **On Suspension**, **Required to Withdraw**.

#### Minimum Met

Students who achieve a minimum DGPA of 2.0 at the point of assessment will receive the **Minimum Met** notation on their transcript. This indicates that the student's performance is satisfactory. This does not mean a student has satisfied the specific requirements in their program of study. Students should consult the Undergraduate Academic Calendar for the specific requirements of their program of study.

Students who do not achieve a minimum DGPA of 2.0 will be placed in one of the following assessment categories: Academic Warning, On Probation, On Suspension, or Required to Withdraw.

#### Academic Warning

Students who have completed 12-23 credit hours at the point of assessment and have a DGPA less than 2.0 will be assessed as on **Academic Warning**.

A student who receives an Academic Warning assessment will be permitted to register for classes and will be assessed at the end of each term in which they register.

A student who receives an assessment of Academic Warning will be encouraged to meet with an advisor and connect with campus resources.

#### On Probation

Students who have completed 24 credit hours or more at the point of assessment and have a DGPA less than 2.0 will be assessed as **On Probation**.

The first term a student receives an assessment of On Probation, a registration hold will be placed on their student account. To have the

hold lifted the student will need to meet with an academic advisor and/or participate in interventions developed for students on probation. This may include required follow up meetings with an academic advisor, participation in skill building workshops, and referrals to student support resources.

A student who receives an On Probation assessment will be permitted to register for classes. Once the student has achieved a DGPA of 2.0, they will be assessed as **Minimum Met** and the student will no longer be on probation.

If at the point of assessment, the student's DGPA is still below 2.0, they must have achieved a minimum Term GPA (TGPA) of 2.0 or higher to continue to register in a subsequent term. If a student does not achieve a minimum TGPA of 2.0 while on probation, the student will be placed **On Suspension** for a period of 1-year.

#### On Suspension

A student who receives an Academic Suspension assessment from the Faculty of Science is not normally permitted to register in any other faculty or school at the University of Manitoba. If a student completes courses at another post-secondary institution while serving a suspension, the student will be required to reapply for admission to the University of Manitoba and meet admission requirements. In addition, the student will need to provide evidence that they have served their suspension (i.e. evidence that they have spent the duration of their suspension away from post-secondary studies). Students should consult Other Admission Categories (<https://catalog.umanitoba.ca/undergraduate-studies/admissions/>) and Attendance at Other Institutions (<https://umanitoba.ca/registrar/letter-permission/>) for more details.

Students who are on academic suspension may not use courses taken at another institution during the period of suspension, for credit towards a Science degree at the University of Manitoba.

#### Returning from 1-Year Suspension

If a student has intentions to return to the Faculty of Science following a 1-year suspension, the student will be required to contact a Faculty of Science academic advisor before returning.

Upon return from a 1-year suspension, a student will resume studies **On Probation**. The student will be required to meet the requirements outlined above for students on probation. Failure to achieve a minimum TGPA of 2.0 will result in an assessment of **Required to Withdraw**.

#### Required to Withdraw

The second time a student assessed as On Probation fails to achieve a minimum TGPA of 2.0 they will be required to withdraw from the Faculty of Science. A student assessed as **Required to Withdraw** will not be permitted to register as a Faculty of Science student at the University of Manitoba, or in Faculty of Science courses at the University of Manitoba, for a period of 5 calendar years.

#### Returning to Science after being Required to Withdraw

After 5 calendar years a student assessed as Required to Withdraw may return to the Faculty of Science.

If the student has completed other post-secondary studies at the University of Manitoba, or at another institution, they must reapply to the Faculty of Science and meet the admission requirements. Students who are assessed as Required to Withdraw may not use courses taken



at another institution during the required to withdraw period for credit towards a Science degree at the University of Manitoba.

If the student has not completed other post-secondary studies and intends to return to the Faculty of Science after 5 calendar years, the student will be required to contact a Faculty of Science academic advisor before returning. The student will be given the following irreversible options:

1. **Resume Studies** – A student choosing this option will keep all previously completed coursework and their DGPA will remain the same, thus the student will be continuing On Probation. A student who chooses this option must meet all the requirements of a student On Probation, as outlined above. Failure to meet these requirements will result in a Required to Withdraw assessment.
2. **Start Afresh** – A student choosing this option may request to bring in up to 30 credit hours of previously completed course work in which they have achieved a “C” or better. Students in this situation will only have the courses which they choose to use as part of their “Start Afresh” as part of their DGPA and will be assigned an initial assessment of Minimum Met. A student who chooses this option will be subject to the academic assessment regulations outlined above.

In either case, this does not mean that the previous coursework will be removed from the student history or transcript.

### Spanned Courses

Students who are registered in spanned courses will be assessed at the end of each term in which they are registered. It is possible for a student to be placed on probation prior to completing a spanned course; however, an assessment of Academic Suspension or Required to Withdraw will not occur while a student is registered in a spanned course. Students on probation who are registered in spanned courses will continue On Probation until the spanned course is complete, at which time, official assessment will take place, based on the number of credit hours completed and the GPA achieved at that point in time.

### Graduation

A student who has satisfied degree requirements for their program of study and is eligible for graduation will be allowed to graduate, regardless of the status of their end-of-term assessment of academic standing. If the assessment category is one of On Probation, On Suspension, or Required to Withdraw, the notation will be removed from the final term of the student’s transcript.

### Required to Withdraw from Major or Honours

If a student’s last assessment was “Required to Withdraw from the Honours or the Major program,” they **must** consult a Science Academic Advisor prior to registration. An advisor will review new degree plans, determine eligibility for a desired program, and update any affected university records.

### Students on “Hold”

If a student is on “Hold”, they are prevented from any registration transaction (including Voluntary Withdrawals) until they have cleared this status. The student must contact the Faculty of Science within the normal deadline to withdraw from a course while on “Hold”.

### Term Work and Debarment

A student is responsible for the completion of laboratory work, assignments, tests and other class work as prescribed by departments. A student who does not meet term work requirements to the satisfaction of a department may receive a warning to this effect from the department

or the general office. If this warning is ignored, a student may be debarred from the course. Any student debarred from a course receives an automatic grade of “F” in that course.

### Deferred Examinations

Students unable to write a final examination because of illness, disability, or for compassionate reasons, must file an application with the Faculty of Science general office for a deferred examination. The application must be filed within 48 hours of the missed examination. In a case where more than one examination is missed, students must apply within 48 hours of the scheduled date of the last exam. Appropriate documentation must be provided, which may include the “Self-Declaration Form for Brief or Temporary Absence.” Students may be asked to provide additional documentation. Deferred exam requests should not be submitted in advance of a scheduled exam, except in the instances outlined below.

Students unable to write an examination due to a known condition, such as participation in an inter-university, provincial, inter-provincial, national or international scholastic or athletic event, religious obligations, or medical condition, should normally file the deferred examination application twenty (20) working days in advance of the scheduled examination. Vacation or holiday plans are not acceptable grounds for the granting of a deferred examination.

A deferred examination is offered in a manner prescribed by the head of the department concerned. This would normally be written within 30 working days of the last examination in that series. Any other consideration would be determined by the department head.

A deferred examination is not granted to a student who has written the final examination.

Further information related to deferred exams is available in the University of Manitoba Deferred and Supplemental Examinations Procedures.

### Supplemental Examinations

Supplemental Examinations are not permitted in Faculty of Science courses.

### Appeals Involving Academic Regulations

The Committee on Student Standing in Science considers appeals from students who request special consideration in respect of rules and regulations governing their programs of study and qualification for graduation.

Appeals should be addressed to: The Secretary, Committee on Student Standing, Student Advising Office, Faculty of Science, 404 55 Chancellor’s Circle.

### Appeal for Authorized Withdrawal

Students who have valid and documented reasons for withdrawal, such as medical illness or compassionate circumstances, may be authorized to withdraw without penalty. Requests for authorized withdrawals must be submitted in writing to a Faculty of Science Academic Advisor. Student Advocacy (<https://umanitoba.ca/student-supports/academic-supports/student-advocacy/>) located at 520 University Centre (204-474-7423, [student\\_advocacy@umanitoba.ca](mailto:student_advocacy@umanitoba.ca)) is available to provide information and assistance.

### Statute of Limitations

Students who intend to appeal matters concerning regulations or decisions of the Faculty which may affect their registration must arrange to submit a written appeal, including pertinent documentation to the Secretary of the Faculty of Science CSS, normally within three months

following the term in which the course was taken or from the date of the academic decision. Appeals will not be considered beyond three years after the end of the course, or from the date of the academic decision.

### Appeal for other Academic Concessions

Students who believe they have grounds for academic concessions based on their personal circumstances should consult with a Science Academic Advisor. Student Advocacy (<https://umanitoba.ca/student-supports/academic-supports/student-advocacy/>) located at 520 University Centre (204-474-7423, [student\\_advocacy@umanitoba.ca](mailto:student_advocacy@umanitoba.ca)) is available to provide information and assistance.

### Laboratory Registration

If a course requires registration in both a lecture and a separate appropriate laboratory section, **Aurora Student** will not permit a student to register in that course unless they register for both.

### Laboratory Exemptions

Students who think they are eligible for a laboratory exemption must check with the department offering the course to obtain formal consent of this. Once received, deliver the written permission to their faculty or school office, as an override may be required on their academic record. They must register for the laboratory exempt section.

It is the student's responsibility to ensure that they are eligible for a laboratory exemption. If they register for one of these courses and it is subsequently determined that they are not entitled to exemption, they will be required to register for a laboratory section. If no space remains available in the laboratory, they will be required to withdraw from the course.

### Laboratory Release

Certain Chemistry and Microbiology courses require that students check out of the laboratory before they withdraw or change lab sections. It is the student's responsibility to check with the departmental office prior to making any changes to their laboratory registration. Failure to check out of the laboratory may result in the student's academic records being placed on HOLD.

## B.Sc. (General) Degree Academic Regulations

### B.Sc. (General) Three Year Degree

The three-year General program is intended to provide diversified training in Science. The program provides students with broad exposure to the major areas of Science at the introductory level with a requirement for more advanced studies in one or more areas of Science.

This program is not intended for students who desire to practice in some field of specialization in the Sciences. Students with that intent are recommended to pursue the Honours or the four-year Major program.

Students are required to have the equivalent of high school Mathematics 40S (either pre-calculus or applied mathematics) and at least one of high school Chemistry 40S or Physics 40S.

### B.Sc. General Academic Regulations

A student must complete 90 credit hours with passing grades ("D" or better) in each course. Please note higher grades are usually required for prerequisite purposes. See course descriptions for details. A student must obtain a minimum grade point average of 2.00 on the 90 credit hours, which constitute the degree to qualify for the degree of Bachelor of Science (General).

### B.Sc. General Degree Minimum Performance Requirements

Students in the B.Sc. General Degree program are subject to academic assessment regulations as specified in the Regulations Applicable to all Programs (p. 7) section of the Faculty of Science general Calendar.

### B.Sc. General Degree Residence Requirements

There are two ways in which students may fulfill the minimum requirement of credit hours that must be taken at the University of Manitoba: by taking at least 48 credit hours at the University of Manitoba; or by taking at least the final 30 credit hours at the University of Manitoba. The courses used to satisfy the residence requirement must be acceptable for credit in the Faculty of Science. Residency requirements apply to both first and second degree students.

## B.Sc. (Major) Degree Academic Regulations

Faculty of Science Direct Entry students are admitted to a 4-Year undeclared Major program. While in the undeclared Major, students will take courses to allow them to declare a specific Major or enter an Honours program. To declare a specific Major or enter an Honours program students will need to satisfy the entry requirements as outlined in each program in the Faculty of Science.

Following the completion of 24-30 credit hours students will declare their Major program, or enter the Honours program, or they may choose to enter the B.Sc. General degree. Students who do not qualify for a specific Major or Honours program will be required to move into the B.Sc. General degree. Students who wish to be in a Major or Honours program but did not qualify can complete the outstanding requirements while in the B.Sc. General degree program and enter the program upon completion of the requirements.

Students must complete the university written English and Mathematics requirements as described in the General Academic Regulations (<https://catalog.umanitoba.ca/undergraduate-studies/general-academic-regulations/>).

### B.Sc. (Major) Four-Year Degree

The four-year Major programs provide in-depth study in a specific discipline and enable graduates to function competently in a career in their chosen subject area.

While this program is not intended for students pursuing graduate studies, most programs allow students to do so with a minimum of difficulty.

The four-year Major program may be pursued on a part-time basis, although it must be recognized that under those conditions students would require more than four years to complete degree requirements.

### B.Sc. (Major) Academic Regulations

To qualify for the degree Bachelor of Science (Major), a student must complete 120 credit hours or more, with minimum grades of "C" on Major Program Specific courses (as specified by the department), "D" or better on the remaining courses, and a minimum Degree Grade Point Average of 2.00 (2.50 for Computer Science).

Program Specific courses are those identified by the department as being core to the given degree. Please refer to the specific departments for clarification.

At least six credit hours **must** be taken from outside the Faculty of Science. Students admitted to a Major program must complete six credit hours of courses from the Faculty of Arts. Students in the Major degree

programs may take a maximum of 36 credit hours from outside the Faculty of Science.

### B.Sc. (Major) Entrance Requirements

To enter a specific four-year Major program, a student must have completed a minimum of 24 credit hours, and must normally have achieved a minimum grade of "C+" in at least one introductory course designated by the department(s). One of the entry routes to the Physics & Astronomy Major program, has a more rigorous entry requirement than listed above; please see the calendar entry for more details.

Any student who, prior to being admitted to a four-year Major program that has completed more than 30 credit hours will be allowed to apply those excess credit hours which meet the specifications of the program to the four year Major program.

Students must attain a Degree Grade Point Average of at least 2.00 (2.50 for entry to Computer Science) regardless of the point of entry, and must meet continuation requirements as outlined below.

### B.Sc. (Major) Continuation Requirements

To continue in the program, a student must maintain a Degree Grade Point Average of 2.00 (2.50 for Computer Science) at each point of assessment. Students who do not meet this minimum will be required to withdraw from the Major program.

There is no minimum term course load requirement for the Major program.

### Failed Courses

Any student that exceeds 18 credit hours of failing grades after entering a Major program will be required to withdraw from that program. **Students are also subject to the academic assessment policy, Regulations Applicable to all Programs. (p. 7)**

A student will be required to repeat those failed courses specified as required courses for the program; however, a student may substitute a new course for any elective course failed.

Major students reverting to the B.Sc. General program must fulfil all academic requirements of that degree.

### B.Sc. (Major) Residence Requirement

To satisfy the Faculty of Science residency requirements, a student must successfully complete at least 60 credit hours at the University of Manitoba. The courses used to satisfy the requirement must be acceptable for credit in the Faculty of Science. Residency requirements apply to both first and second degree students.

### B.Sc. Double Major Programs

Students may wish to pursue a Double-Major program in the Faculty of Science. Consultation with, in addition to specific course selection and approval from, the departments involved must occur prior to the commencement of any Double-Major program. Students must also consult with a Faculty of Science Academic Advisor prior to the start of any Double-Major program.

## B.Sc. and B.C.Sc. (Honours) Academic Regulations

The Honours programs in the Faculty of Science are study in specific disciplines and the most heavily concentrated programs offered in the faculty. These programs lead most directly to graduate study and are in most cases prescribed extensively by the departments. A student is required to pursue this degree full-time and may be required to achieve

higher grade standards than in other degree programs. The programs are regarded as professional training.

Students graduating from the Honours program in Computer Science receive the degree designation Bachelor of Computer Science (Honours), also noted as B.C.Sc. (Honours).

A student electing an Honours program will normally begin Honours work in second year and must meet the entrance requirements set out below. Honours work will consist of three years of study in prescribed courses beyond the first year and will lead to the B.Sc. (Honours) or the B.C.Sc. (Honours).

Students must complete the university written English and Mathematics requirements as described in the General Academic Regulations (<https://catalog.umanitoba.ca/undergraduate-studies/general-academic-regulations/#Residence-Written-English>).

Students admitted to Honours programs must complete six credit hours from the Faculty of Arts. Because many Honours programs in the Faculty of Science do not have room for electives in Years 2, 3 and 4, these six credit hours, including the three credit hours of written English, should be completed in Year 1.

### Honours Entrance Requirements

To enter an Honours degree program, a student must have completed at least 24 credit hours, have a minimum DGPA of 3.00 (3.75 for entry to Psychology), and a grade of "B" or better in at least one course designated by the department(s). Please refer to each department for specific information on entrance requirements.

Another way to gain entry to the Faculty of Science Honours programs is through the **Second Year Entry Route**. If a student finds himself/herself ineligible to enter a desired Honours program following the completion of 24 or more credit hours, eligibility to enter Honours via the second year entry route can be established by taking a minimum of 18 credit hours over consecutive Fall and Winter Terms with a minimum of 9 credit hours in each term. The 18 credit hours chosen must be applicable to the program the student wishes to enter, and the student must achieve at least a "B" average on those 18 credit hours. If a student chooses to attempt more than 18 credit hours over the consecutive Fall and Winter terms, the best applicable 18 credit hours will be used to calculate whether or not the "B" average has been achieved for the purpose of assessing eligibility for entrance to the Honours program of choice. Note: Students wishing to enter an Honours program using the Second Year Entry Route must also have an overall DGPA of at least 3.00 (a 3.75 for Psychology).

### Honours Continuation Requirements

To continue in an Honours degree a minimum Degree Grade Point Average of 3.00 (a minimum 3.75 is required for Psychology) is required at each point of assessment.

Students must complete a minimum of 9 credit hours in each Fall and Winter Term (or equivalent for students in the Co-operative option).

Students who do not meet the above minimum requirement will be required to withdraw from the Honours program and may be eligible to pursue the B.Sc. Major program or the B.Sc. General degree program.

Students who accumulate more than 15 credit hours of failed courses after entering the Honours degree program (regardless of the origin of the grade or if the course has been repeated) will be required to withdraw from the program. Students required to withdraw from the Honours

program may be eligible to pursue the B.Sc. Major program or the B.Sc. General degree program. **Students are also subject to the academic assessment policy, Regulations Applicable to all Programs (p. 7).**

### Honours Graduation Requirements

To qualify for the degrees, Bachelor of Science (Honours) and the Bachelor of Computer Science (Honours) a student must complete a minimum of 120 credit hours or more with a minimum grade of C on all courses contributing to the credit hours that satisfy the program requirements. The Actuarial Mathematics, the Joint Honours in Statistics and Actuarial Mathematics, and the Joint Honours in Mathematics and Physics & Astronomy have more rigorous requirements; please refer to specific unit for more details.

Additionally, students must have a minimum degree grade point average of 3.00.

### Honours Residence Requirement

A student must successfully complete a minimum of 60 credit hours at the University of Manitoba. The courses used to satisfy the requirement must be acceptable for credit in the Faculty of Science. Residency requirements apply to both first and second degree students.

### Withdrawal from Honours

Honours students reverting to an alternate degree program must fulfil all academic requirements of that degree.

### Double Honours Programs

Double Honours programs may be available as specified under departmental headings. Other programs may be arranged in consultation with the departments concerned.

## Minors: Academic Regulations for Science Students

Students in B.Sc. Major and Honours programs may, if they wish, declare and complete a Minor from any department or interdisciplinary program at the University of Manitoba which offers a listed Minor. In the Faculty of Science Minors are listed in the program lists for each department and interdisciplinary program. Other available Minor requirements can be found within the appropriate departmental/school/faculty program lists. Completion of a Minor in a B.Sc. Major or Honours program is entirely optional. Students may not, however, declare both their Major and Minor from the same department/interdisciplinary program. It should be noted that for Honours students any consideration of completing a Minor should be made early on, due to restricted opportunities in later years of their programs. Completion of a Minor may require that a student take more than the minimum number of credit hours required for graduation. If they wish, students may choose to complete and declare multiple Minors in the four year Major and Honours degree programs.

The Minor is not available to students in the B.Sc. General Degree program.

A Minor will normally consist of a minimum of 18 credit hours specified by the department(s) offering the Minor. Courses required in a student's specific Honours or Major degree program are acceptable for use in a chosen Minor, subject to the Faculty of Science regulation stating that students may not declare both their Major and Minor from the same department or interdisciplinary program.

Minors not offered by the Faculty of Science can be selected from the following list. For further information about courses required for the completion of a specific Minor, please refer to the section of the calendar that relates to the chosen area.

- Agronomy
- Animal Systems
- Crop Production
- Entomology
- Food Science
- Plant Biotechnology
- Soil Science
- Art History
- Anthropology
- Asian Studies
- Canadian Studies
- Catholic Studies
- Central and East European Studies
- Classics
- Greek
- Latin
- Economics
- English
- Film Studies
- Theatre
- French
- Spanish
- Italian
- German
- Russian
- Ukrainian
- Polish
- History
- Icelandic
- Labour Studies
- Linguistics
- Medieval and Early Modern Studies
- Indigenous Studies
- Indigenous Languages
- Judaic Studies
- Philosophy
- Political Studies
- Psychology
- Religion
- Sociology
- Ukrainian Canadian Heritage Studies
- Women's and Gender Studies
- Geography
- Earth Sciences
- Physical Geography
- Environmental Science
- Environmental Studies
- Health Sciences
- Health Studies
- Human Nutrition and Metabolism
- Family Social Sciences
- Management<sup>1</sup>



- Leadership for Business and Organizations<sup>2</sup>
- Music
- Recreation Studies

<sup>1</sup> **Faculty of Management/Asper School of Business:** For entry to the Minor, the prerequisite is a grade of “C” or better in the first 6 hours of Business courses. The Management Minor will consist of any 18 hours of credit in courses offered by the Asper School of Business. Enrolment in this program will be limited to 20 students annually. Students planning to enrol in this minor must consult a Faculty of Science Academic Advisor.

<sup>2</sup> Students planning to enroll in this minor must consult a Faculty of Science Academic Advisor.

## Dean's Honour List, Degree with Distinction, First Class Honours

### Dean's Honour List (All Programs)

Students who complete 12 credit hours or more, who achieve a Term Grade Point Average of 3.75 or higher will be placed on the Dean's Honour List. The Dean's Honour List will be calculated after each term.

### Degree with Distinction (4-Year Major Degree and 3-Year General Degree)

To obtain a Degree with Distinction a student must achieve a final minimum Degree Grade Point Average of 3.80. The term “Degree with Distinction” will appear on the student's parchment and the student's transcript of marks.

### First Class Honours (Honours Degree Only)

To graduate with First Class Honours the student must achieve a final minimum Degree Grade Point Average of 3.80. The term “First Class Honours” will appear on the student's parchment and on the student's transcript of marks.

## Faculty of Science Academic Awards

Refer to the University's Award Database (<https://umanitoba.ca/financial-aid-and-awards/>) for information on awards available to Faculty of Science Students.

To be eligible for any award granted exclusively on the basis of academic performance, a student must be enrolled in 100% of a full program as defined by the department.

## Academic Advising

### Contact Information

**Science Student Advising Office:** 404 55 Chancellor's Circle

**Telephone:** (204) 474 8256

**Toll-Free:** 1 800 432 1960, extension 8256

**Website:** [umanitoba.ca/science/](https://umanitoba.ca/science/) (<https://umanitoba.ca/science/>)

**Science Advisor Availability:** [umanitoba.ca/science/student-experience/academic-advising/](https://umanitoba.ca/science/student-experience/academic-advising/) (<https://umanitoba.ca/science/student-experience/academic-advising/>)

### Student Responsibility

Students must ensure that they are selecting the correct courses that will enable them to satisfy their degree requirements. Specific degree requirements are listed in the program grids (p. 1) found in the departmental/program sections. Final completion of specific degree requirements is the student's responsibility. Academic Advisors are available to answer any questions regarding a student's academic progress.

**Aurora Student** will not check degree requirements. Students are responsible for knowing the requirements of their degree. Consult with a Science Academic Advisor for advice and assistance if uncertain about degree requirements.

**Aurora Student will not prevent a student from registering in two (or more) courses that are designated as not to be held for credit with one another.** It is the student's responsibility to ensure that they are not registered for courses that are ineligible to be held for credit with one another. Read the course descriptions carefully. If unsure about a course you have selected, check with a Science Academic Advisor prior to the revision deadline. No academic concessions will be granted in this regard.

Students cannot add or change a course classification through **Aurora Student** ([https://aurora.umanitoba.ca/banprod/twbkwbis.P\\_GenMenu/?name=homepage](https://aurora.umanitoba.ca/banprod/twbkwbis.P_GenMenu/?name=homepage)). Therefore, if an undergraduate student wishes to take a course as a Special Student in their degree, as an Auditor, or as a Challenge for Credit, they must add this course by contacting the Science General Office within the normal deadlines for such activity.

### General Degree Program

Students in the B.Sc. General program are not required to contact a Science Academic Advisor before registration; however, they are strongly advised to do so. A Science Academic Advisor can answer any questions about degree progress and entry to professional faculties that may affect registration.

Students reverting from a Major or Honours program to the B.Sc. General program must consult a Science Academic Advisor prior to registration, so that their university records may be changed.

Science Academic Advisors may check students' degree progress periodically. These checks are completed after registration. **Reminder: It is the student's responsibility to know and satisfy all degree requirements.**

### Honours, Major, and Co-operative Options

Honours students are required to register in a minimum of 9 credit hours during each Fall and Winter Term in which they are registered. Prior to declaring graduation, Honours, Major, and Co-op students are encouraged to have their programs checked by Science Academic Advisors on a regular basis.

**Students entering or changing a program must see a Science Academic Advisor so that eligibility can be checked and university records updated**

### Course Selection

#### Important Course Selection Information

The courses required to complete the specific Honours, Major, General and Minor programs in Science are listed in the program grids (p. 1) found within each department or program entry.

Not all courses included in the course description sections are currently offered. The course schedule for the current academic year is available through **Aurora Student**. Students should note that space in Honours and Major specific courses may be reserved for students in those programs.

All Honours and Major Degree Programs (4-year degrees) offered by the Faculty of Science satisfy the University “M” (Mathematics) requirement.

Students registered in the 3-Year General Degree programs are responsible for ensuring that they successfully complete a course that will satisfy the University's "M" (Mathematics) requirement.

Students in all programs are responsible for ensuring that they successfully complete a course that will satisfy the University's "W" (Written English) requirement. It is strongly recommended that this requirement be completed in Year 1.

For a complete listing of courses that satisfy the University's "W" and "M" requirements refer to the General Academic Regulations (<https://catalog.umanitoba.ca/undergraduate-studies/general-academic-regulations/#text>).

In the Faculty of Science, unless otherwise noted, a minimum grade of "C" is required in any course listed as a prerequisite. See course descriptions.

Equivalent courses offered through Université de Saint-Boniface may be used in lieu of the specified courses identified in the degree program grids (p. 1). See course descriptions in Aurora Student ([https://aurora.umanitoba.ca/banprod/bwckctlg.p\\_disp\\_dyn\\_ctlg/](https://aurora.umanitoba.ca/banprod/bwckctlg.p_disp_dyn_ctlg/)) for information on course equivalencies; Université de Saint-Boniface courses are taught in French and end in odd numbers, eg: BIOL 1021.

**Note:** Course prerequisites may be waived with written consent of the department.

### Courses Offered in Other Faculties and Schools

All courses acceptable for credit in any degree program at the University of Manitoba are acceptable for credit in Science (excluding Pass/Fail courses) subject to overall degree requirements. All courses will be included on admission to the Faculty and will be applied toward the elective requirement in all degree programs offered in Science. For course descriptions, including any prerequisites and/or restrictions, please refer to the course descriptions found in each department.

Students are reminded that normally a maximum of 30 credit hours (General Degree) or 36 credit hours (Major Degree) from courses offered by Faculties or Schools other than the Faculty of Science can contribute to degree requirements.

### Requirements for Dual Credit High School Students

Students admitted as dual credit high school students will be required to demonstrate their competencies in a course by challenging the university final exam.

Challenge exams will be scheduled by the relevant Department and may be invigilated either on the University of Manitoba campus or at the student's high school. The University of Manitoba faculty member who is responsible for the delivery of the course will determine the structure and duration of the exam.

High schools will be responsible for delivering the appropriate content to ensure students are prepared for the examinations. If they are willing to do so, a UM faculty member will work with each high school to ensure that high school instructors are provided with the course content equivalent to the content of the corresponding courses offered at the University of Manitoba. Such support includes supplying course outlines, textbook information, and where appropriate, sample midterms and final examinations. These arrangements must be approved by the Department Head within the unit that is responsible for these course offerings at the University of Manitoba.

Students admitted will be subject to the same regulations concerning voluntary withdrawals and appeal procedures as all other students admitted to the Faculty of Science. Limited access restrictions will apply to university courses from which students have voluntarily withdrawn while enrolled as a Dual Credit High School student.

In addition to the university requirements listed above, all dual credit high school courses must adhere to requirements outlined in the provincial dual credit policy. Contact the Faculty of Science Student Services office for information on available courses and for information regarding which high schools may offer dual credit for their students as an option.

## Co-operative Education

### Co-operative Education Option Academic Regulations: B.Sc. (Major) & B.Sc. and B.C.Sc. (Honours)

Co-operative education is a form of experiential learning which integrates the academic education (classroom-based learning) of interested and qualified students with relevant, supervised, and paid work experience (work-based learning) with employers. Co-op students gain valuable skills to guide them through their academic education and prepare them for future careers after graduation.

The Faculty of Science offers a Co-operative Education Option in the following Major programs:

- Biochemistry
- Biological Sciences
- Chemistry
- Computer Science
- Data Science
- Genetics
- Mathematics
- Microbiology
- Physics & Astronomy
- Psychology
- Statistics.

The Honours programs offering a Co-operative Education Option are:

- Biochemistry
- Biological Sciences
- Chemistry
- Computer Science
- Genetics
- Mathematics
- Microbiology
- Physics & Astronomy
- Statistics
- Joint Computer Science – Mathematics
- Joint Computer Science – Physics and Astronomy
- Joint Computer Science – Statistics
- Joint Mathematics – Physics and Astronomy
- Joint Statistics – Mathematics program.

Co-operative education is optional and supplementary to academic requirements of the chosen degree. All regulations governing regular



Major and Honours programs apply to the Co-operative Education Option. In addition, the following variations apply:

### Entrance

To enter the Co-operative Education Option a student must be eligible to enter the Major or Honours program offered by the department. At the time of application, students must have a minimum Degree Grade Point Average (DGPA) of 2.5 for the Major and 3.0 for the Honours Programs. For Psychology, students must have a minimum Degree Grade Point Average (DGPA) of 3.0 for the Major. Co-op is not available for students in the Honours Psychology Program.

The normal point of entry to the Co-operative Education Option is following the completion of second year in the Faculty of Science. Students seeking admission will submit an application during their second year and complete an intake process with the appropriate departmental Co-op Coordinator. Application deadlines are established by the Science Co-op Office.

Students are advised that satisfying the entrance requirements does not guarantee a place in the Co-operative Education Option. The Science Co-op Office reserves the right to determine and select the best-qualified applicants.

Students admitted into the Co-operative Education Option will complete pre-employment training, including workshops, prior to the start of their first co-op work term. The structure and content of this training is developed by the Science Co-op Office. Attendance and completion of this training is mandatory.

### Structure and Sequencing

The Co-operative Education Option consists of both academic terms and co-op work terms.

Each academic term can be either four months in duration or eight months in duration, as designated by the Major or Honours department.

Each co-op work term can be either four months in duration or eight months in duration, as designated by the Science Co-op Office. An eight month work term would be counted as the equivalent of two 4 month terms.

Each academic term and each co-op work term will commence in January, May or September.

The sequence of academic terms and co-op work terms is variable to suit the needs of each department, and is designated by the Science Co-op Office in conjunction with each Major or Honours department. All Faculty of Science Co-operative Education Options must end on an academic term.

Students are expected to follow the academic/co-op work term sequence defined by their Major or Honours department from admission through to graduation.

### Co-op Work Term Requirements

All Co-operative Education Options require participating students to complete at least three (3) 4-month co-op work terms for a total of a minimum of 12 months' work experience. Each co-op work term is completed with one employer.

Students are required to register in the appropriate co-op work term course and pay the work term fee prior to starting their co-op work term.

Co-operative Education Option students are required to submit a work term report at the end of each co-op work term. These reports are due at times designated by the Science Co-op Office. In order to remain in the Co-operative Education program, a student must obtain a grade of "Pass" for each work term report. The Science Co-op Office will provide students with instructions regarding the content and format requirements of the work term reports.

While on a co-op work term, students are not permitted to take more than six hours of academic credit, and may not take more than one course at a time.

### Academic Term Requirements

Coursework requirements of the Co-operative Education Option are equivalent to the coursework requirements of the four-year Major program. For students completing an Honours program, the coursework requirements of the Co-operative Education Option are equivalent to the coursework requirements of the Honours program with the exception of the Biochemistry, Genetics and Microbiology programs.

Co-operative Education Option students are required to maintain full-time study while registered for an academic term.

To continue in a four year Major Co-operative Education Option, students must maintain a minimum DGPA of 2.50 at each point of assessment; except for students in Psychology where a minimum DGPA of 3.00 must be maintained at each point of assessment. A student's performance will be evaluated following each academic term. In addition, the student must meet all individual course prerequisites for further study and departmental continuation and graduation requirements. Please see department entries for further information. Continuation in the Major Co-operative Education Option is also contingent upon satisfactory performance during co-op work terms.

To continue in an Honours Co-operative Education Option a student must maintain a minimum DGPA of 3.00 or higher at each point of assessment. A student's performance will be evaluated following each academic term. In addition, the student must meet all individual course prerequisites for further study and departmental continuation and graduation requirements. Please see department entries for further information. Continuation in the Honours Co-operative Education Option is also contingent upon satisfactory performance during co-op work terms.

Students may be required to withdraw from the Co-operative Education Option for any of the following reasons:

- Failure to maintain the minimum academic requirements of the Faculty of Science and/or Major/Honours program.
- Failure to maintain the minimum credit hour requirements of the academic term in the co-op option.
- Unsatisfactory performance during a co-op work term.
- Failure to submit a co-op work term report or the submitted report does not achieve a "Pass" grade.
- Failure to observe the policies outlined in university governing documents related to Behavioural Policies and Academic Misconduct.
- Having consulted with the Co-op Director and/or Faculty Advisor, in the opinion of the Co-op Coordinator, the student does not possess sufficient ability, skills, aptitude, attitude, diligence or motivation to successfully complete the Co-operative Education Option.

Students who wish to voluntarily withdraw from the Co-operative Education Option must obtain the written approval from their Co-op Coordinator and the Science Co-op Director. Students must submit their withdrawal request to their Co-op Coordinator and receive approval by the withdrawal dates set by the Science Co-op Office for each co-op work term.

Students are not normally permitted to withdraw from the Co-operative Education Option once they have secured a position for their co-op work term; whether the position was obtained through the Science Co-op Office or through students' own self-directed job search. Enrollment in the applicable co-op course(s) will be maintained and students are responsible for all assessed fees for the duration of the co-op work term and for meeting all academic requirements.

Students who accumulate more than 18 credit hours of failed courses after entering the four-year Major program (regardless of the origin of the grade or if the course has been repeated) will be required to withdraw from the Major Co-op program. Students are also subject to the academic assessment policy found in the Faculty Academic Regulations (p. 5).

Students who accumulate more than 15 credit hours of failed courses after entering the Honours degree program (regardless of the origin of the grade or if the course has been repeated) will be required to withdraw from the Honours Co-op program. Students required to withdraw from the Honours program may be eligible to pursue the B.Sc. Major program or the B.Sc. General degree program. Students are also subject to the academic assessment policy found in the Faculty Academic Regulations (p. 5).

Four year Major Co-operative Education Option students who are required to withdraw, or voluntarily revert to an alternative degree program must fulfil all academic requirements of that degree.

Honours Co-operative Education Option students who are required to withdraw or voluntarily revert to an alternative degree program must fulfil all academic requirements of that degree.

## General Science Internship Program Option Academic Regulations: B.Sc. (General)

An internship is a form of work-integrated learning (WIL). It is a professional learning experience that offers meaningful, practical work experience related to students' field of study or career interest. An internship is a one-time discipline-specific, supervised and structured work experience providing students the opportunity for career related exploration and development and to learn new skills.

The Faculty of Science offers an internship option for students completing the B.Sc. (General) degree. Students participating in the General Science Internship Program Option can complete one internship of either four months or eight months in duration. Internships completed through the General Science Internship Program (GSIP) are full-time and paid.

The Science General Internship Program is optional and supplementary to academic requirements of the B.Sc. (General) degree. All regulations governing the degree apply to the General Science Internship Program Option. In addition, the following variations apply:

### Entrance

To enter the General Science Internship Program Option, a student, at the time of application, must meet the following:

- be a full-time student in the B.Sc. General degree program
- be in good standing in the Faculty of Science
- have a minimum Degree Grade Point Average (DGPA) of 3.0
- have completed a minimum of 24 credit hours at the time of application
- have successfully completed (grade of "C" or better) 12 credit hours of Faculty of Science courses at the 2000-level or higher. Alternatively, be registered in enough Faculty of Science courses at the 2000-level or higher that it is possible to have successfully completed (grade of "C" or better) 12 credit hours of Faculty of Science courses at the 2000-level or higher by the start of the internship. Failure to successfully complete 12 credit hours of Faculty of Science courses at the 2000-level or higher by the start of the internship will result in a removal from the program.
- students must have enough credit hours remaining in their degree to be able to return to full-time studies after the completion of their internship. Interested B.Sc. General students would apply for entry to the General Science Internship Program in the Fall Term (typically in Year 2) upon the completion of a minimum of 24 credit hours. During that same term they will complete an intake process with the General Science Internship Program Coordinator. Application deadlines are established by the General Science Internship Program Office.
- successfully complete an intake interview with the GSIP Coordinator

Students are advised that satisfying the minimum entrance requirements does not guarantee a place in the General Science Internship Program Option. The GSIP office will select the best-qualified applicants using a broad-based admission criteria, including applicant's DGPA and a standard interview. The interview process is designed to assess students' professionalism, work and volunteer experience, and general suitability to enter the Internship Program.

Students admitted into the General Science Internship Program Option will complete pre-employment training, including workshops, prior to the start of their internship. The structure and content of this training is developed by the General Science Internship Program Office. Attendance and completion of this training is mandatory.

### Internship Requirements

Participating students are to complete one internship position of either four or eight months in duration. An internship position (regardless of duration) is completed with one employer.

General Science Internship Program Option students are required to complete a final internship report at the end of their internship. These reports are due at times designated by the General Science Internship Program Office. To successfully complete their internship, a student must obtain a grade of "Pass" for their final internship report. The General Science Internship Program Office will provide students with instructions regarding the content and format requirements of the final internship report.

While on an internship, students are not permitted to take more than six credit hours of academic credit and may not take more than one course at a time.

### Academic Term Requirements

Coursework requirements of the General Science Internship Program Option are equivalent to the coursework requirements of the B.Sc. (General) degree.

General Science Internship Program Option students are required to maintain full-time study while registered for an academic term.

Students participating in the General Science Internship Program Option must end on an academic term.

Students may be required to withdraw from the General Science Internship Program Option for any of the following reasons:

- Failure to maintain the minimum academic requirements of the B.Sc. (General) degree program, and the General Science Internship Program Option. Note the General Science Internship Program requires students to have a minimum DGPA of 3.0 upon entrance to the program, and to continue in the program.
- Failure to maintain the minimum credit hour requirements of the academic term in the internship option.
- Failure to successfully complete (minimum grade of "C" or better) 12 credit hours of Faculty of Science courses at the 2000-level or higher by the end of the Winter Term of the year they enter the program.
- Unsatisfactory performance during an internship as determined by the employer and/or dismissal by the employer for cause, through consultation with the GSIP Office and the Faculty of Science Dean's Office. Unsatisfactory performance may include (but is not limited to) failure to meet performance requirements, dissemination of confidential information, not adhering to the employer's code of conduct, unethical or illegal activity.
- Failure to submit a final internship report or the submitted report does not achieve a "Pass" grade.
- Failure to observe the policies outlined in the university governing documents related to Behavioural Policies (<https://umanitoba.ca/student/behavioural-policies.html>), Academic Misconduct (<https://umanitoba.ca/student-supports/academic-supports/academic-integrity/>), and Non-Academic Misconduct ([https://umanitoba.ca/governance/sites/governance/files/2021-09/Student%20Non-Academic%20Misconduct%20and%20Concerning%20Behaviour%20Procedure%20-%202021\\_09\\_01.pdf](https://umanitoba.ca/governance/sites/governance/files/2021-09/Student%20Non-Academic%20Misconduct%20and%20Concerning%20Behaviour%20Procedure%20-%202021_09_01.pdf)).

Prior to securing an internship position, students who wish to voluntarily leave the General Science Internship Program Option must meet with the GSIP Coordinator to discuss their reason(s) for leaving prior to submitting their withdrawal request. Students must submit their withdrawal request to the General Science Internship Program Coordinator and receive approval by the withdrawal dates set by the General Science Internship Program Office for the applicable internship term.

Once an internship position has been confirmed, students will be registered in the applicable internship course. Enrollment in the applicable internship course will be maintained and students are responsible for all assessed fees for the duration of the internship and for meeting all academic requirements. Students are not normally permitted to voluntarily withdraw from the General Science Internship Program Option once they have secured their internship position. Should extenuating circumstances arise which will require students to withdraw, they are required to first meet with the GSIP Coordinator to discuss their status prior to withdrawing.

Students are also subject to the academic assessment policy found in Regulations Application to all Programs (<https://catalog.umanitoba.ca/undergraduate-studies/science/general-bsc/#facultyrequirementstext>).

General Science Internship Program Option students who are required to withdraw, or voluntarily move to an alternative degree program must fulfil all academic requirements of that degree.

## Related Programs not Offered at the U of Manitoba

| Program             | University   | Website   | Phone Number |
|---------------------|--------------|---|--------------|
| Optometry           | Waterloo     | <a href="https://uwaterloo.ca/optometry-vision-science">https://uwaterloo.ca/optometry-vision-science</a> ( <a href="https://uwaterloo.ca/optometry-vision-science/">https://uwaterloo.ca/optometry-vision-science/</a> ) | 519.888.4567 |
| Veterinary Medicine | Saskatchewan | <a href="https://wcvn.usask.ca/">https://wcvn.usask.ca/</a>   |              |