

## A G E N D A

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### II MATTERS FORWARDED FOR INFORMATION

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- 2. **Report of the Senate Committee on Awards  
[October 25, 2022]** Page 407
- 3. **Correspondence from President and Vice-Chancellor**
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President's Approval** Page 423
- 4. **Report of the Senate Committee on Academic Review** Page 424  
**RE: Undergraduate, Graduate, and Combined Program Reviews**

**III REPORT OF THE PRESIDENT**

**IV QUESTION PERIOD**

Senators are reminded that questions related to matters not on the agenda shall normally be submitted in writing to the University Secretary no later than 10:00 a.m. of the Monday preceding the meeting.

Senators are reminded that questions pertaining to items on the agenda can be asked during the Senate meeting and do not require submission in advance.

**V CONSIDERATION OF THE MINUTES  
OF THE MEETING OF NOVEMBER 2, 2022**

**VI BUSINESS ARISING FROM THE MINUTES - none**

**VII REPORTS OF THE SENATE EXECUTIVE COMMITTEE  
AND THE SENATE PLANNING AND PRIORITIES COMMITTEE**

- 1. **Report of the Senate Executive Committee** Page 450

Comments of the Senate Executive Committee will accompany the report on which they are made.

- 2. **Report of the Senate  
Planning and Priorities Committee**

The Chair will make an oral report of the Committee's activities.

**VIII REPORTS OF OTHER COMMITTEES OF SENATE,  
FACULTY AND SCHOOL COUNCILS**

1. **Reports of the Faculty Council of the Faculty of Graduate Studies**
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  - a) **RE: Revised Admission Requirements, Bachelor of Education, Faculty of Education** Page 573
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  - c) **RE: Revised Admission Requirements, Bachelor of Environmental Studies (Major), Clayton H. Riddell Faculty of Environment, Earth, and Resources** Page 584
6. **Reports of the Senate Committee on Instruction and Evaluation**
  - a) **RE: Revised Regulation on Repeating a Course, Bachelor of Education, Faculty of Education** Page 586

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Juris Doctor, Faculty of Law** Page 591
- c) **RE: Modified Academic Regulations, Faculty of Science** Page 596
- 7. **Report of the Senate Committee on Nominations  
[November 8, 2022]** Page 605

**IX MATTERS TO BE CONSIDERED IN CLOSED SESSION**

- 1. **Report of the Senate Committee on Honorary Degrees  
[November 22, 2022]**

The confidential report will be provided to members of Senate on the Monday preceding the meeting.

**X ADDITIONAL BUSINESS - none**

**XI ADJOURNMENT**

*Please regrets send to [shannon.coyston@umanitoba.ca](mailto:shannon.coyston@umanitoba.ca).*

## **Report of the Senate Committee on Curriculum and Course Changes - Submitted to Senate for Concurrence Without Debate**

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### **Preamble:**

1. The [terms of reference](#) for the Senate Committee on Curriculum and Course Changes (SCCCC) are available on the University Governance website. The SCCCC is “to recommend to Senate on the introduction, modification or abolition of undergraduate programs, curricula or courses.”
2. Since last reporting to Senate, the Senate Committee on Curriculum and Course Changes (SCCCC) met on October 11, 13, 17, 24, 25, November 1 and November 3, 2022, to consider curriculum and course changes from Faculties, Colleges, and Schools.
3. The Report outlines course and curriculum changes endorsed by the SCCCC at the meetings noted above.
4. Proposed course deletions, introductions, and modifications, and program modifications are described in detail in the attachment to the Report. All changes are effective for the 2023 Fall Term, except where indicated otherwise within the Report.

### **Observations:**

#### **1. General**

In keeping with past practice, most changes for departments totalling less than ten credit hours are forwarded to Senate for concurrence without debate. This is in accordance with the Senate’s recommendation approved July 3, 1973, that course changes would cease to go to the SPPC when the resource implications are intra-faculty. Deans and Directors are to assess the resource implications to the respective units when course changes are proposed. Major changes in existing programs are to be referred to the SPPC for assessment of resource implications.

#### **2. Courses to be Removed from the List of Written English Courses**

ANTH 2230 Anthropology of Food and Tourism 3 cr  
ANTH 2350 Ethnology of Sub-Saharan Africa 3 cr  
RLGN 1322 Introduction to Eastern Religions 3 cr  
RLGN 1324 Introduction to Western Religions 3 cr  
RLGN 1420 Ethics in World Religions 3 cr  
RLGN 1424 Religion and Sexuality 3 cr

#### **3. Courses to be Added to the Recommended Introductory Course List**

COMP 1000 Introductory Programming: Think Like a Computer 3 cr  
GRMN 1122 Introductory German 1 (A) 3 cr  
GRMN 1124 Introductory German 2 (A) 3 cr  
GRMN 2102 Intermediate German 1 (A) 3 cr  
GRMN 2104 Intermediate German 2 (A) 3 cr  
POL 1892 Introductory Polish 1 3 cr  
POL 1894 Introductory Polish 2 3 cr

POL 2892 Intermediate Polish 1 3 cr  
POL 2894 Intermediate Polish 2 3 cr  
RUSN 1302 Introductory Russian 1 3 cr  
RUSN 1304 Introductory Russian 2 3 cr  
RUSN 2812 Intermediate Russian 1 3 cr  
RUSN 2814 Intermediate Russian 2 3 cr  
UKRN 1312 Introductory Ukrainian 1 3 cr  
UKRN 1314 Introductory Ukrainian 2 3 cr  
UKRN 2722 Intermediate Ukrainian 1 3 cr  
UKRN 2724 Intermediate Ukrainian 2 3 cr

4. **Courses Titles to be Revised on the Recommended Introductory Course List**

LING 1000 Introduction to Linguistics 1: Foundations of Language 3 cr  
LING 1010 Introduction to Linguistics 2: Language in Context 3 cr

5. **Courses to be Removed from the Recommended Introductory Course List**

GRMN 1120 Beginning German (A) 6 cr  
GRMN 2100 Intermediate German (A) 6 cr  
MATH 0500 Preparing for University Mathematics 0 cr  
MATH 1690 Calculus 6 cr  
POL 1890 Introductory Polish 6 cr  
POL 2890 Intermediate Polish 6 cr  
RUSN 1300 Introductory Russian 6 cr  
RUSN 1330 Introductory Russian 2 3 cr  
RUSN 2810 Intermediate Russian 6 cr  
RUSN 2820 Intermediate Russian 2 3  
UKRN 1310 Introductory Ukrainian 6 cr  
UKRN 1320 Introductory Ukrainian 2 3 cr  
UKRN 2720 Intermediate Ukrainian 6 cr  
UKRN 2730 Intermediate Ukrainian 2 3 cr

6. **Non-Renewal of International Articulation Agreements**

The SCCCC received, for information, communications from the Faculty Deans to the Vice-Provost (Academic Programs and Planning) concerning the non-renewal of several international Articulation Agreements, including:

- the Asper School of Business, with Renmin University, in China. The agreement expired in the Fall 2021.
- the Faculty of Agricultural and Food Sciences with: Lanzhou University, Huazhong Agricultural University, and Nanjing University of Finance in Economics, in China. The agreements will expire in September 2023 and the partner institutions were notified in May 2022. All students admitted to the University of Manitoba under these agreements have graduated.

## 7. Faculty of Arts

### Anthropology

The department is proposing the deletion of two (2) courses and the modification of eleven (11) courses. The number of credit hours the department offered would decrease by 6 credit hours.

Many of the course modifications involve the removal of prerequisites where the Department had determined these were not needed to successfully complete the course. The objective is to remove barriers to access to the courses, including for students registered in programs offered by other Departments. The proposals respond to a recommendation made in an external undergraduate program review in 2018, to remove barriers between departments. In some cases, course descriptions for the Academic Calendar have been modified to better reflect the current content and scope of the course and /or to address outdated language.

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report, to reflect the change to the course title for ANTH 3950 from “Artifact Analysis” to “Archaeological Laboratory Methods.”

- **Bachelor of Arts (Single Advanced Major) in Anthropology**
- **Bachelor of Arts (Double Advanced Major) in Anthropology**
- **Bachelor of Arts (Single Honours) in Anthropology**
- **Bachelor of Arts (Double Honours) in Anthropology**

### Asian Studies

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. List A: Courses Acceptable for Asian Studies Credit will be modified to reflect course changes proposed by the Department of Religion.

- **Bachelor of Arts (General Major) in Asian Studies**
- **Minor (Concentration) in Asian Studies**

### Catholic Studies

The program is proposing the introduction of one (1) course. The number of credit hours offered by the program would increase by 3 credit hours.

The course CATH 2800 Catholicism in Film will be added to the program’s course offerings to broaden the scope of the interdisciplinary program. In addition to history and religion, understanding Catholic influence in arts and literature is essential for examining the breadth of the global Catholic experience.

### Economics

The department is proposing the modification of four (4) courses. There would be no change to the number of credit hours offered by the department.

The department is proposing modifications to the programs listed below, as set out in the attachment to the Report. Following from course changes recently made by the Department of Mathematics, Faculty of Science (Senate, May 18, 2022), a requirement

for MATH 1524 Mathematics for Management and Social Sciences will replace the current requirement for MATH 1520 Introductory Calculus for Management and Social Sciences.

- **Bachelor of Arts (General Major) in Economics**
- **Bachelor of Arts (Single Advanced Major) in Economics, Economics and Econometrics Stream**
- **Bachelor of Arts (Single Advanced Major) in Economics, Economics and Econometrics Stream, with Co-operative Education Option**
- **Bachelor of Arts (Single Advanced Major) in Economics, Economics and Society Stream**
- **Bachelor of Arts (Single Advanced Major) in Economics, Economics and Society Stream, with Co-operative Education Option**
- **Bachelor of Arts (Single Honours) in Economics, Economics and Econometrics Stream**
- **Bachelor of Arts (Single Honours) in Economics, Economics and Econometrics Stream, with Co-operative Education Option**
- **Bachelor of Arts (Single Honours) in Economics, Economics and Society Stream**
- **Bachelor of Arts (Single Honours) in Economics, Economics and Society Stream, with Co-operative Education Option**
- **Bachelor of Arts (Double Honours) in Economics**

The department is proposing modifications to the programs listed below, as set out in the attachment to the Report. The modifications spell out allowable substitutions for particular COMP and MATH course requirements. The modifications follow from changes to the Bachelor of Science (Joint Honours) in Statistics and Economics proposed by the Department of Statistics, Faculty of Science.

- **Bachelor of Arts (Joint Honours) in Economics and Mathematics**
- **Bachelor of Arts (Joint Honours) in Economics and Statistics**

#### English, Theatre, Film & Media

The department is proposing a modification to the programs listed below, as set out in the attachment to the Report. The program note (note 1) associated with a requirement for 9 credit hours of ENGL at the 2000- level or higher will be modified to clarify that students in these programs may use up to 6 credit hours of 2000- level Film Studies (FILM) or Theatre (THTR) courses, with the exception of THTR 2170, THTR 2180, and THTR 2490, in place of 6 credit hours of ENGL courses. Formerly, language used in the note was not sufficiently specific to preclude the use of transfer credit for 1000-level film and theatre courses completed at other institutions.

- **Bachelor of Arts (Single Honours) in English**

#### French, Spanish and Italian

The department is proposing the introduction of one (1) course. The number of credit hours offered by the department would increase by 3 credit hours.



### German and Slavic Studies

The department is proposing the deletion of fourteen (14) courses, the introduction of nineteen (19) courses, and the modification of twenty-two (22) courses. The number of credit hours offered by the department would decrease by 12 credit hours.

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. The modifications follow from course changes proposed by the Department. In several instances the current 6 credit hour courses will be deleted and replaced in the curriculum by two new 3 credit hour courses.

- **Bachelor of Arts (General Major) in German**
- **Bachelor of Arts (Single Advanced Major) in German**
- **Bachelor of Arts (Single Advanced Major) in German, Co-operative Education Option**
- **Bachelor of Arts (Double Advanced Major) in German**
- **Bachelor of Arts (Single Honours) in German**
- **Bachelor of Arts (Single Honours) in German, Co-operative Education Option**
- **Bachelor of Arts (Double Honours) in German**
  
- **Bachelor of Arts (General Major) in Russian**
- **Bachelor of Arts (General Major) in Ukrainian**

### History

The department is proposing the modification of one (1) course. The number of credit hours offered by the department would not change.

### Indigenous Studies

The department is proposing a modification to the **Bachelor of Arts (Single Advanced Major) in Indigenous Studies, Indigenous Governance Stream**, as detailed in the attachment to the Report. Specifically, FIN 3470 Small Business Finance and MIS 2000 Information Systems will be removed from the list of Business courses that can be used to complete the Required Business Minor following the deletion of the course by the Asper School of Business (Senate, May 18, 2022).

### Judaic Studies

The program is proposing a modification to the **Minor (Concentration) in Judaic Studies**, as detailed in the attachment to the Report. Specifically, List A: Courses Acceptable for Judaic Studies Credit will be revised to reflect two course changes proposed by the Department of Religious Studies.

### Labour Studies

The program is proposing modifications to the programs listed below, as detailed in the attachment to the Report. The Labour Studies List of Electives will be revised to reflect course changes proposed by the Department of History and the Asper School of Business.

- **Bachelor of Arts (General Major) in Labour Studies**
- **Bachelor of Arts (Single Advanced Major) in Labour Studies**
- **Bachelor of Arts (Single Advanced Major) in Labour Studies, Co-operative Education Option**

### Linguistics

The department is proposing the deletion of two (2) courses, the introduction of two (2) courses, and the modification of eight (8) courses. The number of credit hours offered by the department would not change.

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. The modifications follow from course changes proposed by the Department. Specifically, course titles for LING 1000 Introduction to Linguistics (to be retitled: Introduction to Linguistics 1: Foundations of Language) and LING 1010 Language in Context (to be retitled: Introduction to Linguistics 2: Foundations of Language) will be updated in the program charts.

- **Bachelor of Arts (General Major) in Linguistics**
- **Bachelor of Arts (Single Advanced Major) in Linguistics**
- **Bachelor of Arts (Single Advanced Major) in Linguistics, Co-operative Education Option**
- **Bachelor of Arts (Double Advanced Major) in Linguistics**
- **Bachelor of Arts (Single Honours) in Linguistics**
- **Bachelor of Arts (Single Honours) in Linguistics, Co-operative Education Option**
- **Bachelor of Arts (Double Honours) in Linguistics**
- **Minor (Concentration) in Linguistics**

### Religion

The department is proposing the deletion of five (5) courses, the introduction of five (5) courses, and the modification of twenty-two (22) courses. The number of credit hours offered by the department would not change.

The department is deleting several courses that, when they were introduced, were intended to be created as topics courses but, through human error, were not. The department is proposing to re-introduce the courses as topics courses that can be completed more than once for credit when the topic subtitle is different, as originally intended, with different course numbers.

The department is proposing to modify four (4) courses, to remove them from the List of Written English Courses: RLG 1322 Introduction to Eastern Religions, RLG 1324 Introduction to Western Religions, RLG 1420 Ethics in World Religions, RLG 1424 Religion and Sexuality.

The department is proposing modifications to various 4000-level courses to remove written consent as a prerequisite. Reasons for doing so include that, in practice, permission is always granted and any mismatches between the course content and students' capabilities or prior knowledge is dealt with informally. Thus, the prerequisite is unnecessary and potentially deters some students from registering for the courses.

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. Course lists for various Religious Traditions (Bhuddhism,

Christianity, Hinduism, Islam, Judaism) will be amended to reflect changes to the course titles for several courses.

- **Bachelor of Arts (General Major) in Religion**
- **Bachelor of Arts (Single Advanced Major) in Religion**
- **Bachelor of Arts (Double Advanced Major) in Religion**
- **Bachelor of Arts (Single Honours) in Religion**
- **Bachelor of Arts (Double Honours) in Religion**

#### Sociology and Criminology

The department is proposing the modification of one (1) course. The number of credit hours offered by the department would not change.

#### Ukrainian Canadian Heritage Studies

The program is proposing modifications to the programs listed below, as detailed in the attachment to the Report. Specifically List A would be revised to reflect course changes proposed by the Department of German and Slavic Studies.

- **Bachelor of Arts (General Major) in Ukrainian Canadian Heritage Studies**
- **Bachelor of Arts (Single Advanced Major) in Ukrainian Canadian Heritage Studies**
- **Minor (Concentration) in Ukrainian Canadian Heritage Studies**

### 8. **Faculty of Engineering**

#### Faculty of Engineering

The faculty is proposing the modification of six (6) courses. The number of credit hours offered by the faculty would not change. The prerequisites will be updated, to reflect proposals by the Department of Mathematics, Faculty of Science, to delete MATH 1520 Introductory Calculus for Management and Social Sciences and MATH 1690 Calculus.

The faculty will remove out-of-date information concerning an agreement with the University of North Dakota for UM engineering students to transfer to that institution to complete a chemical engineering program.

The Report of the Senate Committee on Curriculum and Course Changes concerning modifications to the **Preliminary Engineering Program** [dated November 3, 2022] and the Report of the Senate Committee on Admissions (SCADM) concerning corresponding revisions to the advanced entry admission requirements for the Bachelor of Science in Engineering degrees can be found under item I (2) (b) on the December 2022 Senate agenda.

#### Biosystems Engineering

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. Modifications to the degree involve changes to the list of Indigenous Knowledges Courses. Modifications to the two Specializations entail: a correction to the format of the Group A: Science Electives list for each Specialization; adding a note to the Group D: Free Electives list for the Bioresource Specialization, to clarify that PLNT 2510 Fundamentals of Horticulture can be used where a student has completed ANSC 3530 The Animal and Its Environment; the removal of AGECE 2370

Principles of Ecology from the Group D: Free Electives list for the Environmental Specialization, as it is equivalent to BIOL 2300 Principles of Ecology in Group A.

- **Bachelor of Science in Engineering (Biosystems)**
  - **Bioresource Specialization (concentration)**
  - **Environmental Specialization**

## 9. **Faculty of Environment, Earth, and Resources**

### Earth Sciences

The department is proposing the modification of one (1) course. The overall number of credit hours offered by the department would not change.

The department is proposing modifications to the programs listed below, as set out in the attachment to the Report, including to: reflect the proposed change to the course title for GEOL 3490 Glacial Geology and Geomorphology (to be retitled as Glacial Geology); update program notes, to reflect from proposals from the Department of Mathematics, Faculty of Science, to delete MATH 1520 Introductory Calculus for Management and Social Sciences and MATH 1690 Calculus; and, at the request of the SCCCC, to redistribute elective credit hours across all years of the programs.

The list of Group A Electives, for the B.Sc.(Hons.) and B.Sc.(Maj.) in Geology, and the Earth Science Course Electives List, for the B.Sc.(Hons.) and B.Sc.(Maj.) in Geophysics, would be revised to add GEOG 2550 Geomorphology. The change will increase the course options available to students and will support program accreditation through Engineers, Geoscientists Manitoba. The second list will also be revised to reflect the proposed change to the course title for GEOL 3490.

- **Bachelor of Science (Honours) in Environmental Geoscience**
- **Bachelor of Science (Major) in Environmental Geoscience**
- **Bachelor of Science (Honours) in Geology**
- **Bachelor of Science (Major) in Geology**
- **Bachelor of Science (Honours) in Geophysics**
- **Bachelor of Science (Major) in Geophysics**

### Environment and Geography

The department is proposing the introduction of three (3) courses. The overall number of credit hours offered by the department would increase by 9 credit hours.

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. The changes follow from recent course modifications made by the Department of Indigenous Studies, to update the course subject code from NATV to INDG. The SCCCC recommended further that a requirement for INDG 1220 Indigenous Peoples in Canada, Part 1, in Year 1, be revised to allow students to select one of INDG 1220, INDG 1240 Indigenous Peoples in Canada, Part 2, INDG 2020/HIST 2020 The Métis in Canada, or INDG 2080 Inuit Society and Culture. In addition, in each of the program charts, note 1 was revised to communicate that the University's Written English (W) requirement must be completed within the first 60 credit hours and that students who do not select INDG/HIST 2020 within the first 60 credit hours will use 3 credit hours of elective credit to complete this requirement. Finally, at the request of the SCCCC, the program charts will be revised to redistribute elective credit hours across all years of the programs.

- **Bachelor of Environmental Studies (Honours)**
- **Bachelor of Environmental Studies (Honours), Co-operative Option**
- **Bachelor of Environmental Studies (Major)**
- **Bachelor of Environmental Studies (Major), Co-operative Option**
- **Bachelor of Environmental Studies (General)**

The Report of the Senate Committee on Admissions (SCADM) concerning corresponding revisions to the advanced entry admission requirements for the B.Env.St.(Maj.) [dated October 25, 2022] can be found under item VIII (5) (c) on the December 2022 Senate agenda.

10. **Faculty of Health Sciences**

Interdisciplinary Health Program

The program is proposing the modification of two (2) courses. The overall number of credit hours offered by the faculty would not change.

The program is proposing modifications to the programs listed below, as detailed in the attachment to the Report. The programs will be modified to reflect course changes recently made by the Faculty of Social Work (Senate, March 2, 2022) and/or to clarify that students can complete the elective course, HEAL 4650 Selected Topics in Interdisciplinary Health, a maximum of two times.

- **Bachelor of Health Sciences**
- **Bachelor of Health Studies**
  - **Health Policy, Planning, and Evaluation Concentration**
  - **Health Promotion and Education Concentration**

11. **College of Nursing**

The college is proposing the modification of two (2) courses. There would be no change to the overall number of credit hours in course offerings.

12. **Faculty of Science**

Faculty of Science

The faculty is proposing the introduction of one (1) interdisciplinary course, SCI 3300 Thinking Critically About Science. The number of credit hours offered by the faculty would increase by 3 credit hours.

The faculty is proposing a modification to the **Bachelor of Science (General)**, as detailed in the attachment to the Report. Specifically, to include MATH 1524 Mathematics for Management and Social Sciences (Senate, May 18, 2022) as a course that can contribute to the requirement for 9 credit hours of COMP, MATH, or STAT courses.

## Biochemistry

The program is proposing modifications to the programs listed below, as detailed in the attachment to the Report. The modifications will be made to reflect recent and proposed course changes made by the Departments of Mathematics and Microbiology and to clarify that [CHEM 1122 Introduction to Chemistry Techniques for Engineering 1 and CHEM 1126 Introduction to Chemistry Techniques for Engineering 2], which are restricted to Engineering students, may be used in lieu of a requirement for CHEM 1120 Introduction to Chemistry Techniques.

- **Bachelor of Science (Honours) in Biochemistry**
- **Bachelor of Science (Honours) in Biochemistry, Co-operative Option**
- **Bachelor of Science (Major) in Biochemistry**
- **Bachelor of Science (Major) in Biochemistry, Co-operative Option**

## Biological Sciences

The department is proposing the modification of six (6) courses. The number of credit hours offered by the department would not change.

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. Modifications will be made to reflect recent and proposed course changes made by the Department of Mathematics, including to replace MATH 1520 Introductory Calculus for Management and Social Sciences, which is proposed for deletion, with MATH 1524; to reflect the proposed deletion of MATH 1690 Calculus; and to permit students to complete MATH 1210 Techniques of Classical and Linear Algebra in lieu of MATH 1300 Vector Geometry and Linear Algebra. Further clarifications to the chemistry requirements and biochemistry requirements for the programs have been provided.

- **Bachelor of Science (Honours) in Biological Sciences**
- **Bachelor of Science (Honours) in Biological Sciences, Co-operative Option**
- **Bachelor of Science (Major) in Biological Sciences**
- **Bachelor of Science (Major) in Biological Sciences, Co-operative Option**
  - **including the following Themes, for both Honours and Major programs:**
    - **Cell, Molecular and Developmental Biology Theme**
    - **Ecology and Environmental Biology Theme**
    - **Environmental and Integrative Physiology Theme**
    - **Evolution and Biodiversity Theme**
    - **Integrative Biology Theme**

## Computer Science

The department is proposing the deletion of one (1) course, the introduction of two (2) courses, and the modification of twenty-four (24) courses. The number of credit hours offered by the department would increase by 6 credit hours.

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. Modifications to the required MATH and STAT courses are intended to ensure students in the Honours and Major programs have the mathematical foundation required to succeed in the programs. Notably, MATH 1240 Elementary Discrete Mathematics will be required in Year 1 and for entry to the Honours and the Major degree, with a minimum grade of (B) and (C+), respectively. The minimum grade

requirements are necessary to ensure students can succeed in COMP courses in Years 2 – 4 of the programs. Rather than the option to complete either STAT 1000 Basic Statistical Analysis or STAT 1150 Introduction to Statistics, the latter course will now be required.

Also, many courses will be modified to set out prerequisites, to ensure students complete courses required in the curriculum in sequence. Previously, the Associate Head would meet individually with students to review their course selections and to encourage students to follow the pathway described in the program chart in the Academic Calendar. Large enrolment in the Computer Science degrees, which now exceeds 1,000 students in the Honours and Major programs combined, prohibits individualized advising with every student. A foundation of these modifications is to make the second half of second-year COMP courses (COMP 2080 Analysis of Algorithms, COMP 2150 Object Orientation, COMP 2280 Introduction to Computer Systems) the standard for registering in 3000- level COMP courses.

The Co-operative Options for both the Honours and Major degrees will be modified to require that students complete COMP 3380 Databases Concepts and Usage prior to the first employment term, to reflect current advising practices.

- **Bachelor of Science (Honours) in Computer Science**
- **Bachelor of Science (Honours) in Computer Science, Co-operative Option**
- **Bachelor of Science (Major) in Computer Science**
- **Bachelor of Science (Major) in Computer Science, Co-operative Option**

#### Transition plan for the B.Sc.(Hons) and B.Sc.(Maj.) in Computer Science degrees:

The new assessment regulations for entry, continuation, and graduation for the Major and Honours programs will not apply to students currently in those programs. Any student already in the program when these regulations take effect will be subject to the regulations at the time of entry to the program. This is reflected in the calendar entry via a footnote referring students to see the regulations based on their calendar term.

Additionally, any student already in the program at the time the program changes take effect can take advantage of all changes that add greater flexibility in course selections needed to fulfill degree requirements.

Once the more stringent prerequisite requirements are in place all students must meet the new prerequisites to register for a course. All the 3000 level prerequisite additions are adding existing degree requirement courses and are not adding anything the student would not otherwise take, merely changing the order in when they must be taken. This may result in a temporary increase in enrollment in those 2000 level courses and any need to add sections to those courses will be offset by a reduction in sections at the 3000 level as the student body adapts to the new requirements. This reduction in sections at the 3000 level may also be offset by changes at the 4000 level where the new requirements, which are additions that are otherwise already part of degree requirements, could result in a similar temporary shifting of resources.

Students that begin the 2023/2024 academic year needing 30 (or fewer) credit hours to complete their degree will be informed that they may contact a Science Advisor to request an exemption from the new prerequisites for COMP 4020, COMP 4140, COMP 4190, COMP 4300, COMP 4380, COMP 4420, COMP 4510, and COMP 4710. This exception is only valid for the 2023/2024 academic year; any student not completing their degree in that academic year will be subject to all the course prerequisites beginning in the 2024/2025 academic year. This information will be available on the Computer Science website, with links to the Science Advising Office.

For 3000 level COMP courses, allowing STAT 1000 as an “equivalent” prerequisite to STAT 1150 is part of the transition. This is being done to allow existing students who have completed STAT 1000 to register for the 3000 level COMP courses required to graduate. In the future the department will replace all STAT 1000 and STAT 1001 prerequisites with STAT 2000 and STAT 2001, respectively.

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. The new program note 1 will make available MATH and PHYS course substitutions explicit.

- **Bachelor of Science (Joint Honours) in Computer Science and Physics and Astronomy**

#### Faculty of Science - Data Science

The faculty is proposing modifications to the **Bachelor of Science (Major) in Data Science**, as detailed in the attachment to the Report. Specifically, Year 2 would be modified to add COMP 2150 and COMP 2160 as requirements. Years 3-4 would be modified to reflect the deletion of MATH 3490 Optimization and the reintroduction of MATH 4490 Optimization and to remove COMP 2150 Object Orientation from the courses that can be used to meet the requirement for 3 credit hours of COMP courses. Program note 1 would be revised to clarify that: a minimum grade of (C+) in MATH 1300 Vector Geometry and Linear Algebra is required where the course is used in place of MATH 1220 Linear Algebra 1; a minimum grade of (B) in MATH 1700 Calculus 2 or MATH 1710 Applied Calculus 2 is required where one of these is used in place of MATH 1232 Integral Calculus.

Transition plan: Students continuing in the B.Sc.(Maj.) in Data Science who have previously completed MATH 3490 would not be required to complete MATH 4490. Continuing students who had not completed MATH 3490 would complete MATH 4490 in place of the requirement for MATH 3490.

#### Genetics

The faculty is proposing modifications to the programs listed below, as detailed in the attachment to the Report. Proposed modifications follow from recent courses changes made by the Department of Mathematics. Notes have been revised to clarify that although (CHEM 1122 Introduction to Chemistry Techniques for Engineering 1 and CHEM 1126 Introduction to Chemistry Techniques for Engineering 2) may be used in place of CHEM 1120 Introduction to Chemistry Techniques, the courses are restricted to Engineering students. Courses no longer offered will be removed from the Option List.

- **Bachelor of Science (Honours) in Genetics**
- **Bachelor of Science (Honours) in Genetics, Co-operative Option**
- **Bachelor of Science (Major) in Genetics**
- **Bachelor of Science (Major) in Genetics, Co-operative Option**

#### Mathematics

The department is proposing the deletion of three (3) courses, the introduction of one (1) course, and the modification of fourteen (14) courses. The number of credit hours offered by the department would decrease by 6 credit hours.



The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. The programs will be modified to reflect the proposed deletion of MATH 1690 Calculus, which has not been offered for many years.

- **Bachelor of Science (Honours) in Mathematics**
- **Bachelor of Science (Honours) in Mathematics, Co-operative Option**
- **Bachelor of Science (Double Honours) in Mathematics**
- **Bachelor of Science (Double Honours) in Mathematics, Co-operative Option**
- **Bachelor of Science (Major) in Mathematics**
- **Bachelor of Science (Major) in Mathematics, Co-operative Option**
  
- **Bachelor of Science (Major) in Applied Mathematics with Computer Science Option**
- **Bachelor of Science (Major) in Applied Mathematics with Computer Science Option, Co-operative Option**
- **Bachelor of Science (Major) in Applied Mathematics with Economics Option**
- **Bachelor of Science (Major) in Applied Mathematics with Economics Option, Co-operative Option**
- **Bachelor of Science (Major) in Applied Mathematics with Statistics Option**
- **Bachelor of Science (Major) in Applied Mathematics with Statistics Option, Co-operative Option**
  
- **Bachelor of Science (Joint Honours) in Computer Science and Mathematics**
- **Bachelor of Science (Joint Honours) in Computer Science and Mathematics, Co-operative Option**
- **Bachelor of Science (Joint Honours) in Mathematics and Economics**
- **Bachelor of Science (Joint Honours) in Mathematics and Physics and Astronomy**
- **Bachelor of Science (Joint Honours) in Mathematics and Physics and Astronomy, Co-operative Option**

#### Microbiology

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. The programs will be modified to reflect recent course changes made by the Department of Mathematics.

- **Bachelor of Science (Honours) in Microbiology**
- **Bachelor of Science (Honours) in Microbiology, Co-operative Option**
- **Bachelor of Science (Major) in Microbiology**
- **Bachelor of Science (Major) in Microbiology, Co-operative Option**

#### Physics and Astronomy

The department is proposing the modification of nine (9) courses. The number of credit hours offered by the department would not change.

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. The programs will be modified to reflect recent course changes made by the Department of Mathematics.

- **Bachelor of Science (Honours) in Physics and Astronomy**

- **Bachelor of Science (Honours) in Physics and Astronomy, Co-operative Option**
  - **including the following Options:**
    - **Astronomy and Astrophysics**
    - **Physics**
    - **Medical and Biological Physics**
- **Bachelor of Science (Major) in Physics and Astronomy**
- **Bachelor of Science (Major) in Physics and Astronomy, Co-operative Option**

### Statistics

The department is proposing the modification of six (6) courses. The number of credit hours offered by the department would not change.

Prerequisites for several courses, including STAT 1000 Basic Statistical Analysis 1, STAT 1150 Introduction to Statistics and Computer, STAT 2150 Statistics and Computing, and STAT 3450 Linear Models, will be revised to increase clarity, improve access to the courses, and to facilitate the transfer of students from other departments and faculties into Statistics programs. Further, STAT 3000 Applied Linear Statistical Models and STAT 4000 Applied Statistical Modelling will be modified to clarify that these courses cannot be completed for credit toward a Joint Honours program in Statistics.

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. Programs will be modified to: formally identify several allowable course substitutions for COMP 1010 Introductory Computer Science 1 and MATH 1220 Linear Algebra 1, to reflect current practice; reflect a proposal from the Department of Mathematics to delete MATH 1690; add COMP 2150 and COMP 4140 to List C: Computer Science Options for the Honours Program and to List C: Computer Science Options for the Major Program; require that students in a Co-operative Option complete STAT 3150 Statistical Computing, in addition to STAT 2300 Principles of Data Collection and STAT 3450 Linear Models prior to starting the first employment term, to ensure they have sufficient experience with the R software.

- **Bachelor of Science (Honours) in Statistics**
- **Bachelor of Science (Honours) in Statistics, Co-operative Option**
- **Bachelor of Science (Major) in Statistics**
- **Bachelor of Science (Major) in Statistics, Co-operative Option**

The department is proposing modifications to the programs listed below, as detailed in the attachment to the Report. Programs will be modified to formally identify several allowable course substitutions for COMP 1010 and MATH 1220, to reflect current practice and, for the programs that include a Co-operative Option, to explicitly list the courses that must be completed prior to the start of the first employment term.

- **Bachelor of Science (Joint Honours) in Statistics and Computer Science**
- **Bachelor of Science (Joint Honours) in Statistics and Computer Science, Co-operative Option**
- **Bachelor of Science (Joint Honours) in Statistics and Economics**
- **Bachelor of Science (Joint Honours) in Statistics and Mathematics**
- **Bachelor of Science (Joint Honours) in Statistics and Mathematics, Co-operative Option**

13. **Université de Saint-Boniface**

**École de traduction**

The school is proposing the introduction of ten (10) courses. The number of credit hours offered by the school would increase by 30 credit hours.

The school is proposing to modify the online offering of the **Baccalauréat es arts spécialisé en traduction**, as set out in the attachment to the Report. Specially, the school is proposing to introduce a concentration in **Formation de base en traduction juridique** (Basic Training in Legal Education). The concentration would include 30 credit hours of online courses that would contribute to the 90 credit hours required for the degree. The ten courses required for the concentration would include five courses in the area of legal culture and five course in the area of legal translation.

**Recommendation**

The Senate Committee on Curriculum and Course Changes recommends that curriculum and course changes from the units listed below, be approved by Senate:

**Faculty of Arts**

**Faculty of Engineering**

**Faculty of Environment, Earth, and Resources**

**Faculty of Health Sciences**

**College of Nursing**

**Faculty of Science**

**Université de Saint-Boniface**

**Program proposal: Formation de base en traduction juridique  
(Concentration)**

Respectfully submitted,

Professor Dean McNeill, Chair  
Senate Committee on Curriculum and Course Changes

## Faculty of Arts

### Anthropology

#### Deletions:

ANTH 2230 Anthropology of Food and Tourism 3 cr	-3.0
ANTH 2350 Ethnology of Sub-Saharan Africa 3 cr	-3.0

#### Modifications:

ANTH 2620 Archaeology of Pre-Colonial Americas 3 cr	0.0
Archaeological evidence and cultural interpretations of those New World cultures which did not develop civilizations, from the earliest inhabitants until the period of initial European contact.	

ANTH 2630 Archaeology of Agriculture and Urbanism in the Americas 3 cr	0.0
A survey of archaeological evidence and interpretations of cultures in the Americas from the origins of agriculture to the period of initial European contact. Emphasis will be placed on the rise of urbanism in Central and South America and encompassing population centres established in North America.	

ANTH 2820 Human Osteology 3 cr	0.0
An in depth examination of human skeletal anatomy. Introduction to methods of analysis for archaeological and forensic applications. Through this course, students will be exposed to and learn to work ethically with both real and replica human skeletal remains.	

ANTH 2880 Human Evolution 3 cr	0.0
Intensive study of fossil evidence for human biological evolution. Consideration of the relationships of biological, cultural, and behavioural adaptations in human evolution. Prerequisite: [ANTH 1210 or ANTH 1211] or written consent of instructor.	

ANTH 2910 Post-Colonial Archaeology 3 cr	0.0
An archaeological survey of the post-contact period in North America. Case studies will emphasize selected regions, time periods, and topics that may include the fur trade and settler colonialism.	

ANTH 2930 Archaeology of a Selected Area 3 cr	0.0
Detailed examination of the archaeology of a geographical area that is of current interest to faculty and students. The course content may vary. Students can earn multiple credits for this course only when the topic subtitle is different.	

ANTH 3720 Demography of Past Populations 3 cr	0.0
This course provides students with a basic understanding of, and skills associated with, demographic methods and techniques applied to the analysis of long-term changes in the structure of human populations. Prerequisite: [ANTH 1210 or ANTH 1211] or written consent of instructor.	

ANTH 3730 Forensic Anthropology 3 cr	0.0
This course provides the theory, methods, and techniques for forensic identification of human skeletal remains, including estimation of sex, age-at-death, stature, population affinities and features of personal biology. This is a hands-on practicum course, where students gain	

experience working ethically with both real and replica human skeletal remains. Prerequisite: ANTH 2820.

ANTH 3950 Archaeological Laboratory Methods 3 cr 0.0  
Introduction to the analysis of materials recovered from archaeological contexts, such as stone and ceramic technologies, and animal and botanical remains through a combination of lectures, demonstrations and other laboratory exercises. Prerequisite: ANTH 2100 or written consent of instructor.

ANTH 3960 Cultural Heritage Stewardship 3 cr 0.0  
This course critically reviews the current state of cultural heritage stewardship in Canada. Particular focus is given to the archaeological cultural resource management industry and its colonial underpinnings. The roles of legislation, Indigenous communities and governments, public agencies, and private contractors are discussed. Prerequisite: ANTH 2100 or written consent of instructor.

ANTH 4780 Selected Topics in Socio-Cultural Anthropology 3 cr 0.0  
The course content may vary. Students can earn multiple credits for this course only when the topic subtitle is different. Prerequisite: written consent of instructor or department head.

**NET CHANGE IN CREDIT HOURS: -6.0**

Program modifications:

Modifications to the following programs are detailed on the next 8 pages:

- **Bachelor of Arts (Single Advanced Major) in Anthropology**
- **Bachelor of Arts (Double Advanced Major) in Anthropology**
- **Bachelor of Arts (Single Honours) in Anthropology**
- **Bachelor of Arts (Double Honours) in Anthropology**

## Anthropology

- Modification to BA Single Advanced Major, BA Double Advanced Major, BA Single Honours, and BA Double Honours program charts.

### Added Material

~~Deleted Material~~

## Anthropology, B.A. Single Advanced Major

### Degree Requirements

Year 1		Hours
<u>ANTH 1210</u>	Human Origins and Antiquity	3
<u>ANTH 1220</u>	Cultural Anthropology	3
or <u>ANTH 1520</u>	or Critical Cultural Anthropology	
6 credit hours from your Minor area of Study as described in that unit's section of the calendar.		6
18 credit hours from outside of your Major and Minor areas of study		18
Hours		30
Years 2-4		
<u>ANTH 2000</u>	Culture, Society, and Power	3
<u>ANTH 2100</u>	Introduction to Archaeology	3
<u>ANTH 2860</u>	Evolution and Human Diversity	3
<u>ANTH 3470</u>	History of Anthropology	3
<u>ANTH 4850</u>	Advanced Seminar in Anthropological Theory	3
<u>ANTH 2020</u>	Relatedness in a Globalizing World	3
or <u>ANTH 2530</u>	or Anthropology of Political Systems	
Select one of the following:		3
<u>ANTH 2820</u>	Human Osteology	
<u>ANTH 2890</u>	Human Population Biology	

<u>ANTH 3720</u>	Demography of Past Populations	
<u>ANTH 3730</u>	Forensic Anthropology	
<u>ANTH 3930</u>	Ethnographic Research Methods	
<u>ANTH 3950</u>	<del>Artifact Analysis</del> <b>Archaeological Laboratory Methods</b>	
<u>ANTH 3980</u>	Botanical Analysis in Archaeology	
<u>ANTH 3990</u>	Faunal Analysis in Archaeology	
18 credit hours from ANTH courses at the 2000 level and above (of these a minimum of 9 credit hours must be at the 3000 and/or 4000 level) <sup>1,2,3</sup>		18
3 credit hours from ANTH courses at the 4000 level <sup>1</sup>		3
12 credit hours from your Minor area of study as described in that unit's section of the calendar.		12
24 credit hours from outside your Major and Minor areas of study.		24
12 credit hours of open electives		12
Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation		
Hours		90
Total Hours		120

<sup>1</sup> No more than 6 credit hours may be taken from ANTH 4830 or ANTH 4840.

<sup>2</sup> ANTH 2370 is recommended. Students may not use ANTH 2430 toward the completion of the Anthropology course requirements.

<sup>3</sup> Courses INDG 2070 and INDG 2080 offered by the Department of Indigenous Studies may be used to satisfy this requirement in the General Major, Single Advanced Major, Double Advanced Major, Single Honours and Minor programs.

### **Anthropology, B.A. Double Advanced Major**

#### **Degree Requirements**

<b>Year 1</b>		<b>Hours</b>
<u>ANTH 1210</u>	Human Origins and Antiquity	3

<u>ANTH 1220</u>	Cultural Anthropology	3
or <u>ANTH 1520</u>	or Critical Cultural Anthropology	
6 credit hours in the second Advanced Major subject field as described in that unit's section of the calendar		6
18 credit hours from outside of the two Advanced Major subject fields		18
Hours		30
<b>Years 2-4</b>		
<u>ANTH 2000</u>	Culture, Society, and Power	3
<u>ANTH 2100</u>	Introduction to Archaeology	3
<u>ANTH 2860</u>	Evolution and Human Diversity	3
<u>ANTH 3470</u>	History of Anthropology	3
<u>ANTH 4850</u>	Advanced Seminar in Anthropological Theory	3
<u>ANTH 2020</u>	Relatedness in a Globalizing World	3
or <u>ANTH 2530</u>	or Anthropology of Political Systems	
3 credit hours from:		3
<u>ANTH 2820</u>	Human Osteology	
<u>ANTH 2890</u>	Human Population Biology	
<u>ANTH 3720</u>	Demography of Past Populations	
<u>ANTH 3730</u>	Forensic Anthropology	
<u>ANTH 3930</u>	Ethnographic Research Methods	
<u>ANTH 3950</u>	<del>Artifact Analysis</del> <b>Archaeological Laboratory Methods</b>	
<u>ANTH 3980</u>	Botanical Analysis in Archaeology	
<u>ANTH 3990</u>	Faunal Analysis in Archaeology	
3 credit hours from ANTH courses at the 4000 level <sup>1</sup>		3
12 credit hours from ANTH courses at the 2000 level and above (of these a minimum of 9 credit hours must be at the 3000 and/or 4000 level) <sup>1,2,3</sup>		12
36 credit hours in the second Advanced Major subject field as described in that unit's section of the calendar		36



18 credit hours from outside of the two Advanced Major subject fields	18
Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation	
Hours	90
Total Hours	120

<sup>1</sup> No more than 6 credit hours may be taken from ANTH 4830 or ANTH 4840.

<sup>2</sup> ANTH 2370 is recommended. Students may not use ANTH 2430 toward the completion of the Anthropology course requirements.

<sup>3</sup> Courses INDG 2070 and INDG 2080 offered by the Department of Indigenous Studies may be used to satisfy this requirement in the General Major, Single Advanced Major, Double Advanced Major, Single Honours and Minor programs.

## Anthropology, B.A. Single Honours

### Degree Requirements

Year 1		Hours
<u>ANTH 1210</u>	Human Origins and Antiquity	3
<u>ANTH 1220</u>	Cultural Anthropology	3
or <u>ANTH 1520</u>	or Critical Cultural Anthropology	
24 credit hours of ancillary options <sup>4</sup>		24
	Hours	30
Year 2		
<u>ANTH 2000</u>	Culture, Society, and Power	3
<u>ANTH 2100</u>	Introduction to Archaeology	3
<u>ANTH 2860</u>	Evolution and Human Diversity	3
<u>ANTH 2020</u>	Relatedness in a Globalizing World	3
or <u>ANTH 2530</u>	or Anthropology of Political Systems	
6 credit hours from ANTH courses at the 2000 level and above <sup>2,3</sup>		6
6 credit hours of ancillary options <sup>4</sup>		6

6 credit hours of free options <sup>5</sup>	6
Hours	30

**Year 3**

<u>ANTH 3470</u> History of Anthropology	3
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3 credit hours from one of the following:	3
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<u>ANTH 2820</u> Human Osteology	
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<u>ANTH 2890</u> Human Population Biology	
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<u>ANTH 3720</u> Demography of Past Populations	
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<u>ANTH 3730</u> Forensic Anthropology	
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<u>ANTH 3930</u> Ethnographic Research Methods	
--	--

<u>ANTH 3950</u> <del>Artifact Analysis</del> <b>Archaeological Laboratory Methods</b>	
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<u>ANTH 3980</u> Botanical Analysis in Archaeology	
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<u>ANTH 3990</u> Faunal Analysis in Archaeology	
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6 credit hours from ANTH courses at the 2000 level and above <sup>2,3</sup>	6
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9 credit hours from ANTH courses at the 3000 level and above <sup>1</sup>	9
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3 credit hours of ancillary options <sup>4</sup>	3
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6 credit hours of free options <sup>5</sup>	6
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Hours	30
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**Year 4**

<u>ANTH 4850</u> Advanced Seminar in Anthropological Theory	3
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3 credit hours from ANTH courses at the 2000 level and above <sup>2,3</sup>	3
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9 credit hours from ANTH courses at the 4000 level <sup>1</sup>	9
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3 credit hours of ancillary options <sup>4</sup>	3
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12 credit hours of free options <sup>5</sup>	12
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Refer to the information directly below this list for other important degree requirements that B.A. Honours students must satisfy for graduation.

Hours	30
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- <sup>1</sup> No more than 6 credit hours may be taken from ANTH 4830 or ANTH 4840.
- <sup>2</sup> ANTH 2370 is recommended. Students may not use ANTH 2430 toward the completion of the Anthropology course requirements.
- <sup>3</sup> Courses INDG 2070 and INDG 2080 offered by the Department of Indigenous Studies may be used to satisfy this requirement in the General Major, Single Advanced Major, Double Advanced Major, Single Honours and Minor programs.
- <sup>4</sup> Ancillary options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (excluding Anthropology courses). Students considering graduate studies should include a quantitative methods course among their ancillary options (e.g., Sociology SOC 2294, Statistics STAT 1000 and STAT 2000).
- <sup>5</sup> Free options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (including Anthropology courses). Students considering graduate studies in Anthropology are encouraged to take additional courses in Anthropology beyond their 42 credit hour minimum, particularly courses at the 3000 and 4000 level.

## Anthropology, B.A. Double Honours

### Degree Requirements

Year 1		Hours
<u>ANTH 1210</u>	Human Origins and Antiquity	3
<u>ANTH 1220</u>	Cultural Anthropology	3
or <u>ANTH 1520</u>	or Critical Cultural Anthropology	3
6 credit hours from second Honours field as described in that unit's section of the calendar		6
6 credit hours in ancillary options <sup>1</sup>		6
12 credit hours of free options <sup>2</sup>		12
Hours		30
Year 2		
<u>ANTH 2000</u>	Culture, Society, and Power	3
<u>ANTH 2100</u>	Introduction to Archaeology	3
<u>ANTH 2860</u>	Evolution and Human Diversity	3

<u>ANTH 2020</u>	Relatedness in a Globalizing World	3
or <u>ANTH 2530</u>	or Anthropology of Political Systems	
12 credit hours in second Honours Field as described in that unit's section of the calendar		12
6 credit hours in free options <sup>2</sup>		6
Hours		30

### Year 3

<u>ANTH 3470</u>	History of Anthropology	3
3 credit hours from one of the following:		3
<u>ANTH 2820</u>	Human Osteology	
<u>ANTH 2890</u>	Human Population Biology	
<u>ANTH 3720</u>	Demography of Past Populations	
<u>ANTH 3730</u>	Forensic Anthropology	
<u>ANTH 3930</u>	Ethnographic Research Methods	
<u>ANTH 3950</u>	<del>Artifact Analysis</del> <b>Archaeological Laboratory Methods</b>	
<u>ANTH 3980</u>	Botanical Analysis in Archaeology	
<u>ANTH 3990</u>	Faunal Analysis in Archaeology	
6 credit hours from ANTH courses at the 3000 level and above <sup>3</sup>		6
12 credit hours in second Honours Field as described in that unit's section of the calendar		12
6 credit hours in free options <sup>2</sup>		6
Hours		30

### Year 4

<u>ANTH 4850</u>	Advanced Seminar in Anthropological Theory	3
3 credit hours from ANTH courses at the 3000 level and above <sup>3</sup>		3
6 credit hours from ANTH courses at the 4000 level <sup>3</sup>		6
12 credit hours in second Honours Field as described in that unit's section of the calendar		12

6 credit hours in free options <sup>2</sup> 6

Refer to the information directly below this list for other important degree requirements that B.A. Honours students must satisfy for graduation.

Hours 30

Total Hours 120

<sup>1</sup> Ancillary options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (excluding Anthropology courses). Students considering graduate studies should include a quantitative methods course among their ancillary options (e.g., Sociology SOC 2294, Statistics STAT 1000 and STAT 2000).

<sup>2</sup> Free options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (including Anthropology courses). Students considering graduate studies in Anthropology are encouraged to take additional courses in Anthropology beyond their 42 credit hour minimum, particularly courses at the 3000 and 4000 level.

<sup>3</sup> No more than 6 credit hours may be taken from ANTH 4830 or ANTH 4840.

Note:

- If the second Honours field chosen is either Economics or Sociology, students need to be aware that these two departments require an additional 3 credit hours of required course work in their Double Honours programs.

## Asian Studies

Program modifications:

Modifications to the following programs are detailed on the next 2 pages:

- **Bachelor of Arts (General Major) in Asian Studies**
- **Minor (Concentration) in Asian Studies**

## Asian Studies

- Modification to List A Courses Acceptable for Asian Studies Credit used in the General Major and Minor (Concentration)

## Added Material

~~Deleted Material~~

## List A: Courses Acceptable for Asian Studies Credit

### FACULTY OF ARTS

Course	Title	Hours
<b>Anthropology</b>		
<u>ANTH 2450</u>	Ethnology of China	3
<b>Asian Studies Asian Languages</b>		
<u>ASIA 1750</u>	Introduction to Korean	6
<u>ASIA 1760</u>	Introduction to Chinese (Mandarin)	6
<u>ASIA 1770</u>	Introduction to Japanese	6
<u>ASIA 1780</u>	Basic Sanskrit	6
<u>ASIA 1790</u>	Basic Hindi-Urdu	6
<u>ASIA 2750</u>	Intermediate Korean	6
<u>ASIA 2760</u>	Intermediate Chinese (Mandarin)	6
<u>ASIA 2770</u>	Intermediate Japanese	6
<u>ASIA 2780</u>	Intermediate Sanskrit	6
<u>ASIA 3750</u>	Advanced Korean	6
<u>ASIA 3760</u>	Advanced Chinese (Mandarin)	6
<u>ASIA 3770</u>	Advanced Japanese	6
<u>ASIA 3780</u>	Advanced Reading in Japanese	3
<u>ASIA 3792</u>	Linguistic Analysis of Japanese	3
<b>Asian Studies Other Asian Courses</b>		
<u>ASIA 1420</u>	Asian Civilizations to 1500 (B)	3
<u>ASIA 1430</u>	Asian Civilization from 1500 (B)	3
<u>ASIA 2080</u>	South Asian Civilization	3
<u>ASIA 2570</u>	History, Culture, and Society in Chinese Film	3
<u>ASIA 2580</u>	Women in Chinese Film	3
<u>ASIA 2600</u>	Japanese Film	3
<u>ASIA 2610</u>	Modern Chinese Literature in Translation	3
<u>ASIA 2620</u>	Japanese Civilization	3
<u>ASIA 2630</u>	Chinese Civilization	3
<u>ASIA 2650</u>	Premodern Chinese Literature in Translation	3
<u>ASIA 2662</u>	Chinese Diaspora Literature	3
<u>ASIA 2670</u>	Modern Japanese Literature in Translation	3
<u>ASIA 3480</u>	Selected Topics in Asian Studies 1	3
<u>ASIA 3490</u>	Selected Topics in Asian Studies 2	3
<u>ASIA 3520</u>	The Japanese Theatre	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>ASIA 3560</u>	Themes and Genres in Asian Literature	3
<u>ASIA 3600</u>	Japanese Popular Culture	3
<b>English, Theatre, Film &amp; Media</b>		
<u>FILM 2380</u>	The International Cinema 1 (when the topic relates to Asian Studies)	3
<b>History</b>		
<u>HIST 1420</u>	Asian Civilizations to 1500 (B)	3
<u>HIST 1430</u>	Asian Civilizations from 1500 (B)	3
<u>HIST 2654</u>	History of the People's Republic of China, 1949-Present (B)	3
<u>HIST 3090</u>	Studies in Asian History (B)	3
<u>HIST 3580</u>	Topics in Recent World History (M) (when the topic relates to Asian Studies)	3
<u>HIST 4070</u>	Issues in Modern Asian History 1: Selected Topics (B)	3
<b>Religion</b>		
<u>RLGN 1322</u>	Introduction to Eastern Religions	3
<u>RLGN 2010</u>	Introduction to Hinduism	3
<u>RLGN 2020</u>	Introduction to Buddhism	3
<u>RLGN 2570</u>	Indian Religious Art and Architecture	3
<u>RLGN 2700</u>	Religions of China and Japan	6
<u>RLGN 3150</u>	Buddhism in East Asia	3
<u>RLGN 3160</u>	Tibetan Religious Traditions	3
<u>RLGN 3210</u>	Indian Philosophy	3
<u>RLGN 3220</u>	Indian Religion and Society	3
<u>RLGN 3260</u>	Indian Buddhism	3
<u>RLGN 3266</u>	Readings in Buddhist Texts	3
<u>RLGN 3270</u>	Guru and Disciple	3
<u>RLGN 3750</u>	Topics in Indian Religious Art and Architecture	3
<b>RLGN 4010</b>	<b>Advanced Topics in Buddhism</b>	<b>3</b>
<b>RLGN 4030</b>	<b>Advanced Topics in Hinduism</b>	<b>3</b>
<u>RLGN 4060</u>	The Yoga Tradition	3
<u>RLGN 4100</u>	<del>Advanced Studies in Buddhism</del>	<del>3</del>
<u>RLGN 4190</u>	<del>Advanced Studies in Hinduism</del>	<del>3</del>

## **SCHOOL OF ART**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>FAAH 1100</u>	Survey of Asian Art	3
<u>FAAH 3230</u>	Chinese Art and Architecture	3
<u>FAAH 3240</u>	Japanese Art and Architecture	3
<u>FAAH 3590</u>	Islamic Art and Architecture	3



## Catholic Studies

### Introduction:

CATH 2800 Catholicism on Film 3 cr +3.0

This course examines the ways Catholicism and cinema have interacted both historically and artistically over the course of the twentieth and twenty-first centuries. By viewing and analyzing several films from various historical eras and cultural milieus, the course explores the artistic, religious, practical, and cultural concerns of Catholicism through the lens of commercial filmmaking, and gains an understanding of the popular perceptions of the Catholic faith, its structures, and its practitioners.

### **NET CHANGE IN CREDIT HOURS: +3.0**

## Economics:

### Modifications:

ECON 4010 Advanced Microeconomic Theory 3 cr 0.0

An intensive study of advanced microeconomic analysis using optimization techniques involving multivariate calculus. Topics will include consumer theory, producer theory, general equilibrium, intertemporal choice, risk and insurance markets, and asymmetric information (moral hazard and adverse selection). Prerequisites: ECON 2030 and a grade of "B" or better in one of: ECON 2461 or ECON 3010 or the former ECON 2460 or the former ECON 3700.

ECON 4020 Topics in Advanced Macroeconomic Theory 3 cr 0.0

An intensive review of selected topics in advanced macroeconomic theory. The course content may vary. Students can earn multiple credits for this course only when the topic subtitle is different. Prerequisites: ECON 2030 and a grade of "B" or better in one of: ECON 2481 or ECON 3020 or the former ECON 2480 or the former ECON 3800.

ECON 4140 Evaluation of Economic Policy and Programs 3 cr 0.0

This is a course in applied micro-economic policy analysis using the techniques of cost-benefit analysis as its foundation. Students will learn the welfare foundations of cost-benefit analysis, techniques for decision-making under conditions of risk and uncertainty, and how these techniques may be applied to public policy. The course will include examples from all areas of public policy, including health, education, social services, criminal justice, etc. Prerequisites: ECON 3010 and ECON 3040 or written consent of instructor.

ECON 4822 Economic Research and Communication 6 cr 0.0

This is the capstone course for students in their final year of the B.A. (Adv.) major in Economics. The aim of this course is to develop some of the research, analytical, and writing skills that will allow students to utilize knowledge and quantitative skills acquired in previous economics courses. May not be held with ECON 4820 or the former ECON 4830. Registration is restricted to students who have formally declared an Advanced Major in Economics or Honours Economics. Prerequisites: Completion of 90 credit hours at the time of registration that includes [ECON 3040 (or the former ECON 3180)] and [ECON 3010 (or ECON 2461 or the former ECON 2460 or the former ECON 3700)] and [ECON 3020 (or ECON 2481 or the former ECON 2480 or the former ECON 3800)].

### **NET CHANGE IN CREDIT HOURS: 0.0**

Program modifications:

Modifications to the programs listed below are detailed on the next 18 pages:

- **Bachelor of Arts (General Major) in Economics**
  - **Bachelor of Arts (Single Advanced Major) in Economics, Economics and Econometrics Stream**
  - **Bachelor of Arts (Single Advanced Major) in Economics, Economics and Econometrics Stream, with Co-operative Education Option**
  - **Bachelor of Arts (Single Advanced Major) in Economics, Economics and Society Stream**
  - **Bachelor of Arts (Single Advanced Major) in Economics, Economics and Society Stream, with Co-operative Education Option**
  - **Bachelor of Arts (Single Honours) in Economics, Economics and Econometrics Stream**
  - **Bachelor of Arts (Single Honours) in Economics, Economics and Econometrics Stream, with Co-operative Education Option**
  - **Bachelor of Arts (Single Honours) in Economics, Economics and Society Stream**
  - **Bachelor of Arts (Single Honours) in Economics, Economics and Society Stream, with Co-operative Education Option**
  - **Bachelor of Arts (Double Honours) in Economics**
- 
- **Bachelor of Arts (Joint Honours) in Economics and Mathematics**
  - **Bachelor of Arts (Joint Honours) in Economics and Statistics**

## Department of Economics

- Update program charts for BA General Major, BA Single Advanced Major (including co-op option), BA Single Honours (including co-op option), and BA Double Honours to delete MATH 1520 and replace it with MATH 1524.

### Added Material

~~Deleted Material~~

## Economics, B.A. General Major

### Degree Requirements

Year 1	Hours
Select one of the following pairs of Introductory Economics courses:	6
Both of:	
<u>ECON 1010</u> Introduction to Microeconomic Principles & <u>ECON 1020</u> and Introduction to Macroeconomic Principles	
or both of:	
<u>ECON 1210</u> Introduction to Canadian Economic Issues and Policies & <u>ECON 1220</u> and Introduction to Global and Environmental Economic Issues and Policies	
6 credit hours from your Minor area of study as described in that unit's section of the calendar	6
18 credit hours from outside of your Major and Minor areas of study	18
<b>Hours</b>	<b>30</b>
<b>Years 2-3</b>	
<u>ECON 2010</u> Microeconomic Theory 1	3
<u>ECON 2020</u> Macroeconomic Theory 1	3
<u>ECON 2040</u> Quantitative Methods in Economics	3
3 credit hours from:	3
<u>ECON 2350</u> Community Economic Development	
<u>ECON 2362</u> Economics of Gender	

<u>ECON 2540</u>	Political Economy 1: Production and Distribution	
<u>ECON 2550</u>	Political Economy 2: Economic Growth and Fluctuations in a Global Economic Environment	
<u>ECON 2630</u>	An Introduction to the World's Economies	
<u>ECON 3392</u>	An Introduction to Development Economics	
<u>ECON 3692</u>	Economic Determinants of Health	
<u>ECON 3810</u>	Alternative Approaches to Macroeconomic Analysis	
<u>ECON 4050</u>	History of Economic Thought 1	
	6 credit hours in Economics numbered at the 2000 level or higher	6
	6 credit hours in Economics numbered at the 3000 level or higher	6
	12 credit hours from your Minor area of study as described in that unit's section of the calendar	12
	12 credit hours from outside your Major and Minor areas of study	12
	12 credit hours of open electives	12
Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation		
	<b>Hours</b>	<b>60</b>
	<b>Total Hours</b>	<b>90</b>

**Note:**

Students in the General Major may choose to apply for admission to the Single Advanced Major, Single Honours or Double Honours programs in Economics. Such students are recommended to take MATH 1500 or the former **MATH 1520** or ~~MATH 1520~~ **MATH 1524** as an elective as it may be a prerequisite to upper level Economics courses in those programs. Students in the Single Advanced Major Economics and Society stream are strongly encouraged to complete either MATH 1500 or the former **MATH 1520** ~~MATH 1520~~ or **MATH 1524** to satisfy their University Math (M) requirement as it is good preparation for many other optional upper level Economics courses and is required for students who may switch to the Economics and Econometrics stream or who wish to proceed to either of the Honours streams.

# Economics, B.A. Single Advanced Major

## Degree Requirements

### Economics and Econometrics Stream (including Co-operative Education Option if selected)

Year 1	Hours
Select one of the following pairs of Introductory courses:	6
Both of:	
<u>ECON 1010</u> Introduction to Microeconomic Principles & <u>ECON 1020</u> and Introduction to Macroeconomic Principles	
or both of:	
<u>ECON 1210</u> Introduction to Canadian Economic Issues and Policies & <u>ECON 1220</u> and Introduction to Global and Environmental Economic Issues and Policies	
Select one of the following	
<u>MATH 1500</u> Introduction to Calculus	3
or <u>MATH 1520</u> or <del>Introductory Calculus for Management and Social Sciences</del> <b>MATH 1524 Mathematics for Management and Social Sciences<sup>1</sup></b>	
6 credit hours from your Minor area of study as described in that unit's section of the calendar.	6
15 credit hours from outside of your Major and Minor areas of study	15
<b>Hours</b>	<b>30</b>
<b>Year 2</b>	
<u>ECON 2010</u> Microeconomic Theory 1	3
<u>ECON 2020</u> Macroeconomic Theory 1	3
<u>ECON 2030</u> Mathematical Economics 1	3
<u>ECON 2040</u> Quantitative Methods in Economics	3
<b>Hours</b>	<b>12</b>
<b>Years 2-4</b>	
3 credit hours from:	3

<u>ECON 2350</u>	Community Economic Development	
<u>ECON 2362</u>	Economics of Gender	
<u>ECON 2540</u>	Political Economy 1: Production and Distribution	
<u>ECON 2550</u>	Political Economy 2: Economic Growth and Fluctuations in a Global Economic Environment	
<u>ECON 3392</u>	An Introduction to Development Economics	
<u>ECON 3692</u>	Economic Determinants of Health	
<u>ECON 3810</u>	Alternative Approaches to Macroeconomic Analysis	
<u>ECON 4050</u>	History of Economic Thought 1	
<u>ECON 4052</u>	History of Economic Thought 2	
	9 credit hours in Economics numbered at the 2000 level or higher	9
	12 credit hours from your Minor area of study as described in that unit's section of the calendar.	12
	27 credit hours from outside your Major and Minor areas of study.	27
	12 credit hours of open electives	12
	<b>Hours</b>	<b>63</b>
<b>Year 3</b>		
<u>ECON 3010</u>	Microeconomic Theory 2	3
<u>ECON 3020</u>	Macroeconomic Theory 2	3
<u>ECON 3040</u>	Introduction to Econometrics	3
	<b>Hours</b>	<b>9</b>
<b>Year 4</b>		
<u>ECON 4822</u>	Economic Research and Communication	6
	Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation	
	<b>Hours</b>	<b>6</b>
	<b>Total Hours</b>	<b>120</b>

## Co-operative Education Option

### Years 3-4

### Hours

If the Co-operative Education Option is selected, time to completion will be extended by 12 months and the following three, 1 credit hour work term courses will count toward the outside or open elective credit listed above:

<a href="#">ARTS 3010</a>	Arts Co-operative Option 1	1
<a href="#">ARTS 3020</a>	Arts Co-operative Option 2	1
<a href="#">ARTS 3030</a>	Arts Co-operative Option 3	1
	Hours	3
	Total Hours	3

<sup>1</sup> The former MATH 1520 can be used to meet this requirement.

## Economics and Society Stream<sup>1</sup> (including Co-operative Education Option if selected)

### Year 1

Select one of the following pairs of Introductory Economic courses:

Both of:

[ECON 1010](#) Introduction to Microeconomic Principles  
& [ECON 1020](#) and Introduction to Macroeconomic Principles

or both of:

[ECON 1210](#) Introduction to Canadian Economic Issues and Policies  
& [ECON 1220](#) and Introduction to Global and Environmental Economic Issues and Policies

6 credit hours from your Minor area of study as described in that unit's section of the calendar.

18 credit hours from outside of your Major and Minor areas of study

### Hours

### Year 2

[ECON 2010](#) Microeconomic Theory 1

[ECON 2020](#) Macroeconomic Theory 1

ECON 2040 Quantitative Methods in Economics

**Hours**

**Years 2-4**

3 credit hours from:

ECON 2350 Community Economic Development

ECON 2362 Economics of Gender

ECON 2540 Political Economy 1: Production and Distribution

ECON 2550 Political Economy 2: Economic Growth and Fluctuations in a Global Economic Environment

6 credit hours from:

ECON 3374 Public Expenditure Analysis and Policy Evaluation

ECON 3376 Taxation, Tax Policy and Inter-government Public Finance Issues

ECON 3392 An Introduction to Development Economics

ECON 3394 Development Economics: Problems and Policies

ECON 3690 Economic Issues of Health Policy

ECON 3692 Economic Determinants of Health

ECON 3710 Sustainable Development: Issues and Policy

ECON 3720 Urban and Regional Economics and Policies

ECON 4050 History of Economic Thought 1

ECON 4052 History of Economic Thought 2

12 credit hours in Economics numbered at the 2000 level or higher

12 credit hours from your Minor area of study as described in that unit's section of the calendar.

24 credit hours from outside your Major and Minor areas of study.

12 credit hours of open electives

**Hours**

**Year 3**

ECON 3040 Introduction to Econometrics

ECON 3810 Alternative Approaches to Macroeconomic Analysis



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**Hours**

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**Year 4**

Select one of the following:

ECON 4822      Economic Research and Communication <sup>2</sup>

or

6 credit hours in Economics at the 4000 level

Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation

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**Hours**

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**Total Hours**

**Co-operative Education Option**

**Years 3-4**

**Hours**

If the Co-operative Education Option is selected, time to completion will be extended by 12 months and the following three, 1 credit hour work term courses will count toward the outside or open elective credit listed above:

<a href="#">ARTS 3010</a>	Arts Co-operative Option 1	1
<a href="#">ARTS 3020</a>	Arts Co-operative Option 2	1
<a href="#">ARTS 3030</a>	Arts Co-operative Option 3	1
	Hours	3
	Total Hours	3

<sup>1</sup> Students in the General Major may choose to apply for admission to the Single Advanced Major, Single Honours or Double Honours programs in Economics. Such students are recommended to take MATH 1500 or **the former MATH 1520** ~~MATH 1520~~ or **MATH 1524** as an elective as it may be a prerequisite to upper level Economics courses in those programs. Students in the Single Advanced Major Economics and Society stream are strongly encouraged to complete either MATH 1500 or **the former MATH 1520** ~~MATH 1520~~ or **MATH 1524** to satisfy their University Math (M) requirement as it is good preparation for many other optional upper level Economics courses and is required for students who may switch to the Economics and Econometrics stream or who wish to proceed to either of the Honours streams.

<sup>2</sup> Students electing to take ECON 4822 are advised that ECON 3010 is prerequisite to this course.

## Economics, B.A. Single Honours

### Degree Requirements

#### Economics, B.A. Single Honours - Economics and Econometrics Stream<sup>1</sup> (including Co-operative Education Option if selected)

Year 1	Hours
Select one of the following pairs of Introductory Economics courses:	6
Both of:	
<u>ECON 1010</u> Introduction to Microeconomic Principles & <u>ECON 1020</u> and Introduction to Macroeconomic Principles	
or both of:	
<u>ECON 1210</u> Introduction to Canadian Economic Issues and Policies & <u>ECON 1220</u> and Introduction to Global and Environmental Economic Issues and Policies	
<u>MATH 1500</u> Introduction to Calculus	3
or <del><u>MATH 1520</u> or <u>Introductory Calculus for Management and Social Sciences</u></del> <b>MATH 1524 Mathematics for Management and Social Sciences<sup>2</sup></b>	
21 credit hours of ancillary options <sup>23</sup>	21
<b>Hours</b>	<b>30</b>
<b>Year 2</b>	
<u>ECON 2010</u> Microeconomic Theory 1	3
<u>ECON 2020</u> Macroeconomic Theory 1	3
<u>ECON 2030</u> Mathematical Economics 1	3
<u>ECON 2040</u> Quantitative Methods in Economics	3
6 credit hours of Economics numbered at the 2000 level or higher	6
3 credit hours of ancillary options <sup>23</sup>	3
9 credit hours of free options <sup>24</sup>	9

	<b>Hours</b>	<b>30</b>
<b>Year 3</b>		
<u>ECON 3010</u>	Microeconomic Theory 2	3
<u>ECON 3020</u>	Macroeconomic Theory 2	3
<u>ECON 3030</u>	Mathematical Economics 2	3
<u>ECON 3040</u>	Introduction to Econometrics	3
<u>ECON 3810</u>	Alternative Approaches to Macroeconomic Analysis	3
	12 credit hours of Economics numbered at the 3000 level or higher	12
	3 credit hours of free options <sup>34</sup>	3
	<b>Hours</b>	<b>30</b>
<b>Year 4</b>		
<u>ECON 4010</u>	Advanced Microeconomic Theory	3
<u>ECON 4020</u>	Topics in Advanced Macroeconomic Theory	3
<u>ECON 4040</u>	Seminar in Applied Econometrics	3
<u>ECON 4050</u>	History of Economic Thought 1	3
	6 credit hours of Economics numbered at the 4000 level	6
	12 credit hours of free options <sup>34</sup>	12
Refer to the information below this list for other important degree requirements that B.A. Honours students must satisfy for graduation.		
	<b>Hours</b>	<b>30</b>
	<b>Total Hours</b>	<b>120</b>

## Co-operative Education Option

**Years 3-4** **Hours**

If the Co-operative Education Option is selected, time to completion will be extended by 12 months and the following three, 1 credit hour work term courses will count toward the outside or open elective credit listed above:

<a href="#">ARTS 3010</a>	Arts Co-operative Option 1	1
<a href="#">ARTS 3020</a>	Arts Co-operative Option 2	1
<a href="#">ARTS 3030</a>	Arts Co-operative Option 3	1
	Hours	3
	Total Hours	3

<sup>1</sup> Students contemplating graduate work in Economics should refer to the notes above under "Preparation for Graduate Studies".

<sup>2</sup> **The former MATH 1520 can be used to meet this requirement.**

<sup>23</sup> Ancillary options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (excluding Economics courses).

<sup>34</sup> Free options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (including Economics courses).

## Economics, B.A. Single Honours - Economics and Society Stream<sup>1</sup> (including Co-operative Education Option if selected)

**Year 1** **Hours**

Select one of the following pairs of introductory Economics courses: 6

Both of:

[ECON 1010](#) Introduction to Microeconomic Principles  
& [ECON 1020](#) and Introduction to Macroeconomic Principles

or both of:

[ECON 1210](#) Introduction to Canadian Economic Issues and Policies  
& [ECON 1220](#) and Introduction to Global and Environmental Economic Issues and Policies

<u>MATH 1500</u>	Introduction to Calculus	3
or <del><u>MATH 1520</u></del> or Introductory Calculus for Management and Social Sciences		
<b>MATH 1524</b>	<b>Mathematics for Management and Social Sciences<sup>2</sup></b>	
21 credit hours of ancillary options <sup>23</sup>		21
<b>Hours</b>		<b>30</b>
<b>Year 2</b>		
<u>ECON 2010</u>	Microeconomic Theory 1	3
<u>ECON 2020</u>	Macroeconomic Theory 1	3
<u>ECON 2030</u>	Mathematical Economics 1	3
<u>ECON 2040</u>	Quantitative Methods in Economics	3
6 credit hours of Economics numbered at the 2000 level or higher		6
3 credit hours of ancillary options <sup>23</sup>		3
9 credit hours of free options <sup>24</sup>		9
<b>Hours</b>		<b>30</b>
<b>Year 3</b>		
<u>ECON 3010</u>	Microeconomic Theory 2	3
<u>ECON 3020</u>	Macroeconomic Theory 2	3
<u>ECON 3040</u>	Introduction to Econometrics	3
<u>ECON 3810</u>	Alternative Approaches to Macroeconomic Analysis	3
9 credit hours from:		9
<u>ECON 2310</u>	Canadian Economic Problems	
<u>ECON 2630</u>	An Introduction to the World's Economies	
<u>ECON 3374</u>	Public Expenditure Analysis and Policy Evaluation	
<u>ECON 3376</u>	Taxation, Tax Policy and Inter-government Public Finance Issues	
<u>ECON 3392</u>	An Introduction to Development Economics	
<u>ECON 3394</u>	Development Economics: Problems and Policies	
<u>ECON 3690</u>	Economic Issues of Health Policy	
<u>ECON 3692</u>	Economic Determinants of Health	

<u>ECON 3710</u>	Sustainable Development: Issues and Policy	
<u>ECON 3720</u>	Urban and Regional Economics and Policies	
9 credit hours of free options <sup>34</sup>		9
<b>Hours</b>		<b>30</b>
<b>Year 4</b>		
<u>ECON 4040</u>	Seminar in Applied Econometrics	3
<u>ECON 4050</u>	History of Economic Thought 1	3
6 credit hours of Economics numbered at the 3000 level or higher		6
12 credit hours of Economics numbered at the 4000 level		12
6 credit hours of free options <sup>34</sup>		6
Refer to the information directly below this list for other important degree requirements that B.A. Honours students must satisfy for graduation.		
<b>Hours</b>		<b>30</b>
<b>Total Hours</b>		<b>120</b>

### Co-operative Education Option

**Years 3-4** **Hours**

If the Co-operative Education Option is selected, time to completion will be extended by 12 months and the following three, 1 credit hour work term courses will count toward the outside or open elective credit listed above:

<a href="#">ARTS 3010</a>	Arts Co-operative Option 1	1
<a href="#">ARTS 3020</a>	Arts Co-operative Option 2	1
<a href="#">ARTS 3030</a>	Arts Co-operative Option 3	1
	Hours	3
	Total Hours	3

<sup>1</sup> Students contemplating graduate work in Economics should refer to the notes above under "Preparation for Graduate Studies".

<sup>2</sup> **The former MATH 1520 can be used to meet this requirement.**

<sup>23</sup> Ancillary options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (excluding Economics courses).

<sup>24</sup> Free options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (including Economics courses).

## Economics, B.A. Double Honours

### Degree Requirements

Year 1	Hours
Select one of the following pairs of Introductory Economics courses:	6
Both of:	
<u>ECON 1010</u> Introduction to Microeconomic Principles & <u>ECON 1020</u> and Introduction to Macroeconomic Principles	
or both of:	
<u>ECON 1210</u> Introduction to Canadian Economic Issues and Policies & <u>ECON 1220</u> and Introduction to Global and Environmental Economic Issues and Policies	
<u>MATH 1500</u> Introduction to Calculus	3
or <u>MATH 1520</u> or <u>Introductory Calculus for Management and Social Sciences</u> <b>MATH 1524 Mathematics for Management and Social Sciences<sup>1</sup></b>	
6 credit hours in second Honours field as described in that unit's section of the calendar	6
6 credit hours in ancillary options <sup>22</sup>	6
9 credit hours in free options <sup>23</sup>	9
<b>Hours</b>	<b>30</b>
<b>Years 2-4</b>	
<u>ECON 2010</u> Microeconomic Theory 1	3
<u>ECON 2020</u> Macroeconomic Theory 1	3
<u>ECON 2030</u> Mathematical Economics 1	3
<u>ECON 2040</u> Quantitative Methods in Economics	3

<u>ECON 3010</u>	Microeconomic Theory 2	3
<u>ECON 3020</u>	Macroeconomic Theory 2	3
<u>ECON 3040</u>	Introduction to Econometrics	3
A further 9 credit hours in Economics numbered at the 2000 level or higher		9
A further 6 credit hours in Economics numbered at the 4000 level		6
36 credit hours in second Honours field as described in that unit's section of the calendar		36
18 credit hours in in free options <sup>23</sup>		18
<b>Hours</b>		<b>90</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> **The former MATH 1520 can be used to meet this requirement.**

<sup>42</sup> Ancillary options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (excluding Economics courses).

<sup>23</sup> Free options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (including Economics courses).

**Notes:**

- Students contemplating Double Honours in Economics and Mathematics, or Economics and Statistics are referred to the Economics-Mathematics Joint Honours Program or the Economics-Statistics Joint Honours Program.
- Students contemplating graduate work in Economics should refer to the notes above under "Preparation for Graduate Studies".
- If the second Honours field chosen is Sociology, students need to be aware that Sociology requires an additional 3 credit hours of required course work in their Double Honours program.



## Economics – Mathematics Joint Honours

- Modification footnotes reflecting the deletion of MATH 1690
- A result of the Department of Mathematics deleting that course

### Added Material

~~Deleted Material~~

## Economics – Mathematics, B.A. Joint Honours

### Degree Requirements

Year 1	Hours
Select one of the following pairs of Introductory Economics courses:	6
Both of:	
<u>ECON 1010</u> Introduction to Microeconomic Principles & <u>ECON 1020</u> and Introduction to Macroeconomic Principles	
or both of:	
<u>ECON 1210</u> Introduction to Canadian Economic Issues and Policies & <u>ECON 1220</u> and Introduction to Global and Environmental Economic Issues and Policies	
<u>MATH 1220</u> Linear Algebra 1 <sup>1</sup>	3
<u>MATH 1230</u> Differential Calculus <sup>1</sup>	3
<u>MATH 1232</u> Integral Calculus <sup>1</sup>	3
<u>MATH 1240</u> Elementary Discrete Mathematics <sup>1</sup>	3
<u>STAT 1150</u> Introduction to Statistics and Computing <sup>1,2</sup>	3
<u>COMP 1010</u> Introductory Computer Science 1 <sup>2</sup>	3
6 credit hours of electives, which should include the required “Written English” course <sup>3</sup>	6
<b>Hours</b>	<b>30</b>
<b>Year 2</b>	
<u>ECON 2010</u> Microeconomic Theory 1	3
<u>ECON 2020</u> Macroeconomic Theory 1	3
<u>MATH 2020</u> Algebra 1	3
<u>MATH 2080</u> Introduction to Analysis	3
<u>MATH 2090</u> Linear Algebra 2	3
<u>MATH 2150</u> Multivariable Calculus	3
<u>MATH 2180</u> Real Analysis 1	3
9 credit hours of approved electives <sup>3</sup>	9
<b>Hours</b>	<b>30</b>
<b>Years 3-4</b>	
<u>ECON 3010</u> Microeconomic Theory 2	3
<u>ECON 3020</u> Macroeconomic Theory 2	3

<u>ECON 3040</u>	Introduction to Econometrics <sup>2</sup>	3
<u>MATH 2030</u>	Combinatorics 1	3
<u>MATH 2160</u>	Numerical Analysis 1	3
<u>MATH 3320</u>	Algebra 2	3
<u>MATH 3340</u>	Complex Analysis 1	3
<u>MATH 3440</u>	Ordinary Differential Equations	3
<u>MATH 3470</u>	Real Analysis 2	3
<u>MATH 3472</u>	Real Analysis 3	3
24 credit hours of approved Economics courses <sup>4</sup>		24
3 credit hours from:		3
<u>MATH 3420</u>	Numerical Analysis 2	
<u>MATH 3460</u>	Partial Differential Equations	
<u>MATH 3610</u>	Introduction to Mathematical Modelling	
<u>MATH 4370</u>	Linear Algebra and Matrix Analysis	
or any Mathematics course at the 4000 level		
3 credit hours of Mathematics courses at the 3000 or 4000 level		3
Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation		
<b>Hours</b>		<b>60</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Students in this program must achieve a minimum grade of "B" in MATH 1230, MATH 1232, MATH 1220, and MATH 1240. Students are strongly advised to take MATH 1220, MATH 1230, and MATH 1232. The following substitutions are allowed (but not advised), provided the grades indicated in brackets are achieved: MATH 1210 (A), MATH 1300 (A) in place of MATH 1220, MATH 1500 (A) in place of MATH 1230, MATH 1700 (A) in place of MATH 1232, ~~MATH 1690 (B) in place of MATH 1230 and MATH 1232~~. With permission from the department, students may be able to substitute STAT 1000 and STAT 2000 in place of STAT 1150.

<sup>2</sup> Some courses may be taken in a different year than indicated; STAT 1150, COMP 1010, ECON 3040 may be taken in Year 2. The normal prerequisite for ECON 3040 is ECON 2040, which will be waived for students in this program who have completed Year 1.

<sup>3</sup> Students may not use the following courses for credit in this program: MATH 1010, MATH 1018, MATH 1020, FA 1020, MATH 1080, and MATH 1090.

<sup>4</sup> Of the 24 credit hours in electives in Economics in Years 3 and 4, no more than 6 credit hours may be at the 2000 level or below and at least 6 credit hours must be at the 4000 level. Students are encouraged to take ECON 4010, ECON 4020 and ECON 4040.

## Department of Economics

- Program Modification as a result of the Department of Statistics updating the substitution courses that are deemed acceptable in the Economics-Statistics Joint Honours Program

### Added Material

~~Deleted Material~~

## Economics-Statistics, B.A. Joint Honours

### Degree Requirements

Year 1	Hours
Select one of the following pairs of Introductory Economics courses:	6
Both of:	
<u>ECON 1010</u> Introduction to Microeconomic Principles & <u>ECON 1020</u> and Introduction to Macroeconomic Principles	
or both of:	
<u>ECON 1210</u> Introduction to Canadian Economic Issues and Policies & <u>ECON 1220</u> and Introduction to Global and Environmental Economic Issues and Policies	
<u>MATH 1220</u> Linear Algebra 1 <sup>1</sup>	3
<u>MATH 1230</u> Differential Calculus <sup>1</sup>	3
<u>MATH 1232</u> Integral Calculus <sup>1</sup>	3
<u>MATH 1240</u> Elementary Discrete Mathematics <sup>1</sup>	3
<u>STAT 1150</u> Introduction to Statistics and Computing <sup>1</sup>	3
<u>COMP 1010</u> Introductory Computer Science 1 <sup>1</sup>	3
6 credit hours of electives which should include the required "Written English" course	6
<b>Hours</b>	<b>30</b>
<b>Year 2</b>	
<u>ECON 2010</u> Microeconomic Theory 1	3
<u>ECON 2020</u> Macroeconomic Theory 1	3
<u>STAT 2150</u> Statistics and Computing	3
<u>STAT 2300</u> Principles of Data Collection	3
<u>STAT 2400</u> Introduction to Probability 1	3
<u>STAT 2800</u> Introduction to Probability 2	3
<u>MATH 2080</u> Introduction to Analysis	3
<u>MATH 2150</u> Multivariable Calculus <sup>1</sup>	3
6 credit hours of approved Economics electives <sup>2</sup>	6
<b>Hours</b>	<b>30</b>

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**Year 3**

<u>ECON 3010</u>	Microeconomic Theory 2	3
<u>ECON 3020</u>	Macroeconomic Theory 2	3
<u>STAT 3100</u>	Introduction to Statistical Inference	3
<u>STAT 3150</u>	Statistical Computing	3
<u>STAT 3450</u>	Linear Models	3
<u>MATH 2160</u>	Numerical Analysis 1	3
<u>MATH 3610</u>	Introduction to Mathematical Modelling	3
3 credit hours of approved Economics electives <sup>2</sup>		3
6 credit hours of approved Statistics electives <sup>3</sup>		6

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**Hours** **30**

**Year 4**

<u>ECON 4040</u>	Seminar in Applied Econometrics	3
<u>ECON 4042</u>	Topics in Econometrics	3
<u>STAT 4100</u>	Statistical Inference	3
12 credit hours of approved Economics electives <sup>2</sup>		12
9 credit hours of approved Statistics electives <sup>3</sup>		9

Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation

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**Hours** **30**

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**Total Hours** **120**

<sup>1</sup>The following substitutions are allowed: **COMP 1012 in place of COMP 1010, MATH 1210 (B) or MATH 1300 (C+)** in place of MATH 1220, MATH 1500 (B) or MATH 1524 (B) or the former MATH 1520(B) in place of MATH 1230, MATH 1700 (B) in place of MATH 1232, MATH 2720 in place of MATH 2150, STAT 1000 and STAT 2000 (B) or STAT 2220 in place of STAT 1150. Students must attain specific grade requirements in order to meet the upper level course prerequisites. Consult course descriptions for further information.

<sup>2</sup>Of the 21 credit hours of electives in Economics in Years 2, 3 and 4, no more than 6 credit hours may be at the 2000 level or below; ECON 2030 and ECON 3040 are recommended in Year 2 or 3. The normal prerequisite for ECON 3040 is ECON 2040, which will be waived for students in this program who have completed Year 1.

<sup>3</sup>The 15 credit hours of electives in Statistics in Years 3 and 4 must all be at the 3000 level or higher, at least 9 of which must be at the 4000 level. The following courses are recommended: STAT 3030, STAT 3490, STAT 3550, STAT 3690, STAT 4150, STAT 4250, STAT 4630.

English, Theatre, Film & Media

Program Modification:

Modifications to the following programs are detailed on the next 2 pages:

- **Bachelor of Arts (Single Honours) in English**

## Department of English, Theatre, Film & Media

- Modification to the footnote 1 in the English, B.A. Single Honours program.

### Added Material

~~Deleted Material~~

## English, B.A. Single Honours

### Degree Requirements<sup>1,2,3</sup>

Year 1		Hours
Select one of the following:		6
<u>ENGL 1200</u>	Representative Literary Works	
or		
<u>ENGL 1300</u>	Literature since 1900	
or both of:		
<u>ENGL 1400</u>	Thematic Approaches to the Study of Literature	
& <u>ENGL 1340</u>	and Introduction to Literary Analysis	
24 credit hours of ancillary options <sup>64</sup>		24
<b>Hours</b>		<b>30</b>
<b>Years 2-4</b>		
<u>ENGL 2650</u>	Introduction to Critical Theory <sup>4,5</sup>	3
3 credit hours selected from the following:		3
<u>ENGL 2550</u>	Critical Practise	
<u>ENGL 2620</u>	Introduction to Print Culture and Book History	
<u>ENGL 3620</u>	Special Topics in Print Culture and Book History	
<u>ENGL 3630</u>	Studies in Critical Theory	
<u>FILM 2330</u>	Film and Contemporary Thought	
<u>FILM 3420</u>	Film Theory	
<u>THTR 3460</u>	Theory of Drama and Performance	
9 credit hours in ENGL at or above the 2000 level <sup>1,3</sup>		9
12 credit hours of ENGL selected from the Literature prior to 1900 list <sup>2</sup>		12
12 credit hours of literature prior to the Romantic Period selected from:		12
<u>ENGL 2070</u>	Literature of the Sixteenth Century	
<u>ENGL 2080</u>	Medieval Literature	
<u>ENGL 2090</u>	Literature of the Seventeenth Century	
<u>ENGL 2120</u>	Literature of the Restoration and Eighteenth Century	
<u>ENGL 3000</u>	Chaucer	
<u>ENGL 3010</u>	Shakespeare	
<u>ENGL 3030</u>	Studies in Sixteenth-Century Literature	
<u>ENGL 3050</u>	Studies in Old English	
<u>ENGL 3080</u>	Studies in Medieval Literature	
<u>ENGL 3090</u>	Studies in Seventeenth-Century Literature	
<u>ENGL 3120</u>	Studies in Restoration and Eighteenth-Century Literature	
<u>ENGL 3180</u>	Studies in Renaissance Literature <sup>56</sup>	
12 credit hours in other literature after 1900, selected from:		12

<u>ENGL 2160</u>	British Literature since 1900	
<u>ENGL 2180</u>	American Literature since 1900	
<u>ENGL 2830</u>	Literature of Africa and/or the Caribbean	
<u>ENGL 3980</u>	Studies in Modernism	
<u>ENGL 3990</u>	Studies in Post-Modernism <sup>56</sup>	
6 credit hours in Canadian Literature selected from:		6
<u>ENGL 2270</u>	Canadian Literature	
<u>ENGL 3270</u>	Studies in Canadian Literature <sup>56</sup>	
Of the ENGL courses selected above, a minimum of 9 credit hours must be at or above the 3000 level.		
9 credit hours of 4000 level ENGL		9
24 credit hours in free options <sup>7</sup>		24
Refer to the information directly below this list for other important degree requirements that B.A. Honours students must satisfy for graduation.		
<b>Hours</b>		<b>90</b>
<b>Total Hours</b>		<b>120</b>

### Plan of Study Grid

<sup>1</sup> ~~Students in the Single Honours program may use up to 6 credit hours in Film Studies or Theatre courses, with the exception of FILM 1290, FILM 1310 (or the former FILM 1300), THTR 1220, THTR 2170, THTR 2180 and THTR 2490. **Students may not use 1000-level Film or Theatre transfer credits.** Any Film Studies or Theatre courses so applied may not also be used toward a Minor (Concentration) in Film Studies or Theatre respectively~~

**Students in the Single Honours program may use up to 6 credit hours of 2000- level Film Studies or Theatre courses in place of 6 credit hours of ENGL courses, with the exception that THTR 2170, THTR 2180, and THTR 2490 cannot be used. Any Film Studies or Theatre courses so applied may not also be used toward a Minor (Concentration) in Film Studies or Theatre, respectively.**

<sup>2</sup> Students may use ENGL 2490 (maximum 3 credit hours) to satisfy requirements for the General Major, Single Advanced Major, Double Advanced Major, Single Honours or Double Honours. Students may not use ENGL 2490 to satisfy the requirements for a Minor (Concentration).

<sup>3</sup> Credit in ENGL 2000 may be used toward the 48 hours in general courses required for a Single Advanced Major only

<sup>64</sup> Ancillary options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (excluding English courses).

<sup>45</sup> Single Honours and Double Honours students should attempt to complete ENGL 2650 (required year 2 course) as early as possible, as it may not be offered every year.

<sup>46</sup> Certain courses that vary in content from year to year may also satisfy this requirement, as determined by the Department.

<sup>7</sup> Free options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (including English courses).

## French, Spanish and Italian

### Introduction:

FREN 2030 La contre-culture dans les littératures francophones du Canada (B) 3 cr +3.0  
Ce cours, offert en français, se concentre sur la contre-culture dans les littératures québécoise, franco-ontarienne, acadienne et autochtone de langue française. Il s'agira d'aller au-delà des stéréotypes généralement associés à la contre-culture (hippies, drogues, etc.) et d'explorer cette mouvance dans toute sa complexité. Après avoir fait le survol de la théorie sur le phénomène contre-culturel, nous nous intéresserons à la contre-culture telle qu'elle a été vécue dans ces différents espaces littéraires. Il sera ensuite question de déterminer les grands traits de la contre-culture littéraire dans chacune des œuvres au programme. Prerequisite: FREN 1190 or FREN 2620 or [a grade of "C+" or better in FREN 1200] or written consent of department head.

### **NET CHANGE IN CREDIT HOURS: +3.0**

## German and Slavic Studies

### Deletions:

GRMN 1120 Beginning German (A) 6 cr	-6.0
GRMN 2100 Intermediate German (A) 6 cr	-6.0
GRMN 3200 Deutsche Sprachpraxis 1 (A) 6 cr	-6.0
GRMN 3220 Deutsche Sprachpraxis 2 (A) 3 cr	-3.0
POL 1890 Introductory Polish 6 cr	-6.0
POL 2890 Intermediate Polish 6 cr	-6.0
RUSN 1300 Introductory Russian 6 cr	-6.0
RUSN 1330 Introductory Russian 2 3 cr	-3.0
RUSN 2810 Intermediate Russian ...6 cr	-6.0
RUSN 2820 Intermediate Russian 2 3 cr	-3.0
UKRN 1310 Introductory Ukrainian 6 cr	-6.0
UKRN 1320 Introductory Ukrainian 2 3 cr	-3.0
UKRN 2720 Intermediate Ukrainian 6 cr	-6.0
UKRN 2730 Intermediate Ukrainian 2 3 cr	-3.0

### Introductions:

GRMN 1122 Introductory German 1 (A) 3 cr +3.0  
(Lab required) The course is intended for students with little or no previous knowledge of German. Basic grammar is included, but emphasis is placed on the development of broad reading and speaking skills. Reaches the A1.1 level of the Common European Framework of Reference for Languages. May not be held with the former GRMN 1120, the former GRMN 1121, or GRMN 1123. Students with Grade 12 German or its equivalent may not normally take the course for credit. Not open to students who have previously obtained credit for the former GRMN 2100, the former GRMN 2101, GRMN 2102, GRMN 2103, GRMN 2104, GRMN 2105.

GRMN 1124 Introductory German 2 (A) 3 cr +3.0  
(Lab required) This course is intended for students with some basic knowledge of German. Basic grammar is included, but emphasis is placed on the development of broad reading and speaking skills. Reaches the A1.2 level of the Common European Framework of Reference for



Languages. May not be held with the former GRMN 1120, the former GRMN 1121, or GRMN 1125. Students with Grade 12 German or its equivalent may not normally take the course for credit. Not open to students who have previously obtained credit for the former GRMN 2100, the former GRMN 2101, GRMN 2102, GRMN 2103, GRMN 2104, or GRMN 2105. Prerequisite: GRMN 1122 or written consent of department head.

GRMN 2102 Intermediate German 1 (A) 3 cr +3.0  
Grammar review, exercises, development of practical oral skills, conversation and modern usage. Introduction to German poetry and prose. Reaches the A2.1 level of the Common European Framework of Reference for Languages. May not be held with the former GRMN 2100, GRMN 2103, or the former GRMN 2101. Prerequisite: [German 40S] or [one of GRMN 1124, GRMN 1125, the former GRMN 1120, or the former GRMN 1121] or written consent of department head.

GRMN 2104 Intermediate German 2 (A) 3 cr +3.0  
Grammar review, exercises, development of practical oral skills, conversation and modern usage. Introduction to German poetry and prose. This course is intended for students with intermediate knowledge of German. Reaches the A2.2 level of the Common European Framework of Reference for Languages. May not be held with the former GRMN 2100, GRMN 2105, or the former GRMN 2101. Prerequisite: GRMN 2102 or GRMN 2103 or written consent of department head.

GRMN 3202 Advanced German 1 (A) 3 cr +3.0  
Modern German usage through conversation, writing and practical exercises; study of contemporary fictional and non-fictional texts and films. Emphasis on vocabulary and structural and stylistic problems. Reaches the B1.1 level of the Common European Framework of Reference for Languages. May not be held with GRMN 3201 or the former 3200. Prerequisite: one of GRMN 2104, GRMN 2105, the former GRMN 2100, or GRMN 2101, or written consent of department head.

GRMN 3204 Advanced German 2 (A) 3 cr +3.0  
Modern German usage through conversation, writing and practical exercises; study of contemporary fictional and non-fictional texts and films. Emphasis on vocabulary and structural and stylistic problems. Reaches the B1.2 level of the Common European Framework of Reference for Languages. May not be held with GRMN 3201 or the former GRMN 3200. Prerequisites: ~~GRMN 3201 or~~ GRMN 3202 or written consent of department head.

GRMN 3206 Advanced German 3 (A) 3 cr +3.0  
Advanced work on various aspects of the German language, involving intensive practice in writing and conversational skills; translation of literary and non-literary materials from and into German; and exercise in stylistic and structural analysis of literary and non-literary German in a variety of registers and contexts. May not be held with the former GRMN 3220. Prerequisite: GRMN 3204 or GRMN 3201 or the former GRMN 3200.

POL 1892 Introductory Polish 1 3 cr +3.0  
(Lab required) The course is intended for students with little or no previous knowledge of Polish. Basic grammar is included, but emphasis is placed on the development of broad reading and speaking skills. May not be held with the former POL 1890.

POL 1894 Introductory Polish 2 3 cr +3.0  
(Lab required) The course is intended for students with some knowledge of Polish. Emphasis is placed on oral practice, grammar, reading, and writing. May not be held with the former POL 1890. Prerequisite: POL 1892 or written consent by department head.

POL 2892 Intermediate Polish 1 3 cr +3.0  
This course covers oral practice, grammar review, and composition at the intermediate level. It is intended for students who have completed an Introductory Polish course as well as heritage learners. May not be held with the former POL 2890. Prerequisite: POL 1894 or the former POL 1890 or written consent of department head.

POL 2894 Intermediate Polish 2 3 cr +3.0  
This course is intended for students with intermediate-level knowledge of Polish language and heritage. The course covers oral practice, grammar review, composition, translation, and readings of selected prose and poetry. May not be held with the former POL 2890. Prerequisite: POL 2892 or the former POL 1890 or written consent of department head.

RUSN 1302 Introductory Russian 1 3 cr +3.0  
(Lab required) Basic grammar, conversation and reading with emphasis on communication skills. Not open to native speakers and students with high school Russian credit. May not be held with the former RUSN 1300.

RUSN 1304 Introductory Russian 2 3 cr +3.0  
(Lab required) This course develops basic reading, writing, and conversational skills. It is intended for students who have knowledge of the alphabet as well as elementary reading, comprehension, and writing skills equivalent to those achieved in RUSN 1302. May not be held with the former RUSN 1300 or the former RUSN 1330. Prerequisite: RUSN 1302 or written consent of department head.

RUSN 2812 Intermediate Russian 1 3 cr +3.0  
Intermediate grammar review, reading, writing and conversation. Development of communication skills through oral and written exercises. Cultural content is introduced through use of audio-visual materials. The course is intended for students who already have basic comprehension, communication and writing skills. May not be held with the former RUSN 2810 or the former RUSN 2820. Prerequisite: One of RUSN 1304, the former RUSN 1300, the former RUSN 1330, Russian 41G, or written consent of department head.

RUSN 2814 Intermediate Russian 2 3 cr +3.0  
Intermediate grammar review, reading, writing, and conversation. Development of communication skills through communicative exercises. Cultural content is introduced through use of audio-visual materials. The course is intended for students who already have good skills at comprehension, communication and writing on the Intermediate level. May not be held with the former RUSN 2810 or the former RUSN 2820. Prerequisite: RUSN 2812 or written consent of the department head.

UKRN 1312 Introductory Ukrainian 1 3 cr +3.0  
(Lab required) Basic grammar, conversation, composition and reading. Emphasis is placed on communication skills. Cultural content is introduced through a range of audio-visual materials. Not open to native speakers and students with high school Ukrainian credit. May not be held with the former UKRN 1310 or the former UKRN 1320.

UKRN 1314 Introductory Ukrainian 2 3 cr +3.0  
(Lab required) This course provides an introductory study phonetics, grammar, and vocabulary. The course is intended for students who already have a knowledge of the alphabet and the sound system and elementary oral comprehension and reading, writing, and speaking skills. May not be held with the former UKRN 1310 and the former UKRN 1320. Prerequisite: UKRN 1312 or written consent of the department head.

UKRN 2722 Intermediate Ukrainian 1 3 cr +3.0  
Grammar review, conversation, translation and reading of selected texts. Development of communication skills through practical exercises. Cultural content is introduced through audio-visual materials. May not be held with the former UKRN 2720 or the former UKRN 2730. Prerequisite: one of UKRN 1314, the former UKRN 1310, the former UKRN 1320, or written consent of the department head.

UKRN 2724 Intermediate Ukrainian 2 3 cr +3.0  
This course provides grammar review, conversation, translation, and reading of selected texts. The course is intended for students who already have basic oral comprehension and reading, writing, and speaking skills. May not be held with the former UKRN 2720 or the former UKRN 2730. Prerequisite: UKRN 2722 or written consent of the department head.

Modifications:

GRMN 2140 Exploring German Literature (B) 3 cr 0.0  
Language of instruction: German. In this intermediate course, we will read and discuss a number of works belonging to different literary genres by major German-speaking authors, such as Kafka, Mann, Brecht, Böll, Grass, Jelinek, Wolf, and others. Activities and assignments in this course will focus on the development of reading competency in different literary genres, the expansion of students' German vocabulary, and the development of German written and oral expression. Prerequisite: [one of GRMN 2104, GRMN 2105, GRMN 3201, GRMN 3204, the former GRMN 2100, the former GRMN 2101, or the former GRMN 3200] or written consent of department head.

GRMN 2480 Special Topics in German (B) 3 cr 0.0  
Language of instruction: German. Topics dealing with German literature and culture. Course content will vary from year to year depending on the interests and needs of students and staff. Students can earn multiple credits for this course only when the topic subtitle is different. Prerequisite: [one of GRMN 2104, GRMN 2105, GRMN 3201, GRMN 3204, the former GRMN 2100, the former GRMN 2101, or the former GRMN 3200] or written consent of department head.

GRMN 3230 Applied German for the Workplace (A) 3 cr 0.0  
This course presents an introduction to the language typically used in business and professional settings in German-speaking countries and helps students develop a better understanding of the German corporate culture. Students will practice reading, writing, listening, and speaking on topics relevant to the German-language business environment, expanding specific vocabulary and reviewing some grammar points to further accuracy and fluency, with the goal of gaining proficiency in a professional German surrounding. May not be held with GRMN 3211. Prerequisite: [one of GRMN 2104, GRMN 2105, the former GRMN 2100, the former GRMN 2101, GRMN 3201, GRMN 3204, or the former GRMN 3200] or written consent of department head.

- GRMN 3232 Introduction to German Translation (A) 3 cr 0.0  
 Language of instruction: German. An introduction to the art of translation (German to English) with a focus on translation principles, language analysis, and hands-on translation of texts from a variety of fields. Prerequisite: [GRMN 3204 or GRMN 3201 or the former GRMN 3200] or written consent of department head.
- GRMN 3234 Special Topics in German Language (A) 3 cr 0.0  
 Language of instruction: German. Topics dealing with learning the German language. Advanced German language practice. Course content will vary from year to year depending on the interests and needs of students and staff. Students can earn multiple credits for this course only when the topic subtitle is different. Prerequisite: [GRMN 3204 or GRMN 3201 or the former GRMN 3200] or written consent of department head.
- GRMN 3240 German Enlightenment and Classicism (B) 3 cr 0.0  
 Language of instruction: German. A study of selected texts of the German Enlightenment and Classicism, including works by Lessing, Schiller, Goethe and others; advanced language practice. Prerequisite: [one of GRMN 2140, GRMN 3201, GRMN 3204, or the former GRMN 3200] or written consent of department head.
- GRMN 3250 German Romanticism (B) 3 cr 0.0  
 Language of instruction: German. Study of selected fairy tales, novellas, letters, poetry and other texts by authors such as Novalis, Tieck, E.T.A. Hoffmann, and Kleist; topics discussed include the relationship between Enlightenment and Romanticism, the role of women, the discovery of the uncanny, the role of the fantastic, and romantic vampires, advanced language practise. Prerequisite: [one of GRMN 2140, GRMN 3201, GRMN 3204, or the former GRMN 3200] or written consent of department head.
- GRMN 3260 Representations of the Holocaust (B) 3 cr 0.0  
 Language of instruction: German. This course will focus on the literary rendering, including film versions and German memorial culture, of the Holocaust experience by authors from the German-speaking countries, such as Anna Seghers, Jurek Becker, Paul Celan, Max Frisch, Peter Weiss, Ruth Klüger, W.G. Sebald, and others. May not be held with GRMN 3262. Prerequisite: [one of GRMN 2140, GRMN 3201, GRMN 3204, or the former GRMN 3200] or written consent of department head.
- GRMN 3290 History in Literature in German-Speaking Countries (B) 3 cr 0.0  
 Language of instruction: German. Analyzes how history is represented and remembered in literature and other genres. The course will focus on the representation of one historical period such as the Weimar Republic or the Nazi Third Reich. Please consult the instructor for details on which historical period as it appears in literature will be considered. Prerequisite: [one of GRMN 2140, GRMN 3201, GRMN 3204, or the former GRMN 3200] or written consent of department head.
- GRMN 3500 Special Topics in German (B) 3 cr 0.0  
 Language of instruction: German. Topics dealing with German literature and culture. Course content will vary from year to year depending on interests and needs of students and staff. Students can earn multiple credits for this course only when the topic subtitle is different. Prerequisite: [one of GRMN 2140, GRMN 3201, GRMN 3204, the former GRMN 3200] or written consent of department head.

POL 3892 Advanced Polish: Conversational Practice 3 cr 0.0  
Development of skills in spoken and written Polish, within the context of contemporary Polish culture, via a variety of sources, such as: news articles, comics, music. May not be held with the former POL 3890. Prerequisite: POL 2894 or the former POL 2890, or written consent of department head.

POL 3894 Advanced Polish Through Short Stories 3 cr 0.0  
Development of advanced language skills: writing, reading, listening comprehension, and speaking. Exploration and analysis of Polish cultural tropes within the context of short stories. May not be held with the former POL 3890. Prerequisite: POL 2894 or the former POL 2890 or written consent of department head.

RUSN 2630 Russian Language Seminar Abroad 3 cr 0.0  
The study of Russian language, literature and culture at an intensive language school in Eastern Europe. Designed for students aiming at near native fluency. Prerequisite: One of RUSN 1304, the former RUSN 1300, the former RUSN 1330, or written consent of department head.

RUSN 2830 Special Topics in Russian 3 cr 0.0  
A study of the Russian language through listening, reading, writing, and conversation, with a strong cultural component. The content of this course will vary from year to year, depending on the needs and interests of the students and staff. Students can earn multiple credits for this course only when the topic subtitle is different. Prerequisite: one of RUSN 1304, the former RUSN 1300, the former RUSN 1330, RUSN 2814, the former RUSN 2810, the former RUSN 2820, or written consent of department head.

RUSN 3100 Advanced Russian Grammar and Conversation 3 cr 0.0  
Advanced speaking, composition, translation, and reading through a study of selected literary and other texts. Development of overall communication skills. May not be held with the former RUSN 3200 or the former RUSN 3930. Prerequisite: one of RUSN 2814, the former RUSN 2810, the former RUSN 2820, or written consent of department head.

RUSN 3110 Advanced Russian Through Film 3 cr 0.0  
Advanced composition, translation, reading, and speaking through a study of selected films. Development of overall communication skills. May not be held with the former RUSN 3210, or the former RUSN 3930, or the former RUSN 3940. Prerequisite: one of RUSN 2814, the former RUSN 2810, the former RUSN 2820, or written consent of department head.

RUSN 3220 Selected Topics in Russian 3 cr 0.0  
Language of instruction: Russian. Advanced study of the Russian language through reading and analysis of literary or/and non-fictional texts including academic writing. The content of this course will vary from year to year, depending on the needs and interests of instructors and students. Students can earn multiple credits for this course only when the topic subtitle is different. Prerequisite: one of RUSN 2814, RUSN 3210, the former RUSN 3200, the former RUSN 2810, the former RUSN 2820, the former RUSN 3930, the former RUSN 3940, or written consent of department head.

RUSN 3580 Russian Poetry 3 cr 0.0  
Language of instruction: Russian. A study of major Russian poetry from the 19th to 21st century, including works by Pushkin, Lermontov, Tiutchev, Fet, Blok, Mayakovsky, Akhmatova, Esenin, Evtushenko, Gandlevsky, etc. Prerequisite: one of RUSN 2814, the former RUSN 2810, the former RUSN 2820, or written consent of department head.

UKRN 2260 Ukrainian Culture Seminar Abroad 3 cr 0.0  
This course is a study experience in Ukraine. The course features extensive exploration of contemporary Ukrainian culture. The course is taught in English. Prerequisite: one of UKRN 1314, the former UKRN 1310, the former UKRN 1320, or written consent of the department head.

UKRN 3440 Ukrainian Poetry 3 cr 0.0  
A study of some of the best Ukrainian poetry with a particular emphasis on the modern period. Lectures and readings in Ukrainian. Prerequisite: one of UKRN 1314, the former UKRN 1310, the former UKRN 1320, or written consent of department head.

UKRN 3952 Advanced Ukrainian Conversational Practice 3 cr 0.0  
Development of oral and comprehension skills within the context of contemporary Ukrainian living culture via a variety of sources, such as: short stories, news articles, comics, cartoons, films, music, etc. May not be held with the former UKRN 3950. Prerequisite: one of UKRN 2724, the former UKRN 2720, the former UKRN 2730, or written consent of department head.

UKRN 3962 Advanced Ukrainian Through Short Stories 3 cr 0.0  
Development of advanced language skills in modern Ukrainian: writing, reading, listening comprehension, and speaking. Continued work in advanced composition, translation, readings and study of selected literary and other texts within the context of short stories. May not be held with the former UKRN 3960. Prerequisite: one of UKRN 2724, the former UKRN 2720, the former UKRN 2730, or written consent of department head.

## **NET CHANGE IN CREDIT HOURS: -12.0**

Program modifications:

Modifications to the programs listed below are detailed on the next 11 pages:

- **Bachelor of Arts (General Major) in German**
- **Bachelor of Arts (Single Advanced Major) in German**
- **Bachelor of Arts (Single Advanced Major) in German, Co-operative Education Option**
- **Bachelor of Arts (Double Advanced Major) in German**
- **Bachelor of Arts (Single Honours) in German**
- **Bachelor of Arts (Single Honours) in German, Co-operative Education Option**
- **Bachelor of Arts (Double Honours) in German**

## German and Slavic Studies Program Modification

The Department of German proposes a modification to the B.A. Gen Major, B.A. Single Adv Major (inc. co-op), B.A. Dbl Adv Major, B.A Single Hons (inc. co-op), B.A. Dbl Hons

### Added Material

### Deleted Material

## German, B.A. General Major Degree Requirements

Years 1-3	Hours
30 credit hours of German to include: <sup>1,2</sup>	30
<del>GRMN 1120</del> <del>Beginning German (A)</del> <sup>2</sup>	
<b>GRMN 1122</b> <b>Introductory German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 1124</b> <b>Introductory German 2 (A)</b> <sup>1,2</sup>	
<del>GRMN 2100</del> <del>Intermediate German (A)</del> <sup>3</sup>	
<b>GRMN 2102</b> <b>Intermediate German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 2104</b> <b>Intermediate German 2 (A)</b> <sup>1,2</sup>	
<del>GRMN 3200</del> <del>Deutsche Sprachpraxis 1 (A)</del>	
<b>GRMN 3202</b> <b>Advanced German 1(A)</b> <sup>1,2</sup>	
<b>GRMN 3204</b> <b>Advanced German 2 (A)</b> <sup>1</sup>	
At least one of:	
<del>GRMN 2120</del> <del>Introduction to German Culture from 1918 to the Present (C)</del>	
or	
<del>GRMN 2130</del> <del>Introduction to German Culture from the Beginnings to 1918 (C)</del>	
or	
<del>GRMN 2140</del> <del>Exploring German Literature (B)</del>	
Within the required credit hours in German, 3 credit hours must be from Category B courses and a further 3 credit hours must be from Categories B or C courses	
18 credit hours from your Minor area of study as described in that unit's section of the calendar	18
30 credit hours from outside of your Major and Minor areas of study	30
12 credit hours of open electives	12

Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation

<b>Hours</b>	<b>90</b>
<b>Total Hours</b>	<b>90</b>

- <sup>1</sup> **The former GRMN 1120 can be used in place of (GRMN 1122 and GRMN 1124), the former GRMN 2100 can be used in place of (GRMN 2102 and GRMN 2104), and the former GRMN 3200 can be used in place of (GRMN 3202 and GRMN 3204).**
- <sup>2</sup> **Students with superior language ability in German will not be required (nor permitted) to complete some or all of the Introductory or Intermediate German language courses (GRMN 1122, GRMN 1124, GRMN 2102 or GRMN 2104). These students will consult with a German language Instructor or the Head of the Department of German and Slavic Studies to determine which of the German language courses they will be required to complete in order to satisfy their degree requirements. Any of the Introductory or Intermediate GRMN courses students do not complete need to be replaced by other GRMN courses or YDSH 1220.**
- <sup>4</sup> ~~Students with superior language ability in German, who did not have to complete **6 credit hours in either Beginning German or Intermediate German** either GRMN 1120 or GRMN 2100 can replace GRMN 1120 or GRMN 2100 **these courses** with either 6 credit hours in German courses or with YDSH 1220.~~
- <sup>2</sup> ~~Students with superior language ability will not be required to complete **6 credit hours in Beginning German** GRMN 1120 if they complete either GRMN 2100 or GRMN 3200 **GRMN 2104 or GRMN 3204** with a minimum grade of "C".~~
- <sup>3</sup> ~~Students with superior language ability will not be required to complete **6 credit hours of Intermediate German** GRMN 2100 if they complete GRMN 3200 **GRMN 3204** with a minimum grade of "C".~~

**Other:**

German courses are arranged into categories as follows:

- Category A: Language courses
- Category B: Literature, Culture and Applied Linguistics courses conducted in German
- Category C: Literature, Culture and Applied Linguistics courses conducted in English



**German, B.A. Single Advanced Major  
Degree Requirements  
(including Co-operative Education Option if selected)**

Years 1-4	Hours
48 credit hours of German (of which at least 15 credit hours must be German courses numbered at or above the 3000 level and an additional 21 credit hours at or above the 2000 level) to include <sup>1,2</sup> :	48
<u>GRMN 1120</u> <del>Beginning German (A)</del> <sup>1,2</sup>	
<b>GRMN 1122</b> <b>Introductory German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 1124</b> <b>Introductory German 2 (A)</b> <sup>1,2</sup>	
<u>GRMN 2100</u> <del>Intermediate German (A)</del> <sup>1,2,3</sup>	
<b>GRMN 2102</b> <b>Intermediate German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 2104</b> <b>Intermediate German 2 (A)</b> <sup>1,2</sup>	
<u>GRMN 2120</u> Introduction to German Culture from 1918 to the Present (C)	
or <u>GRMN 2130</u> or Introduction to German Culture from the Beginnings to 1918 (C)	
<u>GRMN 2140</u> Exploring German Literature (B)	
or <u>GRMN 2480</u> or Special Topics in German (B)	
<u>GRMN 3200</u> <del>Deutsche Sprachpraxis 1 (A)</del> <sup>2,3</sup>	
<b>GRMN 3202</b> <b>Advanced German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 3204</b> <b>Advanced German 2 (A)</b> <sup>1</sup>	
Within the required credit hours in German, 9 credit hours must be from Category B courses and a further 15 credit hours must be from Category B or C courses	
18 credit hours from your Minor area of study as described in that unit's section of the calendar	18
42 credit hours from outside of your Major and Minor areas of study	42
12 credit hours of open electives	12
Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation	
<b>Hours</b>	<b>120</b>
<b>Total Hours</b>	<b>120</b>

## CO-OPERATIVE EDUCATION OPTION

Years 3-4		Hours
If the Co-operative Education Option is selected, time to completion will be extended by 12 months and the following three, 1 credit hour work term courses will count toward the open elective credit required in this program:		
<u>ARTS 3010</u>	Arts Co-operative Option 1	1
<u>ARTS 3020</u>	Arts Co-operative Option 2	1
<u>ARTS 3030</u>	Arts Co-operative Option 3	1
<b>Hours</b>		<b>3</b>
<b>Total Hours</b>		<b>3</b>

- <sup>1</sup> **The former GRMN 1120 can be used in place of (GRMN 1122 and GRMN 1124), the former GRMN 2100 can be used in place of (GRMN 2102 and GRMN 2104), and the former GRMN 3200 can be used in place of (GRMN 3202 and GRMN 3204).**
- <sup>2</sup> **Students with superior language ability in German will not be required (nor permitted) to complete some or all of the Introductory or Intermediate German language courses (GRMN 1122, GRMN 1124, GRMN 2102 or GRMN 2104). These students will consult with a German language Instructor or the Head of the Department of German and Slavic Studies to determine which of the German language courses they will be required to complete in order to satisfy their degree requirements. Any of the Introductory or Intermediate GRMN courses students do not complete need to be replaced by other GRMN courses or YDSH 1220.**
- <sup>42</sup> ~~Students with superior language ability in German, who did not have to complete **6 credit hours in either Beginning German or Intermediate German** either GRMN 1120 or GRMN 2100 can replace GRMN 1120 or GRMN 2100 **these courses** with either 6 credit hours in German courses or with YDSH 1220.~~
- <sup>23</sup> ~~Students with superior language ability will not be required to complete **6 credit hours in Beginning German** GRMN 1120 if they complete either GRMN 2100 or GRMN 3200 **GRMN 2104 or GRMN 3204** with a minimum grade of "C".~~
- <sup>34</sup> ~~Students with superior language ability will not be required to complete **6 credit hours of Intermediate German** GRMN 2100 if they complete GRMN 3200 **GRMN 3204** with a minimum grade of "C".~~

## German, B.A. Double Advanced Major

Years 1-4	Hours
42 credit hours of German (of which at least 12 credit hours must be German courses numbered at or above the 3000 level and an additional 18 credit hours at or above the 2000 level) to include:	42
<del>GRMN 1120</del> <b>Beginning German (A)</b> <sup>1,2</sup>	
<b>GRMN 1122</b> <b>Introductory German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 1124</b> <b>Introductory German 2 (A)</b> <sup>1,2</sup>	
<del>GRMN 2100</del> <b>Intermediate German (A)</b> <sup>1,2,3</sup>	
<b>GRMN 2102</b> <b>Intermediate German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 2104</b> <b>Intermediate German 2 (A)</b> <sup>1,3,2</sup>	
<u>GRMN 2120</u> Introduction to German Culture from 1918 to the Present (C) or <u>GRMN 2130</u> or Introduction to German Culture from the Beginnings to 1918 (C)	
<u>GRMN 2140</u> Exploring German Literature (B) or <u>GRMN 2480</u> or Special Topics in German (B)	
<del>GRMN 3200</del> <b>Deutsche Sprachpraxis 1 (A)</b> <sup>2,3</sup>	
<b>GRMN 3202</b> <b>Advanced German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 3204</b> <b>Advanced German 2 (A)</b> <sup>1</sup>	
Within the required credit hours in German, 6 credit hours must be from Category B courses and a further 12 credit hours must be from Category B or C courses	
42 credit hours in the second Advanced Major subject field as described in that unit's section of the calendar	42
36 credit hours from outside both Advanced Major subject fields	36
Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation	
<b>Hours</b>	<b>120</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> **The former GRMN 1120 can be used in place of (GRMN 1122 and GRMN 1124), the former GRMN 2100 can be used in place of (GRMN 2102 and GRMN 2104), and the former GRMN 3200 can be used in place of (GRMN 3202 and GRMN 3204).**

- 2 Students with superior language ability in German will not be required (nor permitted) to complete some or all of the Introductory or Intermediate German language courses (GRMN 1122, GRMN 1124, GRMN 2102 or GRMN 2104). These students will consult with a German language Instructor or the Head of the Department of German and Slavic Studies to determine which of the German language courses they will be required to complete in order to satisfy their degree requirements. Any of the Introductory or Intermediate GRMN courses students do not complete need to be replaced by other GRMN courses or YDSH 1220.**
- <sup>12</sup> ~~Students with superior language ability in German, who did not have to complete **6 credit hours in either Beginning German or Intermediate German** either GRMN 1120 or GRMN 2100 can replace GRMN 1120 or GRMN 2100 **these courses** with either 6 credit hours in German courses or with YDSH 1220.~~
- <sup>23</sup> ~~Students with superior language ability will not be required to complete **6 credit hours in Beginning German** GRMN 1120 if they complete either GRMN 2100 or GRMN 3200 **GRMN 2104 or GRMN 3204** with a minimum grade of "C".~~
- <sup>34</sup> ~~Students with superior language ability will not be required to complete **6 credit hours of Intermediate German** GRMN 2100 if they complete GRMN 3200 **GRMN 3204** with a minimum grade of "C".~~

German courses are arranged into categories as follows:

- Category A: Language courses
- Category B: Literature, Culture and Applied Linguistics courses conducted in German
- Category C: Literature, Culture and Applied Linguistics courses conducted in English

**German, B.A. Single Honours  
Degree Requirements  
(including Co-operative Option if selected)**

Years 1-4		Hours
36 credit hours of German (of which at least 24 credit hours must be German courses numbered at or above the 2000 level) to include:		36
<del>GRMN 1120</del>	<del>Beginning German (A)</del> <sup>1,2</sup>	
<b>GRMN 1122</b>	<b>Introductory German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 1124</b>	<b>Introductory German 2 (A)</b> <sup>1,2</sup>	
<del>GRMN 2100</del>	<del>Intermediate German (A)</del> <sup>1,2,3</sup>	
<b>GRMN 2102</b>	<b>Intermediate German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 2104</b>	<b>Intermediate German 2 (A)</b> <sup>1,2</sup>	
<u>GRMN 2120</u>	Introduction to German Culture from 1918 to the Present (C)	
or <u>GRMN 2130</u>	or Introduction to German Culture from the Beginnings to 1918 (C)	
<u>GRMN 2140</u>	Exploring German Literature (B)	
or <u>GRMN 2480</u>	or Special Topics in German (B)	
<del>GRMN 3200</del>	<del>Deutsche Sprachpraxis 1 (A)</del> <sup>2,3</sup>	
<b>GRMN 3202</b>	<b>Advanced German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 3204</b>	<b>Advanced German 2 (A)</b> <sup>1</sup>	
<u>GRMN 4600</u>	Senior Seminar in German Studies (B) <sup>43</sup>	3
<u>GRMN 4570</u>	Honours Thesis in German Studies (B,C)	3
6 credit hours in German courses numbered at the 3000 or 4000 level		6
6 credit hours in German courses at the 4000 level		6
Within the required credit hours in German, 15 credit hours must be from Category B courses and a further 15 credit hours must be from Categories B or C courses		
24 credit hours of ancillary options <sup>54</sup>		24
42 credit hours of free options <sup>65</sup>		42
Refer to the information directly below this list for other important degree requirements that B.A. Honours students must satisfy for graduation.		
<b>Hours</b>		<b>120</b>
<b>Total Hours</b>		<b>120</b>

## CO-OPERATIVE EDUCATION OPTION

Years 3-4		Hours
If the Co-operative Education Option is selected, time to completion will be extended by 12 months and the following three, 1 credit hour work term courses will count toward the ancillary option credit required in this program:		
<u>ARTS 3010</u>	Arts Co-operative Option 1	1
<u>ARTS 3020</u>	Arts Co-operative Option 2	1
<u>ARTS 3030</u>	Arts Co-operative Option 3	1
<b>Hours</b>		<b>3</b>
<b>Total Hours</b>		<b>3</b>

- <sup>1</sup> **The former GRMN 1120 can be used in place of (GRMN 1122 and GRMN 1124), the former GRMN 2100 can be used in place of (GRMN 2102 and GRMN 2104), and the former GRMN 3200 can be used in place of (GRMN 3202 and GRMN 3204).**
- <sup>2</sup> **Students with superior language ability in German will not be required (nor permitted) to complete some or all of the Introductory or Intermediate German language courses (GRMN 1122, GRMN 1124, GRMN 2102 or GRMN 2104). These students will consult with a German language Instructor or the Head of the Department of German and Slavic Studies to determine which of the German language courses they will be required to complete in order to satisfy their degree requirements. Any of the Introductory or Intermediate GRMN courses students do not complete need to be replaced by other GRMN courses or YDSH 1220.**
- <sup>42</sup> ~~Students with superior language ability in German, who did not have to complete **6 credit hours in either Beginning German or Intermediate German** either GRMN 1120 or GRMN 2100 can replace GRMN 1120 or GRMN 2100 **these courses** with either 6 credit hours in German courses or with YDSH 1220.~~
- <sup>23</sup> ~~Students with superior language ability will not be required to complete **6 credit hours in Beginning German** GRMN 1120 if they complete either GRMN 2100 or GRMN 3200 **GRMN 2104 or GRMN 3204** with a minimum grade of "C".~~
- <sup>34</sup> ~~Students with superior language ability will not be required to complete **6 credit hours of Intermediate German** GRMN 2100 if they complete GRMN 3200 **GRMN 3204** with a minimum grade of "C".~~
- <sup>43</sup> With written consent of department head, students may substitute GRMN 4600 with GRMN 4200.
- <sup>54</sup> Ancillary options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (excluding German courses in the Single Honours and excluding German and the second Honours field courses in the Double Honours).

<sup>65</sup> Free options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (including German courses).

**Notes:**

- Honours courses: all 4000 level courses.

**Other:**

German courses are arranged into categories as follows:

- Category A: Language courses
- Category B: Literature, Culture and Applied Linguistics courses conducted in German
- Category C: Literature, Culture and Applied Linguistics courses conducted in English

**German, B.A. Double Honours**

**Degree Requirements**

Years 1-4		Hours
30 credit hours of German (of which at least 18 credit hours must be German courses numbered at the 2000, 3000, or 4000 level) to include: <sup>42</sup>		30
<del>GRMN 1120</del>	<del>Beginning German (A)</del> <sup>2</sup>	
<b>GRMN 1122</b>	<b>Introductory German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 1124</b>	<b>Introductory German 2 (A)</b> <sup>1,2</sup>	
<del>GRMN 2100</del>	<del>Intermediate German (A)</del> <sup>3</sup>	
<b>GRMN 2102</b>	<b>Intermediate German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 2104</b>	<b>Intermediate German 2 (A)</b> <sup>1,2</sup>	
<u>GRMN 2120</u>	Introduction to German Culture from 1918 to the Present (C)	
or <u>GRMN 2130</u>	or Introduction to German Culture from the Beginnings to 1918 (C)	
<u>GRMN 2140</u>	Exploring German Literature (B)	
or <u>GRMN 2480</u>	or Special Topics in German (B)	
<del>GRMN 3200</del>	<del>Deutsche Sprachpraxis 1 (A)</del>	
<b>GRMN 3202</b>	<b>Advanced German 1 (A)</b> <sup>1,2</sup>	
<b>GRMN 3204</b>	<b>Advanced German 2 (A)</b> <sup>1</sup>	
<u>GRMN 4600</u>	Senior Seminar in German Studies (B) <sup>43</sup>	3
<u>GRMN 4570</u>	Honours Thesis in German Studies (B,C)	3
3 credit hours in German numbered at the 3000 or 4000 level		3
3 credit hours in German numbered at the 4000 level		3

Within the required credit hours in German, 12 credit hours must be from Category B courses and a further 6 credit hours must be from Categories B or C courses

42 credit hours in second Honours field as described in that unit's section of the calendar	42
6 credit hours in ancillary options <sup>54</sup>	6
30 credit hours in free options <sup>65</sup>	30

Refer to the information directly below this list for other important degree requirements that B.A. Honours students must satisfy for graduation.

<b>Hours</b>	<b>120</b>
<b>Total Hours</b>	<b>120</b>

- <sup>1</sup> **The former GRMN 1120 can be used in place of (GRMN 1122 and GRMN 1124), the former GRMN 2100 can be used in place of (GRMN 2102 and GRMN 2104), and the former GRMN 3200 can be used in place of (GRMN 3202 and GRMN 3204).**
- <sup>2</sup> **Students with superior language ability in German will not be required (nor permitted) to complete some or all of the Introductory or Intermediate German language courses (GRMN 1122, GRMN 1124, GRMN 2102 or GRMN 2104). These students will consult with a German language Instructor or the Head of the Department of German and Slavic Studies to determine which of the German language courses they will be required to complete in order to satisfy their degree requirements. Any of the Introductory or Intermediate GRMN courses students do not complete need to be replaced by other GRMN courses or YDSH 1220.**
- <sup>4</sup> ~~Students with superior language ability in German, who did not have to complete **6 credit hours in either Beginning German or Intermediate German** either GRMN 1120 or GRMN 2100 can replace GRMN 1120 or GRMN 2100 **these courses** with either 6 credit hours in German courses or with YDSH 1220.~~
- <sup>2</sup> ~~Students with superior language ability will not be required to complete **6 credit hours in Beginning German** GRMN 1120 if they complete either GRMN 2100 or GRMN 3200 **GRMN 2104 or GRMN 3204** with a minimum grade of "C".~~
- <sup>3</sup> ~~Students with superior language ability will not be required to complete **6 credit hours of Intermediate German** GRMN 2100 if they complete GRMN 3200 **GRMN 3204** with a minimum grade of "C".~~
- <sup>43</sup> With written consent of department head, students may substitute GRMN 4600 with GRMN 4200.
- <sup>54</sup> Ancillary options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (excluding German courses in the Single Honours, and excluding German and the second Honours field courses in the Double Honours).
- <sup>65</sup> Free options are to be chosen from courses that are acceptable for credit in the Faculty of Arts (including German courses).



**Notes:**

- Honours courses: all 4000 level courses.
- If the second Honours field chosen is either Economics or Sociology, students need to be aware that these two departments require an additional 3 credit hours of required course work in their Double Honours programs.

**Other:**

German courses are arranged into categories as follows:

- Category A: Language courses
- Category B: Literature, Culture and Applied Linguistics courses conducted in German
- Category C: Literature, Culture and Applied Linguistics courses conducted in English

Program modifications:

Modifications to the programs listed below are detailed on the next 4 pages:

- **Bachelor of Arts (General Major) in Russian**
- **Bachelor of Arts (General Major) in Ukrainian**

German and Slavic Studies Program Modification

- Modification to the Russian, B.A. General Major.

**Added Material**

~~Deleted Material~~

**Russian, B.A. General Major  
Degree Requirements**

Years 1-3	Hours
30 credit hours of Russian to include:	30
<del>RUSN 1300</del>	<del>Introductory Russian<sup>-1</sup></del>
<del>or RUSN 1330</del>	<del>or Introductory Russian 2</del>
<b>RUSN 1302</b>	<b>Introductory Russian 1<sup>1,2</sup></b>
<b>RUSN 1304</b>	<b>Introductory Russian 2<sup>1,2</sup></b>
<del>RUSN 2810</del>	<del>Intermediate Russian<sup>-2</sup></del>
<del>or RUSN 2820</del>	<del>or Intermediate Russian 2</del>
<b>RUSN 2812</b>	<b>Intermediate Russian 1<sup>1,2</sup></b>
<b>RUSN 2814</b>	<b>Intermediate Russian 2<sup>1,2</sup></b>
6 credit hours from: <sup>3</sup>	
<u>RUSN 3100</u>	Advanced Russian Grammar and Conversation
<u>RUSN 3110</u>	Advanced Russian Through Film
<u>RUSN 3220</u>	Selected Topics in Russian
In addition to the above required courses, students must complete the balance of credit hours by taking courses in Russian (RUSN) or Slavic Studies (SLAV) or courses selected from List A	
18 credit hours from your Minor area of study as described in that unit's section of the calendar	18
30 credit hours from outside of your Major and Minor areas of study	30
12 credit hours of open electives	12
Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation	
<b>Hours</b>	<b>90</b>
<b>Total Hours</b>	<b>90</b>

<sup>1</sup> The former RUSN 1300 can be used in place of RUSN 1302 and RUSN 1304; the former RUSN 1330 can be used in place of RUSN 1304; the former RUSN 2810 can be used in place of RUSN 2812 and RUSN 2814; the former RUSN 2820 can be used in place of RUSN 2814.

<sup>2</sup> Students with superior language ability in Russian will not be required (nor permitted) to complete some or all of the Introductory or Intermediate Russian language courses (RUSN 1302, RUSN 1304, RUSN 2812 or RUSN 2814). These students will consult with a Russian language Instructor or the Head of the Department of German and Slavic Studies to determine which of the Russian language courses they will be required to complete in order to satisfy their degree requirements. Any of the Introductory or Intermediate RUSN courses students do not complete will be replaced by other RUSN courses.

- <sup>4</sup> ~~With written consent from the department head, students with superior language ability can substitute RUSN 1300 or RUSN 1330 with RUSN 2810 or RUSN 2820 **6 credit hours in Introductory Russian with 6 credit hours in Intermediate Russian.**~~
- <sup>2</sup> ~~With written consent from the department head, students with superior language ability can substitute RUSN 2810 or RUSN 2820 **6 credit hours in Intermediate Russian** with other 2000 or 3000 level Russian courses.~~
- <sup>3</sup> With written consent from the department head, other 3000 level Russian language courses may be approved for credit.

German and Slavic Studies Program Modification

- Modifications to the Ukrainian, B.A. General Major.

**Added Material**

~~Deleted Material~~

**Ukrainian, B.A. General Major  
Degree Requirements**

Years 1-3	Hours
30 credit hours of Ukrainian to include:	30
<del>UKRN 1310</del> <del>Introductory Ukrainian<sup>1</sup></del>	
<del>or UKRN 1320</del> <del>or Introductory Ukrainian<sup>2</sup></del>	
<b>UKRN 1312</b> <b>Introductory Ukrainian 1<sup>1,2</sup></b>	
<b>UKRN 1314</b> <b>Introductory Ukrainian 2<sup>1,2</sup></b>	
<del>UKRN 2720</del> <del>Intermediate Ukrainian<sup>2</sup></del>	
<del>or UKRN 2730</del> <del>or Intermediate Ukrainian<sup>2</sup></del>	
<b>UKRN 2722</b> <b>Intermediate Ukrainian 1<sup>1,2</sup></b>	
<b>UKRN 2724</b> <b>Intermediate Ukrainian 2<sup>1,2</sup></b>	
<del>UKRN 3952</del> <del>Advanced Ukrainian Conversational Practice<sup>3</sup></del>	
<del>UKRN 3962</del> <del>Advanced Ukrainian Through Short Stories<sup>3</sup></del>	
In addition to the above required courses, students must complete the balance of credit hours by taking Ukrainian (UKRN) or Slavic Studies (SLAV) courses or up to a maximum of 6 credit hours selected from List A	
18 credit hours from your Minor area of study as described in that unit's section of the calendar	18
30 credit hours from outside of your Major and Minor areas of study	30
12 credit hours of open electives	12
Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation	
<b>Hours</b>	<b>90</b>
<b>Total Hours</b>	<b>90</b>

- <sup>1</sup> The former UKRN 1310 can be used in place of UKRN 1312 and UKRN 1314; the former UKRN 1320 can be used in place of UKRN 1314; the former UKRN 2720 can be used in place of UKRN 2722 and UKRN 2724; the former UKRN 2730 can be used in place of UKRN 2724.
- <sup>2</sup> Students with superior language ability in Ukrainian will not be required (nor permitted) to complete some or all of the Introductory or Intermediate Ukrainian language courses (~~UKRN 1310, UKRN 1320, UKRN 2720 or UKRN 2730~~ **UKRN 1312, UKRN 1314, UKRN 2722, UKRN 2724**). These students will consult with a Ukrainian language Instructor or the Head of the Department of German and Slavic Studies to determine which of the Ukrainian language courses they will be required to complete in order to satisfy their degree requirements. Any of the Introductory or Intermediate UKRN courses students do not complete will be replaced by other UKRN or SLAV courses.
- <sup>1</sup> ~~With written consent from the department head, students with superior language ability can substitute UKRN 1310 or UKRN 1320 with UKRN 2720 or UKRN 2730 **6 credit hours in Introductory Ukrainian with 6 credit hours in Intermediate Ukrainian.**~~
- <sup>2</sup> ~~With written consent from the department head, students with superior language ability can substitute UKRN 2720 or UKRN 2730 **6 credit hours in Intermediate Ukrainian** with other 2000 or 3000 level Ukrainian courses.~~
- <sup>3</sup> With written consent from the department head, other 3000 level Ukrainian language courses may be approved for credit.

## History

Modification:

HIST 3800 History of Winnipeg (C) 3 cr

0.0

This course explores the history of Winnipeg. Topics covered will include Cree and Anishinaabeg histories around the forks of the Red and Assiniboine rivers, the development of Red River settlement, the creation of the settler colonial city of Winnipeg, histories of Indigenous people, women, and migrants, protest and politics in the city, and health and medicine. May not be held with the former HIST 3790 when titled "History of Winnipeg." Prerequisite: [a grade of "C" or better in six credit hours of history] or written consent of department head.

**NET CHANGE IN CREDIT HOURS: 0.0**

## Indigenous Studies

Program modifications:

Modifications to the programs **Bachelor of Arts (Single Advanced Major) in Indigenous Studies, Indigenous Governance Stream** are detailed on the next 2 pages.

## Department of Indigenous Studies

- Modification to Indigenous Governance Stream BA Single Advanced Major to remove FIN 3470 and MIS 2000.

### Added Material

~~Deleted Material~~

## Indigenous Governance, B.A. Single Advanced Major

### Degree Requirements

#### Indigenous Governance Steam

Years 1-4	Hours
Select either:	6
<u>INDG 1200</u> Indigenous Peoples in Canada	
or both of:	
<u>INDG 1220</u> Indigenous Peoples in Canada, Part 1 & <u>INDG 1240</u> and Indigenous Peoples in Canada, Part 2	3
Select one of:	3
<u>ECON 1010</u> Introduction to Microeconomic Principles	
<u>ECON 1210</u> Introduction to Canadian Economic Issues and Policies	
<u>ECON 1220</u> Introduction to Global and Environmental Economic Issues and Policies	
<u>INDG 2110</u> Introduction to Indigenous Community Development	3
<u>POLS 2702</u> Introduction to Canadian Politics	3
<u>POLS 2802</u> Introduction to Indigenous Politics	3
<u>STAT 1000</u> Basic Statistical Analysis 1	3
12 credit hours from the following Political Governance courses:	12
<u>INDG 2220</u> Indigenous Societies and the Political Process	
<u>INDG 3280</u> Indigenous Peoples and the Canadian Justice System	
<u>INDG 3310</u> Canadian Law and Indigenous Peoples	
<u>INDG 3370</u> Political Development in the North	
<u>INDG 4200</u> First Nations' Government	
<u>POLS 3872</u> Indigenous Governance	
12 credit hours from the following Indigenous Business and Economics courses:	12
<u>INDG 3120</u> Exploring Indigenous Economic Perspectives	
<u>INDG 3160</u> Fundraising for Indigenous Organizations	
<u>INDG 3350</u> Indigenous Organizations	
<u>INDG 4320</u> Indigenous Economic Leadership	
6 credit hours from the following Traditional Knowledge courses:	6
<u>INDG 2030</u> Working with Indigenous Elders	
<u>INDG 3330</u> Indigenous People, Science and the Environment	
<u>INDG 4220</u> Environment, Economy and Indigenous Peoples	
<u>INDG 4230</u> Traditional Knowledge and Indigenous Studies Research	



Required Minor in Business for those students in a declared Indigenous Governance Stream: <sup>1</sup>

<u>ACC 1100</u>	Introductory Financial Accounting	3
<u>GMGT 2060</u>	Management and Organizational Theory	3
<u>HRIR 2440</u>	Human Resource Management	3
<u>MKT 2210</u>	Fundamentals of Marketing	3

6 credit hours from the following Business courses to complete the Required Business Minor: <sup>1</sup>

<u>ACC 1110</u>	Introductory Managerial Accounting	
<u>ENTR 2010</u>	Managing the Smaller Business	
<u>ENTR 2020</u>	Starting a New Business	
<u>GMGT 2010</u>	Business Communications	
<u>GMGT 3300</u>	Commercial Law	
<u>LEAD 2010</u>	Learning to Lead	
<u>FIN 2200</u>	Corporate Finance	
<u>FIN 3470</u>	<del>Small Business Finance</del>	
<u>HRIR 4410</u>	Staffing and Management Development	
<u>MIS 2000</u>	<del>Information Systems for Management</del>	

42 credit hours from outside of your Major and Minor areas of study 42

9 credit hours of open electives 9

Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation

<b>Hours</b>	<b>120</b>
<b>Total Hours</b>	<b>120</b>

Plan of Study Grid

<sup>1</sup> Students must ensure that all course prerequisites are met when selecting courses for the Minor.

## Judaic Studies

Modifications to the **Minor (Concentration) in Judaic Studies** are detailed on the next 2 pages.

## Judaic Studies

- Modification to the List of courses available for use to satisfy the requirements of the Minor (Concentration) in Judaic Studies

### Added Material

### ~~Deleted Material~~

## LIST A: COURSES ACCEPTABLE FOR JUDAIC STUDIES CREDIT

With written consent of the program coordinator courses not on this list may be taken for credit if they include sufficient Judaic Studies content.

Course	Title	Hours
<b>Anthropology</b>		
<u>ANTH 2650</u>	Archaeology of the Ancient Near East	3
<b>Classics</b>		
<u>CLAS 3260</u>	Hellenistic Civilization: History and Archaeology	3
<u>GRK 2810</u>	Prose Writings of the Hellenistic and Greco-Roman Periods	3
<b>German and Slavic Studies</b>		
<u>GRMN 3260</u>	Representations of the Holocaust (B)	3
<u>GRMN 3262</u>	Representations of the Holocaust in English Translation (C)	3
<u>UKRN 2820</u>	Holodomor and Holocaust in Ukrainian Literature and Culture	3
<b>History</b>		
<u>HIST 2240</u>	History of Antisemitism and the Holocaust (E)	6
<u>HIST 2250</u>	Social History of the Jews: Antiquity to Present (G)	6
<u>HIST 3062</u>	German and German-Jewish History, 1618 to the Present (E)	6
<u>HIST 4500</u>	Jewish and European History and Historiography (E)	6
<b>Political Studies</b>		
<u>POLS 3340</u>	Middle East Politics	3
<u>POLS 3342</u>	Arab-Israeli Conflict	3
<b>Religion</b>		
<u>RLGN 1120</u>	Biblical Hebrew	6
<u>RLGN 1390</u>	Readings in Biblical Hebrew 1	3
<u>RLGN 1400</u>	Readings in Biblical Hebrew 2	3
<u>RLGN 2140</u>	Introduction to Judaism	3
<u>RLGN 2160</u>	Hebrew Bible (Tanakh/"Old Testament")	3
<u>RLGN 2162</u>	Great Jewish Books	3
<u>RLGN 2770</u>	Contemporary Judaism	3
<u>RLGN 3280</u>	Hasidism	3
<u>RLGN 3400</u>	Zionism: Religious Perspectives	3
<u>RLGN 3800</u>	Selected Old Testament Literature and Themes	6
<u>RLGN 3810</u>	<b>The Talmud: Judaism's challenging, controversial book of arguments</b>	3
<u>RLGN 3824</u>	<b>Kabbalah: Magic, Mythology, Mysticism</b>	3
<u>RLGN 3830</u>	The Bible as Story	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>RLGN 4300</u>	Advanced Topics in Judaism	3

Course List

## Labour Studies

Modifications to the following programs are detailed on the next 3 pages:

- **Bachelor of Arts (General Major) in Labour Studies**
- **Bachelor of Arts (Single Advanced Major) in Labour Studies**
- **Bachelor of Arts (Single Advanced Major) in Labour Studies, Co-operative Education Option**

## Labour Studies

- Updates to the list of electives in the BA General Major and Single Advanced Major (including co-op) because of proposals submitted by the Departments of History, and Asper School.

## Added Material

## ~~Deleted Material~~

## List of Electives

The following courses may be selected to fulfill the requirements for a degree in Labour Studies (see the table above for details). Other courses might be chosen for this purpose, in accordance with students' individual interests, but require advance permission from the Labour Studies coordinator. Students are responsible for ensuring that all prerequisites have been met.

Course	Course List Title	Hours
Faculty of Arts		
<b>Anthropology:</b>		
<u>ANTH 2510</u>	Anthropology of Economic Systems	3
<u>ANTH 3750</u>	Anthropological Perspectives on Globalization and the World-System	3
<b>Economics:</b>		
<u>ECON 2350</u>	Community Economic Development	3
<u>ECON 2362</u>	Economics of Gender	3
<u>ECON 2540</u>	Political Economy 1: Production and Distribution	3
<u>ECON 2550</u>	Political Economy 2: Economic Growth and Fluctuations in a Global Economic Environment	3
<u>ECON 3362</u>	Labour Economics 1	3
<u>ECON 3364</u>	Labour Economics 2	3
<b>History:</b>		
<u>HIST/LABR 2200</u>	Labour History: Canada and Beyond (C)	3
<u>HIST 2282</u>	Inventing Canada (C)	3
<u>HIST 2286</u>	Modern Canada (C)	3
<u>HIST 2288</u>	History of Social Movements in Canada (C)	3
<u>HIST 2400</u>	History of Human Rights and Social Justice in the Modern World (M)	3
<u>HIST 2670</u>	History of Capitalism (M)	3
<u>HIST 2671</u>	Histoire du capitalisme (T)	3
<u>HIST 2680</u>	A History of Socialism from the French Revolution to the Present (M)	3

Course List

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>HIST 2732</u>	Modern World History, 1945-1992: The Age of Three Worlds (M)	3
<u>HIST 2734</u>	Modern World History, 1980-Present: New World Order? (M)	3
<u>HIST 3052</u>	Canada since the 1960s (C)	3
<u>HIST 3054</u>	Canada and the United States (C)	3
<u>HIST 3212</u>	Global Sweatshops, Global Struggles (M)	3
<u>HIST 3576</u>	History of Women, Gender and Sexuality in Canada (C)	3
<u>HIST 3730</u>	A History of Western Canada (C)	6
<u>HIST 3800</u>	<b>History of Winnipeg from 1870-2000</b> (C)	3
<u>HIST 4890</u>	Canadian Social History (C)	6
<b>Indigenous Studies:</b>		
<u>INDG 3170</u>	Indigenous Peoples and Racism in Canada	3
<b>Philosophy:</b>		
<u>PHIL 2290</u>	Ethics and Society	6
<u>PHIL 2830</u>	Business Ethics	3
<b>Political Studies:</b>		
<u>POLS 3470</u>	Canadian Public Management	3
<u>POLS 3810</u>	Introduction to Marxism	3
<u>POLS 3940</u>	Canadian Public Policy	3
<u>POLS 4370</u>	Comparative Public Administration	3
<b>Sociology:</b>		
<u>SOC 2292</u>	Understanding Social Research	3
<u>SOC 2294</u>	Understanding Social Statistics	3
<u>SOC 3371</u>	Sociologie du travail	3
<u>SOC 3380</u>	Power, Politics and the Welfare State	3
<u>SOC 3471</u>	Sociologie politique	3
<u>SOC 3820</u>	Qualitative and Historical Methods in Sociology	3
<u>SOC 3871</u>	Inégalités sociales	3
<u>SOC 3890</u>	Power and Inequality in Comparative Perspective	3
<b>Women's and Gender Studies:</b>		
<u>WOMN 2500</u>	Race, Class and Sexuality	3
<u>WOMN 3100</u>	Sex Work in Contemporary Canadian Culture	3
<u>WOMN 3550</u>	Feminist Community Organizing: Theories and Practices	3
<b>I.H. Asper School of Business (Faculty of Management)</b>		
<b>Business Administration:</b>		
<u>GMGT 2060</u>	Management and Organizational Theory	3
<u>GMGT 2070</u>	Introduction to Organizational Behaviour	3

Course List

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>GMGT 3030</u>	<del>Contemporary Social Issues in Business</del>	<del>3</del>
<u>GMGT 4210</u>	Seminar in Management and Capitalism	3
<u>HRIR 2440</u>	Human Resource Management	3
<u>HRIR 3430</u>	<del>Selected Topics in Industrial Relations</del>	<del>3</del>
<u>HRIR 3450</u>	Labour and Employment Relations	3
<u>HRIR 4420</u>	Compensation	3
<u>HRIR 4480</u>	Collective Bargaining and Administration	3
<u>HRIR 4520</u>	Comparative Industrial Relations and Human Resource Management	3



## Linguistics

### Deletions:

LING 2330 Historical Linguistics	3 cr	-3.0
LING 4210 Language Variation and Change	3 cr	-3.0

### Introductions:

LING 3370 Historical Linguistics	3 cr	+3.0
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This course investigates how languages change over time at all levels of linguistic structure. Methods for reconstructing earlier linguistic stages. Language families and linguistic prehistory. May not be held with the former LING 2330 or the former LING 2640. Prerequisites: [LING 1010 (or the former LING 1200) and LING 2100 (or the former LING 1380 or the former LING 2420) and LING 2400 (or the former LING 2200)] or written consent of instructor.

LING 4220 Sociolinguistic Theory	3 cr	+3.0
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Contemporary approaches to the study of sociolinguistics are introduced through the examination of selected issues drawn from the primary research literature and practical experience in methods of data collection and analysis. May not be held with the former LING 4210. Prerequisite: [LING 3210 or the former LING 2620] or written consent of instructor.

### Modifications:

LING 1000 Introduction to Linguistics 1: Foundations of Language	3 cr	0.0
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Introduction to the scientific study of human language. Basic principles of sound systems, word structure, sentence structure, and meaning across the languages of the world. May not be held with the former LING 1200.

LING 1010 Introduction to Linguistics 2: Language in Context	3 cr	0.0
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Language as a communication system embedded in a particular geographical, historical, and social context. Psychological and neurological aspects of language. Acquisition of first and second languages. May not be held with the former LING 1200. Prerequisite: LING 1000 or written consent of instructor.

LING 1360 Languages of Canada	3 cr	0.0
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A survey of the linguistic structure, history, and current status of the languages and language families used in Canada. Discussion will also include language politics, including official bilingualism, and the categorization of official and unofficial languages in Canada.

LING 2202 Multilingualism	3 cr	0.0
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Study of various aspects of multilingualism from psycholinguistic and sociolinguistic perspectives. The course introduces concepts such as bilingualism, diglossia, pidgins and creoles, code-switching, language maintenance, language loss and language shift, and linguistic landscape. Prerequisite: [LING 1010 or the former LING 1200] or written consent of instructor.

LING 3110 Phonological Analysis	3 cr	0.0
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Key concepts in segmental and suprasegmental phonology. Emphasis on the development of skills in analysis and argumentation. May not be held with the former LING 2420. Prerequisite: [LING 2100 or the former LING 1380] or written consent of instructor.

LING 3210 Sociolinguistics 3 cr 0.0  
Study of the relationship between language and its social context. This course explores aspects of linguistic variation within and across speech communities, and considers language variation according to the socio-economic status, ethnicity, age, gender, and geographical distribution of its speakers. It will also cover other topics such as identity and ideology. May not be held with the former LING 2620. Prerequisites: [LING 1010 (or the former LING 1200) and LING 2100 (or the former LING 1380) and LING 2210 (or the former LING 1420)] or written consent of instructor.

LING 3310 Structure of a Specific Language 3 cr 0.0  
Every language has unique properties that deepen our overall understanding of linguistic structure. In this course, the phonology, morphology, and syntax of a specific language are systematically explored on the basis of field records and descriptions which have become classics. The language of study will vary from year to year. May not be held with the former LING 3200. Prerequisites: [LING 2100 (or the former LING 1380 or the former LING 2420) and LING 2400 (or the former LING 2200)] or written consent of instructor.

LING 3320 Structure of an Algonquian Language 3 cr 0.0  
Introduction to the linguistic analysis of the languages of the Algonquian family through the in-depth study of the structure of a particular Algonquian language. The language of study will vary from year to year. May not be held with INDG 3222, INDG 3224, the former NATV 2320, the former NATV 3222, the former NATV 3224, the former LING 3200, the former LING 3820 when titled "Structure of the Cree Language" or "Structure of the Ojibway Language." Prerequisites: [LING 2100 (or the former LING 1380 or the former LING 2420) and LING 2400 (or the former LING 2200)] or written consent of instructor.

#### **NET CHANGE IN CREDIT HOURS: 0.0**

Program modifications:

Modifications to the programs listed below are detailed on the next 7 pages:

- **Bachelor of Arts (General Major) in Linguistics**
- **Bachelor of Arts (Single Advanced Major) in Linguistics**
- **Bachelor of Arts (Single Advanced Major) in Linguistics, Co-operative Education Option**
- **Bachelor of Arts (Double Advanced Major) in Linguistics**
- **Bachelor of Arts (Single Honours) in Linguistics**
- **Bachelor of Arts (Single Honours) in Linguistics, Co-operative Education Option**
- **Bachelor of Arts (Double Honours) in Linguistics**
- **Minor (Concentration) in Linguistics**

## Department of Linguistics

- Modification to Program Charts for BA General Major, BA Single Adv Major (including Co-operative Education Option), BA Dbl Adv Major, BA Single Hons (including Co-operative Education Option), BA Dbl Hons, Minor (Concentration)

## Linguistics, B.A. General

### Degree Requirements

<b>Year 1</b>		<b>Hours</b>
<u>LING 1000</u>	Introduction to Linguistics <b>1: Foundations of Language</b>	3
<u>LING 1010</u>	<b>Introduction to Linguistics 2:</b> Language in Context	3
6 credit hours from your Minor area of study as described in that unit's section of the calendar		6
18 credit hours from outside of your Major and Minor areas of study		18
<b>Hours</b>		<b>30</b>
<b>Year 2</b>		
<u>LING 2100</u>	Phonetics and Phonology	3
<u>LING 2400</u>	Morphology and Syntax	3
3 credit hours in Linguistics courses numbered at or above the 1000 level		3
9 credit hours in Linguistics courses numbered at or above the 2000 level		9
6 credit hours from your Minor area of study as described in that unit's section of the calendar		6
6 credit hours from outside of your Major and Minor areas of study		6
<b>Hours</b>		<b>30</b>
<b>Year 3</b>		
6 credit hours in Linguistics courses numbered at or above the 3000 level		6
6 credit hours from your Minor area of study as described in that unit's section of the calendar		6
6 credit hours from outside of your Major and Minor areas of study		6
12 credit hours of open electives		12
Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation		
<b>Hours</b>		<b>30</b>
<b>Total Hours</b>		<b>90</b>

## Linguistics, B.A. Single Advanced Major (including Co-operative Education option if selected)

### Degree Requirements

Year 1		Hours
<u>LING 1000</u>	Introduction to Linguistics <b>1: Foundations of Language</b>	3
<u>LING 1010</u>	<b>Introduction to Linguistics 2:</b> Language in Context	3
	6 credit hours from your Minor area of study as described in that unit's section of the calendar	6
	18 credit hours from outside of your Major and Minor areas of study	18
<b>Hours</b>		<b>30</b>
Year 2		Hours
<u>LING 2100</u>	Phonetics and Phonology	3
<u>LING 2400</u>	Morphology and Syntax	3
	3 credit hours in Linguistics courses numbered at or above the 1000 level	3
	12 credit hours in Linguistics courses numbered at or above the 2000 level	12
	6 credit hours from your Minor area of study as described in that unit's section of the calendar	6
	3 credit hours from outside of your Major and Minor areas of study	3
<b>Hours</b>		<b>30</b>
Year 3		Hours
	15 credit hours in Linguistics courses numbered at or above the 3000 level	15
	6 credit hours from your Minor area of study as described in that unit's section of the calendar	6
	9 credit hours from outside of your Major and Minor areas of study	9
<b>Hours</b>		<b>30</b>
Year 4		Hours
	6 credit hours in Linguistics courses numbered at the 4000 level	6
	12 credit hours from outside of your Major and Minor areas of study	12
	12 credit hours of free options	12
Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation		
<b>Hours</b>		<b>30</b>
<b>Total Hours</b>		<b>120</b>

### Co-operative Education Option

#### Years 3-4

#### Hours

If the Co-operative Education Option is selected, time to completion will be extended by 12 months and the following three, 1 credit hour work term courses will count toward the free options required in this program.

<a href="#"><u>ARTS 3010</u></a>	Arts Co-operative Option 1	1
<a href="#"><u>ARTS 3020</u></a>	Arts Co-operative Option 2	1
<a href="#"><u>ARTS 3030</u></a>	Arts Co-operative Option 3	1
	<b>Hours</b>	<b>3</b>
	<b>Total Hours</b>	<b>3</b>

## Linguistics, B.A. Double Advanced Major

### Degree Requirements

Year 1		Hours
<u>LING 1000</u>	Introduction to Linguistics <b>1: Foundations of Language</b>	3
<u>LING 1010</u>	<b>Introduction to Linguistics 2:</b> Language in Context	3
6 credit hours in the second Advanced Major subject field as described in that unit's section of the calendar		6
18 credit hours from outside both Advanced Major subject fields		18
<b>Hours</b>		<b>30</b>
Years 2-4		
<u>LING 2100</u>	Phonetics and Phonology	3
<u>LING 2400</u>	Morphology and Syntax	3
3 credit hours in Linguistics courses numbered at or above the 1000 level		3
9 credit hours in Linguistics courses numbered at or above the 2000 level		9
12 credit hours in Linguistics courses numbered at or above the 3000 level		12
6 credit hours in Linguistics courses numbered at the 4000 level		6
36 credit hours from second Advanced Major subject field as described in that unit's section of the calendar		36
18 credit hours from outside both Advanced Major subject fields		18
Refer to the information directly below this list for other important degree requirements students need to complete prior to graduation		
<b>Hours</b>		<b>90</b>
<b>Total Hours</b>		<b>120</b>

## Linguistics, B.A. Single Honours (including Co-operative Education option if selected)

Year 1		Hours
<u>LING 1000</u>	Introduction to Linguistics 1: <b>Foundations of Language</b>	3
<u>LING 1010</u>	<b>Introduction to Linguistics 2:</b> Language in Context	3
24 credit hours in ancillary options		24
<b>Hours</b>		<b>30</b>
Year 2		Hours
<u>LING 2100</u>	Phonetics and Phonology	3
<u>LING 2400</u>	Morphology and Syntax	3
3 credit hours in Linguistics courses numbered at or above the 1000 level		3
12 credit hours in Linguistics courses numbered at or above the 2000 level		12
9 credit hours in free options		9
<b>Hours</b>		<b>30</b>
Year 3		Hours
15 credit hours in Linguistics courses numbered at or above the 3000 level		15
15 credit hours in free options		15
<b>Hours</b>		<b>30</b>
Year 4		Hours
12 credit hours in Linguistics courses numbered at the 4000 level		12
18 credit hours in free options		18
Refer to the information directly below this list for other important degree requirements that B.A. Honours students must satisfy for graduation.		
<b>Hours</b>		<b>30</b>
<b>Total Hours</b>		<b>120</b>

### Co-Operative Education Option

Years 3-4		Hours
If the Co-operative Education option is selected, time to completion will be extended by 12 months and the following three, 1 credit hour work term courses will count toward the free options credit required in this program.		
<a href="#">ARTS 3010</a>	Arts Co-operative Option 1	1
<a href="#">ARTS 3020</a>	Arts Co-operative Option 2	1
<a href="#">ARTS 3030</a>	Arts Co-operative Option 3	1
<b>Hours</b>		<b>3</b>
<b>Total Hours</b>		<b>3</b>

## Linguistics, B.A. Double Honours

<b>Year 1</b>		<b>Hours</b>
<u>LING 1000</u>	Introduction to Linguistics 1: <b>Foundations of Language</b>	3
<u>LING 1010</u>	<b>Introduction to Linguistics 2:</b> Language in Context	3
6 credit hours in second Honours field as described in that unit's section of the calendar		6
6 credit hours in ancillary options		6
12 credit hours in free options		12
<b>Hours</b>		<b>30</b>
<b>Year 2</b>		
<u>LING 2100</u>	Phonetics and Phonology	3
<u>LING 2400</u>	Morphology and Syntax	3
3 credit hours in Linguistics courses numbered at or above the 1000 level		3
6 credit hours in Linguistics courses numbered at or above the 2000 level		6
12 credit hours in second Honours Field as described in that unit's section of the calendar		12
3 credit hours in free options		3
<b>Hours</b>		<b>30</b>
<b>Year 3</b>		
12 credit hours in Linguistics courses numbered at or above the 3000 level		12
12 credit hours in second Honours Field as described in that unit's section of the calendar		12
6 credit hours in free options		6
<b>Hours</b>		<b>30</b>
<b>Year 4</b>		
9 credit hours in Linguistics courses numbered at the 4000 level		9
12 credit hours in second Honours Field as described in that unit's section of the calendar		12
9 credit hours in free options		9
Refer to the information directly below this list for other important degree requirements that B.A. Honours students must satisfy for graduation.		
<b>Hours</b>		<b>30</b>
<b>Total Hours</b>		<b>120</b>

### Note:

- If the second Honours field chosen is either Economics or Sociology, students need to be aware that these two departments require an additional 3 credit hours of required course work in their Double Honours programs.



## Linguistics Minor (Concentration)

### Minor Requirements

<b>Year 1</b>	<b>Hours</b>
<u>LING 1000</u> Introduction to Linguistics <b>1: Foundations of Language</b>	3
<u>LING 1010</u> <b>Introduction to Linguistics 2:</b> Language in Context	3
<b>Hours</b>	<b>6</b>
<b>Years 2-3</b>	
12 credit hours in Linguistics courses numbered at or above the 2000 level	12
<b>Hours</b>	<b>12</b>
<b>Total Hours</b>	<b>18</b>

## Religion

### Deletions:

RLGN 4100 Advanced Studies in Buddhism 3 cr	-3.0
RLGN 4180 Advanced Studies in Islam 3 cr	-3.0
RLGN 4190 Advanced Studies in Hinduism 3 cr	-3.0
RLGN 4280 Advanced Studies in Early Christianity 3 cr	-3.0
RLGN 4440 Selected Topics in Religion 2 3	-3.0

### Introductions:

RLGN 2124 Religion and Music 3 cr	+3.0
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This course introduces students to the uses of music within various world religious and Indigenous traditions. Topics may include: music as a marker of religious identity, music and ritual efficacy, the classification of music as 'religious', uses of music as a mechanism of religious recruitment, politicization of sacred music, music and gender, and the intersection between sacred music and contemporary popular culture.

RLGN 4010 Advanced Topics in Buddhism 3 cr	+3.0
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An in-depth study of selected topics from the wide cultural and historical range of Buddhist traditions. The course content may vary. Students can earn multiple credits for this course only when the topic subtitle is different.

RLGN 4020 Advanced Topics in Islam 3 cr	+3.0
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An in-depth study of selected topics in Islamic philosophy and tradition. The course content may vary. Students can earn multiple credits for this course only when the topic subtitle is different.

RLGN 4030 Advanced Topics in Hinduism 3 cr	+3.0
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An in-depth study of selected topics in the philosophy, history, literature, and practices of Hinduism. The course content may vary. Students can earn multiple credits for this course only when the topic subtitle is different.

RLGN 4050 Advanced Topics in Early Christianity 3 cr	+3.0
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This course will focus on selected topics pertaining to the first 500 years of Christianity. The course content may vary. Students can earn multiple credits for this course only when the topic subtitle is different.

### Modifications:

RLGN 1322 Introduction to Eastern Religions 3 cr	0.0
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- to be removed from the List of Written English Courses

RLGN 1324 Introduction to Western Religions 3 cr	0.0
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- to be removed from the List of Written English Courses

RLGN 1420 Ethics in World Religions 3 cr	0.0
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- to be removed from the List of Written English Courses

RLGN 1424 Religion and Sexuality 3 cr	0.0
<ul style="list-style-type: none"> <li>• to be removed from the List of Written English Courses</li> </ul>	
RLGN 3266 Readings in Buddhist Texts 3 cr	0.0
This is a course intended for students interested in pursuing a more in-depth study of Buddhism. The course will investigate Buddhist texts and ethnographic case studies and material from a range of traditions and historical periods.	
RLGN 3530 Contemporary Issues 1 3 cr	0.0
Content of this course will vary from year to year but it will deal with some specific topic of current interest in religion, some aspect of methodology in the study of religion, or an analysis from a religious perspective of some problem of current public interest. Students can earn multiple credits for this course only when the topic subtitle is different. May not be held with RLGN 3531.	
RLGN 3540 Contemporary Issues 2 3 cr	0.0
Content of this course will vary from year to year but it will deal with some specific topic of current interest in religion, some aspect of methodology in the study of religion, or an analysis from a religious perspective of some problem of current public interest. Students can earn multiple credits for this course only when the topic subtitle is different. May not be held with RLGN 3541.	
RLGN 3810 The Talmud: Judaism's challenging, controversial book of arguments 3 cr	0.0
The Talmud is as important as the Bible in Jewish life and thought. It is not simply a book to read; it has to be studied with other people. Students will learn the skills of studying this polyvocal text, and engage with scholarship on the Talmud's literary techniques, laws, folklore, gender politics, and theology. May not be held with the former RLGN 2150.	
RLGN 3824 Kabbalah: Magic, Mythology, Mysticism 3 cr	0.0
Kabbalah is a centuries-old stream of Jewish thought and practice which encompasses mysticism, ethics, spiritual practice and magic. Students will come away from this course with a working knowledge of the Zohar, the central text of Kabbalah, its radical theology and its mythical-symbolic mode of expression. The course also explores the influence of the Zohar within Judaism and beyond and related scholarly debates. May not be held with the former JUD 3390.	
RLGN 3830 The Bible as Story 3 cr	0.0
A study of the manner in which biblical storytellers present their tales and the ways in which these narratives have been retold ever since. Particular attention will be paid to Midrash, the tradition of creative retelling of biblical tales. May not be held with the former RLGN 3840.	
RLGN 4040 Religion and Democracy 3 cr	0.0
This course focuses on role of religion in democratic societies. Topics covered may include secular and post-secular, secularism; democracy, religion, and human rights; religion and the law; nationalism and religion, and so on. Disciplinary approaches to religion and democracy will be discussed: historical, political, feminist, sociological, and philosophical. Key thinkers may include Jurgen Habermas, John Rawls, Charles Taylor, Seyla Benhabib, Nancy Fraser.	
RLGN 4060 The Yoga Tradition 3 cr	0.0
This course explores the rich, diverse, and highly complex Yoga tradition, emphasizing classical and medieval forms of Yoga philosophy and practice within Hinduism. As well as tracing	

historical development of the Yoga tradition, the course highlights the meaning and purpose of Yoga in its classical expression and considers the growing popularity and relevance of Yoga in the modern world.

RLGN 4080 Critical Theory and Religion 3 cr 0.0

A selective study of the vast and varied field of theoretical and critical approaches that have come to play a central role in the study of religion since World War II, this course focuses on one or more of the following, its context and precursors: African American theory and criticism, colonialism and post-colonialism, cultural studies, deconstruction, feminist criticisms, Frankfurt School, hermeneutics, semiotics, psychoanalytic theory and criticism, structuralism and post-structuralism.

RLGN 4110 Studies in Religion and Cultural Memory 3 cr 0.0

An examination of selected cultural memory and religion topics.

RLGN 4160 Religion and Philosophy 3 cr 0.0

An examination of the relation between philosophical and religious thought through in-depth study of a selected thinker or thinkers.

RLGN 4230 Studies in Body History 3 cr 0.0

A study in the religious-cultural history of the body, this course explores the multiple meanings given to the body, sexuality and sexual difference in historical and contemporary religious traditions. The course gives particular attention to theories of representation of body and includes study of both written and performative sources.

RLGN 4282 Advanced Studies in Medieval Christianity 3 cr 0.0

This course will focus on topics pertaining to Medieval Christianity (c. 500 to c. 1500 CE). The course content may vary. Students can earn multiple credits for this course only when the topic subtitle is different.

RLGN 4290 Advanced Studies in Mysticism 3 cr 0.0

With religious traditions of focus varying year to year, this course considers current scholarly approaches to the understanding of mysticism and sainthood. It includes study of mystic texts and treatises; the mystic body; mystic communities; ascetic ritual and practice. Students can earn multiple credits for this course only when the topic subtitle is different.

RLGN 4300 Advanced Topics in Judaism 3 cr 0.0

An in-depth study of selected Jewish texts from the fields of halakhah, aggadah or spirituality, drawing on various theoretical perspectives. The course content may vary. Students can earn multiple credits for this course only when the topic subtitle is different.

RLGN 4310 Method and Theory: History of the Study of Religion 3 cr 0.0

An intensive overview of the history of the study of religion, with an emphasis on developments starting in the 18th and the 19th centuries. The contributions of numerous disciplines will be discussed in relation to the political and historical contexts that shape and give rise to the "world religions" paradigm. In any given year, emphasis may be given to developments in a particular field (e.g., Buddhism, Christianity, Islam, Judaism, Hinduism, etc.).

RLGN 4320 Theoretical Approaches to the Study of Religion 3 cr 0.0

This course will engage theoretical approaches to the study of religion in its historical and contemporary cultural contexts. Content of this course may vary from year to year, depending

on the tradition(s) on which the course is focused (e.g., Buddhism, Islam, Hinduism, Judaism, Christianity).

RLGN 4430 Selected Topics in Religion 3 cr 0.0

An intensive study of specially selected topics in the field of religion. The subject matter of the course will vary from year to year. Students can earn multiple credits for this course only when the topic subtitle is different.

**NET CHANGE IN CREDIT HOURS: 0.0**

Program modifications:

Modifications to the programs listed below are detailed on the next 3 pages:

- **Bachelor of Arts (General Major) in Religion**
- **Bachelor of Arts (Single Advanced Major) in Religion**
- **Bachelor of Arts (Double Advanced Major) in Religion**
- **Bachelor of Arts (Single Honours) in Religion**
- **Bachelor of Arts (Double Honours) in Religion**

## Religion

- Modification to the Religious Traditions
- BA General Major, BA Single Advanced Major, BA Double Advanced Major, BA Single Honours and BA Double Honours.

## Added Material

~~Deleted Material~~

## Religious Traditions

Within the Religion courses required above, students must complete courses from at least three religious tradition categories: Buddhism, Christianity, Hinduism, Islam, Judaism

Religious Traditions are categorized as follows:

### Buddhism

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>RLGN 2020</u>	Introduction to Buddhism	3
<u>RLGN 3150</u>	Buddhism in East Asia	3
<u>RLGN 3152</u>	Buddhism in the West	3
<u>RLGN 3162</u>	Buddhist Philosophy	3
<u>RLGN 3260</u>	Indian Buddhism	3
<u>RLGN 3266</u>	Readings in Buddhist Texts	3
<u>RLGN 4100</u>	<del>Advanced Studies in Buddhism</del>	<del>3</del>
<b>RLGN 4010</b>	<b>Advanced Topics in Buddhism</b>	<b>3</b>

### Christianity

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>RLGN 1350</u>	The History of Eastern Christianity	6
<u>RLGN 2036</u>	Introduction to Christianity	3
<u>RLGN 2040</u>	Early Modern Christianity in a Global Context	3
<u>RLGN 2052</u>	Conservative Christianity in the United States	3
<u>RLGN 2114</u>	Monks, Mystics and Manuscripts in Medieval Christianity	3
<u>RLGN 2170</u>	Introduction to the New Testament	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>RLGN 2520</u>	Eastern Christianity in North America	3
<u>RLGN 2530</u>	Eastern Christianity in the Contemporary World	3
<u>RLGN 2840</u>	The Second Vatican Council	3
<u>RLGN 2850</u>	Contemporary Issues in Roman Catholicism	3
<u>RLGN 3230</u>	Gender, the Body, and Sexuality in Early Christianity	3
<u>RLGN 3870</u>	The Thought of Bernard Lonergan	3
<u>RLGN 3780</u>	Course no longer offered	6
<u>RLGN 4280</u>	<del>Advanced Studies in Early Christianity</del>	<del>3</del>
<b>RLGN 4050</b>	<b>Advanced Topics in Early Christianity</b>	<b>3</b>
<u>RLGN 4282</u>	Advanced Studies in Medieval Christianity	3

## Hinduism

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>RLGN 2010</u>	Introduction to Hinduism	3
<u>RLGN 3210</u>	Indian Philosophy	3
<b>RLGN 4030</b>	<b>Advanced Topics in Hinduism</b>	<b>3</b>
<u>RLGN 4060</u>	The Yoga Tradition	3
<u>RLGN 4190</u>	<del>Advanced Studies in Hinduism</del>	<del>3</del>

## Islam

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>RLGN 2100</u>	Approaches to the Qur'an	3
<u>RLGN 2778</u>	Introduction to Islam	3
<u>RLGN 2790</u>	Contemporary Islam	3
<u>RLGN 3190</u>	Images of the Prophet Muhammad: Classical and Contemporary Perspectives	3
<u>RLGN 3194</u>	Islamic Philosophy	3
<b>RLGN 4020</b>	<b>Advanced Topics in Islam</b>	<b>3</b>
<u>RLGN 4180</u>	<del>Advanced Studies in Islam</del>	<del>3</del>

## Judaism

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>RLGN 1120</u>	Biblical Hebrew	6
<u>RLGN 1390</u>	Readings in Biblical Hebrew 1	3
<u>RLGN 1400</u>	Readings in Biblical Hebrew 2	3
<u>RLGN 2140</u>	Introduction to Judaism	3
<u>RLGN 2160</u>	Hebrew Bible (Tanakh/"Old Testament")	3
<u>RLGN 2162</u>	Great Jewish Books	3
<u>RLGN 2770</u>	Contemporary Judaism	3
<u>RLGN 3280</u>	Hasidism	3
<u>RLGN 3800</u>	<del>Selected Old Testament Literature and Themes</del>	6
<u>RLGN 3810</u>	The Talmud: <b>Judaism's challenging, controversial book of arguments</b>	3
<u>RLGN 3824</u>	Kabbalah: <b>Magic, Mythology, Mysticism</b>	3
<u>RLGN 4300</u>	<b>Advanced Topics in Judaism</b>	<b>3</b>



## Sociology and Criminology

Modification:

SOC 3762 Law, Justice, and Indigenous Peoples 3 cr 0.0

A critical examination of the complex and varied role that law has played, and continues to play, in regard to Indigenous peoples in the Canadian settler state context. The course straddles the divisions between criminal law, constitutional law, government legislation, transitional justice, as well as international legal norms. May not be held with SOC 3740 when titled "Law, Justice and Indigenous Peoples." Prerequisite: [SOC 1000 or the former SOC 1200 or the former SOC 1201] or [SOC 1211 and SOC 1221].

**NET CHANGE IN CREDIT HOURS: 0.0**

## Ukrainian Canadian Heritage Studies

Program modifications:

Modifications to the programs listed below are detailed on the next 2 pages:

- **Bachelor of Arts (General Major) in Ukrainian Canadian Heritage Studies**
- **Bachelor of Arts (Single Advanced Major) in Ukrainian Canadian Heritage Studies**
- **Minor (Concentration) in Ukrainian Canadian Heritage Studies**

## Ukrainian Canadian Heritage Studies Program Modifications

- Deletion of two, 6 credit hour UKRN courses being replaced by 3 credit hour courses
- Modification to “List A” which is used in the Single Advanced Major, General Major, and Minor (Concentration)
- Change is a result of course changes made by the Department of German and Slavic Studies

## List A

Course	Title	Hours
<b>Faculty of Arts</b>		
Economics:		
<u>ECON 1210</u>	Introduction to Canadian Economic Issues and Policies	3
<u>ECON 1220</u>	Introduction to Global and Environmental Economic Issues and Policies	3
German and Slavic Studies:		
<u>UKRN 1230</u>	Language Seminar in Ukraine 1	3
<del>UKRN 1310</del>	<del>Introductory Ukrainian</del>	<del>6</del>
<b>UKRN 1312</b>	<b>Introductory Ukrainian 1</b>	<b>3</b>
<b>UKRN 1314</b>	<b>Introductory Ukrainian 2</b>	<b>3</b>
<u>UKRN 2260</u>	Ukrainian Culture Seminar Abroad	3
<del>UKRN 2720</del>	<del>Intermediate Ukrainian</del>	<del>6</del>
<b>UKRN 2722</b>	<b>Intermediate Ukrainian 1</b>	<b>3</b>
<b>UKRN 2744</b>	<b>Intermediate Ukrainian 2</b>	<b>3</b>
<u>UKRN 2770</u>	Ukrainian Culture until 1900	3
<u>UKRN 2780</u>	Ukrainian Culture from 1900 to the Present	3
<u>UKRN 3952</u>	Advanced Ukrainian Conversational Practice	3
<u>UKRN 3962</u>	Advanced Ukrainian Through Short Stories	3
History:		
<u>HIST 1200</u>	An Introduction to the History of Western Civilization (G)	6
<u>HIST 1350</u>	An Introduction to the History of Western Civilization to 1500 (G)	3
<u>HIST 1360</u>	An Introduction to the History of Western Civilization from 1500 (G)	3
<u>HIST 1400</u>	History of the Canadian Nation since 1867 (C)	3
Political Studies:		
<u>POLS 1502</u>	Introduction to Political Studies	3
<u>POLS 1506</u>	Survey of Political Studies	3
<u>POLS 2502</u>	Introduction to World Affairs	3
<u>POLS 2504</u>	Introduction to International Relations	3
<u>POLS 2702</u>	Introduction to Canadian Politics	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
Religion:		
<u>RLGN 1322</u>	Introduction to Eastern Religions	3
<u>RLGN 1324</u>	Introduction to Western Religions	3
<u>RLGN 1350</u>	The History of Eastern Christianity	6
Sociology and Criminology:		
<u>SOC 1000</u>	Introduction to Sociology	3
<b>Clayton H. Riddell Faculty of Environment, Earth, and Resources</b>		
Geography:		
<u>GEOG 1280</u>	Introduction to Human Geography	3
<u>GEOG 1290</u>	Introduction to Physical Geography	3
<b>School of Art</b>		
<u>FAAH 1030</u>	Introduction to Art 1A	3
<u>FAAH 1040</u>	Introduction to Art 2A	3

## Faculty of Engineering

### Faculty of Engineering

#### Modifications:

ENG 1430 Design in Engineering 3 cr 0.0

The creative process; the design process; working in a team. The engineering profession from the perspective of students and professionals. Academic, legal and ethical considerations. Prerequisites: [Pre-Calculus Mathematics 40S (60%) (or one of MATH 0401, MATH 1018, MATH 1230, MATH 1500, MATH 1501, MATH 1510, MATH 1524, MSKL 0100, or the former MATH 1520, or the former MATH 1680)] and [Physics 40S (60%) (or PHYS 0900 (P) or PSKL 0100 (P); or PHYS 1018, PHYS 1050, or PHYS 1051)] and [Chemistry 40S (60%) (CHEM 0900 (P) or CSKL 0100 (P); or CHEM 1018, CHEM 1100, CHEM 1301, or the former CHEM 1300)] or their equivalents.

ENG 1440 Introduction to Statics 3 cr 0.0

(Lab required) Statics of particles; rigid bodies, equilibrium of rigid bodies; analysis of structures; distributed forces. May not be held with ENG 1441. Prerequisites: [Pre-Calculus Mathematics 40S (60%) (or one of MATH 0401, MATH 1018, MATH 1230, MATH 1500, MATH 1501, MATH 1510, MATH 1524, MSKL 0100, or the former MATH 1520, or the former MATH 1680)] and [Physics 40S (60%) (or PHYS 0900 (P) or PSKL 0100 (P); or PHYS 1018, PHYS 1050, or PHYS 1051)] and [Chemistry 40S (60%) (CHEM 0900 (P) or CSKL 0100 (P); or CHEM 1018, CHEM 1100, CHEM 1301, or the former CHEM 1300)] or their equivalents.

ENG 1450 Introduction to Electrical and Computer Engineering 3 cr 0.0

(Lab required) Part I: Current, voltage, energy, potential, power Ohm's law; independent sources; capacitor, inductor, ideal diode, op-amp; Kirchoff's law; simple circuits (Resistive, RC, RL, OP-Amp; Diode); introduction to ac theory (Sinusoidal waveform, phase relations of voltage and current waveforms for R,L,C. RL and RC circuits). Part II: Applications (Digital Logic, motors). Prerequisites: [Pre-Calculus Mathematics 40S (60%) (or one of MATH 0401, MATH 1018, MATH 1230, MATH 1500, MATH 1501, MATH 1510, MATH 1524, MSKL 0100, or the former MATH 1520, or the former MATH 1680)] and [Physics 40S (60%) (or PHYS 0900 (P) or PSKL 0100 (P); or PHYS 1018, PHYS 1050, or PHYS 1051)] and [Chemistry 40S (60%) (CHEM 0900 (P) or CSKL 0100 (P); or CHEM 1018, CHEM 1100, CHEM 1301, or the former CHEM 1300)] or their equivalents.

ENG 1460 Introduction to Thermal Sciences 3 cr 0.0

(Lab required) Properties of pure substances; first law for closed systems; first law for open systems; second law; examples of power cycles and refrigeration cycles. Prerequisites: [Pre-Calculus Mathematics 40S (60%) (or one of MATH 0401, MATH 1018, MATH 1230, MATH 1500, MATH 1501, MATH 1510, MATH 1524, MSKL 0100, or the former MATH 1520, or the former MATH 1680)] and [Physics 40S (60%) (or PHYS 0900 (P) or PSKL 0100 (P); or PHYS 1018, PHYS 1050, or PHYS 1051)] and [Chemistry 40S (60%) (CHEM 0900 (P) or CSKL 0100 (P); or CHEM 1018, CHEM 1100, CHEM 1301, or the former CHEM 1300)] or their equivalents.

ENG 3000 Engineering Economics 3 cr 0.0

This course offers an introduction to the economic aspects of the engineering discipline. It covers applied economic concepts such as: time value of money, taxation in cash flows, breakeven points, inflation of goods, cost/benefit ratios, income and depreciation, and general microeconomic concepts. The focus includes analysis techniques such as: cash flow analysis,

cost-based analysis, rate of return analysis, sensitivity analysis, replacement analysis, and risk mitigation. Concepts are introduced in the context of sustainability and project management fundamentals in a professional practice setting. May not be held with CIVL 4050. Prerequisite: MATH 1510 (or MATH 1230, or MATH 1500, or MATH 1501).

ENG 3020 Technology, Society and the Future 3 cr 0.0  
Impact of technology and technological change on society-past, present, future; specific technologies, e.g., construction, machine power, computers, communications, medical, military; the process of technological change; invisible effects of technology; technology and resource use; sustainable development, limits to growth and the role of technology. May not be held with CIVL 4460 or ANTH 2430. Prerequisites: ENG 2030 or ENG 2040 or BIOE 2900.

### **NET CHANGE IN CREDIT HOURS: 0.0**

Academic Calendar changes:

The faculty will remove the following content from the Academic Calendar:

### **~~CHEMICAL ENGINEERING AT THE UNIVERSITY OF NORTH DAKOTA~~**

~~The University of Manitoba has an agreement with the University of North Dakota, Grand Forks, N.D., which allows students to obtain a degree in chemical engineering from the University of North Dakota by taking the Preliminary Engineering program at the University of Manitoba and three years at the University of North Dakota. The chemical engineering program at the University of North Dakota is accredited by the Accreditation Board for Engineering and Technology in the United States and is recognized by Engineers Geoscientists Manitoba (formerly the Association of Professional Engineers and Geoscientists of Manitoba).~~

### Biosystems Engineering

Program modifications:

Modifications to the programs listed below are detailed on the next 4 pages:

- **Bachelor of Science in Engineering (Biosystems)**
- **Bioresource Specialization (concentration)**
- **Environmental Specialization**

# BIOSYSTEMS ENGINEERING

**Head:** Dr. D. Mann, P.Eng.

**Associate Head:** Dr. N. Ciolek, P.Eng.

**Campus Address/General Office:** E2-376 EITC

**Telephone:** 204 474 6033

**Fax:** 204 474 7512

**Website:** [umanitoba.ca/faculties/engineering/departments/biosystems](http://umanitoba.ca/faculties/engineering/departments/biosystems)  
(<http://umanitoba.ca/faculties/engineering/departments/biosystems/>)

**Academic Staff:** For a complete listing of academic staff, please refer to the following website: <http://umanitoba.ca/faculties/engineering/departments/biosystems/facstaff/acadstatic.html>

The Department of Biosystems Engineering offers an accredited degree program in Biosystems Engineering. The discipline of Biosystems Engineering emphasizes the application of engineering principles to biologically-centred systems. Biosystems engineers help to create new technologies for the well-being of humans and animals, and the preservation and enhancement of natural resources and the environment. The Biosystems Engineering program is designed to give students knowledge of the fundamental principles of engineering and introduces biological concepts to enable these engineers to successfully interact with relevant professionals when solving engineering problems involving biological systems. The program is offered in both a traditional and a co-operative education format. The department offers three Specializations (Biomedical, Bioresource and Environmental) and one Minor (Agribusiness). **A bachelor's degree in Biosystems Engineering meets the requirements for admission to the Faculty of Medicine.**

## Agribusiness Minor

A minor in Agribusiness is available to Biosystems Engineering students. The minimum requirement is 18 credit hours consisting of:

Degree/Diploma	Years to Completion	Total Credit Hours	Has Co-op Option
Biosystems Engineering, B.Sc. ( <a href="https://catalog.umanitoba.ca/undergraduate-studies/engineering/biosystems-engineering/biosystems-engineering-bsc/">https://catalog.umanitoba.ca/undergraduate-studies/engineering/biosystems-engineering/biosystems-engineering-bsc/</a> )	4-5	150-153	Yes

Course	Title	Hours
ECON 1010	Introduction to Microeconomic Principles	3
ECON 1020	Introduction to Macroeconomic Principles	3
ABIZ 1000	Introduction to Agribusiness Management	3
ABIZ 2510	Introduction to Agricultural and Food Marketing	3
ABIZ 2520	Introduction to Management Sciences	3
Select at least three additional credit hours from the Department of Agribusiness and Agricultural Economics		3
<b>Total Hours</b>		<b>18</b>

Students must meet all prerequisite requirements. A maximum of 3 courses (9 credit hours) of courses used for the minor may also be used to fulfil course requirements in Biosystems Engineering.

## Admission to Medicine

The Bachelor of Science degree in Biosystems Engineering provides the background to meet eligibility requirements for admission into the Max Rady College of Medicine at the University of Manitoba. Students planning to apply for entrance to Medicine after completing the B.Sc. in Biosystems Engineering are advised to consult with the Max Rady College of Medicine for admission requirements.

## Co-operative Education Program in Biosystems Engineering

Please refer Co-operative Education (<https://catalog.umanitoba.ca/undergraduate-studies/engineering/#cooperativeeducationandindustrialinternshipprogramstext>) and Industrial Internship Programs

## Programs

# BIOSYSTEMS ENGINEERING, B.SC.

## Degree Requirements

### Program Core Courses

Note: Students are encouraged to consult the department for eight- and ten-term program models. Students are strongly encouraged to follow the model programs when possible, as timetabling and course offerings are based on these program models.

Course	Title	Hours
Students must complete the Preliminary Engineering Program requirements for graduation. 37.5		
BIOE 2110	Transport Phenomena	3
BIOE 2480	Impact of Engineering on the Environment	3
BIOE 2590	Biology for Engineers <sup>1</sup>	3
BIOE 2790	Fluid Mechanics	4
BIOE 2800	Solid Mechanics	4
BIOE 2900	Biosystems Engineering Design 1	4
BIOE 3270	Instrumentation and Measurement for Biosystems	4
BIOE 3320	Engineering Properties of Biological Materials	4
BIOE 3400	Design of Structural Components in Machines	4
BIOE 3590	Mechanics of Materials in Biosystems	4
BIOE 3900	Biosystems Engineering Design 2	4
BIOE 4240	Graduation Project	3
BIOE 4900	Biosystems Engineering Design 3	4
BIOE 4950	Biosystems Engineering Design 4	4
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties <sup>2</sup>	3
CHEM 1126	Introduction to Chemistry Techniques for Engineering <sup>2</sup>	1.5
ENG 2022	Engineering CAD Technologies for Biosystems	3
ENG 3000	Engineering Economics	3
MATH 2130	Engineering Mathematical Analysis 1	3
MATH 2132	Engineering Mathematical Analysis 2	3
M BIO 1220	Essentials of Microbiology	3
or M BIO 1010	Microbiology I	
MECH 2150	Mechanical Engineering Modelling and Numerical Methods	4
MECH 3482	Kinematics and Dynamics	4
STAT 2220	Contemporary Statistics for Engineers	3
Two Science Electives (see list below) 6		
One course in Technology and Society (ENG 3020 or ANTH 2430) 3		
One course from the List of Indigenous Knowledge Courses <sup>3</sup> 3		
One Complementary Studies Electives 3		
Three Biosystems Engineering Design Electives 12		
Two Free Electives 6-8		
<b>Total Hours</b>		<b>150-152</b>

<sup>1</sup> Please note the combination of BIOL 1020 Biology 1: Principles and Themes and BIOL 1030 Biology 2: Biological Diversity, Function and Interactions can be used in place of BIOE 2590 Biology for Engineers.

<sup>2</sup> The Former CHEM 1310 may be used in place of the combination of CHEM 1110 and CHEM 1126.

<sup>3</sup> Students are required to take at least one of the courses from the list of Indigenous Knowledge courses. **Students admitted to Biosystems Engineering in Fall 2021 who have completed three complementary studies elective courses (or 9 credit hours) prior to admission to the program, may use one of those courses in place of the indigenous knowledge course.**

### Science Electives

Course	Title	Hours
AGEC 2370	Principles of Ecology (or the equivalent BIOL 2300)	3
ANSC 3530	The Animal and Its Environment	3
BIOL 1410	Anatomy of the Human Body	3
BIOL 1412	Physiology of the Human Body	3
PLNT 2510	Fundamentals of Horticulture	3
SOIL 4060	Physical Properties of Soils	3

Students planning to complete a specialization, should take note that there are specific courses to be used as science electives.

### Biosystems Engineering Design Electives

Course	Title	Hours
BIOE 4390	Unit Operations 1	4
BIOE 4412	Design of Light-Frame Building Systems	4
BIOE 4414	Imaging and Spectroscopy for Biosystems	4
BIOE 4420	Crop Preservation	4
BIOE 4440	Bioprocessing for Biorefining	4
BIOE 4460	Air Pollution Assessment and Management	4
BIOE 4560	Structural Design in Wood	4
BIOE 4590	Management of By-Products from Animal Production	4
BIOE 4600	Design of Water Management Systems	4
BIOE 4610	Design of Assistive Technology Devices	4
BIOE 4620	Remediation Engineering	4
BIOE 4640	Bioengineering Applications in Medicine	4
BIOE 4650	Textiles in Healthcare and Medical Applications	4

Design elective courses offered vary from year to year. Courses offered in the current year are listed on the online timetables on the department website. Students planning to complete a specialization should take note that there are specific courses to be used as design electives.

### Indigenous Knowledge Courses

Course	Title	Hours
INDG 1200	Indigenous Peoples in Canada	6
INDG 1220	Indigenous Peoples in Canada, Part 1	3
INDG 1240	Indigenous Peoples in Canada, Part 2	3
INDG 2012	Indigenous History in Canada	6
or HIST 2010	Indigenous History in Canada (C)	
INDG 2020	The Métis in Canada	3
or HIST 2020	The Métis in Canada (C)	
POLS 2802	Introduction to Indigenous Politics	3
POLS 3870	Politics of Indigenous-Settler Relations	3
<b>ENG 4100</b>	<b>Contemporary Topics in Engineering Practice <sup>1</sup></b>	<b>4</b>

<sup>1</sup> **ENG 4100 may be used to meet this requirement when the course content satisfies the requirements of an Indigenous course.**

Students admitted to Biosystems Engineering in Fall 2021 who have completed three complementary studies elective courses prior to admission to the program, may use one of those courses in place of the Indigenous knowledge course:

### Complementary Studies Electives

Complementary studies electives are required to give the engineering student exposure to topics outside the fields of science and engineering. Many university courses fulfill the complementary studies requirement:

- Any course at the 1000-level or above from the Faculties of Arts or Management;
- Any course at the 1000-level or above from the Department of Agribusiness and Agricultural Economics;
- Any course listed in Group C of our three specializations

ARTS 1110 may not be used for credit in the Price Faculty of Engineering. Other university courses, which do not cover topics of science or engineering, may also be acceptable. Please consult with the department head (or his/her designate) for approval of such courses. Students planning to complete a specialization, should take note that there are specific courses to be used as complementary studies electives.

### Free Electives

Any university course at the 1000-level or above can be used as a free elective. However, ARTS 1110 may not be used for credit in the Price Faculty of Engineering. Students are permitted to take additional design electives or engineering courses from other departments to fulfill free elective requirements. Students planning to complete a specialization, should take note that there are specific courses to be used as free electives.

## Concentrations

### Specializations in Biosystems Engineering

Students wishing to pursue more focused studies in a Biosystems Engineering subject area have the choice of completing one of three specializations:

1. Biomedical,
2. Bioresource, or
3. Environmental.

To complete a specialization, you will be required to complete two science electives (identified as Group A), three Biosystems Engineering design electives (identified as Group B), one complementary studies electives (identified as Group C), one Indigenous knowledge course, and two free electives (selected from Groups B, C or D). The similarly-themed courses that have been identified for each specialization take the place of two science electives, three Biosystems Engineering design electives, two complementary studies electives, and two free electives in the general Biosystems Engineering program (i.e., completing a specialization does not require any additional coursework).

### Biomedical Specialization

The biomedical specialization provides engineers with knowledge of human anatomy and physiology to enhance the understanding of the role to be played by engineers in specific areas within biomedical engineering such as rehabilitation engineering, clinical engineering, medical imaging, and orthopedics.

Students who obtain a grade of “C” or better in the courses listed below will receive a notation of “Biomedical Specialization” on their transcript at the time of graduation.

Course	Title	Hours
<b>Group A: Science Electives</b>		
Complete both of the following courses:		
BIOL 1410	Anatomy of the Human Body	3
BIOL 1412	Physiology of the Human Body	3
<b>Group B: Biosystems Engineering Design Electives</b>		
Three of the following:		12
BIOE 4414	Imaging and Spectroscopy for Biosystems	
BIOE 4610	Design of Assistive Technology Devices	
BIOE 4640	Bioengineering Applications in Medicine	
BIOE 4650	Textiles in Healthcare and Medical Applications	
<b>Group C: Complementary Studies Electives</b>		
One of the following: <sup>1</sup>		3
ENG 1900	Occupational Health and Safety Awareness	
ENVR 3400	Introduction to Environment and Health	
HIST 4660	History of Health and Disease (G) (counts as two)	
HIST 4680	Social History of Health and Disease in Modern Canada (C) (counts as two)	
HNSC 1210	Nutrition for Health and Changing Lifestyles	
INDG 3240	Indigenous Medicine and Health	3
KPER 1200	Physical Activity, Health and Wellness	
PHIL 2740	Ethics and Biomedicine	
	or PHIL 2741 Éthique et biomédecine	
<b>Group D: Free Electives</b>		
Two of the following: <sup>1,2</sup>		6-8
BIOL 2410	Human Physiology 1	
BIOL 2420	Human Physiology 2	
BIOL 4470	Physiology of Excitable Cells	
CHEM 2100	Organic Chemistry 1: Foundations of Organic Chemistry	
CHEM 2700	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	
CHEM 2710	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	
ECE 4610	Biomedical Instrumentation and Signal Processing	
KPER 2330	Biomechanics	
KIN 4330	Advanced Biomechanics	
MECH 4360	Topics in Engineering Materials 2	
MECH 4832	Biomaterials in Biomedical Engineering	
PHYS 3220	Medical Physics and Physiological Measurement	
PHYS 4400	Linear Systems for Imaging	
<b>Total Hours</b>		<b>30-32</b>

<sup>1</sup> Special permission may be granted by the Head of Department for courses not appearing on the list of Group C or Group D.

<sup>2</sup> Additional courses from Group B and C can be used to fulfill Group D electives.

### Bioresource Specialization

Challenges remain in the production of food and renewable resources for a world of ever-increasing population. The Bioresource Specialization



provides the educational background to enable engineers to devise strategies and technologies for producing food, fibre, bio-based products, and renewable energy efficiently and sustainably.

Students who obtain a grade of “C” or better in the courses listed below will receive a notation of “Bioresource Specialization” on their transcript at the time of graduation.

Course	Title	Hours
<b>Group A: Science Electives</b>		
Choose:		
SOIL 4060	Physical Properties of Soils	3
And one of the following: <b>3</b>		
ANSC 3530	The Animal and Its Environment	<b>3</b>
PLNT 2510	Fundamentals of Horticulture	<b>3</b>
<b>Group B: Biosystems Engineering Design Electives</b>		
Three of the following: 12		
BIOE 4390	Unit Operations 1	
BIOE 4412	Design of Light-Frame Building Systems	
BIOE 4420	Crop Preservation	
BIOE 4440	Bioprocessing for Biorefining	
BIOE 4560	Structural Design in Wood	
BIOE 4590	Management of By-Products from Animal Production	
BIOE 4600	Design of Water Management Systems	
<b>Group C: Complementary Studies Electives</b>		
One of the following: 3		
ABIZ 1000	Introduction to Agribusiness Management	
ABIZ 1010	Economics of World Food Issues and Policies	
ABIZ 3530	Farm Management	
FOOD 1000	Food Safety Today and Tomorrow	
GEOG 2520	Geography of Natural Resources (HS)	
<b>Group D: Free Electives</b> <sup>1,2</sup>		
Two of the following: 6-8		
AGRI 1600	Introduction to Agrifood Systems	
ENTM 3170	Crop Protection Entomology	
FOOD 3010	Food Process 1	
FOOD 4260	Water Management in Food Processing	
PLNT 2500	Crop Production	
PLNT 2510	Fundamentals of Horticulture <b>3</b>	
PLNT 3560	Organic Crop Production on the Prairies	
SOIL 3520	Pesticides: Environment, Economics and Ethics	
<b>Total Hours</b>		<b>30-32 27-29</b>

<sup>1</sup> Special permission may be granted by the Head of Department for courses not appearing on the list of Group C or Group D.

<sup>2</sup> Additional Courses from Group B or C can be used to fulfill Group D electives

**3** PLNT 2510 can be counted as a Free Elective if ANSC 3530 is taken. **Environmental Specialization**

There are numerous environmental issues faced by society. The environmental specialization provides engineers with the knowledge to predict environmental impacts due to human developments and to solve problems associated with the environment (soil contamination, pollution of rivers and lakes, air pollution, wastewater treatment).

Students who obtain a grade of “C” or better in the courses listed below will receive a notation of “Environmental Specialization” on their transcript at the time of graduation.<sup>4</sup>

Course	Title	Hours
<b>Group A: Science Electives</b>		
Choose:		
SOIL 4060	Physical Properties of Soils	3
And one of the following: <b>3</b>		
AGEC 2370	Principles of Ecology	<b>3</b>
BIOL 2300	Principles of Ecology	<b>3</b>
<b>Group B: Biosystems Engineering Design Electives</b>		
Three of the following: 12		
BIOE 4412	Design of Light-Frame Building Systems	
BIOE 4460	Air Pollution Assessment and Management	
BIOE 4590	Management of By-Products from Animal Production	
BIOE 4600	Design of Water Management Systems	
BIOE 4620	Remediation Engineering	
<b>Group C: Complementary Studies Electives</b>		
One of the following: 3		
ABIZ 2390	Introduction to Environmental Economics	
ENVR 1000	Environmental Science 1 - Concepts	
ENVR 2000	Environmental Science 2 - Issues	
ENVR 2810	Environmental Critical Thinking and Scientific Research	
ENVR 3160	Environmental Responsibilities and the Law	
ENVR 3400	Introduction to Environment and Health	
ENVR 3750	Green Building and Planning	
ENVR 3850	Sustainable Manitoba (A)	
ENVR 4050	Ecosystem Management	
ENVR 4400	Advanced Issues in Environment and Health	
GEOG 2520	Geography of Natural Resources (HS)	
PHIL 2750	Ethics and the Environment	
<b>Group D: Free Electives</b>		
Two of the following: <sup>1,2</sup> 6-8		
<b>AGEC 2370</b>	<b>Principles of Ecology</b>	
CIVL 3690	Environmental Engineering Analysis	
CIVL 3700	Environmental Engineering Design	
CIVL 4350	Hazardous Waste Treatment	
ENVR 2550	Environmental Chemistry	
ENVR 3110	Environmental Conservation and Restoration	
GEOG 3730	Geographic Information Systems (TS)	
<b>Total Hours</b>		<b>30-32 27-29</b>

<sup>1</sup> Special permission may be granted by the Head of Department for courses not appearing on the list for Group C or Group D.

<sup>2</sup> Additional courses from Group B or C can be used to fulfill Group D electives.

## Environment, Earth, and Resources

### Earth Sciences

Modification:

GEOL 3490 Glacial Geology 3 cr 0.0  
(Lab required) Principles of landform development with emphasis on glacial deposition. Aerial photo and map interpretation in lab. May not be held with the former GEOG 3580. Prerequisite: GEOL 2530.

**NET CHANGE IN CREDIT HOURS: 0.0**

Program modifications:

Modifications to the following programs are set out on the next 10 pages:

- **Bachelor of Science (Honours) in Environmental Geoscience**
- **Bachelor of Science (Major) in Environmental Geoscience**
- **Bachelor of Science (Honours) in Geology**
- **Bachelor of Science (Major) in Geology**
- **Bachelor of Science (Honours) in Geophysics**
- **Bachelor of Science (Major) in Geophysics**

# Environmental Geoscience, B.Sc. Honours

## Degree Requirements<sup>1</sup>

<b>Year 1</b>	<b>Hours</b>
GEOL 1340 The Dynamic Earth (B)	3
GEOL 1400 Time-Trekker's Travelog: Our Evolving Earth	3
ENVR 1000 Environmental Science 1 - Concepts (B)	3
MATH 1500 Introduction to Calculus (C) <sup>2</sup>	3
CHEM 1100 Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1120 Introduction to Chemistry Techniques <sup>3</sup>	3
PHYS 1020 General Physics 1 <sup>4</sup>	3
STAT 1000 Basic Statistical Analysis 1 <sup>5</sup>	3
Select 6 credit hours from the Faculty of Arts, including a required "W" course	6
<b>Hours</b>	<b>30</b>
<b>Year 2</b>	
GEOL 2390 Environmental Geology	3
GEOL 2440 Structural Geology 1	3
GEOL 2500 Introduction to Mineralogy	3
GEOL 2520 Igneous and Metamorphic Petrology	3
GEOL 2530 Introductory Sedimentary Petrology and Stratigraphy	3
GEOL 2770 Principles of Inorganic Geochemistry	3
GEOL 2800 Optics and Spectroscopy of Minerals	3
GEOL 2060 Introductory Geophysics	3
6 credit hours of electives	6
<b>Hours</b>	<b>30</b>
<b>Year 3</b>	
GEOL 3130 Communication Methods in the Geological Sciences	3
GEOL 3420 Engineering Geology	3
GEOL 3450 Hydrogeology	3
GEOL 3490 Glacial Geology <del>and Geomorphology</del>	3
GEOL 3910 Introduction to Field Mapping <sup>6</sup>	3
SOIL 3600 Soils and Landscapes in Our Environment	3
GEOG 3730 Geographic Information Systems (TS)	3
9 credit hours of electives	9
<b>Hours</b>	<b>30</b>
<b>Year 4</b>	
GEOL 3810 Applied Geophysics	3
GEOL 4260 Applied Geophysics Field Course <sup>6</sup>	3
GEOL 4870 Honours Thesis	6
Select 9 credit hours of Earth Science Environmental Geoscience Electives	9
9 credit hours of electives	9
<b>Hours</b>	<b>30</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> The courses required in this program will satisfy the University Mathematics requirement.

<sup>2</sup> MATH 1230, MATH 1510 or the former MATH 1520 may be used in lieu of MATH 1500; ~~or MATH 1690 may be used in place of MATH 1500 (or equivalent) and MATH 1700.~~

<sup>3</sup> CHEM 1122 and CHEM 1126 may be used in lieu of CHEM 1120.

<sup>4</sup> PHYS 1050 may be used in lieu of PHYS 1020.

<sup>5</sup> STAT 1150 may be used in lieu of STAT 1000.

<sup>6</sup> Students will register for GEOL 3910 and GEOL 4260 in Summer term. NOTE: Students should be aware that they are expected to contribute to transportation and accommodation costs. See the department office at the beginning of each year for information.

# Environmental Geoscience, B.Sc. Major

## Degree Requirements<sup>1</sup>

	Hours
<b>Year 1</b>	
GEOL 1340 The Dynamic Earth (C+)	3
GEOL 1400 Time-Trekker's Travelog: Our Evolving Earth	3
ENVR 1000 Environmental Science 1 - Concepts (C+)	3
MATH 1500 Introduction to Calculus (C) <sup>2</sup>	3
CHEM 1100 Introductory Chemistry 1: Atomic and Molecular Structure and Energetics (C)	3
CHEM 1120 Introduction to Chemistry Techniques <sup>3</sup>	3
PHYS 1020 General Physics 1 <sup>4</sup>	3
STAT 1000 Basic Statistical Analysis 1 <sup>5</sup>	3
Select 6 credit hours from the Faculty of Arts, including a required "W" course	6
<b>Hours</b>	<b>30</b>
<b>Year 2</b>	
GEOL 2390 Environmental Geology	3
GEOL 2440 Structural Geology 1	3
GEOL 2500 Introduction to Mineralogy	3
GEOL 2520 Igneous and Metamorphic Petrology	3
GEOL 2530 Introductory Sedimentary Petrology and Stratigraphy	3
GEOL 2770 Principles of Inorganic Geochemistry	3
GEOL 2800 Optics and Spectroscopy of Minerals	3
GEOL 2060 Introductory Geophysics	3
6 credit hours of electives	6
<b>Hours</b>	<b>30</b>
<b>Year 3</b>	
GEOL 3130 Communication Methods in the Geological Sciences	3
GEOL 3420 Engineering Geology	3
GEOL 3450 Hydrogeology	3
GEOL 3490 Glacial Geology <del>and</del> <b>Geomorphology</b>	3
GEOL 3910 Introduction to Field Mapping <sup>6</sup>	3
SOIL 3600 Soils and Landscapes in Our Environment	3
GEOG 3730 Geographic Information Systems (TS)	3
9 credit hours of electives	9
<b>Hours</b>	<b>30</b>
<b>Year 4</b>	
GEOL 3810 Applied Geophysics	3
GEOL 4260 Applied Geophysics Field Course <sup>6</sup>	3
Select 15 credit hours of Earth Science Environmental Geoscience Electives	15
9 credit hours of electives	9
<b>Hours</b>	<b>30</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> The courses required in this program will satisfy the University Mathematics requirement.

<sup>2</sup> MATH 1230, MATH 1510 or the former MATH 1520 may be used in lieu of MATH 1500; ~~or MATH 1690 may be used in place of MATH 1500 (or equivalent) and MATH 1700.~~

<sup>3</sup> CHEM 1122 and CHEM 1126 may be used in lieu of CHEM 1120.

<sup>4</sup> PHYS 1050 may be used in lieu of PHYS 1020.

<sup>5</sup> STAT 1150 may be used in lieu of STAT 1000.

<sup>6</sup> Students will register for GEOL 3910 and GEOL 4260 in Summer term. NOTE: Students should be aware that they are expected to contribute to transportation and accommodation costs. See the department office at the beginning of each year for information.

# Geology, B.Sc. Honours

## Degree Requirements

Year 1		Hours
GEOL 1340 The Dynamic Earth (B)		3
GEOL 1400 Time-Trekker's Travelog: Our Evolving Earth		3
MATH 1500 Introduction to Calculus (C) <sup>1</sup>		3
PHYS 1020 General Physics 1 <sup>2</sup>		3
CHEM 1100 Introductory Chemistry 1: Atomic and Molecular Structure and Energetics (C) <sup>3</sup>		3
CHEM 1120 Introduction to Chemistry Techniques <sup>3</sup>		3
Select 6 credit hours from the Faculty of Arts		6
<u>6 credit hours of elective credit</u>		<u>6</u>
<b>Hours</b>		<b>2430</b>
Year 2		Hours
GEOL 2440 Structural Geology 1		3
GEOL 2500 Introduction to Mineralogy		3
GEOL 2520 Igneous and Metamorphic Petrology		3
GEOL 2530 Introductory Sedimentary Petrology and Stratigraphy		3
GEOL 2800 Optics and Spectroscopy of Minerals		3
GEOL 2770 Principles of Inorganic Geochemistry		3
GEOL 3910 Introduction to Field Mapping <sup>4</sup>		3
<u>9 credit hours of elective credit</u>		<u>9</u>
<b>Hours</b>		<b>2130</b>
Year 3		Hours
GEOL 2060 Introductory Geophysics		3
GEOL 3110 Petrogenesis of Igneous Rocks		3
GEOL 3130 Communication Methods in the Geological Sciences		3
GEOL 3310 Paleontology		3
GEOL 3440 Structure and Metamorphism		3
GEOL 3450 Hydrogeology		3
GEOL 3490 Glacial Geology <del>and Geomorphology</del>		3
GEOL 3900 Sedimentology		3
GEOL 4910 Advanced Field Mapping <sup>4</sup>		3
Select 3 credit hours of Geological Sciences Geology Electives – Group A		3
<b>Hours</b>		<b>30</b>
Year 4		Hours
GEOL 4300 Mineral Deposits		3
GEOL 4520 Petroleum Geology		3
GEOL 4670 Global Tectonics		3
GEOL 4870 Honours Thesis		6
Select 6 credit hours of Geological Sciences Geology Electives – Group A		6
<u>9 credit hours of elective credit</u> Enough elective credit to total 120 credit hours for the program		<u>249</u>
<b>Hours</b>		<b>4530</b>
<b>Total Hours</b>		<b>120</b>

| <sup>1</sup> MATH 1230 or MATH 1510 or the former MATH 1520 may be used in lieu of MATH 1500.

<sup>2</sup> PHYS 1050 may be used in lieu of PHYS 1020.

<sup>3</sup> The former CHEM 1300 may be used in lieu of CHEM 1100 and CHEM 1120. CHEM 1122 and CHEM 1126 may be used in lieu of CHEM 1120.

<sup>4</sup> Students will register for GEOL 3910 and GEOL 4910 in Summer term. NOTE: Students should be aware that they are expected to contribute to transportation and accommodation costs. See the department office at the beginning of each year for information.

The courses required in this program will satisfy the University Mathematics requirement and the University Written English requirement.



# Geology, B.Sc. Major

## Degree Requirements

	<b>Hours</b>
<b>Year 1</b>	
GEOL 1340 The Dynamic Earth (C+)	3
GEOL 1400 Time-Trekker's Travelog: Our Evolving Earth	3
MATH 1500 Introduction to Calculus (C) <sup>1</sup>	3
PHYS 1020 General Physics 1 <sup>2</sup>	3
CHEM 1100 Introductory Chemistry 1: Atomic and Molecular Structure and Energetics <sup>3</sup>	3
CHEM 1120 Introduction to Chemistry Techniques <sup>3</sup>	3
Select 6 credit hours from the Faculty of Arts	6
<u>6 credit hours of elective credit</u>	<u>6</u>
<b>Hours</b>	<b>2430</b>
<b>Year 2</b>	
GEOL 2440 Structural Geology 1	3
GEOL 2500 Introduction to Mineralogy	3
GEOL 2520 Igneous and Metamorphic Petrology	3
GEOL 2530 Introductory Sedimentary Petrology and Stratigraphy	3
GEOL 2800 Optics and Spectroscopy of Minerals	3
GEOL 2770 Principles of Inorganic Geochemistry	3
GEOL 3910 Introduction to Field Mapping <sup>4</sup>	3
<u>9 credit hours of elective credit</u>	<u>9</u>
<b>Hours</b>	<b>2130</b>
<b>Year 3</b>	
GEOL 2060 Introductory Geophysics	3
GEOL 3110 Petrogenesis of Igneous Rocks	3
GEOL 3130 Communication Methods in the Geological Sciences	3
GEOL 3310 Paleontology	3
GEOL 3440 Structure and Metamorphism	3
GEOL 3490 Glacial Geology <del>and Geomorphology</del>	3
GEOL 3900 Sedimentology	3
GEOL 4910 Advanced Field Mapping <sup>4</sup>	3
Select 3 credit hours of Geological Sciences Geology Electives <sup>5</sup>	3
<u>3 credit hours of elective credit</u>	<u>3</u>
<b>Hours</b>	<b>2730</b>
<b>Year 4</b>	
GEOL 4670 Global Tectonics	3
Select 15 credit hours of Geological Sciences Geology Electives <sup>5</sup>	15
<u>12 credit hours of elective credit</u> <del>Enough elective credit to total 120 credit hours for the program</del>	<u>30</u> <del>12</del>
<b>Hours</b>	<b>4830</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> MATH 1230 or MATH 1510 or the former MATH 1520 may be used in lieu of MATH 1500.

<sup>2</sup> PHYS 1050 may be used in lieu of PHYS 1020.

<sup>3</sup> The former CHEM 1300 may be used in lieu of CHEM 1100 and CHEM 1120. CHEM 1122 and CHEM 1126 may be used in lieu of CHEM 1120.

<sup>4</sup> Students will register for GEOL 3910 and GEOL 4910 in Summer term. NOTE: Students should be aware that they are expected to contribute to transportation and accommodation costs. See the department office at the beginning of each year for information.

<sup>5</sup> Among the Geological Sciences Electives, Major students must complete 18 credit hours consisting of 3 credit hours from Group B with the remaining 15 credit hours from Group A or B.

The courses required in this program will satisfy the University Mathematics requirement and the University Written English requirement.

## Geological Sciences Geology Electives

- Honours students are required to complete a minimum of 9 credit hours from Group A;
- Major students must complete 18 credit hours consisting of 3 credit hours from Group B with the remaining 15 credit hours from Group A or B.

### GROUP A

Course	Title	Hours
GEOL 2390	Environmental Geology	3
GEOL 2570	Energy and Mineral Resources	3
GEOL 3140	Gemology	3
GEOL 3420	Engineering Geology	3
GEOL 3740	Exploration Seismology	3
GEOL 3750	Geology and Geophysics of the Planets	3
GEOL 3810	Applied Geophysics	3
GEOL 4260	Applied Geophysics Field Course	3
GEOL 4270	Advanced Studies in Earth Sciences	3
GEOL 4280	Instrumental Techniques in Geology	3
GEOL 4310	Paleontologic Principles	3
GEOL 4360	Mineral Exploration Techniques	3
GEOL 4370	Global Change	3
GEOL 4380	Mineral Resource Development	3
GEOL 4740	Geophysics Field Course	6
GEOL 4890	Basin Analysis	3
GEOL 4920	Technical Report	3
ENVR 2180	Introductory Toxicology	3
ENVR 2550	Environmental Chemistry	3
GEOG 2310	Introduction to Process Hydrology (PS)	3
<b>GEOG 2550</b>	<b>Geomorphology (PS)</b>	<b>3</b>
GEOG 2930	Introduction to Oceanography	3
GEOG 3200	Introduction to Remote Sensing (TS)	3
GEOG 3730	Geographic Information Systems (TS)	3
Course List		

### GROUP B

Course	Title	Hours
GEOL 3450	Hydrogeology	3
GEOL 4300	Mineral Deposits	3
GEOL 4520	Petroleum Geology	3
Course List		

**Note:** With departmental approval, up to 6 credit hours of 2000-level or higher courses from Science departments may be substituted to satisfy professional registration (EGM) requirements.

## Geophysics Electives Lists

### EARTH SCIENCE COURSE ELECTIVES LIST

- Honours students are required to complete a minimum of 6 credit hours;
- Major students must complete a minimum of 6 credit hours from the following courses:

Course	Title	Hours
GEOL 2390	Environmental Geology	3
GEOL 2570	Energy and Mineral Resources	3
GEOL 2770	Principles of Inorganic Geochemistry	3
GEOL 3110	Petrogenesis of Igneous Rocks	3
GEOL 3420	Engineering Geology	3
GEOL 3440	Structure and Metamorphism	3
GEOL 3450	Hydrogeology	3
GEOL 3490	Glacial Geology <del>and Geomorphology</del>	3
GEOL 3750	Geology and Geophysics of the Planets	3
GEOL 3900	Sedimentology	3
GEOL 3910	Introduction to Field Mapping	3
GEOL 4270	Advanced Studies in Earth Sciences	3
GEOL 4300	Mineral Deposits	3
GEOL 4360	Mineral Exploration Techniques	3
GEOL 4370	Global Change	3
GEOL 4380	Mineral Resource Development	3
GEOL 4520	Petroleum Geology	3
GEOL 4890	Basin Analysis	3
GEOL 4910	Advanced Field Mapping	3
ENVR 2550	Environmental Chemistry	3
GEOG 2300	Atmospheric Thermodynamics, Clouds and Precipitation (PS)	3
GEOG 2310	Introduction to Process Hydrology (PS)	3
<b>GEOG 2550</b>	<b>Geomorphology (PS)</b>	<b>3</b>
GEOG 2930	Introduction to Oceanography	3
GEOG 3200	Introduction to Remote Sensing (TS)	3
GEOG 3310	Atmospheric Dynamics, Storms and Radar (PS)	3
GEOG 3320	Introduction to Microclimates and Micrometeorology (PS)	3
GEOG 3730	Geographic Information Systems (TS)	3
Any course from the Geophysics Course Electives List or the Physical Science Course Electives List not already taken, or any advanced level Earth Sciences, Physics or Mathematics course(s) approved by department		

## Environment and Geography

### Introductions:

ENVR 4800 Climate and Society 3 cr +3.0

This course takes an interdisciplinary approach to explore the social causes, consequences, and necessary responses to climate change including adaptation and mitigation. It identifies key concepts and analytic approaches that assist with identifying the social, economic, political, and cultural processes that both drive climate change and influence responses. In particular, it engages with human environment relationships and the role of diverse values, identities, knowledge systems and emotions, and the differential amounts of power held across social groups. Examples will be drawn from the global North and South and at multiple scales from the local to global. May not be held with GEOG 4800 or ENVR 4000 when titled "Climate and Society" or GEOG 4670 when titled "Climate and Society." Prerequisite: 3 credit hours of 2000- or 3000- or 4000- level GEOG or ENVR, or permission of the instructor.

GEOG 3822 The Meaning of Maps 3 cr +3.0

This course examines mapping theory and practice in order to reveal the meaning of maps including how maps construct knowledge, exercise power, and can promote social change. Using maps from a variety of sources, students will develop a solid foundation in the literature and gain experience in understanding and analyzing maps and other forms of geospatial representations such as Geographic Information Systems and remote sensing. May not be held with GEOG 3770 when titled "Critical Cartography." Prerequisite: Permission of instructor or department head.

GEOG 4800 Climate and Society 3 cr +3.0

This course takes an interdisciplinary approach to explore the social causes, consequences, and necessary responses to climate change including adaptation and mitigation. It identifies key concepts and analytic approaches that assist with identifying the social, economic, political, and cultural processes that both drive climate change and influence responses. In particular, it engages with human environment relationships and the role of diverse values, identities, knowledge systems and emotions, and the differential amounts of power held across social groups. Examples will be drawn from the global North and South and at multiple scales from the local to global. May not be held with ENVR 4800 or ENVR 4000 when titled "Climate and Society" or GEOG 4670 when titled "Climate and Society." Prerequisite: 3 credit hours of 2000- or 3000- or 4000- level GEOG or ENVR, or permission of the instructor.

**NET CHANGE IN CREDIT HOURS: +9.0**

### Program modifications:

Modifications to the following programs are set out on the next 10 pages:

- **Bachelor of Environmental Studies (Honours)**
- **Bachelor of Environmental Studies (Honours), Co-operative Option**
- **Bachelor of Environmental Studies (Major)**
- **Bachelor of Environmental Studies (Major), Co-operative Option**
- **Bachelor of Environmental Studies (General)**

# Environmental Studies, B.Env.St. Honours

## Degree Requirements

Year 1		Hours
ENVR 1000	Environmental Science 1 - Concepts	3
ENVR 2000	Environmental Science 2 - Issues	3
GEOG 1280	Introduction to Human Geography	3
GEOG 1290	Introduction to Physical Geography	3
<u>Select one of the following:</u>		<u>3</u>
<u>NATV-INDG 1220</u>	<u>Indigenous Peoples in Canada, Part 1 (No longer offered) <sup>1</sup></u>	<u>3</u>
<u>INDG 1240</u>	<u>Indigenous Peoples in Canada, Part 2</u>	
<u>INDG/HIST 2020</u>	<u>The Métis in Canada <sup>1</sup></u>	
<u>INDG 2080</u>	<u>Inuit Society and Culture</u>	
BIOL 1010	Biology: Biological Diversity and Interaction <sup>2</sup>	3
STAT 1000	Basic Statistical Analysis 1	3
ECON 1010	Introduction to Microeconomic Principles	3
<u>6 credit hours of elective credit <sup>1</sup></u>		<u>6</u>
<b>Hours</b>		<b>2430</b>
Year 2		Hours
ENVR 2350	Technical Communication in the Environmental Sectors	3
ENVR 3160	Environmental Responsibilities and the Law <sup>3</sup>	3
ECON/ABIZ 2390	Introduction to Environmental Economics	3
BIOL 2390	Introductory Ecology <sup>2</sup>	3
Select 3 credit hours from List B <sup>4</sup>		3
<u>15 credit hours of elective credit <sup>1</sup></u>		<u>15</u>
<b>Hours</b>		<b>1530</b>
Years 3-4		Hours
GEOG 3810	Quantitative Research Methods in Geography (TS) <sup>5</sup>	3
ENVR 4110	Critical Thinking and the Environment	3
ENVR 4500	Thesis Project in Environmental Science and Studies	6
Select 33 credit hours in an approved Focus Area <sup>6</sup>		33
<u>15 credit hours of elective credit</u> <u>Select enough elective credit to total 120 credit hours for the program.</u>		<u>3615</u>
<b>Hours</b>		<b>8160</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Students are permitted to substitute NATV 1220 with another 3 credit hours from the department (not a language) or approved alternative course. See the Riddell Faculty student advisor for assistance. The W course must be completed within the first 60 credit hours. Students who do not select INDG/HIST 2020 within the first 60 credit hours will use 3 credit hours of elective credit.

<sup>2</sup> Students with an interest in the Conservation and Biodiversity Focus Area (or other Focus Areas including advanced Biology courses) are advised to complete the combination of BIOL 1020 and BIOL 1030 as well as BIOL 2300 (or AGECE 2370) instead of BIOL 1010 and BIOL 2390.

<sup>3</sup> The former ENVR 2650 may be used in lieu of ENVR 3160.

<sup>4</sup> Students must complete 3 credit hours of course work containing significant international content. Students are referred to List B for a list of available courses. Students may substitute with another course as approved by the student advisor.

<sup>5</sup> The former GEOG 3680 may be used in lieu of GEOG 3810.

<sup>6</sup> Focus Area courses must include a minimum of 21 credit hours at the 3000- and/or 4000-level. Focus Area performance requirements are defined in Minimum Performance Requirements for Continuation and Graduation. Information on Focus Areas is available in the Focus Area Brochure.

Advanced Entry into the degree programs is summarized in the Overview. The courses required in this program will satisfy the University Mathematics Requirements.

~~The W course must be completed within the first 60 credit hours of coursework.~~

## Honours Cooperative Option

Year 1		Hours
ENVR 1000	Environmental Science 1 - Concepts	3
ENVR 2000	Environmental Science 2 - Issues	3
GEOG 1280	Introduction to Human Geography	3
GEOG 1290	Introduction to Physical Geography	3
<u>Select one of the following:</u>		<u>3</u>
<del>NATV-INDG 1220</del>	<del>Indigenous Peoples in Canada, Part 1 (No longer offered) <sup>1</sup></del>	<del>3</del>
<u>INDG 1240</u>	<u>Indigenous Peoples in Canada, Part 2</u>	
<u>INDG/HIST 2020</u>	<u>The Métis in Canada <sup>1</sup></u>	
<u>INDG 2080</u>	<u>Inuit Society and Culture</u>	
BIOL 1010	Biology: Biological Diversity and Interaction <sup>2</sup>	3
STAT 1000	Basic Statistical Analysis 1	3
ECON 1010	Introduction to Microeconomic Principles	3
<u>6 credit hours of elective credit <sup>1</sup></u>		<u>6</u>
<b>Hours</b>		<b><u>2430</u></b>
Year 2		
ENVR 2350	Technical Communication in the Environmental Sectors	3
ENVR 3160	Environmental Responsibilities and the Law <sup>3</sup>	3
ECON/ABIZ 2390	Introduction to Environmental Economics	3
BIOL 2390	Introductory Ecology <sup>2</sup>	3
Select 3 credit hours from List B <sup>4</sup>		3
ENVR 2900	Professional Development in the Environmental Sectors 1	1.5
ENVR 3980	Coop Work Term 1	0
ENVR 3910	Coop Work Term Report 1	1.5
<u>12 credit hours of elective credit <sup>1</sup></u>		<u>12</u>
<b>Hours</b>		<b><u>1830</u></b>
Years 3-4		
GEOG 3810	Quantitative Research Methods in Geography (TS) <sup>5</sup>	3
ENVR 4110	Critical Thinking and the Environment	3
ENVR 4500	Thesis Project in Environmental Science and Studies	6
Select 33 credit hours in an approved Focus Area <sup>6</sup>		33
ENVR 3900	Professional Development in the Environmental Sectors 2	1.5
ENVR 3990	Coop Work Term 2	0
ENVR 3920	Coop Work Term Report 2	1.5
ENVR 4980	Work Term 3 (optional)	
ENVR 4910	Coop Work Term Report 3 (optional)	
<u>12 credit hours of elective credit</u> <del>Select enough elective credit to total 120 credit hours for the program.</del>		<u>30</u> <del>12</del>
<b>Hours</b>		<b><u>7860</u></b>
<b>Total Hours</b>		<b>120</b>



- ~~<sup>1</sup> Students are permitted to substitute NATV 1220 with another 3 credit hours from the department (not a language) or approved alternative course. See the Riddell Faculty student advisor for assistance. The W course must be completed within the first 60 credit hours. Students who do not select INDG/HIST 2020 within the first 60 credit hours will use 3 credit hours of elective credit.~~
- <sup>2</sup> Students with an interest in the Conservation and Biodiversity Focus Area (or other Focus Areas including advanced Biology courses) are advised to complete the combination of BIOL 1020 and BIOL 1030 as well as BIOL 2300 (or AGECE 2370) instead of BIOL 1010 and BIOL 2390.
- <sup>3</sup> The former ENVR 2650 may be used in lieu of ENVR 3160.
- <sup>4</sup> Students must complete 3 credit hours of course work containing significant international content. Students are referred to List B for a list of available courses. Students may substitute with another course as approved by the student advisor.
- <sup>5</sup> The former GEOG 3680 may be used in lieu of GEOG 3810.
- <sup>6</sup> Focus Area courses must include a minimum of 21 credit hours at the 3000- and/or 4000-level. Focus Area performance requirements are defined in Minimum Performance Requirements for Continuation and Graduation. Information on Focus Areas is available in the Focus Area Brochure.

Advanced Entry into the degree programs is summarized in the Overview. The courses required in this program will satisfy the University Mathematics Requirements.

~~The W course must be completed within the first 60 credit hours of coursework.~~

**Important:** The Honours and Major programs need not be completed in the manner prescribed in the chart above. The chart indicates one possible arrangement of the required courses and is meant to be a guide around which students can plan their program.

**Notes:**

- To fulfil prerequisite requirements, a grade of 'C' must be achieved, unless otherwise stated, in any course stipulated as a prerequisite to a further course.
- Students should review the current course topics available through ENVR 2010, ENVR 2020, ENVR 3010, ENVR 3020, ENVR 4000, ENVR 4010, and ENVR 4020 as well as those offered through GEOG 3740, GEOG 3750, GEOG 3760, GEOG 3770 and GEOG 4670. Also, all courses are not offered every year or every term. The course schedule for the current academic term is available from the Class Schedule in Aurora.
- Students registering in certain courses may be required to participate in field trips or field components and pay a portion of the associated expenses. For details, contact the Department of Environment and Geography general office.
- Equivalent courses offered through Université de Saint-Boniface may be used in lieu of the specified course identified in the entrance requirements chart.

# Environmental Studies, B.Env.St. Major

## Degree Requirements

Year 1		Hours
ENVR 1000	Environmental Science 1 - Concepts	3
ENVR 2000	Environmental Science 2 - Issues	3
GEOG 1280	Introduction to Human Geography	3
GEOG 1290	Introduction to Physical Geography	3
<u>Select one of the following:</u>		<u>3</u>
<del>NATV-INDG 1220</del>	<del>Indigenous Peoples in Canada, Part 1 (No longer offered) <sup>1</sup></del>	<del>3</del>
<u>INDG 1240</u>	<u>Indigenous Peoples in Canada, Part 2</u>	
<u>INDG/HIST 2020</u>	<u>The Métis in Canada <sup>1</sup></u>	
<u>INDG 2080</u>	<u>Inuit Society and Culture</u>	
BIOL 1010	Biology: Biological Diversity and Interaction <sup>2</sup>	3
STAT 1000	Basic Statistical Analysis 1	3
ECON 1010	Introduction to Microeconomic Principles	3
<u>6 credit hours of elective credit <sup>1</sup></u>		<u>6</u>
<b>Hours</b>		<b><u>2430</u></b>
Year 2		
ENVR 2350	Technical Communication in the Environmental Sectors	3
ENVR 3160	Environmental Responsibilities and the Law <sup>3</sup>	3
ECON/ABIZ 2390	Introduction to Environmental Economics	3
BIOL 2390	Introductory Ecology <sup>2</sup>	3
Select 3 credit hours from List B <sup>4</sup>		3
<u>15 credit hours of elective credit <sup>1</sup></u>		<u>15</u>
<b>Hours</b>		<b><u>1530</u></b>
Years 3-4		
GEOG 3810	Quantitative Research Methods in Geography (TS) <sup>5</sup>	3
ENVR 4110	Critical Thinking and the Environment	3
Select 33 credit hours in an approved Focus Area <sup>6</sup>		33
<u>21 credit hours of elective credit</u> <del>Select enough elective credit to total 120 credit hours for the program.</del>		<u>42</u> <del>21</del>
<b>Hours</b>		<b><u>8160</u></b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> ~~Students are permitted to substitute NATV 1220 with another 3 credit hours from the department (not a language) or approved alternative course. See the Riddell Faculty student advisor for assistance. The W course must be completed within the first 60 credit hours. Students who do not select INDG/HIST 2020 within the first 60 credit hours will use 3 credit hours of elective credit.~~

<sup>2</sup> Students with an interest in the Conservation and Biodiversity Focus Area (or other Focus Areas including advanced Biology courses) are advised to complete the combination of BIOL 1020 and BIOL 1030 as well as BIOL 2300 (or AGECE 2370) instead of BIOL 1010 and BIOL 2390.

- <sup>3</sup> The former ENVR 2650 may be used in lieu of ENVR 3160.
- <sup>4</sup> Students must complete 3 credit hours of course work containing significant international content. Students are referred to List B for a list of available courses. Students may substitute with another course as approved by the student advisor.
- <sup>5</sup> The former GEOG 3680 may be used in lieu of GEOG 3810.
- <sup>6</sup> Focus Area courses must include a minimum of 21 credit hours at the 3000- and/or 4000-level. Focus Area performance requirements are defined in Minimum Performance Requirements for Continuation and Graduation. Information on Focus Areas is available in the Focus Area Brochure.

Advanced Entry into the degree programs is summarized in the Overview. The courses required in this program will satisfy the University Mathematics Requirements.

~~The W course must be completed within the first 60 credit hours of coursework.~~

## Major Cooperative Option

Year 1		Hours
ENVR 1000	Environmental Science 1 - Concepts	3
ENVR 2000	Environmental Science 2 - Issues	3
GEOG 1280	Introduction to Human Geography	3
GEOG 1290	Introduction to Physical Geography	3
<u>Select one of the following:</u>		<u>3</u>
<del>NATV-INDG 1220</del>	<del>Indigenous Peoples in Canada, Part 1 (No longer offered) <sup>1</sup></del>	<del>3</del>
<u>INDG 1240</u>	<u>Indigenous Peoples in Canada, Part 2</u>	
<u>INDG/HIST 2020</u>	<u>The Métis in Canada <sup>1</sup></u>	
<u>INDG 2080</u>	<u>Inuit Society and Culture</u>	
BIOL 1010	Biology: Biological Diversity and Interaction <sup>2</sup>	3
STAT 1000	Basic Statistical Analysis 1	3
ECON 1010	Introduction to Microeconomic Principles	3
<u>6 credit hours of elective credit <sup>1</sup></u>		<u>6</u>
<b>Hours</b>		<b><u>2430</u></b>
<b>Year 2</b>		
ENVR 2350	Technical Communication in the Environmental Sectors	3
ENVR 3160	Environmental Responsibilities and the Law <sup>3</sup>	3
ECON/ABIZ 2390	Introduction to Environmental Economics	3
BIOL 2390	Introductory Ecology <sup>2</sup>	3
Select 3 credit hours from List B <sup>4</sup>		3
ENVR 2900	Professional Development in the Environmental Sectors 1	1.5
ENVR 3980	Coop Work Term 1	0
ENVR 3910	Coop Work Term Report 1	1.5
<u>12 credit hours of elective credit <sup>1</sup></u>		<u>12</u>
<b>Hours</b>		<b><u>1830</u></b>
<b>Years 3-4</b>		
GEOG 3810	Quantitative Research Methods in Geography (TS) <sup>5</sup>	3
ENVR 4110	Critical Thinking and the Environment	3
Select 33 credit hours in an approved Focus Area <sup>6</sup>		33
ENVR 3900	Professional Development in the Environmental Sectors 2	1.5
ENVR 3990	Coop Work Term 2	0
ENVR 3920	Coop Work Term Report 2	1.5
ENVR 4980	Work Term 3 (optional)	
ENVR 4910	Coop Work Term Report 3 (optional)	
<u>18 credit hours of elective credit</u> <del>Select enough elective credit to total 120 credit hours for the program</del>		<u>36</u> <del>18</del>
<b>Hours</b>		<b><u>7860</u></b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> ~~Students are permitted to substitute NATV 1220 with another 3 credit hours from the department (not a language) or approved alternative course. See the Riddell Faculty student~~

advisor for assistance. The W course must be completed within the first 60 credit hours. Students who do not select INDG/HIST 2020 within the first 60 credit hours will use 3 credit hours of elective credit.

- <sup>2</sup> Students with an interest in the Conservation and Biodiversity Focus Area (or other Focus Areas including advanced Biology courses) are advised to complete the combination of BIOL 1020 and BIOL 1030 as well as BIOL 2300 (or AGECE 2370) instead of BIOL 1010 and BIOL 2390.
- <sup>3</sup> The former ENVR 2650 may be used in lieu of ENVR 3160.
- <sup>4</sup> Students must complete 3 credit hours of course work containing significant international content. Students are referred to List B for a list of available courses. Students may substitute with another course as approved by the student advisor.
- <sup>5</sup> The former GEOG 3680 may be used in lieu of GEOG 3810.
- <sup>6</sup> Focus Area courses must include a minimum of 21 credit hours at the 3000- and/or 4000-level. Focus Area performance requirements are defined in Minimum Performance Requirements for Continuation and Graduation. Information on Focus Areas is available in the Focus Area Brochure.

Advanced Entry into the degree programs is summarized in the Overview. The courses required in this program will satisfy the University Mathematics Requirements.

~~The W course must be completed within the first 60 credit hours of coursework.~~

**Important:** The Honours and Major programs need not be completed in the manner prescribed in the chart above. The chart indicates one possible arrangement of the required courses and is meant to be a guide around which students can plan their program.

**Notes:**

- To fulfil prerequisite requirements, a grade of 'C' must be achieved, unless otherwise stated, in any course stipulated as a prerequisite to a further course.
- Students should review the current course topics available through ENVR 2010, ENVR 2020, ENVR 3010, ENVR 3020, ENVR 4000, ENVR 4010, and ENVR 4020 as well as those offered through GEOG 3740, GEOG 3750, GEOG 3760, GEOG 3770 and GEOG 4670. Also, all courses are not offered every year or every term. The course schedule for the current academic term is available from the Class Schedule in Aurora.
- Students registering in certain courses may be required to participate in field trips or field components and pay a portion of the associated expenses. For details, contact the Department of Environment and Geography general office.
- Equivalent courses offered through Université de Saint-Boniface may be used in lieu of the specified course identified in the entrance requirements chart.

# Environmental Studies, B.Env.St. General

## Degree Requirements

Year 1		Hours
ENVR 1000	Environmental Science 1 - Concepts	3
ENVR 2000	Environmental Science 2 - Issues	3
GEOG 1280	Introduction to Human Geography	3
GEOG 1290	Introduction to Physical Geography	3
<u>Select one of the following:</u>		<u>3</u>
<del>NATV-INDG 1220</del>	<del>Indigenous Peoples in Canada, Part 1 (No Longer offered)<sup>1</sup></del>	<del>3</del>
<u>INDG 1240</u>	<u>Indigenous Peoples in Canada, Part 2</u>	
<u>INDG/HIST 2020</u>	<u>The Métis in Canada <sup>1</sup></u>	
<u>INDG 2080</u>	<u>Inuit Society and Culture</u>	
BIOL 1010	Biology: Biological Diversity and Interaction <sup>2</sup>	3
STAT 1000	Basic Statistical Analysis 1	3
ECON 1010	Introduction to Microeconomic Principles	3
<u>6 credit hours of elective credit <sup>1</sup></u>		<u>6</u>
<b>Hours</b>		<b>2430</b>
Year 2		Hours
ENVR 2350	Technical Communication in the Environmental Sectors	3
ENVR 3160	Environmental Responsibilities and the Law <sup>3</sup>	3
ECON/ABIZ 2390	Introduction to Environmental Economics	3
BIOL 2390	Introductory Ecology <sup>2</sup>	3
Select 3 credit hours from List B <sup>4</sup>		3
<u>15 credit hours of elective credit <sup>1</sup></u>		<u>15</u>
<b>Hours</b>		<b>1530</b>
Years 3-4		Hours
GEOG 3810	Quantitative Research Methods in Geography (TS) <sup>5</sup>	3
ENVR 4110	Critical Thinking and the Environment	3
Select 9 credit hours in an approved Focus Area <sup>6</sup>		9
<u>15 credit hours of elective credit. Select enough elective credit to total 90 credit hours for the program.</u>		<u>3615</u>
<b>Hours</b>		<b>5130</b>
<b>Total Hours</b>		<b>90</b>

<sup>1</sup> ~~Students are permitted to substitute NATV-1220 with another 3 credit hours from the department (not a language) or approved alternative course. See the Riddell Faculty student advisor for assistance. The W course must be completed within the first 60 credit hours. Students who do not select INDG/HIST 2020 within the first 60 credit hours will use 3 credit hours of elective credit.~~

- <sup>2</sup> Students with an interest in the Conservation and Biodiversity Focus Area (or other Focus Areas including advanced Biology courses) are advised to complete the combination of BIOL 1020 and BIOL 1030 as well as BIOL 2300 (or AGECE 2370) instead of BIOL 1010 and BIOL 2390.
- <sup>3</sup> The former ENVR 2650 may be used in lieu of ENVR 3160.
- <sup>4</sup> Students must complete 3 credit hours of course work containing significant international content. Students are referred to List B for a list of available courses. Students may substitute with another course as approved by the student advisor.
- <sup>5</sup> The former GEOG 3680 may be used in lieu of GEOG 3810.
- <sup>6</sup> Focus Area performance requirements are defined in Minimum Performance Requirements for Continuation and Graduation. Information on Focus Areas is available in the Focus Area Brochure.

Advanced Entry into the degree programs is summarized in the Overview. The courses required in this program will satisfy the University Mathematics Requirements.

~~The W course must be completed within the first 60 credit hours of coursework.~~

**Important:** The Honours and Major programs need not be completed in the manner prescribed in the chart above. The chart indicates one possible arrangement of the required courses and is meant to be a guide around which students can plan their program.

**Notes:**

- To fulfil prerequisite requirements, a grade of 'C' must be achieved, unless otherwise stated, in any course stipulated as a prerequisite to a further course.
- Students should review the current course topics available through ENVR 2010, ENVR 2020, ENVR 3010, ENVR 3020, ENVR 4000, ENVR 4010, and ENVR 4020 as well as those offered through GEOG 3740, GEOG 3750, GEOG 3760, GEOG 3770 and GEOG 4670. Also, all courses are not offered every year or every term. The course schedule for the current academic term is available from the Class Schedule in Aurora.
- Students registering in certain courses may be required to participate in field trips or field components and pay a portion of the associated expenses. For details, contact the Department of Environment and Geography general office.
- Equivalent courses offered through Université de Saint-Boniface may be used in lieu of the specified course identified in the entrance requirements chart.

## Faculty of Health Sciences

### Modifications:

HEAL 2600 Integration of Health Determinants of Individuals 3 cr 0.0  
Students study, integrate and apply the determinants that affect the health of individuals throughout the lifespan to selected case or learning scenarios. The case or learning scenarios present a variety of issues in the delivery of health-related services that are intended to benefit individual health. Prerequisites: [one of CHEM 1100, the former CHEM 1300, BIOL 1020, HEAL 1502, or STAT 1000] and [one of PSYC 1200, (PSYC 1211 and PSYC 1221), the former PSYC 1201, SOC 1000, or the former SOC 1200] or consent of instructor.

HEAL 4650 Selected Topics in Interdisciplinary Health 3 cr 0.0  
The opportunity to carry out study in a health-related area. The course content will vary depending on the topic selected for study. Students can take this course more than once for credit only when the topic subtitle is different. Prerequisite: Consent of instructor and director.

### **NET CHANGE IN CREDIT HOURS: 0.0**

### Program modifications:

Modifications to the following programs are outlined on the next 17 pages:

- **Bachelor of Health Sciences**
- **Bachelor of Health Studies**
  - **Health Policy, Planning, and Evaluation Concentration**
  - **Health Promotion and Education Concentration**



# Health Sciences, B.H.Sc.

## Degree Requirements

The Bachelor of Health Sciences (B.H.Sc.) degree is a four year interdisciplinary program that incorporates science, humanities and social science to provide students with an integrative perspective on health. The B.H.Sc. provides students with an interdisciplinary background and skill set that will contribute to their preparation for a future in health-related careers. This interdisciplinary skill set is seen as advantageous for students applying for education in professional health programs and graduate studies.

The Bachelor of Health Sciences (B.H.Sc.) Degree consists of 120 credit hours.

Students should consult the Academic Calendar to ensure that they have the appropriate pre- or co-requisites before they attempt to register in a course. A number of courses are cross-listed between departments/faculties. Students are strongly encouraged to seek the advice of the Academic Advisor in the Interdisciplinary Health Program in order to plan their programs.

Year 1		Hours
<u>BIOL 1410</u>	Anatomy of the Human Body	3
<u>CHEM 1100</u>	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics <sup>2</sup>	3
<u>CHEM 1110</u>	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties <sup>2</sup>	3
<u>CHEM 1120</u>	Introduction to Chemistry Techniques <sup>2</sup>	3
<u>HEAL 1500</u>	Foundations of Human Biology 1 <sup>3</sup>	3
<u>HEAL 1502</u>	Foundations of Human Biology 2 <sup>3</sup>	3
<u>INDG 1220</u> or <u>INDG 1240</u>	Indigenous Peoples in Canada, Part 1 or Indigenous Peoples in Canada, Part 2	3
<u>PSYC 1200</u> or <u>SOC 1000</u>	Introduction to Psychology or Introduction to Sociology	6
<u>STAT 1000</u>	Basic Statistical Analysis 1	3
3 credit hours of Free electives if <u>SOC 1000</u> is taken		
<b>Hours</b>		<b>30</b>
Year 2		
<u>BGEN 2000</u>	Medical Cell Biology	3
<u>CHEM 2730</u>	Elements of Biochemistry 1	3
<u>CHEM 2740</u>	Introduction to the Biochemistry Laboratory	3
<u>HEAL 2600</u>	Integration of Health Determinants of Individuals	3
<u>HNSC 1210</u>	Nutrition for Health and Changing Lifestyles	3

<u>HNSC 2000</u>	Research Methods and Presentation <sup>4</sup>	3
or <u>PSYC 2250</u>	or Introduction to Psychological Research	
<u>IMMU 2000</u>	Fundamentals in Immunology	3
<u>PHGY 1030</u>	Fundamentals of Medical Physiology	6
Select 3 credit hours of Free Electives		3
	<b>Hours</b>	<b>30</b>
<b>Year 3</b>		
<u>BGEN 3010</u>	Genetics in Biomedicine <sup>5</sup>	3
<u>FMLY 3750</u>	Fundamentals of Health Promotion	3
<u>FMLY 3780</u>	Introduction to the Development of Programs for	3
or <u>FMLY 3790</u>	Children and Families	
	or Introduction to the Evaluation of Programs for	
	Children and Families	
<u>HEAL 3000</u>	Introduction to Social Epidemiology	3
<u>HEAL 3600</u>	Integration of Health Determinants for Communities	3
<u>HEAL 3610</u>	Mechanisms of Disease 1	3
<u>PHAC 3000</u>	Foundations of Pharmacology	3
<u>PHIL 2740</u>	Ethics and Biomedicine <sup>6</sup>	3
3 credit hours of Free Electives		3
3 credit hours of Program Electives <sup>7</sup>		3
	<b>Hours</b>	<b>30</b>
<b>Year 4</b>		
<u>ANAT 4010</u>	Human Embryology	3
<u>HEAL 4600</u>	Integration of Health Determinants for Canada and the	3
	World	
<u>HEAL 4620</u>	Health Sciences Capstone	3
<u>HEAL 4630</u>	Mechanisms of Disease 2	3
<u>PHAC 4030</u>	Drugs in Human Disease I	3
<u>PHAC 4040</u>	Drugs in Human Disease II	3
6 credit hours of Program Electives <sup>7</sup>		6
6 credit hours of Free Electives		6
	<b>Hours</b>	<b>30</b>
	<b>Total Hours</b>	<b>120</b>

<sup>1</sup> Equivalent courses offered through Université de Saint-Boniface may be used in lieu of the specified courses identified in the degree program chart.

<sup>2</sup> The former CHEM 1300 and the former CHEM 1310 may be used as course equivalents if completed prior to September 2021.

<sup>3</sup> BIOL 1020 and BIOL 1030 may be used as course equivalents if completed prior to September 2021.

<sup>4</sup> Students are advised that they must complete 3 credit hours from the Written English list within their first 60 credit hours, if they do not plan to take HNSC 2000.

- <sup>5</sup> Students interested in applying to the MSc in Genetic Counselling must take BGEN 3022 and BGEN 3024 instead of BGEN 3010.
- <sup>6</sup> PHIL 2290 (6) may be used in place of PHIL 2740 and will also satisfy the requirement of 3 credit hours of Free Electives.
- <sup>7</sup> Of the 9 credit hours of program electives, 6 credit hours must be selected from the science elective list. **HEAL 4650 can be completed a maximum of two times.**

# Health Studies, B.H.St. (2022-2023)

## Degree Requirements

The Bachelor of Health Studies (B.H.St.) Degree now consists of 3 Concentrations from which students must declare at least one. A Concentration is 18 credit hours. Students must choose from one of the following 3 Concentrations: Health Policy, Planning and Evaluation, Health Promotion and Education, or Family Health. Requirements for these are found in the [Concentrations Tab](#).

Year 1		Hours
<u>ANTH 1210</u> Human Origins and Antiquity or <u>ANTH 1220</u> or Cultural Anthropology		3
<u>FMLY 1012</u> Introduction to Social Development		3
<u>HEAL 1500</u> Foundations of Human Biology 1 <sup>2</sup>		3
<u>HEAL 1502</u> Foundations of Human Biology 2 <sup>2</sup>		3
<u>PSYC 1200</u> Introduction to Psychology		6
<u>SOC 1000</u> Introduction to Sociology		3
<u>STAT 1000</u> Basic Statistical Analysis 1		3
3 credit hours of Concentration Electives		3
3 credit hours of Free Electives		3
<b>Hours</b>		<b>30</b>
Year 2		Hours
<u>ECON 1210</u> Introduction to Canadian Economic Issues and Policies or <u>ECON 1220</u> or Introduction to Global and Environmental Economic Issues and Policies		3
<u>GMGT 1010</u> Business and Society or <u>GMGT 2070</u> or Introduction to Organizational Behaviour		3
<u>HEAL 2600</u> Integration of Health Determinants of Individuals		3
<u>HNSC 1210</u> Nutrition for Health and Changing Lifestyles		3
<u>HNSC 2000</u> Research Methods and Presentation <sup>3</sup> or <u>PSYC 2250</u> or Introduction to Psychological Research		3
Select one of the following:		3
<u>INDG 1220</u> Indigenous Peoples in Canada, Part 1		
<u>INDG 1240</u> Indigenous Peoples in Canada, Part 2		
<u>INDG 3240</u> Indigenous Medicine and Health		
Select 6 credit hours of Concentration Electives		6
Select 3 credit hours of Program Electives <sup>4</sup>		3
Select 3 credit hours of Free Electives		3
<b>Hours</b>		<b>30</b>

<b>Year 3</b>		
<u>FMLY 3750</u>	Fundamentals of Health Promotion	3
<u>FMLY 3780</u>	Introduction to the Development of Programs for Children and Families	3
<u>FMLY 3790</u>	Introduction to the Evaluation of Programs for Children and Families	3
<u>HEAL 3000</u>	Introduction to Social Epidemiology	3
<u>HEAL 3600</u>	Integration of Health Determinants for Communities	3
<u>PHIL 2740</u>	Ethics and Biomedicine <sup>5</sup>	3
<u>SOC 2490</u>	Sociology of Health and Illness	3
	Select 3 credit hours of Concentration Electives	3
	Select 6 credit hours of Program Electives <sup>4</sup>	6
	<b>Hours</b>	<b>30</b>
<b>Year 4</b>		
<u>HEAL 4600</u>	Integration of Health Determinants for Canada and the World	3
<u>HEAL 4610</u>	Health Studies Capstone	3
	Select 6 credit hours of Concentration Electives	6
	Select 12 credit hours of Program Electives <sup>4</sup>	12
	Select 6 credit hours of Free Electives	6
	<b>Hours</b>	<b>30</b>
	<b>Total Hours</b>	<b>120</b>

<sup>1</sup> Equivalent courses offered through Université de Saint-Boniface may be used in lieu of the specified courses identified in the degree program chart.

<sup>2</sup> BIOL 1020 and BIOL 1030 may be used as course equivalents if courses were completed prior to September 2021.

<sup>3</sup> Students are advised that they must complete 3 credit hours from the Written English list within their first 60 credit hours, if they do not plan to take HNSC 2000.

<sup>4</sup> Of the 21 credit hours of program electives, 9 credit hours must be at the 3000-4000 level. **HEAL 4650 can be completed a maximum of two times.**

<sup>5</sup> PHIL 2290 (6) may be used in place of PHIL 2740 and will also satisfy the requirement of 3 credit hours of Free Electives.

## Bachelor of Health Studies Program Electives List

Please note, a course completed as a core requirement may not also be used as an elective.

### FACULTY OF AGRICULTURAL AND FOOD SCIENCES

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>ABIZ 1010</u>	Economics of World Food Issues and Policies	3
<u>ABIZ 3550</u>	Environmental Policy	3
<u>FOOD 4150</u>	Food Microbiology 1	3
<u>HNSC 1200</u>	Food: Facts and Fallacies	3
<u>HNSC 2130</u>	Nutrition Through the Life Cycle	3
<u>HNSC 3350</u>	Culture and Food Patterns	3
<u>HNSC/GEOG 3870</u>	Food Geographies	3

### FACULTY OF ARTS

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>ANTH 2020</u>	Relatedness in a Globalizing World	3
<u>ANTH 2040</u>	Native North America: A Sociocultural Survey	3
<u>ANTH 2240</u>	Plagues and People	3
<u>ANTH 2300</u>	Anthropology of Childhood	3
<u>ANTH 2510</u>	Anthropology of Economic Systems	3
<u>ANTH 2550</u>	Culture and the Individual	3
<u>ANTH 2560</u>	Anthropology of Illness	3
<u>ANTH 2860</u>	Evolution and Human Diversity	3
<u>ANTH 2880</u>	Human Evolution	3
<u>ANTH 2890</u>	Human Population Biology	3
<u>ANTH 3200</u>	Anthropology of Food	3
<u>ANTH 3320</u>	Women in Cross-Cultural Perspective	3
<u>ANTH 3330</u>	Sex and Sexualities	3
<u>ANTH 3500</u>	Peoples of the Arctic	3
<u>ANTH 3550</u>	Canadian Subcultures	3
<u>ANTH 3740</u>	Human Growth and Variation	3
<u>ANTH 3750</u>	Anthropological Perspectives on Globalization and the World-System	3
<u>ECON 2350</u>	Community Economic Development	3
<u>ECON 2362</u>	Economics of Gender	3
<u>ECON 3690</u>	Economic Issues of Health Policy	3
<u>ECON 3692</u>	Economic Determinants of Health	3
<u>GPE 1700</u>	Social Justice in the 21st Century: Global Political Economy and Environmental Change	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>HIST 2010</u>	Indigenous History in Canada (C)	6
<u>HIST 2400</u>	History of Human Rights and Social Justice in the Modern World (M)	3
<u>HIST 3730</u>	A History of Western Canada (C)	6
<u>INDG 1220</u>	Indigenous Peoples in Canada, Part 1	3
<u>INDG 1240</u>	Indigenous Peoples in Canada, Part 2	3
<u>INDG 1250</u>	Introductory Cree 1	3
<u>INDG 1270</u>	Introductory Anishinaabemowin (Ojibwe) 1	3
<u>INDG 1300</u>	Selected Topics in Introductory Indigenous Language	3
<u>INDG 2020</u>	The Métis in Canada	3
<u>INDG 2040</u>	The Dakota, Lakota, and Nakota Nations	3
<u>INDG 2060</u>	Eastern Woodlands Encounters Columbus to Confederation	3
<u>INDG 2070</u>	Cree, Innu, and Dene Nations	3
<u>INDG 2080</u>	Inuit Society and Culture	3
<u>INDG 2100</u>	Indigenous Spirituality	3
<u>INDG 2110</u>	Introduction to Indigenous Community Development	3
<u>INDG 3100</u>	Indigenous Healing Ways	3
<u>INDG 3150</u>	Residential School Literature	3
<u>INDG 3240</u>	Indigenous Medicine and Health	3
<u>INDG 3300</u>	Indigenous Language Planning and Development	3
<u>LABR 1260</u>	Working for a Living	3
<u>LABR 3060</u>	Workplace Health and Safety	3
<u>LABR 3070</u>	Labour Relations and Occupational Health and Safety Law	3
<u>PHIL 2290</u>	Ethics and Society	6
<u>PSYC 2250</u>	Introduction to Psychological Research	3
<u>PSYC 2260</u>	Introduction to Research Methods in Psychology	3
<u>PSYC 2290</u>	Child Development	3
<u>PSYC 2360</u>	Brain and Behaviour	3
<u>PSYC 2440</u>	Behaviour Modification Principles	3
<u>PSYC 2470</u>	Learning Foundations of Psychology	3
<u>PSYC 2480</u>	Cognitive Processes	3
<u>PSYC 2490</u>	Abnormal Psychology	3
<u>PSYC 2530</u>	Psychology of Personality	3
<u>PSYC 2540</u>	Social Psychology	3
<u>PSYC 3070</u>	Adult Development	3
<u>PSYC 3130</u>	Introduction to Health Psychology	3
<u>PSYC 3150</u>	Behaviour Modification Applications	3
<u>PSYC 3160</u>	Perception and Attention	3
<u>PSYC 3310</u>	Adolescent Development	3
<u>PSYC 3390</u>	Thinking	3
<u>PSYC 3430</u>	Sensory Processes	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>PSYC 3470</u>	Dyadic Relations	3
<u>PSYC 3490</u>	Individual Differences	3
<u>PSYC 3580</u>	Language and Thought	3
<u>PSYC 3630</u>	Psychological Measurement and Assessment	3
<u>RLGN 1322</u>	Introduction to Eastern Religions	3
<u>RLGN 1324</u>	Introduction to Western Religions	3
<u>RLGN 1410</u>	Death and Concepts of the Future	3
<u>RLGN 2590</u>	Religion and Social Issues	3
<u>SOC 2320</u>	Canadian Society and Culture	3
<u>SOC 2330</u>	Social Psychology in Sociological Perspective	3
<u>SOC 2360</u>	Small Group Interaction	3
<u>SOC 2370</u>	Ethnic Relations	3
<u>SOC 2390</u>	Social Organization	3
<u>SOC 2460</u>	The Family	3
<u>SOC 2510</u>	Criminology	3
<u>SOC 2610</u>	Sociology of Criminal Justice and Corrections	3
<u>SOC 2620</u>	The Sociology of Aging	3
<u>SOC 2630</u>	Social Change	3
<u>SOC 3310</u>	Theorizing Crime, Law, and Social Justice	3
<u>SOC 3370</u>	Sociology of Work	3
<u>SOC 3380</u>	Power, Politics and the Welfare State	3
<u>SOC 3400</u>	Policing and Crime Prevention	3
<u>SOC 3540</u>	The Sociology of Health Care Systems	3
<u>SOC 3660</u>	Sociology of Mental Disorder	3
<u>SOC 3730</u>	Society and Education	3
<u>SOC 3750</u>	Institutional Responses to Violence in Family and Intimate Relationships	3
<u>SOC 3770</u>	Women, Health and Medicine	3
<u>SOC 3790</u>	Women, Crime and Social Justice	3
<u>SOC 3810</u>	Sociological Perspectives on Gender and Sexuality	3
<u>SOC 3820</u>	Qualitative and Historical Methods in Sociology	3
<u>SOC 3830</u>	Youth, Crime, and Society	3
<u>SOC 3840</u>	Community and Social Reconstruction	3
<u>SOC 3860</u>	Genocide, Crime and Society	3
<u>SOC 3890</u>	Power and Inequality in Comparative Perspective	3
<u>WOMN 1600</u>	Introduction to Women's and Gender Studies in the Social Sciences	3
<u>WOMN 2000</u>	Feminist Thought	3
<u>WOMN 2500</u>	Race, Class and Sexuality	3
<u>WOMN 2560</u>	Women, Science and Technology	3
<u>WOMN 2600</u>	Sex, Gender, Space and Place	3



<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>WOMN 2610</u>	Gender, Transport and Social Justice	3
<u>WOMN 3000</u>	Interdisciplinary Research in Women's and Gender Studies	3
<u>WOMN 3560</u>	Feminist Perspectives on Violence Against Women	3

#### **I. H. ASPER SCHOOL OF BUSINESS**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>HRIR 2440</u>	Human Resource Management	3
<u>HRIR 3450</u>	Labour and Employment Relations	3
<u>LEAD 2010</u>	Learning to Lead	3
<u>LEAD 3010</u>	Negotiation and Conflict Management	3
<u>LEAD 4020</u>	Leadership, Power and Politics in Organizations	3

#### **CLAYTON H. RIDDELL FACULTY OF ENVIRONMENT, EARTH AND RESOURCES**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>EER 1000</u>	Earth: A User's Guide	3
<u>ENVR 1000</u>	Environmental Science 1 - Concepts	3
<u>ENVR 3400</u>	Introduction to Environment and Health	3
<u>ENVR 4400</u>	Advanced Issues in Environment and Health	3
<u>GEOG 1280</u>	Introduction to Human Geography	3
<u>GEOG 1700</u>	Social Justice in the 21st Century: Global Political Economy and Environmental Change	3
<u>GEOG 3870</u>	Food Geographies	3
<u>GEOG 3890</u>	Geography and Wellness (HS)	3

#### **FACULTY OF EDUCATION**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>EDUA 1560</u>	Adult Learning and Development	3
<u>EDUA 1570</u>	Foundations of Adult Education	3
<u>EDUA 1580</u>	Program Planning in Adult Education	3
<u>EDUA 1590</u>	Facilitating Adult Education	3

#### **RADY FACULTY OF HEALTH SCIENCES**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>HEAL 1600</u>	Health and Health Professions	3
<u>HEAL 4650</u>	Selected Topics in Interdisciplinary Health	3

## MAX RADY COLLEGE OF MEDICINE

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>BGEN 2000</u>	Medical Cell Biology	3
<u>BGEN 3010</u>	Genetics in Biomedicine	3
<u>BGEN 3022</u>	Introduction to Human Genetics A	3
<u>BGEN 3024</u>	Introduction to Human Genetics B	3
<u>PHGY 1030</u>	Fundamentals of Medical Physiology	6
<u>FMLY 1000</u>	Families in Contemporary Canadian Society	3
<u>FMLY 1010</u>	Human Development in the Family	3
<u>FMLY 1420</u>	Family Management Principles	3
<u>FMLY 2012</u>	Development, Conflict, and Displacement	3
<u>FMLY 2400</u>	Family Financial Health	3
<u>FMLY 2500</u>	Diversity and Families	3
<u>FMLY 2600</u>	Foundations of Childhood Developmental Health	3
<u>FMLY 2650</u>	The Social Aspects of Aging	3
<u>FMLY 2800</u>	Family Violence	3
<u>FMLY 3012</u>	Theories of Social Development	3
<u>FMLY 3220</u>	Death and the Family	3
<u>FMLY 3240</u>	Families in Later Years	3
<u>FMLY 3330</u>	Parenting and Developmental Health	3
<u>FMLY 3400</u>	Families as Consumers	3
<u>FMLY 3470</u>	Selected Studies in the Family I	3
<u>FMLY 3600</u>	Adolescents in Families and Society	3
<u>FMLY 3800</u>	Conflict Resolution in the Family	3
<u>FMLY 3802</u>	Intimate Partner Violence	3
<u>FMLY 3806</u>	Children, Violence and Rights	3
<u>FMLY 4012</u>	Social Development Policies	3
<u>FMLY 4220</u>	Aging and Risk in a Global Context	3
<u>FMLY 4300</u>	Field Experience	6
<u>FMLY 4330</u>	Management of Family Stress	3
<u>FMLY 4400</u>	Family Economics: Poverty and Wealth	3
<u>FMLY 4470</u>	Selected Studies in the Family II	3
<u>FMLY 4480</u>	Work and Family Issues	3
<u>FMLY 4604</u>	Children in Adversity	3
<u>FMLY 4606</u>	A Social Justice Perspective on Indigenous Maternal and Child Health	3
<u>FMLY 4802</u>	Family Violence Prevention	3

## COLLEGE OF NURSING

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>NURS 2610</u>	Health and Physical Aspects of Aging	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>NURS 3330</u>	Women and Health	3
<u>NURS 3400</u>	Men's Health: Concerns, Issues and Myths	3
<u>NURS 4520</u>	Professional Foundations 5: Interprofessional and Collaborative Practice	3

### **FACULTY OF KINESIOLOGY AND RECREATION MANAGEMENT**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>KIN 2610</u>	Health and Physical Aspects of Aging	3
<u>KIN 3510</u>	Physical Activity and Aging	3
<u>KPER 1200</u>	Physical Activity, Health and Wellness	3
<u>KPER 2200</u>	Planning Principles	3
<u>KPER 2700</u>	Motor Control and Learning	3
<u>KPER 3100</u>	Inclusive Physical Activity and Leisure	3
<u>REC 2650</u>	The Social Aspects of Aging	3
<u>REC 3220</u>	Program Planning and Evaluation	3
<u>REC 4250</u>	Leisure and Aging	3

### **FACULTY OF SCIENCE**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>BIOL 1300</u>	Economic Plants	3
<u>BIOL 1340</u>	The State of the Earth's Environment: Contemporary Issues	3
<u>BIOL 1410</u>	Anatomy of the Human Body	3
<u>BIOL 1412</u>	Physiology of the Human Body	3
<u>BIOL 3290</u>	Medicinal and Hallucinogenic Plants	3
<u>CHEM 1100</u>	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
<u>CHEM 1110</u>	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties	3
<u>CHEM 1120</u>	Introduction to Chemistry Techniques	3
<u>CHEM 1130</u>	Introduction to Organic Chemistry	3
<u>CHEM 2100</u>	Organic Chemistry 1: Foundations of Organic Chemistry	3
<u>CHEM 2110</u>	Organic Chemistry 2: Foundations of Organic Synthesis	3
<u>CHEM 2122</u>	Experimental Organic Chemistry	3
<u>CHEM 2700</u>	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	3
<u>CHEM 2710</u>	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	3
<u>CHEM 2720</u>	Principles and Practices of the Modern Biochemistry Laboratory	3
<u>CHEM 2730</u>	Elements of Biochemistry 1	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>CHEM 2740</u>	Introduction to the Biochemistry Laboratory	3
<u>CHEM 2750</u>	Elements of Biochemistry 2	3
<u>MATH 1010</u>	Applied Finite Mathematics	3
<u>MATH 1020</u>	Mathematics in Art	3
<u>MATH 1080</u>	Fundamentals of Mathematical Reasoning	3
<u>MATH 1090</u>	Mathematical Reasoning in Euclidean Geometry	3
<u>MATH 1220</u>	Linear Algebra 1	3
<u>MATH 1230</u>	Differential Calculus	3
<u>MATH 1300</u>	Vector Geometry and Linear Algebra	3
<u>MATH 1500</u>	Introduction to Calculus	3
<u>MBIO 1010</u>	Microbiology I	3
<u>MBIO 1220</u>	Essentials of Microbiology	3
<u>MBIO 1410</u>	Introduction of Molecular Biology	3
<u>MBIO 2020</u>	Microbiology II	3
<u>MBIO 2420</u>	Introductory Virology	3
<u>MBIO 2700</u>	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	3
<u>MBIO 2710</u>	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	3
<u>PHYS 1020</u>	General Physics 1	3
<u>PHYS 1030</u>	General Physics 2	3
<u>PHYS 1050</u>	Physics 1: Mechanics	3
<u>PHYS 1070</u>	Physics 2: Waves and Modern Physics	3
<u>STAT 2000</u>	Basic Statistical Analysis 2	3

## **FACULTY OF SOCIAL WORK**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<b>SWRK 1200</b>	<b>Introduction to Canadian Social Welfare</b>	<b>3</b>
<u>SWRK 1310</u>	Introduction to Social Welfare Policy Analysis	3
<b>SWRK 2030</b>	<b>Communication and Relational Skills in Social Work</b>	<b>3</b>
<u>SWRK 2050</u>	Community and Organizational Theory	3
<u>SWRK 2080</u>	Interpersonal Communication Skills	3
<u>SWRK 2110</u>	Emergence of the Canadian Social Welfare State	3
<u>SWRK 2130</u>	Comparative Social Welfare Systems	3
<u>SWRK 2650</u>	The Social Aspects of Aging	3
<u>SWRK 3130</u>	Contemporary Canadian Social Welfare	3

## Concentrations

The Bachelor of Health Studies (B.H.St.) Degree now consists of 3 Concentrations from which students must declare at least one. A Concentration is 18 credit hours. Students must choose from one of the following 3 Concentrations:

1. Health Policy, Planning and Evaluation or
2. Health Promotion and Education or
3. Family Health

Students should consult the Academic Calendar to ensure that they have the appropriate pre- or co-requisites before they attempt to register in a course. A number of courses are cross-listed between departments/faculties. Students are strongly encouraged to seek the advice of Academic Advisor in the Interdisciplinary Health Program in order to plan their programs. The curriculum of this program integrates social science concepts, such as sociology and economics with science concepts, such as biology and metabolism. The integration supports the promotion of health by creating a new understanding among graduates of the determinants of health and how these determinants influence the health of individuals, families, and communities, as well as health services. This degree combines knowledge from science and social science disciplines in their content and learning experiences.

### Health Policy, Planning and Evaluation Concentration

The **Health Policy, Planning, and Evaluation** concentration can provide foundational knowledge related to health policy development and related evaluation, as well as programming services. This concentration can be a potential route for those wishing to pursue related graduate studies in Community Health Sciences (although students in all three concentrations are eligible to pursue graduate studies), or for individuals seeking careers in areas such as Health Policy Analysis or Program Planning and Evaluation Coordinators.

#### HEALTH POLICY, PLANNING AND EVALUATION CONCENTRATION ELECTIVES LIST

Course	Title	Hours
<u>ABIZ 1010</u>	Economics of World Food Issues and Policies	3
<u>ACC 1100</u>	Introductory Financial Accounting	3
<u>ANTH 2560</u>	Anthropology of Illness	3
<u>ECON 3690</u>	Economic Issues of Health Policy	3
<u>ECON 3692</u>	Economic Determinants of Health	3
<u>ENVR 3400</u>	Introduction to Environment and Health	3
<u>ENVR 4400</u>	Advanced Issues in Environment and Health	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>FMLY 4012</u>	Social Development Policies	3
<u>GEOG 1280</u>	Introduction to Human Geography	3
<u>GEOG 1700</u>	Social Justice in the 21st Century: Global Political Economy and Environmental Change	3
<u>GEOG 2640</u>	Geography of Culture and Inequality (HS)	3
<u>HNSC 1200</u>	Food: Facts and Fallacies	3
<u>HNSC 3350</u>	Culture and Food Patterns	3
<u>HNSC 3870</u>	Food Geographies	3
<u>INDG 2100</u>	Indigenous Spirituality	3
<u>INDG 3100</u>	Indigenous Healing Ways	3
<u>KIN/NURS 2610</u>	Health and Physical Aspects of Aging	3
<u>KPER 1200</u>	Physical Activity, Health and Wellness	3
<u>KPER 2200</u>	Planning Principles	3
<u>LABR 1260</u>	Working for a Living	3
<u>LABR 3060</u>	Workplace Health and Safety	3
<u>LEAD 2010</u>	Learning to Lead	3
<u>LEAD 3010</u>	Negotiation and Conflict Management	3
<u>LEAD 4020</u>	Leadership, Power and Politics in Organizations	3
<u>PSYC 2260</u>	Introduction to Research Methods in Psychology	3
<u>PSYC 2540</u>	Social Psychology	3
<u>PSYC 3130</u>	Introduction to Health Psychology	3
<u>REC 3220</u>	Program Planning and Evaluation	3
<u>SOC 2390</u>	Social Organization	3
<u>SOC 2630</u>	Social Change	3
<u>SOC 3540</u>	The Sociology of Health Care Systems	3
<u>STAT 2000</u>	Basic Statistical Analysis 2	3
<u>SWRK 1310</u>	Introduction to Social Welfare Policy Analysis	3
<u>SWRK 2050</u>	Community and Organizational Theory	3
<u>SWRK 2080</u>	Interpersonal Communication Skills	3
<b>SWRK 2030</b>	<b>Communication and Relational Skills in Social Work</b>	<b>3</b>

## **Health Promotion and Education Concentration**

The **Health Promotion and Education** concentration would be a route through which students wishing to pursue a career as a home economics teacher could obtain their 'teachable subjects' in family studies and nutrition. Students are advised that additional training will be required and that consultation with academic advisors in the Faculty of Education is recommended. Aside from home economics education, this concentration would lay the foundation for a future career options as Community Health Educators or Health-related Organization/Foundation Fundraising, or Health and Safety Coordinators or a Professional Home Economist (P.H.Ec.)

## HEALTH PROMOTION AND EDUCATION CONCENTRATION ELECTIVES LIST

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>ANTH 2560</u>	Anthropology of Illness	3
<u>EDUA 1560</u>	Adult Learning and Development	3
<u>EDUA 1570</u>	Foundations of Adult Education	3
<u>EDUA 1580</u>	Program Planning in Adult Education	3
<u>EDUA 1590</u>	Facilitating Adult Education	3
<u>ENVR 3400</u>	Introduction to Environment and Health	3
<u>ENVR 4400</u>	Advanced Issues in Environment and Health	3
<u>FMLY 1010</u>	Human Development in the Family	3
<u>FMLY 1420</u>	Family Management Principles	3
<u>FMLY 2650</u>	The Social Aspects of Aging	3
<u>FMLY 3012</u>	Theories of Social Development	3
<u>FMLY 4012</u>	Social Development Policies	3
<u>GEOG 1280</u>	Introduction to Human Geography	3
<u>GEOG 1700</u>	Social Justice in the 21st Century: Global Political Economy and Environmental Change	3
<u>GEOG 2640</u>	Geography of Culture and Inequality (HS)	3
<u>HNSC 1200</u>	Food: Facts and Fallacies <sup>1</sup>	3
<u>HNSC 2130</u>	Nutrition Through the Life Cycle <sup>1</sup>	3
<u>HNSC 2150</u>	Composition, Functional and Nutritional Properties of Foods	3
<u>HNSC 2160</u>	Principles of Food Preparation and Preservation	3
<u>HNSC 3260</u>	Food Quality Evaluation	3
<u>HNSC 3350</u>	Culture and Food Patterns	3
<u>HNSC 4270</u>	Sensory Evaluation of Food	3
<u>HNSC 4290</u>	Food, Nutrition and Health Policies	3
<u>HNSC 4310</u>	Nutrition and the Elderly	3
<u>INDG 2100</u>	Indigenous Spirituality	3
<u>INDG 3100</u>	Indigenous Healing Ways	3
<u>KIN/NURS 2610</u>	Health and Physical Aspects of Aging	3
<u>KPER 1200</u>	Physical Activity, Health and Wellness	3
<u>LABR 1260</u>	Working for a Living	3
<u>PHIL 2150</u>	Mind and Body	3
<u>PSYC 2260</u>	Introduction to Research Methods in Psychology	3
<u>PSYC 2360</u>	Brain and Behaviour	3
<u>PSYC 2440</u>	Behaviour Modification Principles	3
<u>PSYC 2470</u>	Learning Foundations of Psychology	3
<u>PSYC 2480</u>	Cognitive Processes	3
<u>PSYC 3130</u>	Introduction to Health Psychology	3
<u>RLGN 1430</u>	Food: Religious Concepts and Practices	3
<u>SOC 2620</u>	The Sociology of Aging	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<u>SOC 2630</u>	Social Change	3
<u>SOC 3540</u>	The Sociology of Health Care Systems	3
<u>SOC 3730</u>	Society and Education	3
<u>STAT 2000</u>	Basic Statistical Analysis 2 <sup>1</sup>	3
<u>SWRK 2050</u>	Community and Organizational Theory	3
<u>SWRK 2080</u>	Interpersonal Communication Skills	3
<b>SWRK 2030</b>	<b>Communication and Relational Skills in Social Work</b>	<b>3</b>

<sup>1</sup> Students considering a career as a Home Economics teacher through the Faculty of Education after degree program should consult with an academic advisor in the Faculty of Education. Some courses (marked with an asterisk) may be required for completion of higher level courses in the "teachable subject areas" in foods and nutrition and family social sciences and will require careful program planning.



## College of Nursing

### Modifications:

NURS 2610 Health and Physical Aspects of Aging 3 cr 0.0

An introduction to health, well-being and aging. Emphasis on health as multidimensional including physical, social and mental health. Integration of theory and research in examining selected issues related to health and physical aspects of aging. This is an Option in Aging course. May not be held with KIN 2610 or the former PHED 2610.

NURS 3512 Health and Illness 4: Acute and Chronic Illness 5 cr 0.0

This course provides students with the knowledge and critical thinking skills necessary to provide nursing care to individuals and families experiencing acute and chronic illness. Registration is normally restricted to students in Year 3 of the program. May not be held with the former NURS 3290 or the former NURS 3310. Prerequisites: HNSC 2170 and NURS 2542.

**NET CHANGE IN CREDIT HOURS: 0.0**

## Faculty of Science

### Faculty of Science

#### Introduction:

SCI 3300 Thinking Critically About Science 3 cr +3.0

Peer review is a cornerstone of scientific research and the advancement of human knowledge. This course will focus on how to discern quality research from junk science, both in what is read and what is written. Together, students will explore how to evaluate scientific works from across disciplines and use what they learn to propose interdisciplinary research. May not be held with ENVR 2810. Prerequisites: [a minimum of 18 credit hours in any of ASTR, BIOL, CHEM, COMP, DATA, MATH, MBIO, PHYS, or STAT courses at the 2000 level or higher] and [a course that fulfills the Written English requirement] and [permission of the instructor].

**NET CHANGE IN CREDIT HOURS: +3.0**

#### Program modification:

Modifications to the **Bachelor of Science (General)** are detailed on the next 4 pages.

## General B.Sc.

### Overview

#### B.Sc. General Degree

##### Introductory Level Faculty of Science Courses (21 credit hours)<sup>1</sup>

- **9 credit hours from the Computational and Mathematical Sciences:**
  - COMP 1010 (or COMP 1012<sup>2</sup>), COMP 1020,
  - [(MATH 1220 or MATH 1300 (or equivalent)) or (MATH 1210<sup>3</sup>)], [MATH 1230 or MATH 1500 (or equivalent) **or MATH 1524**], [MATH 1232 or MATH 1700 (or equivalent)], MATH 1240,
  - [STAT 1000<sup>4,5</sup> (or STAT 2220<sup>4</sup>) or STAT 1150<sup>5</sup>], STAT 2000<sup>5</sup>, STAT 2150
- **6 credit hours from the Physical Sciences<sup>6</sup>:**
  - ASTR 1810, ASTR 1830,
  - CHEM 1100, CHEM 1110, [CHEM 1120 or (CHEM 1122 and CHEM 1126)<sup>7</sup>],
  - (PHYS 1020 or PHYS 1050), [PHYS 1030 or (PHYS 1070 or PHYS 2152)]<sup>8</sup>
- **6 credit hours from the Life Sciences:**
  - BIOL 1020, BIOL 1030, BIOL 1410, BIOL 1412,
  - MBIO 1010, MBIO 1220<sup>9</sup>

<sup>1</sup> When selecting courses to fulfill the Introductory Faculty of Science requirement, a student should consider the subject areas in which they wish to select Advanced Level Faculty of Science courses, and select courses that will fulfill the prerequisite requirements of the Advanced Level courses. A student is encouraged to consult course descriptions and an academic advisor for guidance. Students must satisfy the W requirement, within the first 60 credit hours.

<sup>2</sup> COMP 1012 is primarily intended for **Price Faculty of** Engineering students and may not be held for credit with COMP 1010.

<sup>3</sup> MATH 1210 is intended for **Price Faculty of** Engineering students and may not be held for credit with MATH 1220 or MATH 1300 (or equivalent).

<sup>4</sup> STAT 2220 is intended for **Price Faculty of** Engineering students and may not be held for credit with STAT 1000 or STAT 1150.

<sup>5</sup> STAT 1150 may not be held for credit with STAT 1000 or STAT 2000.

- <sup>6</sup> Students must have at least one of High School Chemistry 40S or Physics 40S. Students who do not have either of these high school courses will not be able to satisfy this requirement without taking CHEM 1018, PHYS 1018, or another equivalent. CHEM 1018 or PHYS 1018 may be used to fulfill the Faculty of Science requirement, or an elective requirement.
- <sup>7</sup> CHEM 1122 and CHEM 1126 are intended for **Price Faculty of** Engineering students and may not be held for credit with CHEM 1120.
- <sup>8</sup> PHYS 2152 is intended for **Price Faculty of** Engineering students and may not be held for credit with PHYS 1070.
- <sup>9</sup> MBIO 1220 is primarily intended for students planning to enter the College of Nursing or other health care or related programs. It will not act as a prerequisite to higher level Microbiology courses.

## General B.Sc.

### Degree Requirements

#### General<sup>1</sup>

Year 1	Hours
9 credit hours from COMP, MATH or STAT <sup>2</sup>	9
6 credit hours from ASTR, CHEM or PHYS <sup>3,4</sup>	6
6 credit hours from BIOL or MBIO <sup>5</sup>	6
<b>Hours</b>	<b>21</b>
<b>Years 1-3</b>	
3 credit hours of Faculty of Science courses	3
12 credit hours from outside of the Faculty of Science, of which at least 6 credit hours must be from the Faculty of Arts	12
18 credit hours of electives	18
<b>Hours</b>	<b>33</b>
<b>Years 2-3</b>	
27 credit hours at the 2000 level or higher from the Faculty of Science <sup>6</sup>	27
9 credit hours at the 3000 level or higher from the Faculty of Science	9
<b>Hours</b>	<b>36</b>
<b>Total Hours</b>	<b>90</b>

<sup>1</sup> Student must satisfy the W requirement in their first 60 credit hours.

<sup>2</sup> Chosen from:

- (COMP 1010 or COMP 1012), COMP 1020,
- [MATH 1220 or MATH 1300 (or equivalent), or MATH 1210], [MATH 1230 or MATH 1500 (or equivalent) **or MATH 1524**], [MATH 1232 or MATH 1700 (or equivalent)], MATH 1240,
- (STAT 1000 or STAT 2220 or STAT 1150), STAT 2000, STAT 2150.

<sup>3</sup> Chosen from:

- ASTR 1810, ASTR 1830,

- CHEM 1100, CHEM 1110, [CHEM 1120 or (CHEM 1122 and CHEM 1126)],
- (PHYS 1020 or PHYS 1050), [PHYS 1030 or (PHYS 1070 or PHYS 2152)].

<sup>4</sup> Students must have at least one high school Chemistry 40S or Physics 40S, or equivalent.

<sup>5</sup> Chosen from:

- BIOL 1020, BIOL 1030, BIOL 1410, BIOL 1412,
- MBIO 1010, MBIO 1220.

<sup>6</sup> PHYS 2152, SCI 3980, SCI 3990, SCI 4980, SCI 4990, STAT 2000, STAT 2220 cannot be used to satisfy this requirement.

## Biochemistry

Program modifications:

Modifications to the programs listed below are detailed on the next 12 pages:

- **Bachelor of Science (Honours) in Biochemistry**
- **Bachelor of Science (Honours) in Biochemistry, Co-operative Option**
- **Bachelor of Science (Major) in Biochemistry**
- **Bachelor of Science (Major) in Biochemistry, Co-operative Option**

## Biochemistry, B.Sc. Honours

### Honours

Year 1		Hours
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties (B)	3
CHEM 1120	Introduction to Chemistry Techniques (C+) <sup>1</sup>	3
BIOL 1020	Biology 1: Principles and Themes (C+)	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
PHYS 1050	Physics 1: Mechanics	3
	or PHYS 1020 or General Physics 1	
MATH 1500	Introduction to Calculus <sup>2</sup>	3
STAT 1150	Introduction to Statistics and Computing	3
	or STAT 1000 or Basic Statistical Analysis 1	
<b>Hours</b>		<b>24</b>

### Years 1-2

In Year 1 or Year 2 the following must be completed:

6 credit hours from the Faculty of Arts including the University Written English "W" requirement <sup>3</sup>	6
<b>Hours</b>	<b>6</b>

### Year 2

CHEM 2100	Organic Chemistry 1: Foundations of Organic Chemistry	3
CHEM 2110	Organic Chemistry 2: Foundations of Organic Synthesis	3
CHEM 2122	Experimental Organic Chemistry	3
CHEM 2510	Introduction to Analytical Chemistry	3
CHEM 2520	Introduction to Analytical Chemistry Techniques	2
CHEM 2700/ <u>MBIO 2700</u>	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	3

CHEM 2710/ <b>MBIO 2710</b>	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	3
CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory	3
MBIO 1010	Microbiology I <sup>4</sup>	3
MBIO 2020	Microbiology II	3
<b>Hours</b>		<b>29</b>

### Year 3

BIOL 2520	Cell Biology	3
CHEM 3700	Biophysical Chemistry	3
CHEM 3760	Advanced Methods for the Biochemistry Laboratory	4
MBIO 3410	Molecular Biology	3
<b>Hours</b>		<b>13</b>

### Years 3-4

9 credit hours from: 9

MBIO 3450	Regulation of Biochemical Processes
MBIO 3460	Membrane and Cellular Biochemistry
CHEM 4360	Signalling and Regulation of Gene Expression
CHEM 4620	Biochemistry of Nucleic Acids
MBIO 4540	Biological Energy Transduction
MBIO 4612	Molecular Genetics of Eukaryotes - Lectures

18 credit hours from the list of Chemistry and Microbiology optional courses listed below. Of these 18 credit hours, at least 6 hours must be 4000 level courses. 18

12 credit hours selected from the Faculty of Science <sup>5</sup> 12

**Hours** **39**

### Year 4

CHEM 4630	Biochemistry of Proteins	3
CHEM 4710	Research Project in Chemistry or Biochemistry	6
or MBIO 4530	or Project in Microbiology	



<b>Hours</b>	<b>9</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> **CHEM 1122 and** CHEM 1126 may be used in lieu of CHEM 1120. **Note: CHEM 1122 and CHEM 1126 are restricted to Price Faculty of Engineering Students.**

<sup>2</sup> MATH 1230, ~~or~~ MATH 1510, ~~or~~ **the former** MATH 1520, **or MATH 1524** ~~or~~ ~~MATH 1690~~ may be taken in place of MATH 1500.

<sup>3</sup> As there are no electives in Year 2 of the program, students should complete the university written English requirement in Year 1. If not completed in Year 1, a “W” course must be completed prior to Year 3 in addition to the required Year 2 courses.

<sup>4</sup> MBIO 1010 can be taken in Year 1 after BIOL 1020.

<sup>5</sup> MATH 1010, MATH 1020, the former MATH 1190, the former COMP 1260, the former COMP 1270, COMP 1500 and COMP 1600 may not be chosen to satisfy this requirement.

(Letters in brackets indicate minimum prerequisite standing for further study.)

## Honours Co-operative Option

Important Note<sup>1</sup>

<b>Year 1</b>		<b>Hours</b>
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties (B)	3
CHEM 1120	Introduction to Chemistry Techniques (C+) <sup>2</sup>	3
BIOL 1020	Biology 1: Principles and Themes (C+)	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
PHYS 1050	Physics 1: Mechanics	3
	or PHYS 1020 or General Physics 1	
MATH 1500	Introduction to Calculus <sup>3</sup>	3
STAT 1150	Introduction to Statistics and Computing	3
	or STAT 1000 or Basic Statistical Analysis 1	
<b>Hours</b>		<b>24</b>
<b>Years 1-2</b>		
In Year 1 or Year 2 the following must be completed:		
6 credit hours from the Faculty of Arts including the University Written English "W" requirement <sup>4</sup>		6
<b>Hours</b>		<b>6</b>
<b>Year 2</b>		
CHEM 2100	Organic Chemistry 1: Foundations of Organic Chemistry	3
CHEM 2110	Organic Chemistry 2: Foundations of Organic Synthesis	3
CHEM 2122	Experimental Organic Chemistry	3
CHEM 2510	Introduction to Analytical Chemistry	3
CHEM 2520	Introduction to Analytical Chemistry Techniques	2
CHEM 2700/ <u>MBIO 2700</u>	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	3

CHEM 2710/ <b>MBIO 2710</b>	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	3
CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory	3
MBIO 1010	Microbiology I <sup>5</sup>	3
MBIO 2020	Microbiology II	3
	<b>Hours</b>	<b>29</b>
<b>Year 3</b>		
BIOL 2520	Cell Biology	3
CHEM 3700	Biophysical Chemistry	3
CHEM 3760	Advanced Methods for the Biochemistry Laboratory	4
MBIO 3410	Molecular Biology	3
	<b>Hours</b>	<b>13</b>
<b>Years 3-4</b>		
9 credit hours from:		9
MBIO 3450	Regulation of Biochemical Processes	
MBIO 3460	Membrane and Cellular Biochemistry	
CHEM 4360	Signalling and Regulation of Gene Expression	
CHEM 4620	Biochemistry of Nucleic Acids	
MBIO 4540	Biological Energy Transduction	
MBIO 4612	Molecular Genetics of Eukaryotes - Lectures	
24 credit hours selected from the list of Chemistry and Microbiology optional courses listed below. Of these 24 credit hours, at least 12 hours must be 4000 level courses.		24
12 credit hours selected from the Faculty of Science <sup>6</sup>		12
<b>Co-op Requirements:</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0

	<b>Hours</b>	<b>45</b>
<b>Year 4</b>		
CHEM 4630	Biochemistry of Proteins	3
	<b>Hours</b>	<b>3</b>
	<b>Total Hours</b>	<b>120</b>

<sup>1</sup> Students in the co-operative program must ensure that they are able to satisfy the prerequisites for all 3000 and 4000 level courses they plan to take.

<sup>2</sup> **CHEM 1122 and CHEM 1126** may be used in lieu of CHEM 1120. **Note: CHEM 1122 and CHEM 1126 are restricted to Price Faculty of Engineering Students.**

<sup>3</sup> MATH 1230, ~~or~~ MATH 1510, ~~or~~ **the former** MATH 1520, ~~or~~ **MATH 1524** ~~or~~ MATH 1690 may be taken in place of MATH 1500.

<sup>4</sup> As there are no electives in Year 2 of the program, students should complete the university written English requirement in Year 1. If not completed in Year 1, a “W” course must be completed prior to Year 3 in addition to the required Year 2 courses.

<sup>5</sup> MBIO 1010 can be taken in Year 1 after BIOL 1020.

<sup>6</sup> MATH 1010, MATH 1020, the former MATH 1190, the former COMP 1260, the former COMP 1270, COMP 1500 and COMP 1600 may not be chosen to satisfy this requirement.

(Letters in brackets indicate minimum prerequisite standing for further study.)

#### **CHEMISTRY AND MICROBIOLOGY OPTIONAL COURSES FOR BIOCHEMISTRY HONOURS STUDENTS**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
<b>Chemistry</b>		
CHEM 2300	Inorganic Chemistry 1: Structure and Applications	3
CHEM 2600	Physical Chemistry 1	3
CHEM 3100	Organic Chemistry 3: Advanced Organic Synthesis	3
CHEM 3120	Advanced Organic Chemistry Laboratory Techniques	2
CHEM 3300	Inorganic Chemistry 2: Reactivity and Properties	3
CHEM 3320	Inorganic Chemistry Laboratory	2
CHEM 3500	Instrumental Analysis	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
CHEM 3520	Instrumental Analysis Laboratory	2
CHEM 3600	Physical Chemistry 2	3
CHEM 3620	Physical Chemistry Laboratory	2
CHEM 3820	Integrated Chemistry Laboratory 1	2
CHEM 3840	Integrated Chemistry Laboratory 2	3
CHEM 4100	Materials Chemistry	3
CHEM 4110	Introduction to Computational Chemistry	3
CHEM 4130	Elementary Quantum Chemistry and Molecular Bonding	3
CHEM 4150	Symmetry, Spectroscopy, and Structure	3
CHEM 4170	Introduction to Polymer Chemistry	3
CHEM 4360	Signalling and Regulation of Gene Expression	3
CHEM 4370	Glycobiology and Protein Activation	3
CHEM 4570	Topics in Inorganic Chemistry	3
CHEM 4580	Topics in Organic Chemistry	3
CHEM 4590	Bioanalytical Methods	3
CHEM 4610	Advanced Chemical Techniques	6
CHEM 4620	Biochemistry of Nucleic Acids	3
CHEM 4670	Drug Design and Drug Discovery	3
CHEM 4680	Organometallic Chemistry	3
CHEM 4800	Topics in Physical/Theoretical Chemistry	3
CHEM 4802	Topics in Analytical Chemistry	3
CHEM 4804	Topics in Biochemistry	3
<b>Microbiology</b>		
MBIO 3000	Applied Biological Safety	3
MBIO 3010	Mechanisms of Microbial Disease	3
MBIO 3032	Microbiology III: Physiology and Metabolism	3

Course	Title	Hours
MBIO 3282	Microbial Communities	3
MBIO 3430	Molecular Evolution	3
MBIO 3450	Regulation of Biochemical Processes	3
MBIO 3460	Membrane and Cellular Biochemistry	3
MBIO 3472	Microbial Systematics	3
MBIO 3600	Molecular Microbiology Techniques	3
MBIO 3700	Experimental Microbiology Laboratory	3
MBIO 4020	Immunology	3
MBIO 4030	Special Topics in Microbiology	3
MBIO 4032	Special Topics in Microbiology	3
MBIO 4410	Virology	3
<del>MBIO 4440</del>	<del>Course no longer offered</del>	<del>3</del>
<b><u>MBIO 4442</u></b>	<b><u>Research in Systems Microbiology</u></b>	<b><u>3</u></b>
MBIO 4480	Microbes in our Environment	3
MBIO 4520	Industrial Bioprocesses	3
MBIO 4540	Biological Energy Transduction	3
MBIO 4602	Molecular Genetics of Prokaryotes - Lectures	3
MBIO 4612	Molecular Genetics of Eukaryotes - Lectures	3
MBIO 4672	Applied Molecular Biology	3

Optional courses no longer offered that may be used: if taken prior to their deletion: CHEM 2260, CHEM 2290, CHEM 2400, CHEM 2470, CHEM 3260, CHEM 3360, CHEM 3370, CHEM 3380, CHEM 3390, CHEM 3400, CHEM 3490, CHEM 3580, CHEM 3590, CHEM 4600, CHEM 4640, CHEM 4650, CHEM 4690, MBIO 2280, MBIO 3030, MBIO 3280, MBIO 3440, MBIO 3470, MBIO 3480, MBIO 4010, MBIO 4320, **MBIO 4440**, MBIO 4470, MBIO 4510, MBIO 4570, MBIO 4580, MBIO 4600, MBIO 4610, and MBIO 4670. **Note:** Several of these courses may not be held with current course offerings found on the above optional course lists. Please refer to the course descriptions for more information about specific course restrictions.

## **Biochemistry, B.Sc. Major**

Students in this program should note the following:

Students must satisfy any course prerequisites and co-requisites for courses selected. Care should be taken to select courses in their proper sequence, e.g. CHEM 2710 (MBIO 2710) and MBIO 2020 should be taken in Year 2 as they are prerequisite to a number of subsequent required or optional courses.

Normally 4000 level courses are available only to students in their fourth year. MBIO 4530 and MBIO 4670 are is not available to Major students.

Students are encouraged to elect other courses pertinent to the study of biochemistry although this is not required for completion of the degree. The departments of Microbiology and Chemistry will be glad to suggest such supplementary courses upon request.

Students who may wish to transfer to the Honours program in Biochemistry following Year 2 should be sure to complete all courses recommended in Year 2 (see program chart).

## Biochemistry, B.Sc. Major

### Degree Requirements

#### Four Year Major (Including Co-operative Option if Selected)<sup>1,2</sup>

Year 1		Hours
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties (C+)	3
CHEM 1120	Introduction to Chemistry Techniques (C) <sup>3</sup>	3
BIOL 1020	Biology 1: Principles and Themes (C)	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
PHYS 1050	Physics 1: Mechanics	3
or PHYS 1020	or General Physics 1	
MATH 1500	Introduction to Calculus <sup>4</sup>	3
STAT 1150	Introduction to Statistics and Computing	3
or STAT 1000	or Basic Statistical Analysis 1	
<b>Hours</b>		<b>24</b>

#### Years 1-2

In Year 1 or Year 2 the following must be completed:

6 credit hours from the Faculty of Arts including the University Written English "W" requirement <sup>5</sup>

**Hours** **6**

#### Year 2

CHEM 2100	Organic Chemistry 1: Foundations of Organic Chemistry	3
CHEM 2110	Organic Chemistry 2: Foundations of Organic Synthesis	3
CHEM 2122	Experimental Organic Chemistry	3
CHEM 2510	Introduction to Analytical Chemistry	3
CHEM 2520	Introduction to Analytical Chemistry Techniques	2
CHEM 2700/ <u>MBIO 2700</u>	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	3



CHEM 2710/ <b>MBIO 2710</b>	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	3
CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory	3
MBIO 1010	Microbiology I <sup>6</sup>	3
MBIO 2020	Microbiology II	3
<b>Hours</b>		<b>29</b>

### Year 3

CHEM 3700	Biophysical Chemistry	3
CHEM 3760	Advanced Methods for the Biochemistry Laboratory	4
MBIO 3410	Molecular Biology	3
<b>Hours</b>		<b>10</b>

### Years 3-4

One of:		3
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BIOL 2520 Cell Biology

MBIO 3450 Regulation of Biochemical Processes

MBIO 3460 Membrane and Cellular Biochemistry

MBIO 4540 Biological Energy Transduction

MBIO 4612 Molecular Genetics of Eukaryotes - Lectures

CHEM 4360	Signalling and Regulation of Gene Expression	3
or CHEM 4620	or Biochemistry of Nucleic Acids	

21 credit hours of Chemistry and Microbiology (minimum of 6 credit hours from each department). Of these 21 credit hours, at least 12 hours must be 4000 level courses. 21

21 credit hours of electives <sup>7</sup> 21

### Co-op Requirements (if selected):

SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0

	<b>Hours</b>	<b>48</b>
<b>Year 4</b>		
CHEM 4630	Biochemistry of Proteins	3
	<b>Hours</b>	<b>3</b>
	<b>Total Hours</b>	<b>120</b>

#### Plan of Study Grid

- <sup>1</sup> IMPORTANT: Students in the co-operative program must ensure that they are able to satisfy the prerequisites for all 3000 and 4000 level courses they plan to take.
- <sup>2</sup> The four year Major program need not be completed in the manner prescribed above. This indicates one possible arrangement of the required courses and is meant to be a guide around which students can plan their program.
- <sup>3</sup> **CHEM 1122 and CHEM 1126** may be used in lieu of CHEM 1120. **Note: CHEM 1122 and CHEM 1126 are restricted to Price Faculty of Engineering Students.**
- <sup>4</sup> MATH 1230, ~~or~~ MATH 1510, ~~or~~ **the former** MATH 1520, ~~or~~ **MATH 1524** ~~or~~ ~~MATH 1690~~ may be taken in place of MATH 1500.
- <sup>5</sup> As there are no electives in Year 2 of the program, students should complete the university written English requirement in Year 1. If not completed in Year 1, a "W" course must be completed prior to Year 3 in addition to the required Year 2 courses.
- <sup>6</sup> MBIO 1010 can be taken in Year 1 after BIOL 1020.
- <sup>7</sup> MATH 1010, MATH 1020, the former MATH 1190, the former COMP 1260, the former COMP 1270, COMP 1500 and COMP 1600 may not be chosen to satisfy this requirement.

(Letters in brackets indicate minimum prerequisite standing for further study.)

## Biological Sciences

### Modifications:

BIOL 1412 Physiology of the Human Body 3 cr 0.0  
(Lab Required) Function of all systems discussed with homeostatic regulatory mechanisms as foundation themes. May not be used to meet a program requirement of an Honours or Major program in the Biological Sciences. May not be held with BIOL 1413, and not available to students who have previously obtained credit in, or are currently registered in BIOL 2410, BIOL 2411, BIOL 2420, or BIOL 2421. The course prerequisite is waived for students in the Baccalaureate Program for Registered Nurses. Prerequisite: one of BIOL 1410, BIOL 1411, BIOL 1030, or BIOL 1031.

BIOL 2380 Introductory Toxicology 3 cr 0.0  
A survey of general principles underlying the effects of toxic substances on biological systems, including consideration of the history, scope and applications of toxicology, the mechanisms of toxic action, and some major types of toxicants. This course is also taught in Environmental Science as ENVR 2180 and in Agriculture as AGRI 2180. May not be held with BIOL 2381, the former BIOL 2382, ENVR 2180, ENVR 2190, AGRI 2180 or AGRI 2190. Prerequisites: [one of BIOL 1030, BIOL 1031, or HEAL 1502]; and [(CHEM 1100 or CHEM 1101) or (the former CHEM 1300 or the former CHEM 1301)] and [(one of CHEM 1110, CHEM 1111, CHEM 1120, CHEM 1121, CHEM 1126, or CHEM 1130) or (one of the former CHEM 1310, the former CHEM 1311, or the former CHEM 1320)].

BIOL 3350 Data Analysis in Ecology 3 cr 0.0  
(Lab required) This course will consider methods of collection and analysis of ecological data, emphasizing experimental design of ecological studies, sampling, analysis of ecological data sets, and presentation techniques. May not be held with the former BIOL 4320. Prerequisites: [one of BIOL 2300, BIOL 2301, or AGECE 2370] and [one of STAT 1150, STAT 2000, or STAT 2001]; or consent of department.

BIOL 3452 Environmental Plant Physiology 3 cr 0.0  
(Lab required) A physiological study of plant-environment interactions with emphasis on the development of strategies to survive abiotic stresses including heat, cold, drought, flooding, shade, excess light and UV light. The unique mechanisms used by plants (including the fascinating carnivorous species) to obtain nutrients in deficient environments will also be covered. Although students may take BIOL 2240 as a prerequisite, BIOL 2242 is recommended. Prerequisite: BIOL 2242 or BIOL 2240.

BIOL 4510 Evolutionary Genetics 3 cr 0.0  
(Lab required) Evolutionary genetic processes are the foundation upon which much of understanding of biology is built. This course uses lectures, discussions, and computer-based analyses of real data sets to introduce the core concepts of theoretical population genetics and the applications of these ideas for the study of evolution. May not be held with BIOL 4890 when the topic is "Evolutionary Genetics." Registration is restricted to students in the B.Sc. Honours or Major programs, including Co-op programs, in Biological Sciences and Genetics. Prerequisites: [one of BIOL 3300, BIOL 3301, or consent of department] and [one of MATH 1200, MATH 1210, MATH 1211, MATH 1220, MATH 1230, MATH 1240, MATH 1241, MATH 1300, MATH 1301, MATH 1310, MATH 1500, MATH 1501, MATH 1510, the former MATH 1520, MATH 1524].

BIOL 4554 Molecular Biology Techniques for Eukaryotes - DNA 3 cr 0.0  
(Lab required) A techniques intensive course focusing on the understanding of molecular biology techniques, troubleshooting problems, writing reproducible laboratory experiments for publications, accurate recording of procedures in lab journals, and bioinformatics exercises from a DNA perspective. This course is designed for 4th year undergraduate and graduate students interested in understanding the theory and application of molecular methods specifically focusing on eukaryotic DNA. Students will learn essential and cutting-edge molecular biology techniques involved in gene structure, amplification, transformation, and sequencing among others. Prerequisites: BIOL 2520 and [BIOL 3500 or BIOL 3501].

**NET CHANGE IN CREDIT HOURS: 0.0**

Program modification:

Modifications to the programs listed below are detailed on the next 32 pages:

- **Bachelor of Science (Honours) in Biological Sciences**
- **Bachelor of Science (Honours) in Biological Sciences, Co-operative Option**
- **Bachelor of Science (Major) in Biological Sciences**
- **Bachelor of Science (Major) in Biological Sciences, Co-operative Option**
  - **including the following Themes, for both Honours and Major programs:**
    - **Cell, Molecular and Developmental Biology Theme**
    - **Ecology and Environmental Biology Theme**
    - **Environmental and Integrative Physiology Theme**
    - **Evolution and Biodiversity Theme**
    - **Integrative Biology Theme**

# Biological Sciences, B.Sc. Honours

## Degree Requirements

### On This Page

- Honours: Cell, Molecular and Developmental Biology Theme (Including Co-operative Option if Selected)
- Honours: Ecology and Environmental Biology Theme (Including Co-operative Option if Selected)
- Honours: Environmental and Integrative Physiology Theme (Including Co-operative Option if Selected)
- Honours: Evolution and Biodiversity Theme (Including Co-operative Option if Selected)
- Honours: Integrative Biology Theme (Including Co-operative Option if Selected)

### Honours: Cell, Molecular and Developmental Biology Theme (Including Co-operative Option if Selected)

Important Note<sup>1</sup>

Year 1		Hours
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions (B)	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties	3
CHEM 1120	Introduction to Chemistry Techniques <sup>2</sup>	3
STAT 1150 or STAT 1000	Introduction to Statistics and Computing <sup>3</sup> or Basic Statistical Analysis 1	3
<b>Hours</b>		<b>18</b>
<b>Years 1-2</b>		
In Year 1 or Year 2 the following must be completed:		
3 credit hours of Mathematics or Physics chosen from:		3
MATH 1240	Elementary Discrete Mathematics <sup>4</sup>	
MATH 1300	Vector Geometry and Linear Algebra <sup>4</sup>	
MATH 1500	Introduction to Calculus <sup>4</sup>	
PHYS 1020 or PHYS 1050	General Physics 1 or Physics 1: Mechanics	
6 credit hours from the Faculty of Arts, including a required "W" course		6
6 credit hours of electives		6
<b>Hours</b>		<b>15</b>
<b>Year 2</b>		
BIOL 2300	Principles of Ecology	3
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
Select A or B:		9
A: <sup>5</sup>		
CHEM/MBIO 2700	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	

CHEM/MBIO 2710	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	
CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory	
B: <sup>5</sup>		
CHEM/MBIO 2730	Elements of Biochemistry 1	
CHEM/MBIO 2750	Elements of Biochemistry 2	
CHEM 2740	Introduction to the Biochemistry Laboratory	
BIOL 2200 or BIOL 2210	The Invertebrates or The Chordates	3
One of:		3
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
One additional course from:		3
BIOL 2200	The Invertebrates	
BIOL 2210	The Chordates	
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
BIOL 2420	Human Physiology 2	
BIOL 2600	Introduction to Computational Biology	
CHEM 2100	Organic Chemistry 1: Foundations of Organic Chemistry <sup>5</sup>	
	<b>Hours</b>	<b>27</b>
<b>Year 3</b>		
BIOL 3100	Skills in Biological Sciences	3
BIOL 3300	Evolutionary Biology	3
BIOL 3542	Developmental Biology <sup>6</sup>	3
One of:		3
BIOL 3400	Plant Physiology	
BIOL 3470	Environmental Physiology of Animals 1	
BIOL 3472	Environmental Physiology of Animals 2	
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
	<b>Hours</b>	<b>12</b>
<b>Years 3-4</b>		
	30 credit hours of 3000 or 4000 level Biology courses <sup>7</sup>	30
	12 credit hours of electives	12
	<b>Hours</b>	<b>42</b>
<b>Year 4</b>		
BIOL 4100	Honours Thesis	6
<b>Co-op Requirements (if selected):</b>		
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0

<b>Hours</b>	<b>6</b>
<b>Total Hours</b>	<b>120</b>

- <sup>1</sup> The program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the 120 credit hours that makes up the degree and is meant to be a guide around which students can plan their program with a view to satisfying the prerequisites of the required courses. These 120 credit hours are a combination of the courses outlined in the grid above and elective courses chosen by the student in consultation with the program advisors.
- <sup>2</sup> The former courses CHEM 1300 **may be used in place of CHEM 1100** and **the former** CHEM 1310 may be used in place of ~~CHEM 1100~~, CHEM 1110, and CHEM 1120. CHEM 1122 and CHEM 1126 may be used in ~~lieu~~ **place** of CHEM 1120.
- <sup>3</sup> STAT 1150 is recommended over STAT 1000.
- <sup>4</sup>
- MATH 1230, MATH 1510, **the former** MATH 1520, **or MATH 1524** ~~or MATH 1690~~ may be taken in place of MATH 1500;
  - **MATH 1210**, MATH 1220 or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1200 may be used in place of MATH 1240.
- <sup>5</sup> Students are strongly recommended to complete their biochemistry requirements in their second year. ~~The former courses CHEM 2360 (MBIO 2360) and CHEM 2370 (MBIO 2370) may be used in place of CHEM 2700 (MBIO 2700), CHEM 2710 (MBIO 2710), and CHEM 2720. The former courses CHEM 2770 (MBIO 2770) and CHEM 2780 (MBIO 2780) may be used in place of CHEM 2730 (MBIO 2730), CHEM 2740, and CHEM 2750 (MBIO 2750).~~ **The former CHEM 2360 (MBIO 2360) may be used in place of CHEM 2700 (MBIO 2700), and the former CHEM 2370 (MBIO 2370) may be used in place of CHEM 2710 (MBIO 2710) and CHEM 2720. The former CHEM 2770 (MBIO 2770) may be used in place of CHEM 2730 (MBIO 2730), and the former CHEM 2780 (MBIO 2780) may be used in place of CHEM 2740 and CHEM 2750 (MBIO 2750).** If the choice of biochemistry courses includes the requirement of CHEM 2100, CHEM 2100 can be used as the additional course listed above. The former CHEM 2210 may be used in place of CHEM 2100.
- <sup>6</sup> The former BIOL 2540 may be used in place of BIOL 3542.
- <sup>7</sup> Courses from other departments or faculties may be acceptable for use towards the 30 credit hours of 3000/4000 level Biological Sciences courses required in the Honours program. Please consult with the department theme advisor for permission to use alternate courses.

(Letters in brackets indicate minimum prerequisite standing for further study.)

### Honours: Ecology and Environmental Biology Theme (Including Co-operative Option if Selected)

Important Note<sup>1</sup>

<b>Year 1</b>		<b>Hours</b>
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions (B)	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1120	Introduction to Chemistry Techniques <sup>2</sup>	3
STAT 1150 or STAT 1000	Introduction to Statistics and Computing <sup>3</sup> or Basic Statistical Analysis 1	3

<b>Hours</b>		<b>15</b>
<b>Years 1-2</b>		
In Year 1 or Year 2 the following must be completed:		
3 credit hours of Mathematics or Physics chosen from:		3
MATH 1240	Elementary Discrete Mathematics <sup>4</sup>	
MATH 1300	Vector Geometry and Linear Algebra <sup>4</sup>	
MATH 1500	Introduction to Calculus <sup>4</sup>	
PHYS 1020	General Physics 1	
or PHYS 1050	or Physics 1: Mechanics	
6 credit hours from the Faculty of Arts, including a required "W" course		6
15 credit hours of electives		15
<b>Hours</b>		<b>24</b>
<b>Year 2</b>		
BIOL 2300	Principles of Ecology	3
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
BIOL 2200	The Invertebrates	3
or BIOL 2210	or The Chordates	
One of:		3
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
One additional course from:		3
BIOL 2200	The Invertebrates	
BIOL 2210	The Chordates	
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
BIOL 2600	Introduction to Computational Biology	
STAT 2150	Statistics and Computing <sup>3,4</sup>	3
or STAT 2000	or Basic Statistical Analysis 2	
<b>Hours</b>		<b>21</b>
<b>Year 3</b>		
BIOL 3100	Skills in Biological Sciences	3
BIOL 3300	Evolutionary Biology	3
BIOL 3310	Foundations of Population Ecology	3
BIOL 3312	Community Ecology	3
BIOL 3314	Field Ecology <sup>5</sup>	3
One of:		3
BIOL 3400	Plant Physiology	
BIOL 3470	Environmental Physiology of Animals 1	
BIOL 3472	Environmental Physiology of Animals 2	
<b>Co-op Requirements (if selected):</b>		



SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
<b>Hours</b>		<b>18</b>
<b>Years 3-4</b>		
21 credit hours of 3000 or 4000 level Biology courses <sup>6</sup>		21
15 credit hours of electives		15
<b>Hours</b>		<b>36</b>
<b>Year 4</b>		
BIOL 4100	Honours Thesis	6
<b>Co-op Requirements (if selected):</b>		
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>6</b>
<b>Total Hours</b>		<b>120</b>

- <sup>1</sup> The program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the 120 credit hours that makes up the degree and is meant to be a guide around which students can plan their program with a view to satisfying the prerequisites of the required courses. These 120 credit hours are a combination of the courses outlined in the grid above and elective courses chosen by the student in consultation with the program advisors.
- <sup>2</sup> The former courses CHEM 1300 and CHEM 1310 may be used in place of CHEM 1100 and **the former CHEM 1310 may be used in place of** CHEM 1120. CHEM 1122 and CHEM 1126 may be used in ~~lieu~~ **place** of CHEM 1120.
- <sup>3</sup> STAT 1150 is strongly recommended over STAT 1000; and STAT 2150 is strongly recommended over STAT 2000.
- <sup>4</sup>
- MATH 1230, MATH 1510, **the former** MATH 1520, **or MATH 1524** ~~or MATH 1690~~ may be taken in place of MATH 1500;
  - **MATH 1210**, MATH 1220 or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1200 may be used in place of MATH 1240.
  - Note that STAT 2150 has a prerequisite ~~which requires of~~ **one of** MATH 1230, MATH 1500, MATH 1510, **the former MATH 1520, or MATH 1524.** ~~or MATH 1690.~~
- <sup>5</sup> With departmental approval, other Field Ecology courses may be used in place of BIOL 3314. A list of possible courses can be found on the Departmental Website.
- <sup>6</sup> Courses from other departments or faculties may be acceptable for use towards the 21 credit hours of 3000/4000 level Biological Sciences courses required in the Honours program. Please consult with the department theme advisor for permission to use alternate courses.

### Honours: Environmental and Integrative Physiology Theme (Including Co-operative Option if Selected)

Important Note<sup>1</sup>

<b>Year 1</b>		<b>Hours</b>
BIOL 1020	Biology 1: Principles and Themes	3

BIOL 1030	Biology 2: Biological Diversity, Function and Interactions (B)	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties	3
CHEM 1120	Introduction to Chemistry Techniques <sup>2</sup>	3
STAT 1150 or STAT 1000	Introduction to Statistics and Computing <sup>3</sup> or Basic Statistical Analysis 1	3
<b>Hours</b>		<b>18</b>
<b>Years 1-2</b>		
In Year 1 or Year 2 the following must be completed:		
3 credit hours of Mathematics or Physics chosen from:		3
MATH 1240	Elementary Discrete Mathematics <sup>4</sup>	
MATH 1300	Vector Geometry and Linear Algebra <sup>4</sup>	
MATH 1500	Introduction to Calculus <sup>4</sup>	
PHYS 1020 or PHYS 1050	General Physics 1 or Physics 1: Mechanics	
6 credit hours from the Faculty of Arts, including a required "W" course		6
3-6 credit hours of electives <sup>5</sup>		3-6
<b>Hours</b>		<b>15</b>
<b>Year 2</b>		
BIOL 2300	Principles of Ecology	3
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
BIOL 2200 or BIOL 2210	The Invertebrates or The Chordates	3
One of:		3
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
One additional course from:		3
BIOL 2200	The Invertebrates	
BIOL 2210	The Chordates	
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
BIOL 2420	Human Physiology 2	
BIOL 2600	Introduction to Computational Biology	
Select A or B:		9
A: <sup>5</sup>		
CHEM/MBIO 2700	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	
CHEM/MBIO 2710 CHEM 2720	Biochemistry 2: Catabolism, Synthesis, and Information Pathways Principles and Practices of the Modern Biochemistry Laboratory	

B: <sup>5</sup>		
CHEM/MBIO 2730	Elements of Biochemistry 1	
CHEM/MBIO 2750	Elements of Biochemistry 2	
CHEM 2740	Introduction to the Biochemistry Laboratory	
<b>Hours</b>		<b>27</b>
<b>Year 3</b>		
BIOL 3100	Skills in Biological Sciences	3
BIOL 3300	Evolutionary Biology	3
Three of:		9
BIOL 3400	Plant Physiology	
BIOL 3452	Environmental Plant Physiology	
BIOL 3470	Environmental Physiology of Animals 1	
BIOL 3472	Environmental Physiology of Animals 2	
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
<b>Hours</b>		<b>15</b>
<b>Years 3-4</b>		
24 credit hours of 3000 or 4000 level Biology courses <sup>6</sup>		24
15 credit hours of electives		15
<b>Hours</b>		<b>39</b>
<b>Year 4</b>		
BIOL 4100	Honours Thesis	6
<b>Co-op Requirements (if selected):</b>		
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>6</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> The program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the 120 credit hours that makes up the degree and is meant to be a guide around which students can plan their program with a view to satisfying the prerequisites of the required courses. These 120 credit hours are a combination of the courses outlined in the grid above and elective courses chosen by the student in consultation with the program advisors.

<sup>2</sup> The former courses CHEM 1300 **may be used in place of CHEM 1100** and **the former** CHEM 1310 may be used in place of CHEM 1100, CHEM 1110, and CHEM 1120. CHEM 1122 and CHEM 1126 may be used in **lieu place** of CHEM 1120.

<sup>3</sup> STAT 1150 is recommended over STAT 1000.

<sup>4</sup>

- MATH 1230, MATH 1510, **the former** MATH 1520, **or MATH 1524** ~~or MATH 1690~~ may be taken in place of MATH 1500;
- **MATH 1210**, MATH 1220 or MATH 1310 may be taken in place of MATH 1300;
- MATH 1200 may be used in place of MATH 1240.

<sup>5</sup> The former courses CHEM 2360 (MBIO 2360) and CHEM 2370 (MBIO 2370) may be used in place of CHEM 2700 (MBIO 2700), CHEM 2710 (MBIO 2710), and CHEM 2720. The former courses CHEM

2770 (MBIO 2770) and CHEM 2780 (MBIO 2780) may be used in place of CHEM 2730 (MBIO 2730), CHEM 2740, and CHEM 2750 (MBIO 2750). The former CHEM 2360 (MBIO 2360) may be used in place of CHEM 2700 (MBIO 2700), and the former CHEM 2370 (MBIO 2370) may be used in place of CHEM 2710 (MBIO 2710) and CHEM 2720. The former CHEM 2770 (MBIO 2770) may be used in place of CHEM 2730 (MBIO 2730), and the former CHEM 2780 (MBIO 2780) may be used in place of CHEM 2740 and CHEM 2750 (MBIO 2750). Number of credit hours of electives depends on the choice of Biochemistry courses and the inclusion of CHEM 2100 (or the former CHEM 2210).

- <sup>6</sup> Courses from other departments or faculties may be acceptable for use towards the 24 credit hours of 3000/4000 level Biological Sciences courses required in the Honours program. Please consult with the department for permission to use alternate courses.

(Letters in brackets indicate minimum prerequisite standing for further study.)

### Honours: Evolution and Biodiversity Theme (Including Co-operative Option if Selected)

Important Note<sup>1</sup>

Year 1		Hours
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions (B)	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1120	Introduction to Chemical Techniques <sup>2</sup>	3
STAT 1150	Introduction to Statistics and Computing <sup>3</sup>	3
or STAT 1000	or Basic Statistical Analysis 1	
<b>Hours</b>		<b>15</b>

### Years 1-2

In Year 1 or Year 2 the following must be completed:

3 credit hours of Mathematics or Physics chosen from:		3
MATH 1240	Elementary Discrete Mathematics <sup>4</sup>	
MATH 1300	Vector Geometry and Linear Algebra <sup>4</sup>	
MATH 1500	Introduction to Calculus <sup>4</sup>	
PHYS 1020	General Physics 1	
or PHYS 1050	or Physics 1: Mechanics	
6 credit hours from the Faculty of Arts, including a required "W" course		6

15 credit hours of electives		15
<b>Hours</b>		<b>24</b>
<b>Year 2</b>		
BIOL 2300	Principles of Ecology	3
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
BIOL 2200	The Invertebrates	3
or BIOL 2210	or The Chordates	
One of:		3
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
One additional course from:		3
BIOL 2200	The Invertebrates	
BIOL 2210	The Chordates	
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
STAT 2150	Statistics and Computing <sup>3,4</sup>	3
or STAT 2000	or Basic Statistical Analysis 2	
<b>Hours</b>		<b>21</b>
<b>Year 3</b>		
BIOL 3100	Skills in Biological Sciences	3
BIOL 3300	Evolutionary Biology	3
One of:		3

BIOL 3400	Plant Physiology	
BIOL 3470	Environmental Physiology of Animals 1	
BIOL 3472	Environmental Physiology of Animals 2	
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
	<b>Hours</b>	<b>9</b>
<b>Years 3-4</b>		
One of:		3
BIOL 3360	Animal Behaviour	
BIOL 4300	Evolution and Adaptation	
BIOL 4362	Behavioural Ecology and Cognitive Ethology	
BIOL 4510	Evolutionary Genetics	
One of:		3
BIOL 3200	Advanced Invertebrate Biology	
BIOL 3242	Vascular Flora of Manitoba	
BIOL 3250	Lichens and Bryophytes	
BIOL 3270	Introductory Parasitology	
BIOL 3340	Biology of Primitive Fungi and Allies	
BIOL 4212	Systematics and Biogeography of Fishes	
BIOL 4214	Biology of Amphibians and Reptiles	
BIOL 4216	Biology of Birds	
BIOL 4218	Biology of Mammals	
24 credit hours of 3000 or 4000 level Biology courses <sup>5</sup>		24
15 credit hours of electives		15
	<b>Hours</b>	<b>45</b>
<b>Year 4</b>		

BIOL 4100	Honours Thesis	6
<b>Co-op Requirements (if selected):</b>		
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>6</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> The program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the 120 credit hours that make up the degree and is meant to be a guide around which students can plan their program with a view to satisfying the prerequisites of the required courses. These 120 credit hours are a combination of the courses outlined in the grid above and elective courses chosen by the student in consultation with the program advisors.

<sup>2</sup> The former courses CHEM 1300 and CHEM 1310 may be used in place of CHEM 1100 and **and the former CHEM 1310 may be used in place of** CHEM 1120. CHEM 1122 and CHEM 1126 may be used in **lieu place** of CHEM 1120.

<sup>3</sup> STAT 1150 is strongly recommended over STAT 1000; and STAT 2150 is strongly recommended over STAT 2000.

- <sup>4</sup>
- MATH 1230, MATH 1510, **the former** MATH 1520, **or MATH 1524** ~~or MATH 1690~~ may be taken in place of MATH 1500;
  - **MATH 1210**, MATH 1220 or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1200 may be used in place of MATH 1240.

Note that STAT 2150 has a prerequisite of one of MATH 1230, MATH 1500, **MATH 1510, the former MATH 1520, or MATH 1524.** ~~or MATH 1690.~~

<sup>5</sup> Courses from other departments or faculties may be acceptable for use towards the 24 credit hours of 3000/4000 level Biological Sciences courses required in the Honours Degree program. Please consult with the theme advisor for permission to use alternate courses.

(Letters in brackets indicate minimum prerequisite standing for further study.)

### Honours: Integrative Biology Theme (Including Co-operative Option if Selected)

Important Note<sup>1</sup>

<b>Year 1</b>		<b>Hours</b>
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions (B)	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties	3
CHEM 1120	Introduction to Chemistry Techniques <sup>2</sup>	3
MBIO 1010	Microbiology I	3
STAT 1150	Introduction to Statistics and Computing <sup>3</sup>	3

or STAT 1000	or Basic Statistical Analysis 1	
<b>Hours</b>		<b>21</b>
<b>Years 1-2</b>		
In Year 1 or Year 2 the following must be completed:		
3 credit hours of Mathematics or Physics chosen from:		3
MATH 1240	Elementary Discrete Mathematics <sup>4</sup>	
MATH 1300	Vector Geometry and Linear Algebra <sup>4</sup>	
MATH 1500	Introduction to Calculus <sup>4</sup>	
PHYS 1020	General Physics 1	
or PHYS 1050	or Physics 1: Mechanics	
6 credit hours from the Faculty of Arts, including a required "W" course		6
0-3 credit hours of electives <sup>5</sup>		0-3
<b>Hours</b>		<b>12</b>
<b>Year 2</b>		
BIOL 2300	Principles of Ecology	3
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
Three of:		9
BIOL 2200	The Invertebrates	
BIOL 2210	The Chordates	
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
One additional course from:		3
BIOL 2200	The Invertebrates	
BIOL 2210	The Chordates	
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
BIOL 2420	Human Physiology 2	
BIOL 2600	Introduction to Computational Biology	
Select A or B:		6
A - two of: <sup>5</sup>		
CHEM/MBIO 2700	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	
CHEM/MBIO 2710	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	
CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory	
B - two of: <sup>5</sup>		
CHEM/MBIO 2730	Elements of Biochemistry 1	
CHEM/MBIO 2750	Elements of Biochemistry 2	
CHEM 2740	Introduction to the Biochemistry Laboratory	
<b>Hours</b>		<b>27</b>
<b>Year 3</b>		
BIOL 3100	Skills in Biological Sciences	3
BIOL 3300	Evolutionary Biology	3



One of:		3
BIOL 3400	Plant Physiology	
BIOL 3470	Environmental Physiology of Animals 1	
BIOL 3472	Environmental Physiology of Animals 2	
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
	<b>Hours</b>	<b>9</b>
<b>Years 3-4</b>		
24 credit hours of 3000 or 4000 level Biological Sciences courses <sup>6</sup>		24
6 credit hours of 3000 or 4000 level Microbiology courses <sup>7</sup>		6
15 credit hours of electives		15
	<b>Hours</b>	<b>45</b>
<b>Year 4</b>		
BIOL 4100	Honours Thesis	6
<b>Co-op Requirements (if selected):</b>		
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
	<b>Hours</b>	<b>6</b>
	<b>Total Hours</b>	<b>120</b>

<sup>1</sup> The program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the 120 credit hours that makes up the degree and is meant to be a guide around which students can plan their program with a view to satisfying the prerequisites of the required courses. These 120 credit hours are a combination of the courses outlined in the grid above and elective courses chosen by the student in consultation with the program advisor.

<sup>2</sup> The former courses ~~CHEM 1300 and CHEM 1310~~ may be used in place of CHEM 1100, **and the former CHEM 1310 may be used in place of** CHEM 1110; and CHEM 1120. CHEM 1122 and CHEM 1126 may be used in lieu place of CHEM 1120.

<sup>3</sup> STAT 1150 is recommended over STAT 1000.

- <sup>4</sup>
- MATH 1230, MATH 1510, **the former** MATH 1520, **or** MATH 1524 ~~or MATH 1690~~ may be taken in place of MATH 1500;
  - **MATH 1210**, MATH 1220 or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1200 may be used in place of MATH 1240.

<sup>5</sup> ~~The former courses CHEM 2360 (MBIO 2360) and CHEM 2370 (MBIO 2370) may be used in place of CHEM 2700 (MBIO 2700), CHEM 2710 (MBIO 2710), and CHEM 2720. The former courses CHEM 2770 (MBIO 2770) and CHEM 2780 (MBIO 2780) may be used in place of CHEM 2730 (MBIO 2730), CHEM 2740, and CHEM 2750 (MBIO 2750).~~ **The former CHEM 2360 (MBIO 2360) may be used in place of CHEM 2700 (MBIO 2700), and the former CHEM 2370 (MBIO 2370) may be used in place of CHEM 2710 (MBIO 2710) and CHEM 2720. The former CHEM 2770 (MBIO 2770) may be used in place of CHEM 2730 (MBIO 2730), and the former CHEM 2780 (MBIO 2780) may be used in place of CHEM 2740 and CHEM 2750 (MBIO 2750).** Number of credit hours of electives depends on the choice of Biochemistry courses and the inclusion of CHEM 2100 (or the former CHEM 2210).

- <sup>6</sup> Courses from other departments or faculties may be acceptable for use towards the 24 credit hours of 3000/4000 level Biological Sciences courses required in the Honours Degree program. Please consult with the theme advisor for permission to use alternate courses.
- <sup>7</sup> Many MBIO courses have specific biochemistry requirements. Students are advised to plan ahead to take all required courses. If a student takes more than 6 credit hours of biochemistry, they will count as electives.

(Letters in brackets indicate minimum prerequisite standing for further study.)

## Degree Requirements

### On This Page

- Four Year Major: Cell, Molecular and Developmental Biology Theme (Including Co-operative Option)
- Four Year Major: Ecology and Environmental Biology Theme (Including Co-operative Option)
- Four Year Major: Environmental and Integrative Physiology Theme (Including Co-operative Option)
- Four Year Major: Evolution and Biodiversity Theme (Including Co-operative Option)
- Four Year Major: Integrative Biology Theme (Including Co-operative Option)

### Four Year Major: Cell, Molecular and Developmental Biology Theme (Including Co-operative Option)

#### Important Note<sup>1</sup>

Year 1		Hours
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions (C+)	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties	3
CHEM 1120	Introduction to Chemistry Techniques <sup>2</sup>	3
STAT 1150	Introduction to Statistics and Computing <sup>3</sup>	3
or STAT 1000	or Basic Statistical Analysis 1	
<b>Hours</b>		<b>18</b>

#### Years 1-2

In Year 1 or Year 2 the following must be completed:

3 credit hours of Mathematics or Physics chosen from: 3

MATH 1240	Elementary Discrete Mathematics <sup>4</sup>
MATH 1300	Vector Geometry and Linear Algebra <sup>4</sup>
MATH 1500	Introduction to Calculus <sup>4</sup>
PHYS 1020	General Physics 1
or PHYS 1050	or Physics 1: Mechanics

6 credit hours from the Faculty of Arts, including a required "W" course 6

6 credit hours of electives		6
<b>Hours</b>		<b>15</b>
<b>Year 2</b>		
BIOL 2300	Principles of Ecology	3
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
Select A or B:		9
A: <sup>5</sup>		
CHEM/MBIO 2700	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	
CHEM/MBIO 2710	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	
CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory	
B: <sup>5</sup>		
CHEM/MBIO 2730	Elements of Biochemistry 1	
CHEM/MBIO 2750	Elements of Biochemistry 2	
CHEM 2740	Introduction to the Biochemistry Laboratory	
BIOL 2200	The Invertebrates	3
or BIOL 2210	or The Chordates	
One of:		3
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
One additional course from:		3
BIOL 2200	The Invertebrates	
BIOL 2210	The Chordates	
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	

BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
BIOL 2420	Human Physiology 2	
BIOL 2600	Introduction to Computational Biology	
CHEM 2100	Organic Chemistry 1: Foundations of Organic Chemistry <sup>5</sup>	
<b>Hours</b>		<b>27</b>
<b>Year 3</b>		
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
<b>Hours</b>		<b>0</b>
<b>Years 3-4</b>		
BIOL 3300	Evolutionary Biology	3
BIOL 3542	Developmental Biology <sup>6</sup>	3
One of:		3
BIOL 3400	Plant Physiology	
BIOL 3470	Environmental Physiology of Animals 1	
BIOL 3472	Environmental Physiology of Animals 2	
30 credit hours of 3000 or 4000 level Biology courses <sup>7</sup>		30
21 credit hours of electives		21
<b>Hours</b>		<b>60</b>
<b>Year 4</b>		
<b>Co-op Requirements (if selected):</b>		
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>0</b>
<b>Total Hours</b>		<b>120</b>

- <sup>1</sup> The program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the 120 credit hours that makes up the degree and are meant to be a guide around which students can plan their program with a view to satisfying the prerequisites of the required courses. These 120 credit hours are a combination of the courses outlined in the grid above and elective courses chosen by the student in consultation with the program advisors.
- <sup>2</sup> The former ~~courses~~ CHEM 1300 **may be used in place of CHEM 1100** and **the former** CHEM 1310 may be used in place of ~~CHEM 1100~~, CHEM 1110, and CHEM 1120. CHEM 1122 and CHEM 1126 may be used in lieu ~~place~~ **place** of CHEM 1120.
- <sup>3</sup> STAT 1150 is recommended over STAT 1000.
- <sup>4</sup>
- MATH 1230, MATH 1510, **the former** MATH 1520, **or MATH 1524** ~~or MATH 1690~~ may be taken in place of MATH 1500;
  - **MATH 1210**, MATH 1220 or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1200 may be used in place of MATH 1240.
- <sup>5</sup> Students are strongly recommended to complete their biochemistry requirements in their second year. ~~The former courses CHEM 2360 (MBIO 2360) and CHEM 2370 (MBIO 2370) may be used in place of CHEM 2700 (MBIO 2700), CHEM 2710 (MBIO 2710), and CHEM 2720. The former courses CHEM 2770 (MBIO 2770) and CHEM 2780 (MBIO 2780) may be used in place of CHEM 2730 (MBIO 2730), CHEM 2740, and CHEM 2750 (MBIO 2750).~~ **The former CHEM 2360 (MBIO 2360) may be used in place of CHEM 2700 (MBIO 2700), and the former CHEM 2370 (MBIO 2370) may be used in place of CHEM 2710 (MBIO 2710) and CHEM 2720. The former CHEM 2770 (MBIO 2770) may be used in place of CHEM 2730 (MBIO 2730), and the former CHEM 2780 (MBIO 2780) may be used in place of CHEM 2740 and CHEM 2750 (MBIO 2750).** If the choice of biochemistry courses includes the requirement of CHEM 2100, CHEM 2100 can be used as the additional course listed above. The former CHEM 2210 may be used in place of CHEM 2100.
- <sup>6</sup> The former BIOL 2540 may be used in place of BIOL 3542.
- <sup>7</sup> Courses from other departments or faculties may be acceptable for use towards the 30 credit hours of 3000/4000 level Biological Sciences courses required in the Major Degree program. Please consult with the theme advisor for permission to use alternate courses.

(Letters in brackets indicate minimum prerequisite standing for further study.)

#### **Four Year Major: Ecology and Environmental Biology Theme (Including Co-operative Option)**

Important Note<sup>1</sup>

<b>Year 1</b>		<b>Hours</b>
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions (C+)	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1120	Introduction to Chemistry Techniques <sup>2</sup>	3
STAT 1150	Introduction to Statistics and Computing <sup>3</sup>	3
or STAT 1000	or Basic Statistical Analysis 1	
<b>Hours</b>		<b>15</b>
<b>Years 1-2</b>		
In Year 1 or Year 2 the following must be completed:		
3 credit hours of Mathematics or Physics chosen from:		3
MATH 1240	Elementary Discrete Mathematics <sup>4</sup>	
MATH 1300	Vector Geometry and Linear Algebra <sup>4</sup>	
MATH 1500	Introduction to Calculus <sup>4</sup>	
PHYS 1020	General Physics 1	
or PHYS 1050	or Physics 1: Mechanics	
6 credit hours from the Faculty of Arts, including a required "W" course		6
15 credit hours of electives		15
<b>Hours</b>		<b>24</b>
<b>Year 2</b>		
BIOL 2300	Principles of Ecology	3
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
BIOL 2200	The Invertebrates	3
or BIOL 2210	or The Chordates	
One of:		3
BIOL 2240	The Non-Flowering Plants	

BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
One additional course from:		3
BIOL 2200	The Invertebrates	
BIOL 2210	The Chordates	
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
BIOL 2600	Introduction to Computational Biology	
STAT 2150	Statistics and Computing <sup>3,4</sup>	3
	or STAT 2000 or Basic Statistical Analysis 2	

<b>Hours</b>	<b>21</b>
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### Year 3

#### Co-op Requirements (if selected):

SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
<b>Hours</b>		<b>0</b>

### Years 3-4

BIOL 3300	Evolutionary Biology	3
BIOL 3310	Foundations of Population Ecology	3
BIOL 3312	Community Ecology	3
BIOL 3314	Field Ecology <sup>5</sup>	3
One of:		3
BIOL 3400	Plant Physiology	
BIOL 3470	Environmental Physiology of Animals 1	



BIOL 3472	Environmental Physiology of Animals 2	
21 credit hours of 3000 or 4000 level Biology courses <sup>6</sup>		21
24 credit hours of electives		24
<b>Hours</b>		<b>60</b>
<b>Year 4</b>		
<b>Co-op Requirements (if selected):</b>		
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>0</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> The program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the 120 credit hours that makes up the degree and is meant to be a guide around which students can plan their program with a view to satisfying the prerequisites of the required courses. These 120 credit hours are a combination of the courses outlined in the grid above and elective courses chosen by the student in consultation with the program advisors.

<sup>2</sup> The former courses CHEM 1300 and CHEM 1310 may be used in place of CHEM 1100 and **the former CHEM 1310 may be used in place of** CHEM 1120. CHEM 1122 and CHEM 1126 may be used in **lieu place** of CHEM 1120.

<sup>3</sup> STAT 1150 is strongly recommended over STAT 1000; and STAT 2150 is strongly recommended over STAT 2000.

- <sup>4</sup>
- MATH 1230, MATH 1510, **the former** MATH 1520, **or MATH 1524** ~~or MATH 1690~~ may be taken in place of MATH 1500;
  - **MATH 1210**, MATH 1220 or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1200 may be used in place of MATH 1240.

Note that STAT 2150 has a prerequisite ~~which requires of~~ one of MATH 1230, MATH 1500, MATH 1510, **the former MATH 1520, or MATH 1524.** ~~or MATH 1690.~~

<sup>5</sup> With departmental approval, other Field Ecology courses may be used in place of BIOL 3314. A list of possible courses can be found on the Departmental Website.

<sup>6</sup> Courses from other departments or faculties may be acceptable for use towards the 21 credit hours of 3000/4000 level Biological Sciences courses required in the Major Degree program. Please consult with the theme advisor for permission to use alternate courses.

(Letters in brackets indicate minimum prerequisite standing for further study.)

**Four Year Major: Environmental and Integrative Physiology Theme (Including Co-operative Option)**

Important Note<sup>1</sup>

<b>Year 1</b>		<b>Hours</b>
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions (C+)	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties	3
CHEM 1120	Introduction to Chemistry Techniques <sup>2</sup>	3
STAT 1150	Introduction to Statistics and Computing <sup>3</sup>	3
or STAT 1000	or Basic Statistical Analysis 1	
<b>Hours</b>		<b>18</b>

**Years 1-2**

In Year 1 or Year 2 the following must be completed:

3 credit hours of Mathematics or Physics chosen from: 3

MATH 1240      Elementary Discrete Mathematics <sup>4</sup>

MATH 1300      Vector Geometry and Linear Algebra <sup>4</sup>

MATH 1500      Introduction to Calculus <sup>4</sup>

PHYS 1020      General Physics 1

or PHYS 1050      or Physics 1: Mechanics

6 credit hours from the Faculty of Arts, including a required "W" course 6

3-6 credit hour of electives <sup>5</sup> 3-6

**Hours** **15**

**Year 2**

BIOL 2300	Principles of Ecology	3
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
BIOL 2200	The Invertebrates	3
or BIOL 2210	or The Chordates	
One of:		3
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
One additional course from:		3
BIOL 2200	The Invertebrates	
BIOL 2210	The Chordates	
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
BIOL 2420	Human Physiology 2	
BIOL 2600	Introduction to Computational Biology	
Select A or B:		9
A: <sup>5</sup>		
CHEM/MBIO 2700	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	
CHEM/MBIO 2710	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	
CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory	
B: <sup>5</sup>		
CHEM/MBIO 2730	Elements of Biochemistry 1	
CHEM/MBIO 2750	Elements of Biochemistry 2	

CHEM 2740	Introduction to the Biochemistry Laboratory	
<b>Hours</b>		<b>27</b>
<b>Year 3</b>		
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
<b>Hours</b>		<b>0</b>
<b>Years 3-4</b>		
BIOL 3300	Evolutionary Biology	3
Three of:		9
BIOL 3400	Plant Physiology	
BIOL 3452	Environmental Plant Physiology	
BIOL 3470	Environmental Physiology of Animals 1	
BIOL 3472	Environmental Physiology of Animals 2	
24 credit hours of 3000 or 4000 level Biology courses <sup>6</sup>		24
24 credit hours of electives		24
<b>Hours</b>		<b>60</b>
<b>Year 4</b>		
<b>Co-op Requirements (if selected):</b>		
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>0</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> The program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the 120 credit hours that make up the degree and is meant to be a guide around which students can plan their program with a view to satisfying the prerequisites of the required courses. These 120 credit hours are a combination of the courses outlined in the grid above and elective courses chosen by the student in consultation with the program advisors.

<sup>2</sup> The former courses CHEM 1300 **may be used in place of CHEM 1100** and **the former** CHEM 1310 may be used in place of ~~CHEM 1100~~, CHEM 1110; and CHEM 1120. CHEM 1122 and CHEM 1126 may be used in lieu **place** of CHEM 1120.

<sup>3</sup> STAT 1150 is recommended over STAT 1000.

- <sup>4</sup>
- MATH 1230, MATH 1510, **the former** MATH 1520, **or MATH 1524** ~~or MATH 1690~~ may be taken in place of MATH 1500;
  - **MATH 1210**, MATH 1220 or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1200 may be used in place of MATH 1240.

<sup>5</sup> The former courses CHEM 2360 (MBIO 2360) and CHEM 2370 (MBIO 2370) may be used in place of ~~CHEM 2700 (MBIO 2700), CHEM 2710 (MBIO 2710), and CHEM 2720~~. The former courses CHEM 2770 (MBIO 2770) and CHEM 2780 (MBIO 2780) may be used in place of ~~CHEM 2730 (MBIO 2730), CHEM 2740, and CHEM 2750 (MBIO 2750)~~. **The former CHEM 2360 (MBIO 2360) may be used in place of CHEM 2700 (MBIO 2700), and the former CHEM 2370 (MBIO 2370) may be used in place of CHEM 2710 (MBIO 2710) and CHEM 2720. The former CHEM 2770 (MBIO 2770) may be used in place of CHEM 2730 (MBIO 2730), and the former CHEM 2780 (MBIO 2780) may be used in place of CHEM 2740 and CHEM 2750 (MBIO 2750).** Number of credit hours of electives depends on the choice of Biochemistry courses and the inclusion of CHEM 2100 (or the former CHEM 2210).

<sup>6</sup> Courses from other departments or faculties may be acceptable for use towards the 24 credit hours of 3000/4000 level Biological Sciences courses required in the Major Degree program. Please consult with the theme advisor for permission to use alternate courses.

(Letters in brackets indicate minimum prerequisite standing for further study.)

#### Four Year Major: Evolution and Biodiversity Theme (Including Co-operative Option)

Important Note<sup>1</sup>

Year 1		Hours
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions (C+)	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1120	Introduction to Chemical Techniques <sup>2</sup>	3
STAT 1150	Introduction to Statistics and Computing <sup>3</sup>	3

or STAT 1000	or Basic Statistical Analysis 1	
<b>Hours</b>		<b>15</b>
<b>Years 1-2</b>		
In Year 1 or Year 2 the following must be completed:		
3 credit hours of Mathematics or Physics chosen from:		3
MATH 1240	Elementary Discrete Mathematics <sup>4</sup>	
MATH 1300	Vector Geometry and Linear Algebra <sup>4</sup>	
MATH 1500	Introduction to Calculus <sup>4</sup>	
PHYS 1020	General Physics 1	
or PHYS 1050	or Physics 1: Mechanics	
6 credit hours from the Faculty of Arts, including a required "W" course		6
15 credit hours of electives		15
<b>Hours</b>		<b>24</b>
<b>Year 2</b>		
BIOL 2300	Principles of Ecology	3
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
BIOL 2200	The Invertebrates	3
or BIOL 2210	or The Chordates	
One of:		3
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
One additional course from:		3
BIOL 2200	The Invertebrates	
BIOL 2210	The Chordates	

BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
STAT 2150	Statistics and Computing <sup>3,4</sup>	3
or STAT 2000	or Basic Statistical Analysis 2	

**Hours** **21**

### Year 3

#### Co-op Requirements (if selected):

SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0

**Hours** **0**

### Years 3-4

BIOL 3300	Evolutionary Biology	3
One of:		3

BIOL 3360	Animal Behaviour	
BIOL 4300	Evolution and Adaptation	
BIOL 4362	Behavioural Ecology and Cognitive Ethology	
BIOL 4510	Evolutionary Genetics	

One of: **3**

BIOL 3200	Advanced Invertebrate Biology	
BIOL 3242	Vascular Flora of Manitoba	
BIOL 3250	Lichens and Bryophytes	
BIOL 3270	Introductory Parasitology	
BIOL 3340	Biology of Primitive Fungi and Allies	
BIOL 4212	Systematics and Biogeography of Fishes	
BIOL 4214	Biology of Amphibians and Reptiles	

BIOL 4216	Biology of Birds	
BIOL 4218	Biology of Mammals	
One of:		3
BIOL 3400	Plant Physiology	
BIOL 3470	Environmental Physiology of Animals 1	
BIOL 3472	Environmental Physiology of Animals 2	
24 credit hours of 3000 or 4000 level Biology courses <sup>5</sup>		24
24 credit hours of electives		24
<b>Hours</b>		<b>60</b>
<b>Year 4</b>		
<b>Co-op Requirements (if selected):</b>		
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>0</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> The program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the 120 credit hours that make up the degree and is meant to be a guide around which students can plan their program with a view to satisfying the prerequisites of the required courses. These 120 credit hours are a combination of the courses outlined in the grid above and elective courses chosen by the student in consultation with the program advisors.

<sup>2</sup> The former courses CHEM 1300 and CHEM 1310 may be used in place of CHEM 1100 and the former CHEM 1310 may be used in place of CHEM 1120. CHEM 1122 and CHEM 1126 may be used in lieu place of CHEM 1120.

<sup>3</sup> STAT 1150 is recommended over STAT 1000; and STAT 2150 is strongly recommended over STAT 2000.

<sup>4</sup>

- MATH 1230, MATH 1510, the former MATH 1520, or MATH 1524 ~~or MATH 1690~~ may be taken in place of MATH 1500;
- MATH 1210, MATH 1220 or MATH 1310 may be taken in place of MATH 1300;
- MATH 1200 may be used in place of MATH 1240.

Note that STAT 2150 has a prerequisite of one of MATH 1230, MATH 1500, MATH 1510, the former MATH 1520, or MATH 1524. ~~or MATH 1690.~~



<sup>5</sup> Courses from other departments or faculties may be acceptable for use towards the 24 credit hours of 3000/4000 level Biological Sciences courses required in the Major Degree program. Please consult with the theme advisor for permission to use alternate courses.

(Letters in brackets indicate minimum prerequisite standing for further study.)

### Four Year Major: Integrative Biology Theme (Including Co-operative Option)

#### Important Note<sup>1</sup>

<b>Year 1</b>		<b>Hours</b>
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions (C+)	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties	3
CHEM 1120	Introduction to Chemistry Techniques <sup>2</sup>	3
MBIO 1010	Microbiology I	3
STAT 1150	Introduction to Statistics and Computing <sup>3</sup>	3
or STAT 1000	or Basic Statistical Analysis 1	
<b>Hours</b>		<b>21</b>
<b>Years 1-2</b>		
In Year 1 or Year 2 the following must be completed:		
3 credit hours of Mathematics or Physics chosen from:		3
MATH 1240	Elementary Discrete Mathematics <sup>4</sup>	
MATH 1300	Vector Geometry and Linear Algebra <sup>4</sup>	
MATH 1500	Introduction to Calculus <sup>4</sup>	
PHYS 1020	General Physics 1	
or PHYS 1050	or Physics 1: Mechanics	
6 credit hours from the Faculty of Arts, including a required "W" course		6
0-3 credit hours of electives <sup>5</sup>		0-3
<b>Hours</b>		<b>12</b>

#### Year 2

BIOL 2300	Principles of Ecology	3
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
Three of:		9
BIOL 2200	The Invertebrates (theme course)	
BIOL 2210	The Chordates (theme course)	
BIOL 2240	The Non-Flowering Plants (theme course)	
BIOL 2242	The Flowering Plants (theme course)	
One additional course from:		3
BIOL 2200	The Invertebrates	
BIOL 2210	The Chordates	
BIOL 2240	The Non-Flowering Plants	
BIOL 2242	The Flowering Plants	
BIOL 2260	Biology of Fungi and Lichens	
BIOL 2262	Biology of Algae	
BIOL 2420	Human Physiology 2	
BIOL 2600	Introduction to Computational Biology	
Select A or B:		6
A - two of: <sup>5</sup>		
CHEM/MBIO 2700	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	
CHEM/MBIO 2710	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	
CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory	
B - two of: <sup>5</sup>		
CHEM/MBIO 2730	Elements of Biochemistry 1	
CHEM/MBIO 2750	Elements of Biochemistry 2	
CHEM 2740	Introduction to the Biochemistry Laboratory	
<b>Hours</b>		<b>27</b>

### Year 3

#### Co-op Requirements (if selected):

SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
	<b>Hours</b>	<b>0</b>

### Years 3-4

BIOL 3300	Evolutionary Biology	3
One of:		3
BIOL 3400	Plant Physiology	
BIOL 3470	Environmental Physiology of Animals 1	
BIOL 3472	Environmental Physiology of Animals 2	
24 credit hours of 3000 or 4000 level Biology courses <sup>6</sup>		24
6 credit hours of 3000 or 4000 level Microbiology courses <sup>7</sup>		6
24 credit hours of electives		24
	<b>Hours</b>	<b>60</b>

### Year 4

#### Co-op Requirements (if selected):

SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
	<b>Hours</b>	<b>0</b>
	<b>Total Hours</b>	<b>120</b>

<sup>1</sup> The program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the 120 credit hours that make up the degree and are meant to be a guide around which students can plan their program with a view to satisfying the prerequisites of the required courses. These 120 credit hours are a combination of the courses outlined in the grid above and elective courses chosen by the student in consultation with the program advisors.

<sup>2</sup> The former courses ~~CHEM 1300 and CHEM 1310~~ may be used in place of CHEM 1100, **and the former CHEM 1310 may be used in place of** CHEM 1110, and CHEM 1120. CHEM 1122 and CHEM 1126 may be used in lieu place of CHEM 1120.

- <sup>3</sup> STAT 1150 is recommended over STAT 1000.
- <sup>4</sup>
- MATH 1230, MATH 1510, **the former** MATH 1520, **or MATH 1524** or MATH 1690 may be taken in place of MATH 1500;
  - **MATH 1210**, MATH 1220 or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1200 may be used in place of MATH 1240.
- <sup>5</sup> ~~The former courses CHEM 2360 (MBIO 2360) and CHEM 2370 (MBIO 2370) may be used in place of CHEM 2700 (MBIO 2700), CHEM 2710 (MBIO 2710), and CHEM 2720. The former courses CHEM 2770 (MBIO 2770) and CHEM 2780 (MBIO 2780) may be used in place of CHEM 2730 (MBIO 2730), CHEM 2740, and CHEM 2750 (MBIO 2750).~~ **The former CHEM 2360 (MBIO 2360) may be used in place of CHEM 2700 (MBIO 2700), and the former CHEM 2370 (MBIO 2370) may be used in place of CHEM 2710 (MBIO 2710) and CHEM 2720. The former CHEM 2770 (MBIO 2770) may be used in place of CHEM 2730 (MBIO 2730), and the former CHEM 2780 (MBIO 2780) may be used in place of CHEM 2740 and CHEM 2750 (MBIO 2750).** Number of credit hours of electives depends on the choice of Biochemistry courses and the inclusion of CHEM 2100 (or the former CHEM 2210).
- <sup>6</sup> Courses from other departments or faculties may be acceptable for use towards the 24 credit hours of 3000/4000 level Biological Sciences courses required in the Major Degree program. Please consult with the theme advisor for permission to use alternate courses.
- <sup>7</sup> Many MBIO courses have specific biochemistry requirements. Students are advised to plan ahead to take all required courses. If a student takes more than 6 credit hours of biochemistry, they will count as electives.

(Letters in brackets indicate minimum prerequisite standing for further study.)

## Computer Science

### Deletion:

COMP 4520 Undergraduate Honours Project 3 cr -3.0

### Introductions:

COMP 1000 Introductory Programming: Think Like a Computer 3 cr +3.0  
(Lab required) To develop the apps we use every day, you need to understand how computers 'think.' In this course students will learn to mentally simulate how a computer operates and read and write simple computer programs. Students will gain an understanding of how information is stored and computations are performed. This is an excellent pathway into computer programming for those with no prior experience. May not be used to fulfill computer science requirements in a Computer Science Honours, Joint Honours, or Major program. May not be taken once in a declared Computer Science Honours, Joint Honours, or Major program. May be used as an elective if taken prior to entry. Prerequisites: One of any 40S Mathematics (50%), MATH 1018, or MSKL 0100.

COMP 4522 Honours Project 6 cr +6.0  
A supervised research-based project on a specific area of Computer Science. Permission to take the course is given on an individual basis. Available to fourth-year Honours or Joint Honours Computer Science students only. May not be held with COMP 4560 or the former COMP 4520. Prerequisite: Written permission of the department.

### Modifications:

COMP 1010 Introductory Computer Science 1 3 cr 0.0  
(Lab required) An introduction to computer programming using a procedural high level language. May not be held with COMP 1011, COMP 1012, or COMP 1013. Prerequisite: One of any 40S Mathematics (50%), MATH 1018, or MSKL 0100.

COMP 1012 Computer Programming for Scientists and Engineers 3 cr 0.0  
(Lab required) An introduction to computer programming suitable for solving problems in science and engineering. Students will implement algorithms for numerical processing, statistical analysis and matrix operations. May not be held with COMP 1010, COMP 1011, or COMP 1013. Prerequisite: One of any 40S Mathematics (50%), MATH 1018, or MSKL 0100. Pre- or corequisite: One of MATH 1230, MATH 1500, MATH 1510, or MATH 1501.

COMP 1020 Introductory Computer Science 2 3 cr 0.0  
(Lab required) More features of a procedural language, elements of programming. May not be held with COMP 1021. Prerequisite: [One of COMP 1010, COMP 1011, COMP 1012, or COMP 1013] or [Computer Science 40S (75%) and (one of 40S Mathematics (50%), MATH 1018, or MSKL 0100)].

COMP 2160 Programming Practices 3 cr 0.0  
(Lab required) Introduction to issues involved in real-world computing. Topics will include memory management, debugging, compilation, performance, and good programming practices. Prerequisite: COMP 1020 (C+) or COMP 1021 (C+). Pre- or corequisite: COMP 2140.

- COMP 3010 Distributed Computing 3 cr 0.0  
An introduction to the development of client server and peer-to-peer systems through web applications, distributed programming models, and distributed algorithms. Prerequisite: [[COMP 2150 and COMP 2080] or [ECE 3740 and ECE 3790]] and [one of STAT 1150, STAT 1000, STAT 1001, STAT 2220, or PHYS 2496].
- COMP 3020 Human-Computer Interaction 1 3 cr 0.0  
Human-computer interaction: human factors and usability, user-centered design, prototyping, usability evaluation. Prerequisite: COMP 2150 or ECE 3740. A course in cognitive psychology, such as PSYC 2480 or PSYC 2481, is recommended.
- COMP 3170 Analysis of Algorithms and Data Structures 3 cr 0.0  
Fundamental algorithms for sorting, searching, storage management, graphs, databases and computational geometry. Correctness and analysis of those algorithms using specific data structures. An introduction to lower bounds and intractability. Prerequisites: COMP 2080 and [one of STAT 1150, STAT 1000, STAT 1001, STAT 2220, or PHYS 2496].
- COMP 3190 Introduction to Artificial Intelligence 3 cr 0.0  
Principles of artificial intelligence: problem solving, knowledge representation and manipulation; the application of these principles to the solution of 'hard' problems. Prerequisites: [COMP 2150 or ECE 3740] and [one of STAT 1150, STAT 1000, STAT 1001, STAT 2220 or PHYS 2496].
- COMP 3350 Software Engineering 1 3 cr 0.0  
Introduction to software engineering. Software life cycle models, system and software requirements analysis, specifications, software design, testing and maintenance, software quality. Prerequisites: 6 credit hours of COMP courses at the 3000 level or ECE 3740.
- COMP 3380 Databases Concepts and Usage 3 cr 0.0  
An introduction to database systems including the relational, hierarchical, network and entity-relationship models with emphasis on the relational model and SQL. Prerequisite: one of COMP 2150 or ECE 3740.
- COMP 3430 Operating Systems 3 cr 0.0  
(Lab required) Operating systems, their design, implementation, and usage. COMP 2160 is recommended for Computer Engineering students. Prerequisites: [one of STAT 1150, STAT 1000, STAT 1001, STAT 2220, or PHYS 2496]; and one of [[COMP 2280 and COMP 2080] or [(COMP 2140 or the former COMP 2061) and ECE 3610 and ECE 3790]].
- COMP 3490 Computer Graphics 1 3 cr 0.0  
An introductory course in computer graphics including topics such as raster graphics, two and three dimensional transforms, and simple rendering. Prerequisites: [(COMP 2150 or ECE 3740) or ((COMP 2140 or the former COMP 2061) and 3 credit hours of MATH courses at the 2000 level)] and [one of MATH 1220, MATH 1300 (B), MATH 1301 (B), MATH 1310 (B), MATH 1210 (B), or MATH 1211 (B)] and [one of MATH 1230, MATH 1500 (B), MATH 1501 (B), MATH 1510 (B), the former MATH 1520 (B), or MATH 1524 (B)].
- COMP 4020 Human-Computer Interaction 2 3 cr 0.0  
Advanced issues in the field of human-computer interaction. Topics will be selected from current research and development issues in the field of HCI. Prerequisites: COMP 3020 and [one of STAT 1150, STAT 2000 (B), STAT 2001 (B), STAT 2220, or PHYS 2496]. A course in cognitive psychology, such as PSYC 2480 or PSYC 2481, is recommended.

- COMP 4050 Project Management 3 cr 0.0  
Introduction to the issues involved in managing large, complex software projects. Prerequisites: COMP 3350 and (COMP 3040 or a course that fulfills the Written English requirement).
- COMP 4140 Introduction to Cryptography and Cryptosystems 3 cr 0.0  
Description and analysis of cryptographic methods used in the authentication and protection of data. Classical cryptosystems and cryptoanalysis, the Advanced Encryption Standard (AES) and Publickey cryptosystems. Prerequisites: [one of COMP 3170, MATH 2170, or the former MATH 2500] and [one of STAT 1150, STAT 2000 (B), STAT 2001 (B), STAT 2220 or PHYS 2496].
- COMP 4190 Artificial Intelligence 3 cr 0.0  
Reasoning with temporal knowledge; causal reasoning; plausible reasoning; nonmonotonic reasoning; abductive reasoning. Prerequisites: COMP 3190 and [one of STAT 1150, STAT 2000 (B), STAT 2001 (B), STAT 2220, or PHYS 2496].
- COMP 4300 Computer Networks 3 cr 0.0  
This course examines the principles of computer networks, including network architectures, algorithms, protocols, and performance. May not be held with the former COMP 3720 or the former COMP 4720 or ECE 3700. Prerequisites: COMP 3010 and COMP 3430.
- COMP 4350 Software Engineering 2 3 cr 0.0  
Advanced treatment of software development methods. Topics will be selected from requirements gathering, design methodologies, prototyping, software verification and validation. Prerequisites: COMP 3010 and COMP 3350 and COMP 3380.
- COMP 4360 Machine Learning 3 cr 0.0  
Learning strategies; evaluation of learning; learning in symbolic systems; neural networks, genetic algorithms. May not be held with ECE 4450. Prerequisites: [COMP 3190 and (one of STAT 1150 (B), STAT 2220 (B), or PHYS 2496 (B)) and (one of MATH 1220, MATH 1300 (B), MATH 1301 (B), MATH 1310 (B), MATH 1210 (B), or MATH 1211 (B)) and (one of MATH 1230, MATH 1500 (B), MATH 1501 (B), MATH 1510 (B), the former MATH 1520 (B), or MATH 1524 (B))] or [STAT 2400 and MATH 2740 and DATA 2010].
- COMP 4380 Database Implementation 3 cr 0.0  
Implementation of modern database systems including query modification/optimization, recovery, concurrency, integrity, and distribution. Prerequisites: COMP 3010 and COMP 3380 and COMP 3430.
- COMP 4420 Advanced Design and Analysis of Algorithms 3 cr 0.0  
Algorithm design with emphasis on formal techniques in analysis and proof of correctness. Computational geometry, pattern matching, scheduling, numeric algorithms, probabilistic algorithms, approximation algorithms and other topics. Prerequisites: COMP 3170 and [one of STAT 1150, STAT 2000 (B), STAT 2001 (B), STAT 2220, or PHYS 2496].
- COMP 4560 Industrial Project 3 cr 0.0  
Students will work in teams on an industrial project. Projects are supplied by the Department. May not be held with COMP 2980, COMP 4522, the former COMP 4520, or SCI 3980. Prerequisites: COMP 3350 and written permission of the department.

COMP 4620 Professional Practice in Computer Science 3 cr 0.0  
Background and rationale to view Computer Science in a professional context. Examination of professional ethics, intellectual property, and privacy considerations important to Computer Scientists. May not be held with the former COMP 3620. This course is restricted to students in a Computer Science Major, Honours, or Joint Honours program. Prerequisites: 6 credit hours of COMP courses at the 3000 or 4000 level and (COMP 3040 or a course that fulfills the Written English requirement).

COMP 4710 Introduction to Data Mining 3 cr 0.0  
Introduction to data mining concepts and their applications. Prerequisites: COMP 3380 and [one of STAT 1150, STAT 2000 (B), STAT 2001 (B), STAT 2220, or PHYS 2496] or consent of department.

**NET CHANGE IN CREDIT HOURS: +6.0**

Program modifications:

Modifications to the following programs are outlined on the next 10 pages:

- **Bachelor of Science (Honours) in Computer Science**
- **Bachelor of Science (Honours) in Computer Science, Co-operative Option**
- **Bachelor of Science (Major) in Computer Science**
- **Bachelor of Science (Major) in Computer Science, Co-operative Option**
  
- **Bachelor of Science (Joint Honours) in Computer Science and Physics and Astronomy**



## Computer Science, B.C.Sc., Honours

### Degree Requirements

#### Honours (Including Co-operative Option if Selected)<sup>1,2,3</sup>

Year 1		Hours
COMP 1010	Introductory Computer Science 1 <sup>4</sup>	3
COMP 1020	Introductory Computer Science 2 (B)	3
One of:		<del>3</del>
MATH 1220	Linear Algebra 1 (C+) <sup>4</sup>	<u>3</u>
MATH 1300	<del>Vector Geometry and Linear Algebra (C+) <sup>4</sup></del>	
One of:		<del>3</del>
MATH 1230	Differential Calculus (C+) <sup>4</sup>	<b>3</b>
MATH 1500	<del>Introduction to Calculus (C+) <sup>4</sup></del>	
<b>MATH 1240</b>	<b><u>Elementary Discrete Mathematics (B) <sup>4</sup></u></b>	<b><u>3</u></b>
MATH 1700	Calculus 2 (C) <sup>4</sup>	3
<b>Hours</b>		<b><del>15-18</del></b>
<b>Years 1-2</b>		
One of:		<del>3</del>
STAT 1000	Basic Statistical Analysis 1 (C)	
STAT 1150	Introduction to Statistics and Computing (C) <sup>4</sup>	<b>3</b>
6 credit hours from the Faculty of Arts, which should include the required 3 credit hour "W" course		6
18 credit hours of electives <sup>2,3</sup>		18
<b>Hours</b>		<b>27</b>
<b>Year 2</b>		
COMP 2080	Analysis of Algorithms	3
COMP 2140	Data Structures and Algorithms	3
COMP 2150	Object Orientation	3
COMP 2160	Programming Practices	3

COMP 2280	Introduction to Computer Systems	3
MATH 1240	Elementary Discrete Mathematics <sup>4</sup>	3
	<b>Hours</b>	<b><del>18</del> 15</b>
<b>Year 3</b>		
COMP 3030	Automata Theory and Formal Languages	3
COMP 3170	Analysis of Algorithms and Data Structures	3
COMP 3350	Software Engineering 1	3
COMP 3370	Computer Organization	3
COMP 3430	Operating Systems	3
	<b>Hours</b>	<b>15</b>
<b>Years 3-4</b>		
	21 credit hours of electives <sup>2</sup>	21
	<b><u>6 credit hours of 3000 or 4000 level Computer Science courses<sup>5</sup></u></b>	<b><u>6</u></b>
<b>Co-op Requirements (if selected)<sup>1</sup>:</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
	<b>Hours</b>	<b><del>21</del> 27</b>
<b>Year 4</b>		
COMP 4620	Professional Practice in Computer Science	3
	<del>21</del> 15 credit hours of 4000 level Computer Science courses	<del>21</del> 15
	<b>Hours</b>	<b><del>24</del> 18</b>
	<b>Total Hours</b>	<b>120</b>

<sup>1</sup> Entry to the Honours Co-operative Option is at the end of second year. Employment terms follow 3A (September-December), 3B (May-August) and 4A (January-April). Students in the Co-operative Option must complete three employment terms and receive a passing grade in SCI 3980, SCI 3990, SCI 4980, and SCI 4990 (if selected) prior to the last academic term. **Students in the Co-operative Option are required to complete COMP 3380 before their first work term.**

- <sup>2</sup> Additional information on how students may select their courses can be found in the program Overview.
- <sup>3</sup> ~~IMPORTANT: The Honours degree need not be completed in the order prescribed in the grid above. The grid indicates one possible arrangement of the required courses and is meant to be a guide around which students can plan their program.~~ **The program grid above is intended to provide students with the recommended order in which to satisfy degree requirements.** Students in the Co-operative Option should be aware that while other arrangements are possible, they may jeopardize their chances of obtaining employment by selecting such arrangements. Students should discuss their planned sequence of courses with the department prior to making adjustments to the sequence above.
- <sup>4</sup>
- COMP 1012 may be taken in place of COMP 1010.
  - ~~MATH 1210, MATH 1220 or MATH 1310 may be taken in place of MATH 1300;~~
  - ~~MATH 1230, MATH 1510, MATH 1520, or MATH 1690 may be taken in place of MATH 1500;~~
  - ~~MATH 1232, MATH 1710 or MATH 1690 may be taken in place of MATH 1700.~~
  - **MATH 1500 (C+) or MATH 1510 (C+) may be taken in place of MATH 1230;**
  - **MATH 1300 (C+) or MATH 1210 (B) may be taken in place of MATH 1220;**
  - **MATH 1232 or MATH 1710 may be taken in place of MATH 1700;**
  - **STAT 1000 and STAT 2000 (B) may be taken in place of STAT 1150.**
  - Honours students are encouraged to take MATH 1220 instead of MATH 1300 and to take MATH 1230 instead of MATH 1500 to better prepare them for later, higher-level studies.
  - Students who have previously completed COMP 2130 may use it in lieu of MATH 1240.
- <sup>5</sup> **Students in the Co-operative Option must complete COMP 3380, as part of these 6 credit hours, prior to their first co-op work term.**

(Letters in brackets indicate minimum prerequisite standing for further study.)

## Computer Science, B.Sc. Major

### Degree Requirements

Four Year Major (Including Co-operative Option if Selected)<sup>1,2,3</sup>

Year 1		Hours
COMP 1010	Introductory Computer Science 1 <sup>4</sup>	3
COMP 1020	Introductory Computer Science 2 (C+)	3
<b>MATH 1240</b>	<b>Elementary Discrete Mathematics (C+) <sup>4</sup></b>	<b>3</b>
MATH 1300	Vector Geometry and Linear Algebra (C+) <sup>4</sup>	3
MATH 1500	Introduction to Calculus (C+) <sup>4</sup>	3
MATH 1700	Calculus 2 (C) <sup>4</sup>	3
<b>Hours</b>		<b>1518</b>
<b>Years 1-2</b>		
One of:		3
STAT 1000	Basic Statistical Analysis 1 (C)	
STAT 1150	Introduction to Statistics and Computing (C) <sup>4</sup>	3
6 credit hours from the Faculty of Arts, which should include the required 3 credit hour "W" course		6
18 credit hours of electives <sup>2,3</sup>		18
<b>Hours</b>		<b>27</b>
<b>Year 2</b>		
COMP 2080	Analysis of Algorithms	3
COMP 2140	Data Structures and Algorithms	3
COMP 2150	Object Orientation	3
COMP 2160	Programming Practices	3
COMP 2280	Introduction to Computer Systems	3
MATH 1240	Elementary Discrete Mathematics <sup>4</sup>	3
<b>Hours</b>		<b>1815</b>

### Years 3-4

**Year 3**

COMP 3350	Software Engineering 1	3
One of:		3
COMP 3010	Distributed Computing	
COMP 3430	Operating Systems	
<b>6 credit hours of 3000 level Computer Science</b> <sup>5</sup>		<b>6</b>
<b>Hours</b>		<b>12</b>

**Years 3-4**

COMP 4620	Professional Practice in Computer Science	3
18 credit hours of 3000 or 4000 level Computer Science courses of which 6 credit hours must be at the 4000 level		18
<b>6 credit hours of 3000 or 4000 level Computer Science</b>		<b>6</b>
33 credit hours of electives <sup>2</sup>		33
<b>Co-op Requirements (if selected)<sup>1</sup>:</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>6039</b>

**Year 4**

<b>COMP 4620</b>	<b>Professional Practice in Computer Science</b>	<b>3</b>
<b>6 credit hours of 4000 level Computer Science</b>		<b>6</b>
<b>Hours</b>		<b>9</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Entry to the four-year Major Co-operative Option is at the end of second year. Employment terms follow 3A (September-December), 3B (May-August) and 4A (January-April). Students in the Co-operative Option must complete three employment terms and receive a passing grade in SCI 3980, SCI 3990, SCI 4980, and SCI 4990 (if selected) prior to the last academic term. **Students in the Co-operative Option are required to complete COMP 3380 before their first work term.**

- <sup>2</sup> Additional information on how students may select their courses can be found in the program Overview.
- <sup>3</sup> ~~IMPORTANT: The four-year Major degree need not be completed in the order prescribed in the grid above. The grid indicates one possible arrangement of the required courses and is meant to be a guide around which students can plan their program.~~ **The program grid above is intended to provide students with the recommended order in which to satisfy degree requirements.** Students in the Co-operative Option should be aware that while other arrangements are possible, they may jeopardize their chances of obtaining employment by selecting such arrangements. Students should discuss their planned sequence of courses with the department prior to making adjustments to the sequence above.
- <sup>4</sup>
- COMP 1012 may be taken in place of COMP 1010;
  - **STAT 1000 and STAT 2000 (B) may be taken in place of STAT 1150;**
  - **MATH 1230 or MATH 1510 may be taken in place of MATH 1500;**
  - **MATH 1220 or MATH 1210 (B) may be taken in place of MATH 1300;**
  - **MATH 1232 or MATH 1710 may be taken in place of MATH 1700.**
  - ~~MATH 1210, MATH 1220 or MATH 1310 may be taken in place of MATH 1300;~~
  - ~~MATH 1230, MATH 1510, MATH 1520, or MATH 1690 may be taken in place of MATH 1500;~~
  - ~~MATH 1232, MATH 1710 or MATH 1690 may be taken in place of MATH 1700.~~
  - ~~Honours students are encouraged to take MATH 1220 instead of MATH 1300 and to take MATH 1230 instead of MATH 1500 to better prepare them for later, higher-level studies.~~
  - Students who have previously completed COMP 2130 may use it in lieu of MATH 1240.
- <sup>5</sup> **Students in the Co-operative Option must complete COMP 3380, as part of these 6 credit hours, prior to their first co-op work term.**

(Letters in brackets indicate minimum prerequisite standing for further study.)

## Computer Science - Physics & Astronomy Joint, B.Sc. Honours

### Degree Requirements

#### Joint Honours (Including Co-operative Option if Selected)

Year 1		Hours
One of:		<del>3</del>
PHYS 1050	Physics 1: Mechanics ( <del>B</del> ) <sup>1</sup>	<u>3</u>
PHYS 1020	General Physics 1 (B+)	
One of:		<del>3</del>
PHYS 1070	Physics 2: Waves and Modern Physics (B) <sup>1</sup>	<u>3</u>
PHYS 1030	General Physics 2 (B+)	
One of:		3
COMP 1010	Introductory Computer Science 1 ( <del>B</del> )	
COMP 1012	Computer Programming for Scientists and Engineers ( <del>B</del> )	
COMP 1020	Introductory Computer Science 2 (B)	3
MATH 1300	Vector Geometry and Linear Algebra ( <del>BC+</del> ) <sup>21</sup>	3
MATH 1500	Introduction to Calculus ( <del>B</del> ) <sup>21</sup>	3
MATH 1700	Calculus 2 ( <del>B</del> ) <sup>21</sup>	3
6 credit hours from the Faculty of Arts, which should include the required 3 credit hour "W" course <sup>32</sup>		6
3 credit hours of electives <sup>43</sup>		3
<b>Hours</b>		<b>30</b>
<b>Year 2</b>		
One of: <del>3,4,5</del>		3
PHYS 2260	Optics	
Physics elective <sup>43</sup>		
PHYS 2386	Introduction to Quantum Mechanics and Special Relativity	3
PHYS 2496	Mathematical Physics 1	3
PHYS 2650	Classical Mechanics 1	3

MATH 1240	Elementary Discrete Mathematics <sup>21</sup>	3
MATH 2720	Multivariable Calculus	3
COMP 2080	Analysis of Algorithms	3
COMP 2140	Data Structures and Algorithms	3
COMP 2160	Programming Practices	3
COMP 2280	Introduction to Computer Systems	3
<b>Hours</b>		<b>30</b>

### SUMMER

#### Co-op Requirements (if selected):

SCI 3980	Co-operative Education Work Term 1 <sup>65</sup>	0
<b>Hours</b>		<b>0</b>

### Year 3

PHYS 2600	Electromagnetic Field Theory	3
One of: <del>3,4,5</del>		3
PHYS 2610	Circuit Theory and Introductory Electronics	
Physics elective <sup>43</sup>		
PHYS 3386	Quantum Mechanics 2	3
PHYS 3670	Classical Thermodynamics	3
PHYS 3496	Mathematical Physics 2	3
COMP 3170	Analysis of Algorithms and Data Structures	3
COMP 3430	Operating Systems	3
6 credit hours of 3000 and/or 4000 level Computer Science courses		6
3 credit hours of electives <sup>43</sup>		3
<b>Hours</b>		<b>30</b>

### SUMMER

#### Co-op Requirements (if selected):

SCI 3990	Co-operative Education Work Term 2 <sup>65</sup>	0
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<b>Hours</b>		<b>0</b>
<b>Year 4</b>		
PHYS 4680	Statistical Mechanics	3
12 credit hours of 3000 and 4000 level Honours Physics courses, with at least 6 credit hours at the 4000 level		12
12 credit hours of 3000 or 4000 level courses from Computer Science, with at least 9 credit hours at the 4000 level by the end of Year 4		12
3 credit hours of electives <sup>4-3</sup>		3
<b>Hours</b>		<b>30</b>
<b>SUMMER</b>		
<b>Co-op Requirements (if selected):</b>		
SCI 4980	Co-operative Education Work Term 3 <sup>65</sup>	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected) <sup>65</sup>	0
<b>Hours</b>		<b>0</b>
<b>Total Hours</b>		<b>120</b>

<sup>4</sup> PHYS 1050 and PHYS 1070 are recommended.

- <sup>21</sup>
- ~~MATH 1220 or MATH 1310 may be taken in place of MATH 1300;~~
  - ~~MATH 1230, MATH 1510 or MATH 1520 may be taken in place of MATH 1500;~~
  - ~~MATH 1232 or MATH 1710 may be taken in place of MATH 1700;~~
  - **PHYS 1020 may be taken in place of PHYS 1050, PHYS 1050 is recommended;**
  - **PHYS 1030 (B+) may be taken in place of PHYS 1070, PHYS 1070 is recommended;**
  - **MATH 1230 (C) or MATH 1510 (C) may be taken in place of MATH 1500;**
  - **MATH 1220 (C+) or MATH 1210 (B) may be taken in place of MATH 1300;**
  - **MATH 1232 or MATH 1710 may be taken in place of MATH 1700.**
  - ~~MATH 1690 may be taken in place of MATH 1500 and MATH 1700.~~
  - Students who have previously completed COMP 2130 may use it in lieu of MATH 1240.

<sup>32</sup> As there are no open electives in Year 2 of the program, students should complete the University written English requirement in Year 1. If not completed in Year 1, a “W” course must be completed prior to Year 3 in addition to the required Year 2 courses.

<sup>43</sup> PHYS 1018 may not count towards the 120 credit hours required for this degree.

<sup>54</sup> Students are required to take at least one of PHYS 2260 or PHYS 2610.

<sup>65</sup> When chosen, the Co-operative Option work terms (SCI 3980, SCI 3990, SCI 4980, and SCI 4990 [if selected]) will normally be completed during the Summer Terms following years 2, 3, and 4 respectively.

(Letters in brackets indicate minimum prerequisite standing for further study.)

Faculty of Science - Data Science

Program modifications:

Modifications to the **Bachelor of Science (Major) in Data Science** are outlined on the next 2 pages.

# Data Science, B.Sc. Major

## Degree Requirements

### Four Year Major (Including Co-operative Option if Selected)

Year 1		Hours
COMP 1012	Computer Programming for Scientists and Engineers <sup>1</sup>	3
COMP 1020	Introductory Computer Science 2 (C+)	3
MATH 1220	Linear Algebra 1 <sup>1</sup>	3
MATH 1230	Differential Calculus <sup>1</sup>	3
MATH 1232	Integral Calculus (C+) <sup>1</sup>	3
MATH 1240	Elementary Discrete Mathematics <sup>1</sup>	3
STAT 1150	Introduction to Statistics and Computing (C+) <sup>1</sup>	3
6 credit hours from the Faculty of Arts, which should include the required "W" course		6
3 credit hours of electives		3
<b>Hours</b>		<b>30</b>
Year 2		Hours
COMP 2140	Data Structures and Algorithms	3
<b><u>COMP 2150</u></b>	<b><u>Object Orientation</u></b>	<b><u>3</u></b>
<b><u>COMP 2160</u></b>	<b><u>Programming Practices</u></b>	<b><u>3</u></b>
DATA 2010	Tools and Techniques for Data Science	3
MATH 2720	Multivariable Calculus <sup>1</sup>	3
MATH 2740	Mathematics of Data Science	3
STAT 2150	Statistics and Computing	3
STAT 2400	Introduction to Probability 1	3
<del>12</del> <b>6</b> credit hours of electives		<del>6</del> <b>12</b>
<b>Hours</b>		<b>30</b>
Years 3-4		Hours
COMP 3380	Databases Concepts and Usage	3
COMP 4360	Machine Learning	3
DATA 3010	Data Science with Real World Data Sets	3
DATA 4010	Data Science Capstone Project <sup>2</sup>	6
MATH <del>3490</del> <b>4490</b>	Optimization	3
STAT 3100	Introduction to Statistical Inference	3
STAT 3150	Statistical Computing	3
STAT 3450	Linear Models	3
3 credit hours from:		3
COMP 2080	Analysis of Algorithms	
<del>COMP 2150</del>	<del>Object Orientation</del>	
COMP 4510	Introduction to Parallel Computation	
COMP 4710	Introduction to Data Mining	
3 credit hours from:		3
MATH 2070	Graph Theory 1	

MATH 2080	Introduction to Analysis	
MATH 2090	Linear Algebra 2	
MATH 2180	Real Analysis 1	
MATH 4370	Linear Algebra and Matrix Analysis	
3 credit hours from:		3
STAT 2300	Principles of Data Collection	
STAT 2800	Introduction to Probability 2	
STAT 3030	Introduction to Stochastic Processes	
STAT 3550	Nonlinear Regression Models	
STAT 3690	Multivariate Analysis	
STAT 4100	Statistical Inference	
STAT 4150	Bayesian Analysis and Computing	
STAT 4250	Statistical Learning	
3 additional credit hours from the Faculty of Science <sup>3</sup>		3
21 credit hours of electives <sup>3</sup>		21
The above 33 credit hours must include at least 12 credit hours of Faculty of Science courses taken at the 3000 or 4000 level.		
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>60</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> The following substitutions are allowed:

- COMP 1010 in place of COMP 1012;
- [STAT 1000 and STAT 2000 (B)] or STAT 2220 in place of STAT 1150;
- MATH 1210 (B) or MATH 1300 (**C+**) in place of MATH 1220;
- MATH 1500 or MATH 1510 in place of MATH 1230;
- MATH 1700 (**C+ B**) or MATH 1710 (**C+ B**) in place of MATH 1232;
- COMP 2130 in place of MATH 1240;
- MATH 2150 in place of MATH 2720.

<sup>2</sup> Should be taken in graduating year.

<sup>3</sup> Courses may be chosen from COMP, MATH, or STAT courses included in the course lists in the program grid provided the courses have not been used toward another program requirement.

(Letters in brackets indicate minimum prerequisite standing for further study.)

Faculty of Science - Genetics

Program modifications:

Modifications to the following programs are outlined on the next 18 pages:

- **Bachelor of Science (Honours) in Genetics**
- **Bachelor of Science (Honours) in Genetics, Co-operative Option**
- **Bachelor of Science (Major) in Genetics**
- **Bachelor of Science (Major) in Genetics, Co-operative Option**

## **Genetics, B.Sc. Honours**

### **Genetics Honours Entry, Continuation, and Graduation Requirements**

**To enter** the Honours program in Genetics, a student must have completed at least 24 credit hours with a minimum DGPA of 3.00, and also obtained a minimum grade of “B” in BIOL 1030, and a minimum grade of “C+” in CHEM 1110. CHEM 1120, STAT 1150 or STAT 1000, MATH 1500 and the additional 3 credit hours of specified Mathematics courses are program requirements and students are strongly encouraged to complete these courses in first year.

~~\* Students interested in studying Genetics should note that Grade 12 mathematics and chemistry are prerequisite to CHEM 1100. Effective 2009-2010, students will also require Biology 40S (or equivalent) and any Grade 12 mathematics course (or equivalent) for entry to BIOL 1020 (the required prerequisite for BIOL 1030).~~

**To continue** in the Genetics Honours program, students must maintain a minimum DGPA of 3.00, and complete a minimum of 9 credit hours during each Fall and Winter Term.

**To graduate** with the B.Sc. Honours degree, a student must maintain a minimum 3.00 DGPA and achieve a minimum grade of “C” on all courses that make up the 120 credit hours of the degree.

### **Honours Co-operative Option**

A co-operative education option is available for Honours students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course, grade requirements and minimum DGPA requirement for entry and continuation in the Co-operative Option are the same as that for regular Honours program.

Students are required to complete the first and second year requirements of the program and MBIO 3410 before beginning their first co-op work term.

## Genetics, B.Sc. Honours

### Degree Requirements

#### Honours

Year 1		Hours
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties (C+)	3
CHEM 1120	Introduction to Chemistry Techniques <sup>1</sup>	3
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions (B)	3
One of:		3
STAT 1150	Introduction to Statistics and Computing <sup>2</sup>	
STAT 1000	Basic Statistical Analysis 1 <sup>2</sup>	
MATH 1500	Introduction to Calculus <sup>3</sup>	3
One of:		3
MATH <del>1240</del> 1200	<del>Elementary Discrete Mathematics</del> Elements of Discrete Mathematics <sup>3</sup>	
MATH 1300	Vector Geometry and Linear Algebra <sup>3</sup>	
MATH 1700	Calculus 2 <sup>3</sup>	
<b>Hours</b>		<b>24</b>
<b>Years 1-2</b>		
3 credit hours from the Faculty of Arts		3
3 credit hour "W" course		3
3 credit hours of electives		3
<b>Hours</b>		<b>9</b>
<b>Year 2</b>		
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
CHEM 2100	Organic Chemistry 1: Foundations of Organic Chemistry	3



CHEM/MBIO 2700	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	3
CHEM/MBIO 2710	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	3
CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory	3
MBIO 1010	Microbiology I	3
MBIO 2020	Microbiology II	3
One of:		3
STAT 2150	Statistics and Computing <sup>2</sup>	
STAT 2000	Basic Statistical Analysis 2 <sup>2</sup>	
<b>Hours</b>		<b>27</b>
<b>Years 3-4</b>		
BIOL 3500	Genetics 2	3
MBIO 3410	Molecular Biology	3
PLNT 3140	Introductory Cytogenetics	3
BGEN 3022	Introduction to Human Genetics A	3
BGEN 3024	Introduction to Human Genetics B	3
One of:		6
BGEN 4010	Project Course in Human Genetics <sup>4</sup>	
MBIO 4530	Project in Microbiology <sup>4</sup>	
One of:		3
ANTH 2240	Plagues and People	
ANTH 2560	Anthropology of Illness	
ANTH 2860	Evolution and Human Diversity	
ANTH 2890	Human Population Biology	
33 credit hours from list of optional courses (a minimum of 12 of these credit hours must be 4000 level)		33
3 credit hours of electives		3
<b>Hours</b>		<b>60</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> **CHEM 1122 and CHEM 1126 may be used in lieu of CHEM 1120. Note: CHEM 1122 and CHEM 1126 are restricted to Price Faculty of Engineering Students.** CHEM 1126 may be used in lieu of CHEM 1120.

<sup>2</sup> STAT 1150 is recommended over STAT 1000; STAT 2150 is recommended over STAT 2000.

- <sup>3</sup>
- **MATH 1210**, MATH 1220 or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1230, MATH 1510, or ~~the former~~ **MATH 1520**, or **MATH 1524** may be taken in place of MATH 1500;
  - MATH 1232 or MATH 1710 may be taken in place of MATH 1700;
  - ~~MATH 1690 may be taken in place of MATH 1500 and MATH 1700;~~
  - MATH ~~1200~~ **1240** may be taken in place of MATH ~~1240~~ **1200**.

<sup>4</sup> BGEN 4010 or MBI0 4530 are required courses for students in the Genetics Honours, but are not available to students in the Co-operative Option, and require department consent for students in the Genetics Major.

(Letters in brackets indicate minimum prerequisite standing for further study.)

### Honours Co-operative Option

Year 1		Hours
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties (C+)	3
CHEM 1120	Introduction to Chemistry Techniques <sup>1</sup>	3
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions (B)	3
One of:		3
STAT 1150	Introduction to Statistics and Computing <sup>2</sup>	
STAT 1000	Basic Statistical Analysis 1 <sup>2</sup>	
MATH 1500	Introduction to Calculus <sup>3</sup>	3
One of:		3
MATH <del>1240</del> <b><u>1200</u></b>	<b><u>Elementary Discrete Mathematics</u></b> Elements of Discrete Mathematics <sup>3</sup>	
MATH 1300	Vector Geometry and Linear Algebra <sup>3</sup>	
MATH 1700	Calculus 2 <sup>3</sup>	
<b>Hours</b>		<b>24</b>

**Years 1-2**

3 credit hours from the Faculty of Arts	3
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3 credit hour "W" course	3
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3 credit hours of electives	3
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<b>Hours</b>	<b>9</b>
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**Year 2**

BIOL 2500	Genetics 1	3
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BIOL 2520	Cell Biology	3
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CHEM 2100	Organic Chemistry 1: Foundations of Organic Chemistry	3
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CHEM/MBIO 2700	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	3
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CHEM/MBIO 2710	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	3
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CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory	3
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MBIO 1010	Microbiology I	3
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MBIO 2020	Microbiology II	3
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One of:		3
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STAT 2150	Statistics and Computing <sup>2</sup>	
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STAT 2000	Basic Statistical Analysis 2 <sup>2</sup>	
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<b>Hours</b>	<b>27</b>
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**Years 3-4**

BIOL 3500	Genetics 2	3
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MBIO 3410	Molecular Biology	3
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PLNT 3140	Introductory Cytogenetics	3
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BGEN 3022	Introduction to Human Genetics A	3
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BGEN 3024	Introduction to Human Genetics B	3
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One of:		3
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ANTH 2240	Plagues and People	
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ANTH 2560	Anthropology of Illness	
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ANTH 2860	Evolution and Human Diversity	
ANTH 2890	Human Population Biology	
39 credit hours from list of optional courses (a minimum of 18 of these credit hours must be 4000 39 level)		
3 credit hours of electives		3
<b>Co-op Requirements:</b> <sup>4</sup>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>60</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> **CHEM 1122 and CHEM 1126 may be used in lieu of CHEM 1120. Note: CHEM 1122 and CHEM 1126 are restricted to Price Faculty of Engineering Students.** ~~CHEM 1126 may be used in lieu of CHEM 1120.~~

<sup>2</sup> STAT 1150 is recommended over STAT 1000; STAT 2150 is recommended over STAT 2000.

- <sup>3</sup>
- **MATH 1210**, MATH 1220, or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1230, MATH 1510, or **the former** MATH 1520, **or MATH 1524** may be taken in place of MATH 1500;
  - MATH 1232 or MATH 1710 may be taken in place of MATH 1700;
  - ~~MATH 1690 may be taken in place of MATH 1500 and MATH 1700;~~
  - MATH ~~1200~~ **1240** may be taken in place of MATH ~~1240~~ **1200**.

<sup>4</sup> Students in the Co-operative Option are advised to ensure that they are able to satisfy the prerequisites for all 3000 and 4000 level courses they plan to take.

(Letters in brackets indicate minimum prerequisite standing for further study.)

### Optional Courses for the Genetics Honours and Major Programs (Including Co-operative Options)

#### BIOCHEMISTRY AND MEDICAL GENETICS

Course	Title	Hours
BGEN 4010	Project Course in Human Genetics <sup>1</sup>	6

<sup>1</sup> MBIO 4530 and BGEN 4010 are project courses. A research project is chosen in consultation with the Microbiology department (MBIO 4530) or Biochemistry and Medical Genetics (BGEN 4010) and the Genetics program committee, and is supervised by a staff member. Only one of MBIO 4530 or BGEN 4010 may be selected in this program. These are required courses for students registered in the Genetics Honours program and may be available to students registered in the Genetics Major program by departmental consent.

## BIOLOGICAL SCIENCES

Course	Title	Hours
BIOL 2410	Human Physiology 1	3
BIOL 2420	Human Physiology 2	3
BIOL 3290	Medicinal and Hallucinogenic Plants	3
BIOL 3300	Evolutionary Biology	3
BIOL/PLNT 3400	Plant Physiology	3
BIOL 3542	Developmental Biology	3
BIOL 3560	Comparative Animal Histology	3
BIOL 4500	Molecular Genetics of Plant Development	3
BIOL 4510	Evolutionary Genetics	3
BIOL 4540	Developmental Molecular Biology	3
BIOL 4542	Genes and Development	3
BIOL 4560	Microtechnique	3
BIOL 4650	Biology and Society	3

## CHEMISTRY

Course	Title	Hours
CHEM 2110	Organic Chemistry 2: Foundations of Organic Synthesis	3
CHEM 2122	Experimental Organic Chemistry	3
<del>One of:</del>		<del>3</del>
CHEM 2600	Physical Chemistry 1	<u>3</u>
CHEM 2260	Course no longer offered	
<del>One of:</del>		<del>3</del>

<b>Course</b>	<b>Title</b>	<b>Hours</b>
CHEM 3600	Physical Chemistry 2	<u>3</u>
<del>CHEM 2290</del>	<del>Course no longer offered</del>	
CHEM 4360	Signalling and Regulation of Gene Expression	3
CHEM 4370	Glycobiology and Protein Activation	3
CHEM 4620	Biochemistry of Nucleic Acids	3
CHEM 4630	Biochemistry of Proteins	3

### **MICROBIOLOGY**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
MBIO 2420	Introductory Virology	3
MBIO 3000	Applied Biological Safety	3
MBIO 3010	Mechanisms of Microbial Disease	3
<del>One of:</del>		<del>3</del>
MBIO 3032	Microbiology III: Physiology and Metabolism	<u>3</u>
<del>MBIO 3030</del>	<del>Course no longer offered</del>	
MBIO 3430	Molecular Evolution	3
MBIO 3450	Regulation of Biochemical Processes	3
MBIO 3460	Membrane and Cellular Biochemistry	3
<del>One of:</del>		<del>3</del>
MBIO 4020	Immunology	<u>3</u>
<del>MBIO 4010</del>	<del>Course no longer offered</del>	
MBIO 4410	Virology	3
MBIO 4530	Project in Microbiology <sup>1</sup>	6
MBIO 4540	Biological Energy Transduction	3
<del>One of:</del>		<del>3</del>
<del>MBIO 4670</del>	<del>Course no longer offered</del>	
<del>MBIO 4570</del>	<del>Course no longer offered</del>	

Course	Title	Hours
<del>MBIO 4672</del>	<del>Applied Molecular Biology</del>	<del>3</del>
One of:		<del>3</del>
MBIO 4602	Molecular Genetics of Prokaryotes - Lectures	<u>3</u>
<del>MBIO 4600</del>	<del>Course no longer offered</del>	
One of:		<del>3</del>
MBIO 4612	Molecular Genetics of Eukaryotes - Lectures	<u>3</u>
<del>MBIO 4610</del>	<del>Course no longer offered</del>	
<b><u>MBIO 4672</u></b>	<b><u>Applied Molecular Biology</u></b>	<b><u>3</u></b>

<sup>1</sup> MBIO 4530 and BGEN 4010 are project courses. A research project is chosen in consultation with the Microbiology department (MBIO 4530) or Biochemistry and Medical Genetics (BGEN 4010) and the Genetics program committee, and is supervised by a staff member. Only one of MBIO 4530 or BGEN 4010 may be selected in this program. These are required courses for students registered in the Genetics Honours program and may be available to students registered in the Genetics Major program by departmental consent.

## COMPUTER SCIENCE

Course	Title	Hours
COMP 1010	Introductory Computer Science 1	3
COMP 1020	Introductory Computer Science 2	3
COMP 1500	Computing: Ideas and Innovation	3
COMP 1600	Navigating Your Digital World	3

## PHYSICS

Course	Title	Hours
PHYS 1020	General Physics 1	3
PHYS 1030	General Physics 2	3
PHYS 1050	Physics 1: Mechanics	3
PHYS 1070	Physics 2: Waves and Modern Physics	3

## ANIMAL SCIENCE

<b>Course</b>	<b>Title</b>	<b>Hours</b>
ANSC 3500	Principles of Animal Genetics	3
ANSC 4280	Applied Animal Genetics	3

#### **PHARMACOLOGY**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
PHAC 4030	Drugs in Human Disease I	3
PHAC 4040	Drugs in Human Disease II	3

#### **PLANT SCIENCE**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
PLNT 2530	Plant Biotechnology	3
PLNT/BIOL 3400	Plant Physiology	3
PLNT 3520	Principles of Plant Improvement	3
PLNT 4330	Intermediate Plant Genetics	3
PLNT 4610	Bioinformatics	3

By an appropriate selection of courses from this list, students can obtain particular program emphasis in either plant, human or molecular genetics.

The Honours Co-op program must contain a minimum of 18 credit hours of 4000 level courses as options in Years 3 and 4.

Other suitable optional courses may be arranged through consultation with the Genetics program committee.



## **Genetics, B.Sc. Major**

### **Genetics Major Entrance, Continuation, and Graduation Requirements**

**To enter** the Major Degree program in Genetics, a student must have completed at least 24 credit hours with a minimum DGPA of 2.00, and also obtained a minimum grade of “C+” in BIOL 1030 and CHEM 1110. CHEM 1120, STAT 1150 or STAT 1000, MATH 1500 and the additional 3 credit hours of specified Mathematics courses are program requirements and students are strongly encouraged to complete these courses in first year.

~~\* Students interested in studying Genetics should note that Grade 12 mathematics and chemistry are prerequisite to CHEM 1100. Effective 2009-2010, students will also require Biology 40S (or equivalent) and any Grade 12 mathematics course (or equivalent) for entry to BIOL 1020 (the required prerequisite for BIOL 1030).~~

**To continue** in the Genetics Major Degree program, students must maintain a minimum DGPA of 2.00.

**To graduate** with the Bachelor of Science (Major) in Genetics, a student must obtain passing grades on all courses, obtain a minimum DGPA of 2.00, and a minimum grade of C in all required and optional courses that contribute to the Major.

### **Major Co-operative Option**

A co-operative education option is available for Major students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course and minimum grade requirements for entry and continuation in the Co-operative Option are the same as those required for the regular Major program. However, the entry and continuation DGPA requirement is set at a minimum of 2.5.

Students are required to complete the first and second year requirements of the program and MBIO 3410 before beginning their first co-op work term.

## Genetics, B.Sc. Major

### Degree Requirements

#### Four Year Major (Including Co-operative Option if Selected)

Year 1		Hours
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties (C+)	3
CHEM 1120	Introduction to Chemistry Techniques <sup>1</sup>	3
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions (C+)	3
One of:		3
STAT 1150	Introduction to Statistics and Computing <sup>2</sup>	
STAT 1000	Basic Statistical Analysis 1 <sup>2</sup>	
MATH 1500	Introduction to Calculus <sup>3</sup>	3
One of:		3
MATH <del>1240</del> 1200	<b>Elementary Discrete Mathematics</b> <del>Elements of Discrete Mathematics</del> <sup>3</sup>	
MATH 1300	Vector Geometry and Linear Algebra <sup>3</sup>	
MATH 1700	Calculus 2 <sup>3</sup>	
<b>Hours</b>		<b>24</b>
<b>Years 1-2</b>		
3 credit hours from the Faculty of Arts		3
3 credit hour "W" course		3
3 credit hours of electives		3
<b>Hours</b>		<b>9</b>
<b>Year 2</b>		
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
CHEM 2100	Organic Chemistry 1: Foundations of Organic Chemistry	3

CHEM/MBIO 2700	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy	3
CHEM/MBIO 2710	Biochemistry 2: Catabolism, Synthesis, and Information Pathways	3
CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory	3
MBIO 1010	Microbiology I	3
MBIO 2020	Microbiology II	3
One of:		3
STAT 2150	Statistics and Computing <sup>2</sup>	
STAT 2000	Basic Statistical Analysis 2 <sup>2</sup>	
<b>Hours</b>		<b>27</b>
<b>Years 3-4</b>		
BIOL 3500	Genetics 2	3
MBIO 3410	Molecular Biology	3
PLNT 3140	Introductory Cytogenetics	3
BGEN 3022	Introduction to Human Genetics A	3
BGEN 3024	Introduction to Human Genetics B	3
One of:		3
ANTH 2240	Plagues and People	
ANTH 2560	Anthropology of Illness	
ANTH 2860	Evolution and Human Diversity	
ANTH 2890	Human Population Biology	
30 credit hours from list of optional courses (a minimum of 15 of these credit hours must be 4000 level)		30
12 credit hours of electives		12
<b>Co-op Requirements (if selected): <sup>4</sup></b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4	0

<b>Hours</b>	<b>60</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> **CHEM 1122 and CHEM 1126 may be used in lieu of CHEM 1120. Note: CHEM 1122 and CHEM 1126 are restricted to Price Faculty of Engineering Students.** ~~CHEM 1126 may be used in lieu of CHEM 1120.~~

<sup>2</sup> STAT 1150 is recommended over STAT 1000; STAT 2150 is recommended over STAT 2000.

- <sup>3</sup>
- **MATH 1210**, MATH 1220, or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1230, MATH 1510, or **the former MATH 1520, or MATH 1524** may be taken in place of MATH 1500;
  - MATH 1232 or MATH 1710 may be taken in place of MATH 1700;
  - ~~MATH 1690 may be taken in place of MATH 1500 and MATH 1700;~~
  - MATH **1200** ~~1240~~ may be taken in place of MATH **1240** ~~1200~~.

<sup>4</sup> Students in the Co-operative Option are advised to ensure that they are able to satisfy the prerequisites for all 3000 and 4000 level courses they plan to take.

(Letters in brackets indicate minimum prerequisite standing for further study.)

### **Optional Courses for the Genetics Honours and Major Programs (Including Co-operative Options)**

#### **BIOCHEMISTRY AND MEDICAL GENETICS**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
BGEN 4010	Project Course in Human Genetics <sup>1</sup>	6

<sup>1</sup> MBIO 4530 and BGEN 4010 are project courses. A research project is chosen in consultation with the Microbiology department (MBIO 4530) or Biochemistry and Medical Genetics (BGEN 4010) and the Genetics program committee, and is supervised by a staff member. Only one of MBIO 4530 or BGEN 4010 may be selected in this program. These are required courses for students registered in the Genetics Honours program and may be available to students registered in the Genetics Major program by departmental consent.

#### **BIOLOGICAL SCIENCES**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
BIOL 2410	Human Physiology 1	3
BIOL 2420	Human Physiology 2	3
BIOL 3290	Medicinal and Hallucinogenic Plants	3
BIOL 3300	Evolutionary Biology	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
BIOL/PLNT 3400	Plant Physiology	3
BIOL 3542	Developmental Biology	3
BIOL 3560	Comparative Animal Histology	3
BIOL 4500	Molecular Genetics of Plant Development	3
BIOL 4510	Evolutionary Genetics	3
BIOL 4540	Developmental Molecular Biology	3
BIOL 4542	Genes and Development	3
BIOL 4560	Microtechnique	3
BIOL 4650	Biology and Society	3

### **CHEMISTRY**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
CHEM 2110	Organic Chemistry 2: Foundations of Organic Synthesis	3
CHEM 2122	Experimental Organic Chemistry	3
<del>One of:</del>		<del>3</del>
CHEM 2600	Physical Chemistry 1	<u>3</u>
<del>CHEM 2260</del>	<del>Course no longer offered</del>	
<del>One of:</del>		<del>3</del>
CHEM 3600	Physical Chemistry 2	<u>3</u>
<del>CHEM 2290</del>	<del>Course no longer offered</del>	
CHEM 4360	Signalling and Regulation of Gene Expression	3
CHEM 4370	Glycobiology and Protein Activation	3
CHEM 4620	Biochemistry of Nucleic Acids	3
CHEM 4630	Biochemistry of Proteins	3

### **MICROBIOLOGY**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
MBIO 2420	Introductory Virology	3

Course	Title	Hours
MBIO 3000	Applied Biological Safety	3
MBIO 3010	Mechanisms of Microbial Disease	3
One of:		<del>3</del>
MBIO 3032	Microbiology III: Physiology and Metabolism	<u>3</u>
<del>MBIO 3030</del>	<del>Course no longer offered</del>	
MBIO 3430	Molecular Evolution	3
MBIO 3450	Regulation of Biochemical Processes	3
MBIO 3460	Membrane and Cellular Biochemistry	3
One of:		<del>3</del>
MBIO 4020	Immunology	<u>3</u>
<del>MBIO 4010</del>	<del>Course no longer offered</del>	
MBIO 4410	Virology	3
MBIO 4530	Project in Microbiology <sup>1</sup>	6
MBIO 4540	Biological Energy Transduction	3
One of:		<del>3</del>
<del>MBIO 4670</del>	<del>Course no longer offered</del>	
<del>MBIO 4570</del>	<del>Course no longer offered</del>	
<del>MBIO 4672</del>	<del>Applied Molecular Biology</del>	<del>3</del>
One of:		<del>3</del>
MBIO 4602	Molecular Genetics of Prokaryotes - Lectures	<u>3</u>
<del>MBIO 4600</del>	<del>Course no longer offered</del>	
One of:		<del>3</del>
MBIO 4612	Molecular Genetics of Eukaryotes - Lectures	<u>3</u>
<del>MBIO 4610</del>	<del>Course no longer offered</del>	
<b><u>MBIO 4672</u></b>	<b><u>Applied Molecular Biology</u></b>	<b><u>3</u></b>

<sup>1</sup> MBIO 4530 and BGEN 4010 are project courses. A research project is chosen in consultation with the Microbiology department (MBIO 4530) or Biochemistry and Medical Genetics (BGEN 4010) and the

Genetics program committee, and is supervised by a staff member. Only one of MBI0 4530 or BGEN 4010 may be selected in this program. These are required courses for students registered in the Genetics Honours program and may be available to students registered in the Genetics Major program by departmental consent.

#### COMPUTER SCIENCE

Course	Title	Hours
COMP 1010	Introductory Computer Science 1	3
COMP 1020	Introductory Computer Science 2	3
COMP 1500	Computing: Ideas and Innovation	3
COMP 1600	Navigating Your Digital World	3

#### PHYSICS

Course	Title	Hours
PHYS 1020	General Physics 1	3
PHYS 1030	General Physics 2	3
PHYS 1050	Physics 1: Mechanics	3
PHYS 1070	Physics 2: Waves and Modern Physics	3

#### ANIMAL SCIENCE

Course	Title	Hours
ANSC 3500	Principles of Animal Genetics	3
ANSC 4280	Applied Animal Genetics	3

#### PHARMACOLOGY

Course	Title	Hours
PHAC 4030	Drugs in Human Disease I	3
PHAC 4040	Drugs in Human Disease II	3

#### PLANT SCIENCE

Course	Title	Hours
PLNT 2530	Plant Biotechnology	3
PLNT/BIO 3400	Plant Physiology	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
PLNT 3520	Principles of Plant Improvement	3
PLNT 4330	Intermediate Plant Genetics	3
PLNT 4610	Bioinformatics	3

By an appropriate selection of courses from this list, students can obtain particular program emphasis in either plant, human or molecular genetics.

The Honours Co-op program must contain a minimum of 18 credit hours of 4000 level courses as options in Years 3 and 4.

Other suitable optional courses may be arranged through consultation with the Genetics program committee.



## Mathematics

### Deletions:

MATH 0500 Preparing for University Mathematics	0 cr	0.0
MATH 1690 Calculus	6 cr	-6.0
MATH 3490 Optimization	3 cr	-3.0

### Introduction:

MATH 4490 Optimization	3 cr	+3.0
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This course introduces the theory and practice of optimization. Both unconstrained and constrained problems are considered, as well as continuous and discrete optimization. Topics include linear programming, unconstrained optimization, constrained nonlinear optimization and integer programming. Applications to Statistics and Data Science will be explored. May not be held with the former MATH 3490. Prerequisites: [one of MATH 2090, MATH 2091, MATH 2740, the former MATH 2300, the former MATH 2301, the former MATH 2350, or the former MATH 2352] and [one of MATH 2150, MATH 2151, MATH 2720, MATH 2721, or the former MATH 2750]; or consent of instructor.

### Modifications:

MATH 1018 Pre-Calculus in Practice	3 cr	0.0
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(Lab required) Essential topics in pre-calculus, with an emphasis on applications and elementary mathematical modelling in the sciences. This course is intended primarily for students who do not have credit for Pre-calculus Mathematics 40S (60%) and wish to continue in a subsequent course in Mathematics. May not be used for credit in a Mathematics Honours, Joint Honours, or Major program. Not available to students who have previously obtained credit (grade of C or better) in MATH 1200, MATH 1201, MATH 1210, MATH 1211, MATH 1220, MATH 1230, MATH 1240, MATH 1241, MATH 1300, MATH 1301, MATH 1310, MATH 1500, MATH 1501, MATH 1510, the former MATH 1520, or MATH 1524.

MATH 1230 Differential Calculus	3 cr	0.0
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(Lab required) The course is intended for students in mathematically rich disciplines including those planning to enter an Honours or Major program in Mathematics or Statistics. Rigorous treatment of limits, continuity, and differentiation (with epsilon-delta proofs), applications in optimization problems, related rates, l'Hopital's rule, curve sketching, Taylor polynomials. May not be held with MATH 1500, MATH 1501, MATH 1510, the former MATH 1520, MATH 1524, or the former MATH 1680. Prerequisite: One of Pre-calculus Mathematics 40S (70%), the former Mathematics 40S (300) (70%), MATH 1018 (B), or MSKL 0100 (B).

MATH 1232 Integral Calculus	3 cr	0.0
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(Lab required) This course is intended for students in mathematically rich disciplines including those planning to enter an Honours or Major program in Mathematics or Statistics. Integral calculus: theory and techniques of integration, curve sketching (parametric and polar), volume, arc length, surface area and partial derivatives. Sequences and series. May not be held with MATH 1700, MATH 1701, or MATH 1710. Prerequisite: One of MATH 1230, MATH 1500 (B), MATH 1501 (B), or MATH 1510 (B).

MATH 1500 Introduction to Calculus 3 cr 0.0  
(Lab required) Differentiation and integration of elementary functions, with applications to maxima and minima, rates of change, area, and volume. May not be held with MATH 1230, MATH 1501, MATH 1510, the former MATH 1520, MATH 1524, or the former MATH 1680. Prerequisite: One of Pre-calculus Mathematics 40S (60%), the former Mathematics 40S (300) (60%), MATH 1018 (C+), or MSKL 0100.

MATH 1510 Applied Calculus 1 3 cr 0.0  
(Lab required) Functions and graphs; limits and continuity; differentiation of functions defined explicitly, implicitly and parametrically; applications of derivatives to velocity and acceleration, related rates, maxima and minima; differentials, indefinite and definite integrals, application of integration to area. Physical applications in this course make it especially suitable for students intending to take programs in engineering. May not be held with MATH 1230, MATH 1500, MATH 1501, the former MATH 1520, MATH 1524, or the former MATH 1680. Prerequisites: (One of Pre-calculus Mathematics 40S (60%), the former Mathematics 40S (300) (60%), MATH 1018 (C+), or MSKL 0100) and (one of Physics 40S (300) (50%), PHYS 1018, PHYS 0900 (P), or PSKL 0100 (P)).

MATH 1700 Calculus 2 3 cr 0.0  
(Lab required) Theory and techniques of integration, curve sketching, volume, arc length, surface area and partial derivatives. May not be held with MATH 1232, MATH 1701, or MATH 1710. Prerequisite: one of MATH 1230, MATH 1500, MATH 1501, MATH 1510, the former MATH 1520, MATH 1524, or the former MATH 1680.

MATH 1710 Applied Calculus 2 3 cr 0.0  
(Lab required) Applications of integration to volumes, centres of mass, moments of inertia, work and fluid pressure; differentiation of trigonometric, inverse trigonometric, exponential, and logarithmic functions; techniques of integration; polar coordinates. Physical applications in this course make it especially suitable for students intending to take programs in engineering. May not be held with MATH 1232, MATH 1700, or MATH 1701. Prerequisite: one of MATH 1230, MATH 1500, MATH 1501, MATH 1510, the former MATH 1520, MATH 1524, or the former MATH 1680. Pre- or corequisite: PHYS 1050 or PHYS 1051.

MATH 2040 Curves and Surfaces 3 cr 0.0  
(Lab required) Curves and surfaces in the plane and space. Intrinsic geometry of curves and surfaces: Serret Frenet frames, first and second fundamental forms, curvature and the Gauss map. Geodesics and parallel transport. Theorema Egregium and Gauss-Bonnet theorems. Prerequisites: [one of MATH 1232, MATH 1700 (B), MATH 1701 (B), or MATH 1710 (B)] and [one of MATH 1220, MATH 1210 (B), MATH 1211 (B), MATH 1300 (C+), or MATH 1301 (C+)]; or consent of instructor. Pre- or corequisite: one of MATH 2150, MATH 2151, MATH 2720, or MATH 2721.

MATH 2080 Introduction to Analysis 3 cr 0.0  
(Lab required) The course is intended for students in mathematically rich disciplines. Fundamental properties of the real number system as a complete ordered field, Archimedean property, existence of square roots, density of rational numbers, uncountability of real numbers. Sequences, subsequences, limit theorems, monotonicity, Bolzano-Weierstrass theorem, Cauchy sequences. Rigorous treatment of limits and continuity of functions of one and several variables. Uniform continuity. Applications. May not be held with MATH 2081 or the former MATH 2202. Prerequisites: [one of MATH 1232, MATH 1700 (B), MATH 1701 (B), or MATH

1710 (B)] and [one of MATH 1220, MATH 1210 (B), MATH 1211 (B) MATH 1300 (C+), MATH 1301 (C+)] and [MATH 1240 or MATH 1241].

MATH 2130 Engineering Mathematical Analysis 1 3 cr 0.0  
(Lab required) Multivariable differential and integral calculus up to and including multiple integrals in cylindrical and spherical coordinates. This course is intended for students in Engineering and Geophysics programs. May not be held for credit with MATH 2150, MATH 2151, MATH 2720, MATH 2721, the former MATH 2110, or the former MATH 2750. Prerequisites: (MATH 1210 or MATH 1211) and (one of MATH 1232, MATH 1700, MATH 1701, or MATH 1710).

MATH 2132 Engineering Mathematical Analysis 2 3 cr 0.0  
(Lab required) Infinite series, Taylor and Maclaurin Series; ordinary differential equations including Laplace transforms. This course is intended for students in Engineering and Geophysics programs. May not be held for credit with the former MATH 2100, the former MATH 2730, the former MATH 2731, the former MATH 2800, or the former MATH 2801. Prerequisites: (MATH 1210 or MATH 1211) and (one of MATH 1232, MATH 1700, MATH 1701, or MATH 1710).

MATH 2160 Numerical Analysis 1 3 cr 0.0  
(Lab required) Elementary techniques of numerical solution of mathematical problems: solution of equations, linear systems of equations, nonlinear equations; finite and divided differences, interpolation; numerical differentiation and integration. May not be held with MATH 2120, MATH 2161, the former MATH 2600, or the former MATH 2601. Prerequisites: [one of MATH 1232, MATH 1700 (B), MATH 1701 (B), or MATH 1710 (B)] and [one of MATH 1220, MATH 1210 (B), MATH 1211 (B), MATH 1300 (C+), or MATH 1301 (C+)].

MATH 2720 Multivariable Calculus 3 cr 0.0  
(Lab required) Calculus of several variables. This course is intended for students in one of the following programs: Actuarial Mathematics, Data Science, Statistics (Honours or Majors), Physics (Honours or Majors), Geophysics (Honours or Majors), and Physical Geography. May not be held with MATH 2130, MATH 2150, MATH 2151, MATH 2721, the former MATH 2110, or the former MATH 2750. Prerequisites: (one of MATH 1220, MATH 1210 (B), MATH 1211 (B), MATH 1300, MATH 1301, or MATH 1310) and (one of MATH 1232, MATH 1700, MATH 1701, MATH 1710).

MATH 2740 Mathematics of Data Science 3 cr 0.0  
(Lab required) This course introduces some of the mathematical tools used in Data Science. Topics include linear algebra: least squares, singular value decomposition, principal components analysis, and graph theory: centrality, social network theory, clustering. This course can only be used as an elective in an Honours, Major, or Joint Honours program in Mathematics. Prerequisites: [(MATH 1210 (B) or MATH 1211 (B)) or (one of MATH 1220, MATH 1300, or MATH 1301)] and (one of MATH 1232, MATH 1700, MATH 1701, or MATH 1710).

**NET CHANGE IN CREDIT HOURS: -6.0**

Program modifications:

Modifications to the programs listed below are detailed on the next 13 pages:

- **Bachelor of Science (Honours) in Mathematics**
- **Bachelor of Science (Honours) in Mathematics, Co-operative Option**
- **Bachelor of Science (Double Honours) in Mathematics**
- **Bachelor of Science (Double Honours) in Mathematics, Co-operative Option**
- **Bachelor of Science (Major) in Mathematics**
- **Bachelor of Science (Major) in Mathematics, Co-operative Option**

## Mathematics, B.Sc. Honours

### Mathematics Honours Entrance, Continuation, and Graduation Requirements

**To enter** the Honours program in Mathematics, a student must have completed at least 24 credit hours with a minimum DGPA of 3.00, and also obtained a minimum grade of "B" in **MATH 1232** either ~~MATH 1232~~ or ~~MATH 1690~~, or a minimum grade of "A" in MATH 1700

**To continue** in the Mathematics Honours program, students must maintain a minimum DGPA of 3.00, and complete a minimum of 9 credit hours during each Fall and Winter Term.

**To graduate** with the B.Sc. Honours degree, a student must achieve a minimum 3.00 DGPA and achieve a minimum grade of "C" on all courses that make up the 120 credit hours of the degree.

Students are encouraged to discuss potential electives with a departmental advisor.

### Honours Co-operative Option

A co-operative education option is available for Honours students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course, grade requirements and minimum DGPA requirement for entry and continuation in the Co-operative Option are the same as that for regular Honours program.

Students will need to have completed MATH 2020 , MATH 2080, MATH 2090, MATH 2150 and MATH 2180 (or their equivalents as approved by the department of Mathematics) before entrance into the Co-op Program. Students who plan on, or are required to, take MATH 3470 and MATH 3472 are recommended to take these in the Fall and Winter (respectively) of Year 3 (similarly with MATH 3320 and MATH 3322).

## Mathematics, B.Sc. Honours

### Degree Requirements

#### Honours (Including Co-operative Option if Selected)

Year 1	Hours
MATH 1220 Linear Algebra 1 <sup>1</sup>	3
MATH 1230 Differential Calculus <sup>1</sup>	3
MATH 1232 Integral Calculus (B) <sup>1</sup>	3
MATH 1240 Elementary Discrete Mathematics	3
<b>Hours</b>	<b>12</b>

#### Years 1-2

STAT 1150 Introduction to Statistics and Computing <sup>1</sup>	3
COMP 1010 Introductory Computer Science 1 <sup>1</sup>	3
The following must be completed in Year 1 or Year 2:	
6 credit hours from the Faculty of Arts, which should include the required "W" course	6
15 credit hours of electives <sup>2</sup>	15
<b>Hours</b>	<b>27</b>

#### Year 2

MATH 2020 Algebra 1	3
MATH 2080 Introduction to Analysis	3
MATH 2090 Linear Algebra 2	3
MATH 2150 Multivariable Calculus	3
MATH 2180 Real Analysis 1	3
6 credit hours from the following list:	6
MATH 2030 Combinatorics 1	
MATH 2040 Curves and Surfaces	
MATH 2070 Graph Theory 1	
MATH 2160 Numerical Analysis 1 <sup>3</sup>	

MATH 2170	Number Theory 1	
	<b>Hours</b>	<b>21</b>
<b>Years 3-4</b>		
MATH 3320	Algebra 2	3
MATH 3340	Complex Analysis 1	3
MATH 3390	Introduction to Topology	3
MATH 3440	Ordinary Differential Equations	3
MATH 3470	Real Analysis 2	3
MATH 3472	Real Analysis 3	3
One of the two concentrations listed below (see Concentration tab for course requirements)		18
Applied and Computational Mathematics		
Pure Mathematics		
12 credit hours of Mathematics courses from the following (if not already taken in 2nd year):		12
MATH 2030	Combinatorics 1	
MATH 2070	Graph Theory 1	
MATH 2160	Numerical Analysis 1	
MATH 2170	Number Theory 1	
All Year 3 and 4 Mathematics courses		
12 credit hours of electives <sup>2</sup>		12
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
	<b>Hours</b>	<b>60</b>
	<b>Total Hours</b>	<b>120</b>

<sup>1</sup> Students are strongly advised to take MATH 1220, MATH 1230 and MATH 1232.

The following substitutions are allowed (but not advised), provided the grades indicated in brackets are achieved:

- MATH 1210 (A) or MATH 1300 (A) in place of MATH 1220,
- MATH 1500 (A) or MATH 1510 (A) in place of MATH 1230,
- MATH 1700 (A) or MATH 1710 (A) in place of MATH 1232,
- MATH 1690 (B) in place of MATH 1230 and MATH 1232.

With permission from the department, students may be able to substitute STAT 1000 and STAT 2000 in place of STAT 1150.

COMP 1012 may be used in lieu of COMP 1010.

<sup>2</sup> These courses may not be used for credit in this program: MATH 1010, MATH 1018, MATH 1020, FA 1020, MATH 1080, MATH 1090.

<sup>3</sup> Department strongly recommends choosing MATH 2160 in Year 2.

(Letters in brackets indicate minimum prerequisite standing for further study.)



## Mathematics, B.Sc. Double Honours

### Mathematics Double Honours

A student may elect Honours in Mathematics (including Co-operative Option) and one other field, subject to the approval of both departments.

**To enter** the Double Honours program in the Mathematics field, a student must have completed at least 24 credit hours with a minimum DGPA of 3.00, and also obtained a minimum grade of "B" in **MATH 1232** either ~~MATH 1232~~ or ~~MATH 1690~~, or a minimum grade of "A" in MATH 1700. Students should consult the other participating department to identify entry requirements for that field.

**To continue** in the Mathematics Double Honours program, students must maintain a minimum DGPA of 3.00, and complete a minimum of 9 credit hours during each Fall and Winter Term.

**To graduate** with the B.Sc. Honours degree, a student must achieve a minimum 3.00 DGPA and achieve a minimum grade of "C" on all courses that make up the degree. Students must complete a minimum of 120 credit hours to graduate, depending on requirements for other participating department, students may need to complete more than 120 credit hours to graduate.

## Mathematics, B.Sc. Double Honours

### Degree Requirements

#### Double Honours (Including Co-operative Option if Selected)<sup>1</sup>

A student may elect Honours in Mathematics (including Co-operative Option) and one other field, subject to the approval of both departments. The Mathematics prescription for a Double Honours program is as indicated below. It is a minimum of 120 credit hours, comprising of courses listed below, and the required courses from the other department.

<b>Year 1</b>	<b>Hours</b>
MATH 1220 Linear Algebra 1 <sup>2</sup>	3
MATH 1230 Differential Calculus <sup>2</sup>	3
MATH 1232 Integral Calculus (B) <sup>2</sup>	3
MATH 1240 Elementary Discrete Mathematics	3
STAT 1150 Introduction to Statistics and Computing <sup>2</sup>	3
COMP 1010 Introductory Computer Science 1 <sup>2</sup>	3
6 credit hours from the Faculty of Arts, which should include the required "W" course	6
<b>Hours</b>	<b>24</b>
<b>Year 2</b>	
MATH 2020 Algebra 1	3
MATH 2080 Introduction to Analysis	3
MATH 2090 Linear Algebra 2	3
MATH 2150 Multivariable Calculus	3
MATH 2180 Real Analysis 1	3
6 credit hours from the following list:	6
MATH 2030 Combinatorics 1	
MATH 2040 Curves and Surfaces	
MATH 2070 Graph Theory 1	
MATH 2160 Numerical Analysis 1	
MATH 2170 Number Theory 1	
<b>Hours</b>	<b>21</b>

**Year 3**

MATH 3320	Algebra 2	3
MATH 3340	Complex Analysis 1	3
MATH 3390	Introduction to Topology	3
MATH 3440	Ordinary Differential Equations	3
MATH 3470	Real Analysis 2	3
MATH 3472	Real Analysis 3	3
<b>Hours</b>		<b>18</b>

**Years 3-4****Co-op Requirements (if selected):**

SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>0</b>

**Year 4**

15 credit hours from the following (if not already taken in 2nd year):	15
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MATH 2030	Combinatorics 1
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MATH 2070	Graph Theory 1
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MATH 2160	Numerical Analysis 1
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MATH 2170	Number Theory 1
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All Year 3 and 4 mathematics courses of which at least 9 credit hours must be 4000 level

<b>Hours</b>	<b>15</b>
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<b>Total Hours</b>	<b>78</b>
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<sup>1</sup> These courses may not be used for credit in this program: MATH 1010, MATH 1018, MATH 1020, FA 1020, MATH 1080, MATH 1090.

<sup>2</sup> Students are strongly advised to take MATH 1220, MATH 1230 and MATH 1232.

The following substitutions are allowed (but not advised), provided the grades indicated in brackets are achieved:

- MATH 1210 (A) or MATH 1300 (A) in place of MATH 1220,
- MATH 1500 (A) or MATH 1510 (A) in place of MATH 1230,
- MATH 1700 (A) or MATH 1710 (A) in place of MATH 1232,
- MATH 1690 (B) in place of MATH 1230 and MATH 1232.

With permission of the department, students may be able to substitute STAT 1000 and STAT 2000 in place of STAT 1150.

COMP 1012 may be used in lieu of COMP 1010.

(Letters in brackets indicate minimum prerequisite standing for further study.)

## Mathematics, B.Sc. Major

### Mathematics Major Entrance, Continuation, and Graduation Requirements

**To enter** the four year Major in Mathematics, a student must have a “C+” in **MATH 1232** either ~~MATH 1232~~ or ~~MATH 1690~~ or a minimum grade of "B" in MATH 1700, and have satisfied all Faculty requirements for entry to the program.

**To continue** in the Mathematics Major degree program students must maintain a minimum DGPA of 2.00.

**To graduate** with the B.Sc. Major degree, a student must achieve a minimum DGPA of 2.00, and a minimum grade of “C” in each of the Major Program Specific Courses.

### Major Program Specific Courses

Course	Title	Hours
MATH 1220	Linear Algebra 1	3
MATH 1230	Differential Calculus	3
MATH 1232	Integral Calculus	3
MATH 1240	Elementary Discrete Mathematics	3
MATH 2020	Algebra 1	3
MATH 2030	Combinatorics 1	3
MATH 2080	Introduction to Analysis	3
MATH 2090	Linear Algebra 2	3
MATH 2150	Multivariable Calculus	3
MATH 2160	Numerical Analysis 1	3
MATH 2180	Real Analysis 1	3
MATH 3320	Algebra 2	3
MATH 3340	Complex Analysis 1	3
MATH 3360	Combinatorics 2	3
MATH 3390	Introduction to Topology	3
MATH 3440	Ordinary Differential Equations	3
MATH 3460	Partial Differential Equations	3

and 6 credit hours from the Year 2 Mathematics electives:

<b>Course</b>	<b>Title</b>	<b>Hours</b>
MATH 2040	Curves and Surfaces	3
MATH 2070	Graph Theory 1	3
MATH 2170	Number Theory 1	3

A student may substitute any 3000/4000 level MATH course for either of the above two electives.

Course List

### **Major Co-operative Option**

A co-operative education option is available for Major students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course and minimum grade requirements for entry and continuation in the Co-operative Option are the same as those required for the regular Major program. However, the entry and continuation DGPA requirement is set at a minimum of 2.5.

Students will need to have completed MATH 2020, MATH 2080, MATH 2090, MATH 2150 and MATH 2180 (or their equivalents as approved by the department of Mathematics) before entrance into the Co-op Program. Students who plan on, or are required to, take MATH 3470 and MATH 3472 are recommended to take these in the Fall and Winter (respectively) of Year 3 (similarly with MATH 3320 and MATH 3322).

## Mathematics, B.Sc. Major

### Degree Requirements

#### Four Year Major (Including Co-operative Option if Selected)

<b>Year 1</b>	<b>Hours</b>
MATH 1220 Linear Algebra 1 <sup>1</sup>	3
MATH 1230 Differential Calculus <sup>1</sup>	3
MATH 1232 Integral Calculus (C+) <sup>1</sup>	3
MATH 1240 Elementary Discrete Mathematics	3
<b>Hours</b>	<b>12</b>

#### Years 1-2

STAT 1150 Introduction to Statistics and Computing <sup>1</sup>	3
COMP 1010 Introductory Computer Science 1 <sup>1</sup>	3
15 credit hours of approved electives <sup>2</sup>	15
The following must be completed in Year 1 or Year 2:	
6 credit hours from the Faculty of Arts, which should include the required "W" course	6
<b>Hours</b>	<b>27</b>

#### Year 2

MATH 2020 Algebra 1	3
MATH 2080 Introduction to Analysis	3
MATH 2090 Linear Algebra 2	3
MATH 2150 Multivariable Calculus	3
MATH 2180 Real Analysis 1	3
<b>Hours</b>	<b>15</b>

#### Years 2-4

MATH 2030 Combinatorics 1	3
MATH 2160 Numerical Analysis 1	3
MATH 3320 Algebra 2	3

MATH 3340	Complex Analysis 1	3
MATH 3360	Combinatorics 2	3
MATH 3390	Introduction to Topology	3
MATH 3440	Ordinary Differential Equations	3
MATH 3460	Partial Differential Equations	3
30 credit hours from the following:		30
MATH 2040 Curves and Surfaces		
MATH 2070 Graph Theory 1		
MATH 2170 Number Theory 1		
and any 3000/4000 level Mathematics courses.		
12 credit hours of approved electives <sup>2</sup>		12
<b>Hours</b>		<b>66</b>
<b>Years 3-4</b>		
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>0</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Students are strongly advised to take MATH 1220, MATH 1230 and MATH 1232.

The following substitutions are allowed (but not advised), provided the grades indicated in brackets are achieved:

- MATH 1210 (B) or MATH 1300 (C+) in place of MATH 1220,
- MATH 1500 (B) or MATH 1510 (B) in place of MATH 1230,
- MATH 1700 (B) or MATH 1710 (B) in place of MATH 1232,
- ~~MATH 1690 (C+) in place of MATH 1230 and MATH 1232.~~

With permission from the department, students may be able to substitute STAT 1000 and STAT 2000 in place of STAT 1150.

COMP 1012 may be used in lieu of COMP 1010.



<sup>2</sup> These courses may not be used for credit in this program: MATH 1010, MATH 1018, MATH 1020, FA 1020, MATH 1080, MATH 1090.

(Letters in brackets indicate minimum prerequisite standing for further study.)

Modifications to the programs listed below are detailed on the next 16 pages:

- **Bachelor of Science (Major) in Applied Mathematics with Computer Science Option**
- **Bachelor of Science (Major) in Applied Mathematics with Computer Science Option, Co-operative Option**
- **Bachelor of Science (Major) in Applied Mathematics with Economics Option**
- **Bachelor of Science (Major) in Applied Mathematics with Economics Option, Co-operative Option**
- **Bachelor of Science (Major) in Applied Mathematics with Statistics Option**
- **Bachelor of Science (Major) in Applied Mathematics with Statistics Option, Co-operative Option**

## Applied Mathematics with Computer Science Option, B.Sc. Major

### Four Year Major in Applied Mathematics with Option (Computer Science, Economics, Statistics) Entrance, Continuation and Graduation Requirements

These programs provide a sound general knowledge of applied mathematics together with a significant number of courses in the option area. Courses in the Computer Science option provide training in aspects of computer science which are most useful to the practicing mathematician. Courses in the Computer Sciences, Economics, and Statistics options are fundamental to each area and provide a strong, mathematical basis for further study.

**To enter** the four year Major in Applied Mathematics with one of the above three options, a student must have a "C+" in **MATH 1232** ~~either MATH 1232 or MATH 1690~~ or a minimum grade of "B" in MATH 1700, and have satisfied all faculty requirements for entry to the program.

**To continue** in the Applied Mathematics Major degree programs, students must maintain a minimum DGPA of 2.00.

**To graduate** with the B.Sc. Major degree, a student must achieve a minimum DGPA of 2.00, and a minimum grade of "C" in each of the Major Program Specific courses.

### Applied Mathematics Major Program Specific Courses

Course	Title	Hours
MATH 1220	Linear Algebra 1	3
MATH 1230	Differential Calculus	3
MATH 1232	Integral Calculus	3
MATH 1240	Elementary Discrete Mathematics	3
MATH 2070	Graph Theory 1	3
MATH 2080	Introduction to Analysis	3
MATH 2090	Linear Algebra 2	3
MATH 2150	Multivariable Calculus	3
MATH 2160	Numerical Analysis 1	3
MATH 2180	Real Analysis 1	3
MATH 3340	Complex Analysis 1	3
MATH 3420	Numerical Analysis 2	3
MATH 3440	Ordinary Differential Equations	3
MATH 3460	Partial Differential Equations	3

Course	Title	Hours
MATH 3470	Real Analysis 2	3
MATH 3610	Introduction to Mathematical Modelling	3

#### Course List

It is recommended that students take all 12 credit hours of 1000 level mathematics courses in their initial 30 credit hours; however, students should take at least MATH 1230, MATH 1232 and MATH 1220. See program grids for additional requirements for each option.

#### Options List

Course	Title	Hours
MATH 2030	Combinatorics 1	3
MATH 2040	Curves and Surfaces	3
MATH 2170	Number Theory 1	3

Any 3000/4000 level MATH course

#### Course List

#### Major Co-operative Option

A co-operative education option is available for Major students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course and minimum grade requirements for entry and continuation in the Co-operative Option are the same as those required for the regular Major program. However, the entry and continuation DGPA requirement is set at a minimum of 2.5.

## Applied Mathematics with Computer Science Option, B.Sc. Major

### Degree Requirements

#### Four Year Major (Including Co-operative Option if Selected)

Year 1		Hours
MATH 1220	Linear Algebra 1 <sup>1</sup>	3
MATH 1230	Differential Calculus <sup>1</sup>	3
MATH 1232	Integral Calculus (C+) <sup>1</sup>	3
MATH 1240	Elementary Discrete Mathematics	3
COMP 1010	Introductory Computer Science 1 <sup>1</sup>	3
COMP 1020	Introductory Computer Science 2	3
6 credit hours from the Faculty of Arts, which should include the required "W" course		6
6 credit hours of approved electives <sup>2</sup>		6
<b>Hours</b>		<b>30</b>
Year 2		
MATH 2080	Introduction to Analysis	3
MATH 2090	Linear Algebra 2	3
MATH 2150	Multivariable Calculus	3
MATH 2160	Numerical Analysis 1	3
MATH 2180	Real Analysis 1	3
COMP 2140	Data Structures and Algorithms	3
<b>Hours</b>		<b>18</b>
Years 2-4		
STAT 1150	Introduction to Statistics and Computing <sup>1</sup>	3
STAT 2150	Statistics and Computing	3
9 credit hours from:		9
MATH 2030	Combinatorics 1	
MATH 2040	Curves and Surfaces	

MATH 2170	Number Theory 1	
Any 3000/4000 level MATH course		
One of the following patterns:		9
<b>Graphics</b>		
COMP 2190	Introduction to Scientific Computing	
COMP 3490	Computer Graphics 1	
COMP 4490	Computer Graphics 2	
<b>Software</b>		
COMP 2150	Object Orientation	
COMP 2160	Programming Practices	
and one of:		
COMP 3380	Databases Concepts and Usage	
COMP 3440	Programming Language Concepts	
COMP 3020	Human-Computer Interaction 1	
<b>Theoretical Computer Science</b>		
COMP 2080	Analysis of Algorithms	
and two of:		
COMP 3030	Automata Theory and Formal Languages	
COMP 3170	Analysis of Algorithms and Data Structures	
COMP 3820	Introduction to Bioinformatics Algorithms	
COMP 4420	Advanced Design and Analysis of Algorithms	
<b>Hardware</b>		
COMP 2160	Programming Practices	
COMP 2280	Introduction to Computer Systems	
and one of:		
COMP 3370	Computer Organization	
COMP 3430	Operating Systems	

<b>Artificial Intelligence</b>		
COMP 3190	Introduction to Artificial Intelligence	
and two of:		
COMP 4180	Intelligent Mobile Robotics	
COMP 4190	Artificial Intelligence	
COMP 4200	Expert Systems	
COMP 4360	Machine Learning	
27 credit hours of electives <sup>2</sup>		27
<b>Hours</b>		<b>51</b>
<b>Years 3-4</b>		
MATH 2070	Graph Theory 1	3
MATH 3340	Complex Analysis 1	3
MATH 3420	Numerical Analysis 2	3
MATH 3440	Ordinary Differential Equations	3
MATH 3460	Partial Differential Equations	3
MATH 3470	Real Analysis 2	3
MATH 3610	Introduction to Mathematical Modelling	3
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>21</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Students are strongly advised to take MATH 1220, MATH 1230 and MATH 1232.

The following substitutions are allowed (but not advised), provided the grades indicated in brackets are achieved:

- MATH 1210 (B) or MATH 1300 (C+) in place of MATH 1220;
- MATH 1500 (B) or MATH 1510 (B) in place of MATH 1230;
- MATH 1700 (B) or MATH 1710 (B) in place of MATH 1232;
- ~~MATH 1690 (C+) in place of MATH 1230 and MATH 1232;~~
- STAT 1000 (C) and STAT 2000 (B) in place of STAT 1150.

COMP 1012 may be used in lieu of COMP 1010.

<sup>2</sup> These courses may not be used for credit in this program: MATH 1010, MATH 1018, MATH 1020, FA 1020, MATH 1080, MATH 1090.

(Letters in brackets indicate minimum prerequisite standing for further study.)



## Applied Mathematics with Economics Option, B.Sc. Major

### Four Year Major in Applied Mathematics with Option (Computer Science, Economics, Statistics) Entrance, Continuation and Graduation Requirements

These programs provide a sound general knowledge of applied mathematics together with a significant number of courses in the option area. Courses in the Computer Science option provide training in aspects of computer science which are most useful to the practicing mathematician. Courses in the Computer Sciences, Economics, and Statistics options are fundamental to each area and provide a strong, mathematical basis for further study.

**To enter** the four year Major in Applied Mathematics with one of the above three options, a student must have a "C+" in **MATH 1232** ~~either MATH 1232 or MATH 1690~~ or a minimum grade of "B" in MATH 1700, and have satisfied all faculty requirements for entry to the program.

**To continue** in the Applied Mathematics Major degree programs, students must maintain a minimum DGPA of 2.00.

**To graduate** with the B.Sc. Major degree, a student must achieve a minimum DGPA of 2.00, and a minimum grade of "C" in each of the Major Program Specific courses.

### Applied Mathematics Major Program Specific Courses

Course	Title	Hours
MATH 1220	Linear Algebra 1	3
MATH 1230	Differential Calculus	3
MATH 1232	Integral Calculus	3
MATH 1240	Elementary Discrete Mathematics	3
MATH 2070	Graph Theory 1	3
MATH 2080	Introduction to Analysis	3
MATH 2090	Linear Algebra 2	3
MATH 2150	Multivariable Calculus	3
MATH 2160	Numerical Analysis 1	3
MATH 2180	Real Analysis 1	3
MATH 3340	Complex Analysis 1	3
MATH 3420	Numerical Analysis 2	3
MATH 3440	Ordinary Differential Equations	3
MATH 3460	Partial Differential Equations	3

Course	Title	Hours
MATH 3470	Real Analysis 2	3
MATH 3610	Introduction to Mathematical Modelling	3

#### Course List

It is recommended that students take all 12 credit hours of 1000 level mathematics courses in their initial 30 credit hours; however, students should take at least MATH 1230, MATH 1232 and MATH 1220. See program grids for additional requirements for each option.

#### Options List

Course	Title	Hours
MATH 2030	Combinatorics 1	3
MATH 2040	Curves and Surfaces	3
MATH 2170	Number Theory 1	3

Any 3000/4000 level MATH course

#### Course List

#### Major Co-operative Option

A co-operative education option is available for Major students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course and minimum grade requirements for entry and continuation in the Co-operative Option are the same as those required for the regular Major program. However, the entry and continuation DGPA requirement is set at a minimum of 2.5.

## Applied Mathematics with Economics Option, B.Sc. Major

### Degree Requirements

#### Four Year Major (Including Co-operative Option if Selected)

<b>Year 1</b>		<b>Hours</b>
MATH 1220	Linear Algebra 1 <sup>1</sup>	3
MATH 1230	Differential Calculus <sup>1</sup>	3
MATH 1232	Integral Calculus (C+) <sup>1</sup>	3
MATH 1240	Elementary Discrete Mathematics	3
One of the following:		6
ECON 1010 & ECON 1020	Introduction to Microeconomic Principles and Introduction to Macroeconomic Principles	
ECON 1210 & ECON 1220	Introduction to Canadian Economic Issues and Policies and Introduction to Global and Environmental Economic Issues and Policies	
9 credit hours of electives <sup>2</sup>		9
<b>Hours</b>		<b>27</b>
<b>Years 1-2</b>		
3 credit hour "W" course must be taken in Year 1 or Year 2		3
<b>Hours</b>		<b>3</b>
<b>Year 2</b>		
MATH 2080	Introduction to Analysis	3
MATH 2090	Linear Algebra 2	3
MATH 2150	Multivariable Calculus	3
MATH 2160	Numerical Analysis 1	3
MATH 2180	Real Analysis 1	3
<b>Hours</b>		<b>15</b>
<b>Years 2-4</b>		
STAT 1150	Introduction to Statistics and Computing <sup>1</sup>	3
STAT 2150	Statistics and Computing	3

COMP 1010	Introductory Computer Science 1 <sup>1</sup>	3
ECON 2030	Mathematical Economics 1	3
ECON 3030	Mathematical Economics 2	3
6 credit hours from:		6
MATH 2030	Combinatorics 1	
MATH 2040	Curves and Surfaces	
MATH 2170	Number Theory 1	
Any 3000/4000 level MATH course		
6 credit hours from:		6
ECON 2010	Microeconomic Theory 1	
ECON 2020	Macroeconomic Theory 1	
ECON 3010	Microeconomic Theory 2	
ECON 3020	Macroeconomic Theory 2	
24 credit hours of approved electives <sup>2</sup>		24
<b>Hours</b>		<b>51</b>
<b>Years 3-4</b>		
MATH 2070	Graph Theory 1	3
MATH 3340	Complex Analysis 1	3
MATH 3420	Numerical Analysis 2	3
MATH 3440	Ordinary Differential Equations	3
MATH 3460	Partial Differential Equations	3
MATH 3470	Real Analysis 2	3
MATH 3610	Introduction to Mathematical Modelling	3
MATH 4370	Linear Algebra and Matrix Analysis	3
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0

SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
	<b>Hours</b>	<b>24</b>
	<b>Total Hours</b>	<b>120</b>

#### Plan of Study Grid

<sup>1</sup> Students are strongly advised to take MATH 1220, MATH 1230 and MATH 1232.

The following substitutions are allowed (but not advised), provided the grades indicated in brackets are achieved:

- MATH 1210 (B) or MATH 1300 (C+) in place of MATH 1220;
- MATH 1500 (B) or MATH 1510 (B) in place of MATH 1230;
- MATH 1700 (B) or MATH 1710 (B) in place of MATH 1232;
- ~~MATH 1690 (C+) in place of MATH 1230 and MATH 1232;~~
- STAT 1000 (C) and STAT 2000 (B) in place of STAT 1150.

COMP 1012 may be used in place of COMP 1010.

<sup>2</sup> These courses may not be used for credit in this program: MATH 1010, MATH 1018, MATH 1020, FA 1020, MATH 1080, MATH 1090.

(Letters in brackets indicate minimum prerequisite standing for further study.)

## Applied Mathematics with Statistics Option, B.Sc. Major

### Four Year Major in Applied Mathematics with Option (Computer Science, Economics, Statistics) Entrance, Continuation and Graduation Requirements

These programs provide a sound general knowledge of applied mathematics together with a significant number of courses in the option area. Courses in the Computer Science option provide training in aspects of computer science which are most useful to the practicing mathematician. Courses in the Computer Sciences, Economics, and Statistics options are fundamental to each area and provide a strong, mathematical basis for further study.

**To enter** the four year Major in Applied Mathematics with one of the above three options, a student must have a "C+" in **MATH 1232** either ~~MATH 1232~~ or ~~MATH 1690~~ or a minimum grade of "B" in MATH 1700, and have satisfied all faculty requirements for entry to the program.

**To continue** in the Applied Mathematics Major degree programs, students must maintain a minimum DGPA of 2.00.

**To graduate** with the B.Sc. Major degree, a student must achieve a minimum DGPA of 2.00, and a minimum grade of "C" in each of the Major Program Specific courses.

### Applied Mathematics Major Program Specific Courses

Course	Title	Hours
MATH 1220	Linear Algebra 1	3
MATH 1230	Differential Calculus	3
MATH 1232	Integral Calculus	3
MATH 1240	Elementary Discrete Mathematics	3
MATH 2070	Graph Theory 1	3
MATH 2080	Introduction to Analysis	3
MATH 2090	Linear Algebra 2	3
MATH 2150	Multivariable Calculus	3
MATH 2160	Numerical Analysis 1	3
MATH 2180	Real Analysis 1	3
MATH 3340	Complex Analysis 1	3
MATH 3420	Numerical Analysis 2	3
MATH 3440	Ordinary Differential Equations	3
MATH 3460	Partial Differential Equations	3

Course	Title	Hours
MATH 3470	Real Analysis 2	3
MATH 3610	Introduction to Mathematical Modelling	3

#### Course List

It is recommended that students take all 12 credit hours of 1000 level mathematics courses in their initial 30 credit hours; however, students should take at least MATH 1230, MATH 1232 and MATH 1220. See program grids for additional requirements for each option.

#### Options List

Course	Title	Hours
MATH 2030	Combinatorics 1	3
MATH 2040	Curves and Surfaces	3
MATH 2170	Number Theory 1	3

Any 3000/4000 level MATH course

#### Course List

#### Major Co-operative Option

A co-operative education option is available for Major students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course and minimum grade requirements for entry and continuation in the Co-operative Option are the same as those required for the regular Major program. However, the entry and continuation DGPA requirement is set at a minimum of 2.5.

## Applied Mathematics with Statistics Option, B.Sc. Major

### Degree Requirements

#### Four Year Major (Including Co-operative Option if Selected)

<b>Year 1</b>	<b>Hours</b>
MATH 1220 Linear Algebra 1 <sup>1</sup>	3
MATH 1230 Differential Calculus <sup>1</sup>	3
MATH 1232 Integral Calculus (C+) <sup>1</sup>	3
MATH 1240 Elementary Discrete Mathematics	3
STAT 1150 Introduction to Statistics and Computing <sup>1</sup>	3
6 credit hours from the Faculty of Arts, which should include the required "W" course	6
9 credit hours of electives <sup>2</sup>	9
<b>Hours</b>	<b>30</b>
<b>Year 2</b>	
MATH 2080 Introduction to Analysis	3
MATH 2090 Linear Algebra 2	3
MATH 2150 Multivariable Calculus	3
MATH 2160 Numerical Analysis 1	3
MATH 2180 Real Analysis 1	3
STAT 2150 Statistics and Computing	3
STAT 2400 Introduction to Probability 1	3
<b>Hours</b>	<b>21</b>
<b>Years 2-4</b>	
COMP 1010 Introductory Computer Science 1 <sup>1</sup>	3
9 credit hours from:	9
MATH 2030 Combinatorics 1	
MATH 2040 Curves and Surfaces	
MATH 2170 Number Theory 1	



Any 3000/4000 level MATH course		
9 credit hours of 3000 or 4000 level Statistics courses		9
18 credit hours of approved electives <sup>2</sup>		18
<b>Hours</b>		<b>39</b>
<b>Years 3-4</b>		
MATH 2070	Graph Theory 1	3
MATH 3340	Complex Analysis 1	3
MATH 3420	Numerical Analysis 2	3
MATH 3440	Ordinary Differential Equations	3
MATH 3460	Partial Differential Equations	3
MATH 3470	Real Analysis 2	3
MATH 3610	Introduction to Mathematical Modelling	3
STAT 2800	Introduction to Probability 2	3
STAT 3100	Introduction to Statistical Inference	3
STAT 3450	Linear Models	3
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>30</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Students are strongly advised to take MATH 1220, MATH 1230 and MATH 1232.

The following substitutions are allowed (but not advised), provided the grades indicated in brackets are achieved:

- MATH 1210 (B) or MATH 1300 (C+) in place of MATH 1220;
- MATH 1500 (B) or MATH 1510 (B) in place of MATH 1230;
- MATH 1700 (B) or MATH 1710 (B) in place of MATH 1232;
- MATH 1690 (C+) in place of MATH 1230 and MATH 1232;
- STAT 1000 (C) and STAT 2000 (B) in place of STAT 1150.

COMP 1012 may be used in place of COMP 1010.

<sup>2</sup> These courses may not be used for credit in this program: MATH 1010, MATH 1018, MATH 1020, FA 1020, MATH 1080, MATH 1090.

(Letters in brackets indicate minimum prerequisite standing for further study.)

Modifications to the programs listed below are detailed on the next 13 pages:

- **Bachelor of Science (Joint Honours) in Computer Science and Mathematics**
- **Bachelor of Science (Joint Honours) in Computer Science and Mathematics, Co-operative Option**
- **Bachelor of Science (Joint Honours) in Mathematics and Economics**
- **Bachelor of Science (Joint Honours) in Mathematics and Physics and Astronomy**
- **Bachelor of Science (Joint Honours) in Mathematics and Physics and Astronomy, Co-operative Option**

## **Computer Science - Mathematics Joint Honours Entrance, Continuation, and Graduation Requirements**

The departments of Computer Science and Mathematics offer a joint Honours program for in-depth study in both Computer Science and Mathematics.

To **enter** the Joint Honours Computer Science - Mathematics program, the student must have a minimum grade of "B" in each of COMP 1020, **MATH 1232** ~~either MATH 1232 or MATH 1690~~ (or a minimum grade of "A" in MATH 1700), and have satisfied the Faculty of Science requirements for entry to the honours program. It is recommended that STAT 2150 be completed in Year 1 as an elective.

**To continue in, and graduate from** the program, the student must meet the Faculty of Science requirements for continuation and graduation from the Honours or Honours Co-op program.

### **Honours Co-operative Option**

A co-operative education option is available for Honours students. Students should refer to the [Co-operative Education](#) for further information on the Co-op programs.

The course, grade requirements and minimum DGPA requirement for entry and continuation in the Co-operative Option are the same as that for regular Honours program.

Students are required to complete all the first and second year courses in the program grid before their first co-op work term.

# Degree Requirements

## Joint Honours (Including Co-operative Option if Selected)

Year 1		Hours
COMP 1010	Introductory Computer Science 1	3
COMP 1020	Introductory Computer Science 2 (B)	3
MATH 1220	Linear Algebra 1 <sup>1</sup>	3
MATH 1230	Differential Calculus <sup>1</sup>	3
MATH 1232	Integral Calculus (B) <sup>1</sup>	3
MATH 1240	Elementary Discrete Mathematics	3
STAT 1150	Introduction to Statistics and Computing <sup>1</sup>	3
6 credit hours from the Faculty of Arts, which should include the required 3 credit hour "W" course		6
3 credit hours of electives <sup>2</sup>		3
<b>Hours</b>		<b>30</b>
Year 2		Hours
COMP 2080	Analysis of Algorithms	3
COMP 2140	Data Structures and Algorithms	3
COMP 2160	Programming Practices	3
COMP 2280	Introduction to Computer Systems	3
MATH 2020	Algebra 1	3
MATH 2080	Introduction to Analysis	3
MATH 2090	Linear Algebra 2	3
MATH 2150	Multivariable Calculus	3
MATH 2180	Real Analysis 1	3
3 credit hours of electives <sup>2</sup>		3
<b>Hours</b>		<b>30</b>

### SUMMER

### Co-op Requirements (if selected):

SCI 3980	Co-operative Education Work Term 1 <sup>3</sup>	0
	<b>Hours</b>	<b>0</b>

### Year 3

#### SUMMER

#### Co-op Requirements (if selected):

SCI 3990	Co-operative Education Work Term 2 <sup>3</sup>	0
	<b>Hours</b>	<b>0</b>

### Years 3-4

COMP 3030	Automata Theory and Formal Languages	3
COMP 3170	Analysis of Algorithms and Data Structures	3
COMP 3370	Computer Organization	3
COMP 3430	Operating Systems	3

15 credit hours of 3000 or 4000 level Computer Science courses, of which at least 6 credit hours must be 4000 level 15

MATH 2030	Combinatorics 1	3
MATH 2160	Numerical Analysis 1	3
MATH 3320	Algebra 2	3
MATH 3440	Ordinary Differential Equations	3
MATH 3470	Real Analysis 2	3
MATH 3472	Real Analysis 3	3

9 credit hours from: 9

MATH 2070 Graph Theory 1

MATH 2170 Number Theory 1

Any 3000 or 4000 level Mathematics courses, of which at least 3 credit hours must be 4000 level

6 credit hours of electives <sup>2</sup> 6

**Hours** **60**

### Year 4

#### SUMMER

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**Co-op Requirements (if selected):**

SCI 4980	Co-operative Education Work Term 3 <sup>3</sup>	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected) <sup>3</sup>	0
	<b>Hours</b>	<b>0</b>
	<b>Total Hours</b>	<b>120</b>

## Plan of Study Grid

<sup>1</sup> Students are strongly advised to take MATH 1220, MATH 1230 and MATH 1232. The following substitutions are allowed (but not advised), provided the grades indicated in brackets are achieved:

- MATH 1210 (A) or MATH 1300 (A) in place of MATH 1220,
- MATH 1500 (A) or MATH 1510 (A) in place of MATH 1230,
- MATH 1700 (A) or MATH 1710 (A) in place of MATH 1232,
- **MATH 1690 (B) in place of MATH 1230 and MATH 1232.**

With permission from the department, students may be able to substitute STAT 1000 and STAT 2000 in place of STAT 1150.

<sup>2</sup> These courses may not be used for credit in this program: MATH 1010, MATH 1018, MATH 1020, FA 1020, MATH 1080, MATH 1090.

<sup>3</sup> When chosen, the Co-operative Option work terms (SCI 3980, SCI 3990, SCI 4980, and SCI 4990 [if selected]) will normally be completed during the Summer Terms following years 2, 3, and 4 respectively.

(Letters in brackets indicate minimum prerequisite standing for further study.)

Mathematics - Economics Joint, B.Sc. Honours

**Mathematics - Economics Joint Honours Entrance, Continuation, and Graduation Requirements**

The Department of Mathematics along with the Department of Economics (Faculty of Arts) offer a joint Honours program for students wishing in depth study in Mathematics and Economics. Refer to the Faculty of Arts for Economics course listings.

**To enter** the Joint Honours Mathematics - Economics program, the student must have a minimum grade of "B" in: ECON 1010 and ECON 1020 (or ECON 1210 and ECON 1220), **MATH 1232** ~~either MATH 1232 or MATH 1690~~ (or a minimum grade of "A" in MATH 1700) and have satisfied the Faculty of Science requirements for entry to the honours program.

**To continue** in the Joint Honours Mathematics - Economics program, students must maintain a minimum DGPA of 3.00, and complete a minimum of 9 credit hours during each Fall and Winter Term.

**To graduate** with the B.Sc. Honours degree, a student must achieve a minimum 3.00 DGPA and achieve a minimum grade of "C" on all courses that make up the 120 credit hours of the degree.



## Mathematics - Economics Joint, B.Sc. Honours

### Degree Requirements

#### Joint Honours

Year 1	Hours
One of A or B:	6
A:	
ECON 1010 Introduction to Microeconomic Principles (B)	
ECON 1020 Introduction to Macroeconomic Principles (B)	
B:	
ECON 1210 Introduction to Canadian Economic Issues and Policies (B)	
ECON 1220 Introduction to Global and Environmental Economic Issues and Policies (B)	
MATH 1220 Linear Algebra 1 <sup>1</sup>	3
MATH 1230 Differential Calculus <sup>1</sup>	3
MATH 1232 Integral Calculus (B) <sup>1</sup>	3
MATH 1240 Elementary Discrete Mathematics	3
STAT 1150 Introduction to Statistics and Computing <sup>1,2</sup>	3
COMP 1010 Introductory Computer Science 1 <sup>2</sup>	3
6 credit hours of electives, including the required "W" course <sup>3</sup>	6
<b>Hours</b>	<b>30</b>
<b>Year 2</b>	
ECON 2010 Microeconomic Theory 1	3
ECON 2020 Macroeconomic Theory 1	3
MATH 2020 Algebra 1	3
MATH 2080 Introduction to Analysis	3
MATH 2090 Linear Algebra 2	3
MATH 2150 Multivariable Calculus	3
MATH 2180 Real Analysis 1	3

9 credit hours of approved electives <sup>3</sup>	9
<b>Hours</b>	<b>30</b>
<b>Years 3-4</b>	
ECON 3010 Microeconomic Theory 2	3
ECON 3020 Macroeconomic Theory 2	3
ECON 3040 Introduction to Econometrics <sup>2</sup>	3
MATH 2030 Combinatorics 1	3
MATH 2160 Numerical Analysis 1	3
MATH 3320 Algebra 2	3
MATH 3340 Complex Analysis 1	3
MATH 3440 Ordinary Differential Equations	3
MATH 3470 Real Analysis 2	3
MATH 3472 Real Analysis 3	3
24 credit hours of approved Economics courses <sup>4</sup>	24
3 credit hours from:	3
MATH 3420 Numerical Analysis 2	
MATH 3460 Partial Differential Equations	
MATH 3610 Introduction to Mathematical Modelling	
MATH 4370 Linear Algebra and Matrix Analysis	
Any Mathematics course at the 4000 level	
3 credit hours of Mathematics courses at the 3000 or 4000 level	3
<b>Hours</b>	<b>60</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> Students are strongly advised to take MATH 1220, MATH 1230 and MATH 1232.

The following substitutions are allowed (but not advised), provided the grades indicated in brackets are achieved:

- MATH 1210 (A) or MATH 1300 (A) in place of MATH 1220,
- MATH 1500 (A) or MATH 1510 (A) in place of MATH 1230,
- MATH 1700 (A) or MATH 1710 (A) in place of MATH 1232,

- ~~MATH 1690 (B) in place of MATH 1230 and MATH 1232.~~

With permission from the department, students may be able to substitute STAT 1000 and STAT 2000 in place of STAT 1150.

- <sup>2</sup> Some courses may be taken in a different year than indicated; STAT 1150, COMP 1010, ECON 3040 may be taken in Year 2. The normal prerequisite for ECON 3040 is ECON 2040 (or the former ECON 3170), which will be waived for students in this program who have completed Year 1.
- <sup>3</sup> These courses may not be used for credit in this program: MATH 1010, MATH 1018, MATH 1020, FA 1020, MATH 1080, MATH 1090.
- <sup>4</sup> Of the 24 credit hours in electives in Economics in Years 3 and 4, no more than 6 credit hours may be at the 2000 level or below and at least 6 credit hours must be at the 4000 level. Students are encouraged to take ECON 4010, ECON 4020 and ECON 4040.

(Letters in brackets indicate minimum prerequisite standing for further study.)

## Mathematics - Physics and Astronomy Joint, B.Sc. Honours

### Mathematics - Physics and Astronomy Joint Honours Entrance, Continuation, and Graduation Requirements (Including Co-operative Option)

**To enter** the Joint Honours Mathematics - Physics Honours program the student must have a minimum grade of "B" in: **MATH 1232** either ~~MATH 1232~~ or ~~MATH 1690~~ (or a minimum grade of "A" in MATH 1700), PHYS 1050 (or "B+" in PHYS 1020) and PHYS 1070 (or "B+" in PHYS 1030).

**To continue** in the Honours program, students must maintain a minimum DGPA of 3.00, complete a minimum of 9 credit hours each Fall and Winter Term.

**To graduate** with the B.Sc. Honours degree, a student must achieve a minimum DGPA of 3.00 and a minimum grade of "C+" in each of the Honours Program Specific courses<sup>1</sup>, and a minimum grade of "C" on all remaining courses that contribute to the 120 credit hours of the degree.

<sup>1</sup> The Honours Program Specific courses consist of all the Physics and Astronomy courses listed in the program grid, with the exception of PHYS 1020, PHYS 1050, PHYS 1030 and PHYS 1070.

### Honours Co-operative Option

A co-operative education option is available for Honours students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course, grade requirements and minimum DGPA requirement for entry and continuation in the Co-operative Option are the same as that for regular Honours program.

## Mathematics - Physics and Astronomy Joint, B.Sc. Honours

### Degree Requirements

#### Joint Honours (Including Co-operative Option if Selected)

Year 1		Hours
MATH 1220	Linear Algebra 1 <sup>1</sup>	3
MATH 1230	Differential Calculus <sup>1</sup>	3
MATH 1232	Integral Calculus (B) <sup>1</sup>	3
MATH 1240	Elementary Discrete Mathematics	3
One of: <sup>2</sup>		3
PHYS 1050	Physics 1: Mechanics (B)	
PHYS 1020	General Physics 1 (B+)	
One of:		3
PHYS 1070	Physics 2: Waves and Modern Physics (B) <sup>2</sup>	
PHYS 1030	General Physics 2 (B+)	
STAT 1150	Introduction to Statistics and Computing <sup>3</sup>	3
COMP 1012	Computer Programming for Scientists and Engineers	3
6 credit hours from the Faculty of Arts, which should include the required "W" course <sup>4</sup>		6
<b>Hours</b>		<b>30</b>
Year 2		
PHYS 2260	Optics	3
or PHYS 2610 or Circuit Theory and Introductory Electronics		
PHYS 2386	Introduction to Quantum Mechanics and Special Relativity	3
PHYS 2600	Electromagnetic Field Theory	3
PHYS 2650	Classical Mechanics 1 <sup>5</sup>	3
3 credit hours of Physics <sup>6</sup>		3
MATH 2020	Algebra 1	3
MATH 2080	Introduction to Analysis	3
MATH 2090	Linear Algebra 2	3

MATH 2150	Multivariable Calculus	3
MATH 2180	Real Analysis 1	3
	<b>Hours</b>	<b>30</b>
<b>Year 3</b>		
MATH 3340	Complex Analysis 1	3
MATH 3440	Ordinary Differential Equations	3
MATH 3460	Partial Differential Equations	3
MATH 3470	Real Analysis 2	3
MATH 3472	Real Analysis 3	3
PHYS 3670	Classical Thermodynamics <sup>5</sup>	3
PHYS 3650	Classical Mechanics 2 <sup>5,7</sup>	3
PHYS 3630	Electro - and Magnetostatic Theory <sup>5</sup>	3
PHYS 3386	Quantum Mechanics 2 <sup>5</sup>	3
	3 credit hours from 3000 and 4000 level Physics Honours courses	3
	<b>Hours</b>	<b>30</b>
<b>Years 3-4</b>		
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
	<b>Hours</b>	<b>0</b>
<b>Year 4</b>		
MATH 3320	Algebra 2	3
MATH 3322	Algebra 3	3
	3 credit hours of 4000 level Math	3
PHYS 3430	Honours Physics Laboratory	6

PHYS 4680	Statistical Mechanics <sup>7</sup>	3
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6 credit hours from the Department of Mathematics or the Department of Physics & Astronomy:		6
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MATH 2030	Combinatorics 1
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MATH 2070	Graph Theory 1
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MATH 2160	Numerical Analysis 1
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MATH 2170	Number Theory 1
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Any 3000 or 4000 level Mathematics or Physics courses	
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6 credit hours of electives <sup>6</sup>		6
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<b>Hours</b>	<b>30</b>
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<b>Total Hours</b>	<b>120</b>
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<sup>1</sup> Students are strongly advised to take MATH 1220, MATH 1230 and MATH 1232.

The following substitutions are allowed (but not advised), provided the grades indicated in brackets are achieved:

- MATH 1210 (A) or MATH 1300 (A) in place of MATH 1220,
- MATH 1500 (A) or MATH 1510 (A) in place of MATH 1230,
- MATH 1700 (A) or MATH 1710 (A) in place of MATH 1232,
- ~~MATH 1690 (B) in place of MATH 1230 and MATH 1232.~~

<sup>2</sup> Students are advised to take PHYS 1050 and PHYS 1070.

<sup>3</sup> Students may take STAT 1000 and STAT 2000 in lieu of STAT 1150.

<sup>4</sup> As there are no electives in Year 2 of the program, students should complete the university written English requirement in Year 1. If not completed in Year 1, a “W” course must be completed prior to Year 3 in addition to the required Year 2 courses.

<sup>5</sup> The corequisite or prerequisite of PHYS 2496 is waived for students in this program. It is recommended that students audit PHYS 2496 in second year and PHYS 3496 in third year.

<sup>6</sup> These courses may not be used for credit in this program: MATH 1010, MATH 1018, MATH 1020, FA 1020, MATH 1080, MATH 1090, and PHYS 1018 may not count towards the 120 credit hours required for this degree.

<sup>7</sup> The pre- or corequisite of PHYS 3496 is waived for students in this program. It is recommended that students audit PHYS 2496 in second year and PHYS 3496 in third year.

IMPORTANT: The joint Honours program need not be completed in the manner prescribed in the grid above. The grid indicates the recommended arrangement of the required courses and is meant to be a guide around which students can plan their program.

(Letters in brackets indicate minimum prerequisite standing for further study.)



## Microbiology

### Program modifications

Modifications to the programs listed below are detailed on the next 15 pages:

- **Bachelor of Science (Honours) in Microbiology**
- **Bachelor of Science (Honours) in Microbiology, Co-operative Option**
- **Bachelor of Science (Major) in Microbiology**
- **Bachelor of Science (Major) in Microbiology, Co-operative Option**

# Microbiology, B.Sc. Honours

## Microbiology Honours Entrance, Continuation, and Graduation Requirements

**To enter** the Honours program in Microbiology, a student must have completed at least 24 credit hours with a minimum DGPA of 3.00, and also obtained a minimum grade of “B” in MBIO 1010, and a minimum grade of “C+” in CHEM 1110. CHEM 1120, BIOL 1020, BIOL 1030, STAT 1150 (or STAT 1000), and the 3 credit hours of specified Mathematics or Physics are program requirements and students are strongly encouraged to complete these courses in first year.

**To continue** in the Microbiology Honours program, students must maintain a minimum DGPA of 3.00, and complete a minimum of 9 credit hours during each Fall and Winter Term.

**To graduate** from the Microbiology Honours program students must achieve a minimum DGPA of 3.00 and obtain a minimum grade of “C” on the courses that make up the 120 credit hours of the degree.

~~Students who wish to elect CHEM 2600, CHEM 3600 or CHEM 2510 as options should note the prerequisites in making a choice of mathematics courses.~~

~~CHEM 2100 must be taken before MBIO 2710 (CHEM 2710). Courses (MBIO 2700 and CHEM 2700) and (MBIO 2710 and CHEM 2710) are the same and credit cannot be held for both. Microbiology students will normally register in MBIO 2700 and MBIO 2710, but CHEM 2700 and CHEM 2710 will be regarded as equivalents.~~

~~By careful choice of electives, programs may be selected giving emphasis to various areas of Microbiology, e.g., Biochemistry and Molecular Biology or Environmental and Ecological Microbiology. In choosing optional courses, students should be aware of any prerequisite requirements.~~

## Honours Co-operative Option

A co-operative education option is available for Honours students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course, grade requirements and minimum DGPA requirement for entry and continuation in the Co-operative Option are the same as that for regular Honours program.

Before beginning their first co-op work term, students are required to complete the first and second year requirements of the program, in addition to MBIO 2710 (CHEM 2710) and CHEM 2720, MBIO 3010 and MBIO 3410.

# Microbiology, B.Sc. Honours

## Degree Requirements

### On This Page

- [Honours](#)
- [Honours Co-operative Option](#)
- [Option List for All Microbiology Programs](#)

### Honours

Note<sup>1</sup>

Year 1		Hours
MBIO 1010	Microbiology I (B) <sup>2</sup>	3
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties (C+)	3
CHEM 1120	Introduction to Chemistry Techniques <sup>3</sup>	3
<b>Hours</b>		<b>18</b>

### Years 1-2

In Year 1 or Year 2 the following must be completed:

3 credit hours of Mathematics or Physics chosen from: 3

MATH 1240 Elementary Discrete Mathematics <sup>4</sup>

MATH 1300 Vector Geometry and Linear Algebra <sup>4</sup>

MATH 1500 Introduction to Calculus <sup>4</sup>

PHYS 1020 General Physics 1

or PHYS 1050 or Physics 1: Mechanics

One of: 3

STAT 1150 Introduction to Statistics and Computing <sup>5</sup>

STAT 1000 Basic Statistical Analysis 1 <sup>5</sup>

6 credit hours from the Faculty of Arts, which should include the required "W" course		6
6 credit hours of electives <sup>6</sup>		6
3 credit hours from Microbiology courses or from the Option List (see below) <sup>6</sup>		3
<b>Hours</b>		<b>21</b>
<b>Year 2</b>		
MBIO 2020	Microbiology II	3
MBIO/CHEM 2700	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy <sup>7</sup>	3
MBIO/CHEM 2710	Biochemistry 2: Catabolism, Synthesis, and Information Pathways <sup>6-7</sup>	3
CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory <sup>7</sup>	3
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
CHEM 2100	Organic Chemistry 1: Foundations of Organic Chemistry <sup>7</sup>	3
<b>Hours</b>		<b>21</b>
<b>Year 3</b>		
MBIO 3010	Mechanisms of Microbial Disease	3
MBIO 3032	Microbiology III: Physiology and Metabolism	3
MBIO 3410	Molecular Biology	3
MBIO 3600	Molecular Microbiology Techniques	3
MBIO 3700	Experimental Microbiology Laboratory	3
<b>Hours</b>		<b>15</b>
<b>Years 3-4</b>		
24 credit hours of Microbiology courses including (a single course may meet more than one of these requirements) <sup>6</sup> :		24
- One course from each of Lists A, B, C, D, and E (see below); <sup>7-8</sup>		
- 12 credit hours at the 4000-level;		
- 3 credit hour course with a laboratory or tutorial (List F) <sup>7-8</sup>		
12 credit hours from the Option List (see below) <sup>6</sup>		12
3 credit hours of electives <sup>6</sup>		3

	<b>Hours</b>	<b>39</b>
<b>Year 4</b>		
MBIO 4530	Project in Microbiology	6
	<b>Hours</b>	<b>6</b>
	<b>Total Hours</b>	<b>120</b>

<sup>1</sup> MBIO 1220 and MBIO 1410 cannot be used to satisfy course requirements in a Major or Honours program.

<sup>2</sup> MBIO 1010 may be completed in either year 1 or year 2. It is recommended that it be completed in first year.

<sup>3</sup> **CHEM 1122 and CHEM 1126 may be taken in place used in place of CHEM 1120. Note: CHEM 1122 and CHEM 1126 are only available to Price Faculty of Engineering students.**

- <sup>4</sup>
- **MATH 1210**, MATH 1220, or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1230, MATH 1510, ~~MATH 1520~~ **MATH 1524** or ~~MATH 1690~~ may be taken in place of MATH 1500.
  - MATH 1200 may be used in place of MATH 1240.

<sup>5</sup> STAT 1150 is recommended over STAT 1000.

<sup>6</sup> **By careful choice of course options and electives, programs may be selected giving emphasis to various areas of Microbiology, e.g., Biochemistry and Molecular Biology or Environmental and Ecological Microbiology. Students must be aware of course and grade prerequisites when selecting 3000 and 4000 level Microbiology courses as well as specific options courses from other departments.**

<sup>6-7</sup> **CHEM 2100 must be taken before MBIO 2710 (CHEM 2710). Courses (MBIO 2700 and CHEM 2700) and (MBIO 2710 and CHEM 2710) are the same and credit cannot be held for both.** It is strongly recommended that MBIO 2710 (or CHEM 2710) and CHEM 2720 be completed prior to Year 3 as they are prerequisite to many upper level MBIO courses.

- <sup>7-8</sup>
- **List A:** MBIO 2230, MBIO 3282, MBIO 3472, MBIO 4480, MBIO 4520;
  - **List B:** MBIO 2420, MBIO 3000, MBIO 4020, MBIO 4300, MBIO 4410, MBIO 4520;
  - **List C:** MBIO 3430, MBIO 4442, MBIO 4700;
  - **List D:** MBIO 4602, MBIO 4612, MBIO 4672;
  - **List E:** MBIO 3450, MBIO 3460, MBIO 4540;
  - **List F:** MBIO 3460, MBIO 4442, MBIO 4480, MBIO 4520.

(Letters in brackets indicate minimum prerequisite standing for further study.)

## Honours Co-operative Option

Note<sup>1-42</sup>

Year 1		Hours
MBIO 1010	Microbiology I (B) <sup>23</sup>	3
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties (C+)	3
CHEM 1120	Introduction to Chemistry Techniques <sup>34</sup>	3
<b>Hours</b>		<b>18</b>
<b>Years 1-2</b>		
In Year 1 or Year 2 the following must be completed:		
3 credit hours of Mathematics or Physics chosen from:		3
MATH 1240	Elementary Discrete Mathematics <sup>45</sup>	
MATH 1300	Vector Geometry and Linear Algebra <sup>45</sup>	
MATH 1500	Introduction to Calculus <sup>45</sup>	
PHYS 1020	General Physics 1	
or PHYS 1050	or Physics 1: Mechanics	
One of:		3
STAT 1150	Introduction to Statistics and Computing <sup>56</sup>	
STAT 1000	Basic Statistical Analysis 1 <sup>56</sup>	
6 credit hours from the Faculty of Arts, which should include the required "W" course		6
6 credit hours of electives <sup>7</sup>		6
3 credit hours from Microbiology courses or from the Option List (see below) <sup>7</sup>		3
<b>Hours</b>		<b>21</b>
<b>Year 2</b>		
MBIO 2020	Microbiology II	3

MBIO/CHEM 2700	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy <sup>8</sup>	3
MBIO/CHEM 2710	Biochemistry 2: Catabolism, Synthesis, and Information Pathways <sup>2,8</sup>	3
CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory <sup>2,8</sup>	3
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
CHEM 2100	Organic Chemistry 1: Foundations of Organic Chemistry <sup>8</sup>	3
<b>Hours</b>		<b>21</b>

### Year 3

MBIO 3010	Mechanisms of Microbial Disease <sup>8,2</sup>	3
MBIO 3032	Microbiology III: Physiology and Metabolism	3
MBIO 3410	Molecular Biology <sup>8,2</sup>	3
MBIO 3600	Molecular Microbiology Techniques	3
MBIO 3700	Experimental Microbiology Laboratory	3
<b>Hours</b>		<b>15</b>

### Years 3-4

27 credit hours of Microbiology courses including (a single course may meet more than one of these requirements)<sup>2</sup>:

- One course from each of Lists A, B, C, D, and E (see below); <sup>7,2</sup>
- 15 credit hours at the 4000-level;
- 3 credit hour course with a laboratory or tutorial (List F). <sup>7,2</sup>

15 credit hours from the Option List (see below)<sup>2</sup> 15

3 credit hours of electives<sup>2</sup> 3

### Co-op Requirements<sup>2</sup>:

SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>45</b>

<sup>1</sup> MBI0 1220 and MBI0 1410 cannot be used to satisfy course requirements in a Major or Honours program.

<sup>2</sup> **Students in the Co-operative Option are required to complete MBI0 2710 (CHEM 2710) and CHEM 2720, MBI0 3010 and MBI0 3410 before their first employment term.**

<sup>23</sup> MBI0 1010 may be completed in either year 1 or year 2. It is recommended that it be completed in first year.

<sup>24</sup> **CHEM 1122 and CHEM 1126 may be taken in place used in place of CHEM 1120. Note: CHEM 1122 and CHEM 1126 are only available to Price Faculty of Engineering students.**

- <sup>45</sup>
- **MATH 1210**, MATH 1220, or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1230, MATH 1510, ~~MATH 1520~~ or **MATH 1524** or ~~MATH 1690~~ may be taken in place of MATH 1500.
  - MATH 1200 may be used in place of MATH 1240.

<sup>56</sup> STAT 1150 is recommended over STAT 1000.

<sup>7</sup> **By careful choice of course options and electives, programs may be selected giving emphasis to various areas of Microbiology, e.g., Biochemistry and Molecular Biology or Environmental and Ecological Microbiology. Students must be aware of course and grade prerequisites when selecting 3000 and 4000 level Microbiology courses as well as specific options courses from other departments.**

<sup>68</sup> **CHEM 2100 must be taken before MBI0 2710 (CHEM 2710). Courses (MBI0 2700 and CHEM 2700) and (MBI0 2710 and CHEM 2710) are the same and credit cannot be held for both. It is strongly recommended that MBI0 2710 (or CHEM 2710) and CHEM 2720 must be completed prior to Year 3 as they are prerequisite to many upper level MBI0 courses required for entry for the Co-operative Option**

- <sup>79</sup>
- **List A:** MBI0 2230, MBI0 3282, MBI0 3472, MBI0 4480, MBI0 4520;
  - **List B:** MBI0 2420, MBI0 3000, MBI0 4020, MBI0 4300, MBI0 4410, MBI0 4520;
  - **List C:** MBI0 3430, MBI0 4442, MBI0 4700;
  - **List D:** MBI0 4602, MBI0 4612, MBI0 4672;
  - **List E:** MBI0 3450, MBI0 3460, MBI0 4540;
  - **List F:** MBI0 3460, MBI0 4442, MBI0 4480, MBI0 4520.

<sup>8</sup> ~~Students in the Co-operative Option must complete MBI0 3010 and MBI0 3410 before their first employment term.~~

(Letters in brackets indicate minimum prerequisite standing for further study.)



## OPTION LIST FOR ALL MICROBIOLOGY PROGRAMS

### Agroecology

Course	Title	Hours
AGEC 2370	Principles of Ecology	3

Course List

### Biological Sciences

Course	Title	Hours
BIOL 2242	The Flowering Plants	3
BIOL 2260	Biology of Fungi and Lichens	3
BIOL 2300	Principles of Ecology	3
BIOL 2380	Introductory Toxicology	3
BIOL 2410	Human Physiology 1	3
BIOL 2420	Human Physiology 2	3
BIOL 3290	Medicinal and Hallucinogenic Plants	3
BIOL 3370	Limnology	3
BIOL 3400	Plant Physiology	3
BIOL 3452	Environmental Plant Physiology	3
BIOL 3470	Environmental Physiology of Animals 1	3
BIOL 3472	Environmental Physiology of Animals 2	3
BIOL 3500	Genetics 2	3
BIOL 3542	Developmental Biology	3
BIOL 3560	Comparative Animal Histology	3
BIOL 4480	Comparative Endocrinology	3
BIOL 4540	Developmental Molecular Biology	3
BIOL 4542	Genes and Development	3
BIOL 4544	Advanced Developmental and Cellular Biology	3
BIOL 4554	Molecular Biology Techniques for Eukaryotes - DNA	3
BIOL 4556	Molecular Biology Techniques for Eukaryotes - RNA	3

<b>Course</b>	<b>Title</b>	<b>Hours</b>
BIOL 4560	Microtechnique	3

Course List

### **Chemistry**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
CHEM 2110	Organic Chemistry 2: Foundations of Organic Synthesis	3
CHEM 2122	Experimental Organic Chemistry	3
CHEM 2300	Inorganic Chemistry 1: Structure and Applications	3
CHEM 2510	Introduction to Analytical Chemistry	3
CHEM 2600	Physical Chemistry 1	3
CHEM 3100	Organic Chemistry 3: Advanced Organic Synthesis	3
CHEM 3500	Instrumental Analysis	3
CHEM 3600	Physical Chemistry 2	3
CHEM 3700	Biophysical Chemistry	3
CHEM 4590	Bioanalytical Methods	3
CHEM 4360	Signalling and Regulation of Gene Expression	3
CHEM 4370	Glycobiology and Protein Activation	3
CHEM 4620	Biochemistry of Nucleic Acids	3
CHEM 4630	Biochemistry of Proteins	3
CHEM 4670	Drug Design and Drug Discovery	3

Course List

### **Environmental Science**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
ENVR 2180	Introductory Toxicology	3

Course List

### **Food Sciences**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
FOOD 4150	Food Microbiology 1	3

Course	Title	Hours
Course List		

**General Agriculture**

Course	Title	Hours
AGRI 2180	Introductory Toxicology	3

Course List

**Pharmacology**

Course	Title	Hours
PHAC 4030	Drugs in Human Disease I	3
PHAC 4040	Drugs in Human Disease II	3

Course List

**Plant Science**

Course	Title	Hours
PLNT 3400	Plant Physiology	3

Course List

**Statistics**

Course	Title	Hours
STAT 2000	Basic Statistical Analysis 2	3
or STAT 2150	Statistics and Computing	

Course List

**Notes:** Other suitable options may be selected with permission of the department.

# Microbiology, B.Sc. Major

## Degree Requirements

### Four Year Major (Including Co-operative Option if Selected)<sup>1, 7, 8, 2, 3</sup>

Year 1		Hours
MBIO 1010	Microbiology I (C+) <sup>2,4</sup>	3
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties (C+)	3
CHEM 1120	Introduction to Chemistry Techniques <sup>2,5</sup>	3
<b>Hours</b>		<b>18</b>
<b>Years 1-2</b>		
In Year 1 or Year 2 the following must be completed:		
3 credit hours of Mathematics or Physics chosen from:		3
MATH 1240	Elementary Discrete Mathematics <sup>4,6</sup>	
MATH 1300	Vector Geometry and Linear Algebra <sup>4,6</sup>	
MATH 1500	Introduction to Calculus <sup>4,6</sup>	
PHYS 1020	General Physics 1	
or PHYS 1050	or Physics 1: Mechanics	
One of:		3
STAT 1150	Introduction to Statistics and Computing <sup>5,7</sup>	
STAT 1000	Basic Statistical Analysis 1 <sup>5,7</sup>	
6 credit hours from the Faculty of Arts, which should include the required "W" course		6
9 credit hours of electives <sup>8</sup>		9
<b>Hours</b>		<b>21</b>

**Year 2**

MBIO 2020	Microbiology II	3
MBIO/CHEM 2700	Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy <sup>9</sup>	3
MBIO/CHEM 2710	Biochemistry 2: Catabolism, Synthesis, and Information Pathways <sup>6,2,9</sup>	3
CHEM 2720	Principles and Practices of the Modern Biochemistry Laboratory <sup>2,9</sup>	3
BIOL 2500	Genetics 1	3
BIOL 2520	Cell Biology	3
CHEM 2100	Organic Chemistry 1: Foundations of Organic Chemistry <sup>9</sup>	3
<b>Hours</b>		<b>21</b>

**Years 3-4**

MBIO 3010	Mechanisms of Microbial Disease <sup>7,2</sup>	3
MBIO 3032	Microbiology III: Physiology and Metabolism	3
MBIO 3410	Molecular Biology <sup>7,2</sup>	3
MBIO 3600	Molecular Microbiology Techniques	3
MBIO 3700	Experimental Microbiology Laboratory	3
24 credit hours of Microbiology courses including 15 credit hours at the 4000 level <sup>8,10</sup>		24
9 credit hours of Microbiology courses or courses chosen from the Option List (see below) <sup>9,8,10</sup>		9
12 credit hours of electives <sup>8</sup>		12

**Co-op Requirements (if selected):<sup>7,2</sup>**

SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>60</b>

**Total Hours** **120**

<sup>1</sup> MBIO 1220 and MBIO 1410 cannot be used to satisfy course requirements in a Major or Honours program.

<sup>2</sup> **Students in the Co-operative Option are required to complete MBIO 2710 (CHEM 2710), CHEM 2720, MBIO 3010 and MBIO 3410 before their first employment term.**

<sup>3</sup> **IMPORTANT: The four year Major program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the required courses and is meant to be a guide around which students can plan their program.**

<sup>24</sup> MBIO 1010 may be completed in either Year 1 or Year 2. It is recommended that it be completed in the first year.

<sup>35</sup> **CHEM 1122 and CHEM 1126 may be taken in place used in place of CHEM 1120. Note: CHEM 1122 and CHEM 1126 are restricted to Price Faculty of Engineering students.**

- <sup>46</sup>
- **MATH 1210**, MATH 1220, or MATH 1310 may be taken in place of MATH 1300;
  - MATH 1230, MATH 1510, or MATH 1520 **MATH 1524** ~~or MATH 1690~~ may be taken in place of MATH 1500.
  - MATH 1200 may be used in place of MATH 1240.

<sup>57</sup> STAT 1150 is recommended over STAT 1000.

<sup>8</sup> **By careful choice of electives, programs may be selected giving emphasis to various areas of Microbiology, e.g., Biochemistry and Molecular Biology or Environmental and Ecological Microbiology. The listed requirements are minimum requirements. Students are reminded that should they wish to take further courses in Microbiology, they are at liberty to do so within the degree regulations. Students must be aware of course and grade prerequisites when selecting 3000 and 4000 level Microbiology courses as well as specific options courses from other departments.**

<sup>9</sup> **CHEM 2100 must be taken before MBIO 2710 (CHEM 2710). Courses (MBIO 2700 and CHEM 2700) and (MBIO 2710 and CHEM 2710) are the same and credit cannot be held for both.** It is strongly recommended that MBIO 2710 (or CHEM 2710) and CHEM 2720 be completed prior to Year 3 as they are prerequisite to many upper level MBIO courses.

<sup>7</sup> ~~Students in the Co-operative Option must complete MBIO 2710 (CHEM 2710), CHEM 2720, MBIO 3010 and MBIO 3410 before their first employment term.~~

<sup>8</sup> ~~IMPORTANT: The four year Major program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the required courses and is meant to be a guide around which students can plan their program.~~

<sup>9,10</sup> MBIO 4530 may be selected only by special permission.

(Letters in brackets indicate minimum prerequisite standing for further study.)

**OPTION LIST FOR ALL MICROBIOLOGY PROGRAMS****Agroecology**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
AGEC 2370	Principles of Ecology	3

**Biological Sciences**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
BIOL 2242	The Flowering Plants	3
BIOL 2260	Biology of Fungi and Lichens	3
BIOL 2300	Principles of Ecology	3
BIOL 2380	Introductory Toxicology	3
BIOL 2410	Human Physiology 1	3
BIOL 2420	Human Physiology 2	3
BIOL 3290	Medicinal and Hallucinogenic Plants	3
BIOL 3370	Limnology	3
BIOL 3400	Plant Physiology	3
BIOL 3452	Environmental Plant Physiology	3
BIOL 3470	Environmental Physiology of Animals 1	3
BIOL 3472	Environmental Physiology of Animals 2	3
BIOL 3500	Genetics 2	3
BIOL 3542	Developmental Biology	3
BIOL 3560	Comparative Animal Histology	3
BIOL 4480	Comparative Endocrinology	3
BIOL 4540	Developmental Molecular Biology	3
BIOL 4542	Genes and Development	3
BIOL 4544	Advanced Developmental and Cellular Biology	3
BIOL 4554	Molecular Biology Techniques for Eukaryotes - DNA	3
BIOL 4556	Molecular Biology Techniques for Eukaryotes - RNA	3
BIOL 4560	Microtechnique	3

**Chemistry**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
CHEM 2110	Organic Chemistry 2: Foundations of Organic Synthesis	3
CHEM 2122	Experimental Organic Chemistry	3
CHEM 2300	Inorganic Chemistry 1: Structure and Applications	3
CHEM 2510	Introduction to Analytical Chemistry	3
CHEM 2600	Physical Chemistry 1	3
CHEM 3100	Organic Chemistry 3: Advanced Organic Synthesis	3
CHEM 3500	Instrumental Analysis	3
CHEM 3600	Physical Chemistry 2	3
CHEM 3700	Biophysical Chemistry	3
CHEM 4590	Bioanalytical Methods	3
CHEM 4360	Signalling and Regulation of Gene Expression	3
CHEM 4370	Glycobiology and Protein Activation	3
CHEM 4620	Biochemistry of Nucleic Acids	3
CHEM 4630	Biochemistry of Proteins	3
CHEM 4670	Drug Design and Drug Discovery	3

**Environmental Science**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
ENVR 2180	Introductory Toxicology	3

**Food Sciences**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
FOOD 4150	Food Microbiology 1	3

**General Agriculture**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
AGRI 2180	Introductory Toxicology	3

**Pharmacology**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
PHAC 4030	Drugs in Human Disease I	3
PHAC 4040	Drugs in Human Disease II	3

**Plant Science**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
PLNT 3400	Plant Physiology	3

**Statistics**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
STAT 2000	Basic Statistical Analysis 2	3
or STAT 2150	Statistics and Computing	

**Notes:** Other suitable options may be selected with permission of the department.



## Physics and Astronomy

### Modifications:

PHYS 1050 Physics 1: Mechanics 3 cr 0.0

(Lab required) It's rocket science! Mechanics is the science of describing (Kinematics) and explaining (Dynamics) motion. The basic concepts of calculus together with laws of conservation of momentum and energy are used to develop the tools required to describe, analyze and predict the outcomes of linear and rotational motion in simple mechanical systems. A brief introduction to the Einstein theory of special relativity provides a taste of modern approaches to this subject. This course develops a strong scientific foundation for students considering a program of study in engineering or the physical sciences. May not be held with PHYS 1020, PHYS 1021, PHYS 1051, the former PHYS 1410, or the former PHYS 1420. Prerequisite: one of Physics 40S (60% or better), PHYS 1018, PHYS 0900 (P), PSKL 0100 (P), or equivalent. Pre- or corequisite: one of MATH 1230, MATH 1500, MATH 1501, MATH 1510, the former MATH 1520, or MATH 1524.

PHYS 1070 Physics 2: Waves and Modern Physics 3 cr 0.0

(Lab required) At the heart of modern communications, waves and oscillations are key to understanding the world around us from subatomic scales to biology, traffic flow, the stock market, climate change and the cosmos itself. Learn about the mysterious quantum world, the basis of the latest nanotechnology, where particles are waves and waves are particles. Explore Bohr's model of the atom and discover Heisenberg's Uncertainty Principle. This calculus based course addresses the underlying concepts for all modern science and engineering. This course, like Physics 1 (PHYS 1050), is intended for students considering a program in the physical sciences. Recommended for entry into the Honours programs (with a grade of "B"). May not be held with PHYS 1071, the former PHYS 1410, the former PHYS 1420, or PHYS 2152. Prerequisites: [(PHYS 1050 or PHYS 1051) or (a grade of "B" or better in PHYS 1020 or PHYS 1021)] and [one of MATH 1230, MATH 1500, MATH 1501, MATH 1510, the former MATH 1520, or MATH 1524]. Pre- or corequisite: one of MATH 1232, MATH 1700, MATH 1701, or MATH 1710.

PHYS 2010 Computational Modeling of Natural and Human-Created Systems 3 cr 0.0

This course uses computer simulations to explore emergent behavior in simple models of natural phenomena, traffic, financial systems, and human behavior. The goal of the course is to show how computational modeling can be applied to exciting interdisciplinary problems spanning a wide range of human knowledge, beyond what is normally considered to be physics. Prerequisites: [one of COMP 1012, COMP 1013, COMP 1010, or COMP 1011] and [one of PHYS 1020, PHYS 1021, PHYS 1050, or PHYS 1051] and [one of MATH 1210, MATH 1211, MATH 1220, MATH 1300, MATH 1301, or MATH 1310] and [one of MATH 1230, MATH 1500, MATH 1501, MATH 1510, the former MATH 1520, or MATH 1524].

PHYS 2152 Modern Physics for Engineers 3 cr 0.0

(Lab required) An overview of topics in modern physics including wave particle duality, atomic structure and quantum mechanics. Elementary classical electromagnetic theory and wave theory are reviewed as an introduction to the modern physics concepts. For Price Faculty of Engineering students only. May not be held with PHYS 1070 or PHYS 1071. Prerequisite: (PHYS 1050 or PHYS 1051) or (a "B" or better in PHYS 1020 or PHYS 1021). Pre- or corequisite: MATH 2130.

PHYS 2210 Understanding Electricity and Magnetism 3 cr  
An introduction ranging from its history to connections with real-world phenomena in engineering and biology, and common sense on the understanding of the phenomena. The student is carefully guided through mathematical derivations. Physics is used to develop the theory and the applications of such things as motors, radios, magnetic resonance imaging (MRI) systems and computers. May not be held with the former PHYS 2200, the former PHYS 2201, PHYS 2600 or PHYS 2610. Prerequisites: [(PHYS 1070 or PHYS 1071) or (a "C+" or better in both of (PHYS 1020 or PHYS 1021) and (PHYS 1030 or PHYS 1031))] and [one of MATH 1230, MATH 1500, MATH 1501, MATH 1510, the former MATH 1520, or MATH 1524]. Pre- or corequisites: [one of MATH 1200, the former MATH 1201, MATH 1240, or MATH 1241] and [one of MATH 1232, MATH 1700, MATH 1701, or MATH 1710].

PHYS 2260 Optics 3 cr 0.0  
(Lab required) A survey of refraction, reflection, simple lens systems and optical systems, dispersion, achromatism and an elementary treatment of diffraction, interference, and polarization. May not be held with PHYS 2261. Prerequisites: [(PHYS 1050 or PHYS 1051) or (a "C+" or better in PHYS 1020 or PHYS 1021)] and [one of MATH 1230, MATH 1500, MATH 1501, MATH 1510, the former MATH 1520, or MATH 1524]. Pre- or corequisites: [one of PHYS 1070, PHYS 1071, PHYS 1030, PHYS 1031, or PHYS 2152] and [one of MATH 1210, MATH 1211, MATH 1220, MATH 1300, MATH 1301, or MATH 1310] and [one of MATH 1232, MATH 1700, MATH 1701, or MATH 1710].

PHYS 3386 Quantum Mechanics 2 3 cr 0.0  
The second in the sequence of three courses on quantum mechanics which includes mathematical Hilbert space formalism, solutions of the Schrodinger equation in three dimensions with a special emphasis on central potentials, spin, angular momentum, ladder operators, Clebsch-Gordon coefficients and time-independent perturbation theory. May not be held with the former PHYS 3380. Prerequisites: (PHYS 2386 or the former PHYS 2380) and [one of (PHYS 2496 and (one of MATH 2720, MATH 2721, MATH 2130, MATH 2150, or MATH 2151)), or PHYS 2490, or MATH 3132]. PHYS 3496 is recommended.

PHYS 3630 Electro - and Magnetostatic Theory 3 cr 0.0  
Material covered will include electrostatics (i.e., Gauss' Law, Laplace and Poisson equations) and magnetostatics (Lorentz force, Maxwell equations) as well as the properties of electrostatic fields in matter and magnetism in materials. Prerequisites: PHYS 2600 and [one of (PHYS 2496 and (one of MATH 2720, or MATH 2721, MATH 2130, MATH 2150, or MATH 2151)), or PHYS 2490, or MATH 3132]. PHYS 3496 is recommended.

PHYS 3670 Classical Thermodynamics 3 cr 0.0  
An introduction to the laws of classical thermodynamics and their applications. Descriptions of the states of thermodynamic systems primarily at or near equilibrium that use measurable macroscopic properties, but also including discussion of some far-from-equilibrium stationary states, will be developed. The physics will be used to model exchanges of matter and energy for both reversible and irreversible processes in a variety of physical systems. Prerequisites: [one of (PHYS 2496 and (one of MATH 2720, or MATH 2721, MATH 2130, MATH 2150, or MATH 2151)), or PHYS 2490, or MATH 3132] and PHYS 2650. PHYS 2386 is strongly recommended.

**NET CHANGE IN CREDIT HOURS: 0.0**

Program modifications:

Modifications to the programs listed below are detailed on the next 14 pages:

- **Bachelor of Science (Honours) in Physics and Astronomy**
- **Bachelor of Science (Honours) in Physics and Astronomy, Co-operative Option**
  - **including the following Options:**
    - **Astronomy and Astrophysics**
    - **Physics**
    - **Medical and Biological Physics**
- **Bachelor of Science (Major) in Physics and Astronomy**
- **Bachelor of Science (Major) in Physics and Astronomy, Co-operative Option**

## Physics and Astronomy, B.Sc. Honours

### Physics and Astronomy Honours Entrance, Continuation, and Graduation Requirements

**To enter** the Honours programs in Physics and Astronomy, a student must have completed at least 24 credit hours with a minimum DGPA of 3.00, and also obtained a minimum grade of “B” in PHYS 1070, or a “B+” in PHYS 1030. Students are strongly encouraged to complete MATH 1300, MATH 1500 and MATH 1700 in Year 1. Not only are these courses required in the Physics and Astronomy programs, they are required prerequisites to several second year Physics and Astronomy required courses.

**To continue** in the Physics and Astronomy Honours program, students must maintain a minimum DGPA of 3.00, and complete a minimum of 9 credit hours during each Fall and Winter Term.

**To graduate** with the B. Sc. Honours degree, a student must achieve a minimum DGPA of 3.00 and minimum grade of “C” in each course that contributes to the 120 credit hours of the degree.

There are a number of awards — the Coish, the C.P. Loewen, the Neamtan, the Roulston, and the Sen Scholarships — available in this program.

### Double Honours

~~The Department of Physics and Astronomy offers a double honours degree in conjunction with the Biochemistry program.~~ **Students may pursue a double honours degree with Physics and Astronomy and the Biochemistry program. Students should consult with a Faculty of Science Academic Advisor for more information.**

### Honours Co-operative Option

A co-operative education option is available to Honours students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course, grade requirements and the minimum DGPA requirement for entry and continuation in the Co-operative Option are the same as that for the regular Honours program.

## Physics and Astronomy, B.Sc. Honours

### Degree Requirements

#### Honours: Astronomy and Astrophysics (Including Co-operative Option if Selected)

Note<sup>1</sup>

Year 1	Hours
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One of: <sup>2</sup>	3
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PHYS 1050	Physics 1: Mechanics
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PHYS 1020	General Physics 1
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One of: <sup>2</sup>	3
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PHYS 1070	Physics 2: Waves and Modern Physics (B)
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PHYS 1030	General Physics 2 (B+)
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MATH 1300	Vector Geometry and Linear Algebra <sup>2</sup> <b>(C+)</b>	3
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MATH 1500	Introduction to Calculus <sup>2</sup>	3
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MATH 1700	Calculus 2 <sup>2</sup>	3
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ASTR 1810	Introduction to Astronomy: The Magnificent Universe	3
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COMP 1012	Computer Programming for Scientists and Engineers <sup>3</sup>	3
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6 credit hours from the Faculty of Arts including the "W" requirement	6
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3 credit hours of electives <sup>4,5</sup>	3
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<b>Hours</b>	<b>30</b>
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### Year 2

PHYS 2600	Electromagnetic Field Theory	3
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PHYS 2650	Classical Mechanics 1	3
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PHYS 2386	Introduction to Quantum Mechanics and Special Relativity	3
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PHYS 2496	Mathematical Physics 1	3
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PHYS 2260	Optics	3
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or PHYS 2610 or Circuit Theory and Introductory Electronics

ASTR 2000	Foundations of Astrophysics	3
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ASTR 2070	Observational Astronomy Techniques	3
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MATH 2090	Linear Algebra 2	3
MATH 2720	Multivariable Calculus	3
	<b><u>or MATH 2150</u></b>	
	<b><u>or Multivariable Calculus</u></b>	
3 credit hours of electives <sup>5,6</sup>		3
<b>Hours</b>		<b>30</b>
<b>Year 3</b>		
PHYS 3386	Quantum Mechanics 2	3
PHYS 3430	Honours Physics Laboratory	6
PHYS 3496	Mathematical Physics 2	3
PHYS 3630	Electro - and Magnetostatic Theory	3
PHYS 3650	Classical Mechanics 2	3
PHYS 3670	Classical Thermodynamics	3
ASTR 3180	Stars	3
ASTR 3230	The Phenomenology of Galaxies	3
3 credit hours of electives <sup>5,6,7</sup>		3
<b>Hours</b>		<b>30</b>
<b>Years 3-4</b>		
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>0</b>
<b>Year 4</b>		
PHYS 4386	Quantum Mechanics 3	3
PHYS 4646	Electro - and Magnetodynamics and Special Relativity	3
PHYS 4676	Honours Thesis - Proposal and Preparation	3

PHYS 4678	Honours Thesis - Dissertation	3
PHYS 4680	Statistical Mechanics	3
One of:		3
PHYS 4010	General Relativity and Gravitation	
PHYS 4250	Computational Physics	
PHYS 4516	Introduction to Nuclear and Particle Physics	
Two of:		6
ASTR 4020	Cosmology and Black Holes	
ASTR 4100	High-Energy Astrophysics	
ASTR 4200	Radio Astronomy	
ASTR 4400	Magnetohydrodynamics, Astrophysical Plasmas, and the Interstellar Medium	
6 credit hours of electives <sup>5,6</sup>		6
<b>Hours</b>		<b>30</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Students must achieve a minimum grade of "C" in all courses contributing to the Honours program.

- <sup>2</sup>
- PHYS 1050 and PHYS 1070 are recommended.
  - **MATH 1210 (B), or MATH 1220 (C)** may be taken in place of MATH 1300;
  - **MATH 1230, or MATH 1510, or the former MATH 1520, or MATH 1524** may be taken in place of MATH 1500;
  - MATH 1232 or MATH 1710 may be taken in place of MATH 1700;
  - ~~MATH 1690 may be taken in place of MATH 1500 and MATH 1700.~~

<sup>3</sup> Students who have already taken COMP 1010 before joining the program may count COMP 1010 in lieu of COMP 1012. However, students who have not taken COMP 1010 before entering the program must then take COMP 1012.

<sup>4</sup> ASTR 1830 is recommended.

<sup>5</sup> PHYS 1018 may not count towards the 120 credit hours required for this degree.

<sup>6</sup> Although they are not required courses in the Physics programs, MATH 2080, MATH 2180, and MATH 3340 are recommended electives for the Physics Honours and Four Year Major degrees.

<sup>7</sup> ASTR 3070 is recommended.

**IMPORTANT:** The Honours program need not be completed in the manner prescribed in the grid above. The grid indicates the recommended arrangement of the required courses and is meant to be a guide around which students can plan their program.

(Letters in brackets refer to minimum prerequisite standing required for further study.)



### Honours: Physics (Including Co-operative Option if Selected)

Note<sup>1</sup>

Year 1		Hours
One of: <sup>2</sup>		3
PHYS 1050	Physics 1: Mechanics	
PHYS 1020	General Physics 1	
One of: <sup>2</sup>		3
PHYS 1070	Physics 2: Waves and Modern Physics (B)	
PHYS 1030	General Physics 2 (B+)	
MATH 1300	Vector Geometry and Linear Algebra <sup>2</sup> <b>(C+)</b>	3
MATH 1500	Introduction to Calculus <sup>2</sup>	3
MATH 1700	Calculus 2 <sup>2</sup>	3
COMP 1012	Computer Programming for Scientists and Engineers <sup>3</sup>	3
6 credit hours from the Faculty of Arts including the "W" requirement		6
6 credit hours of electives <sup>4</sup>		6
<b>Hours</b>		<b>30</b>
Year 2		Hours
PHYS 2260	Optics	3
or PHYS 2610	or Circuit Theory and Introductory Electronics	
PHYS 2386	Introduction to Quantum Mechanics and Special Relativity	3
PHYS 2496	Mathematical Physics 1	3
PHYS 2600	Electromagnetic Field Theory	3
PHYS 2650	Classical Mechanics 1	3
MATH 2090	Linear Algebra 2	3
MATH 2720	Multivariable Calculus	3
<u>or MATH 2150</u>	<u>or Multivariable Calculus</u>	
9 credit hours of electives <sup>4,5</sup>		9
<b>Hours</b>		<b>30</b>

<b>Year 3</b>		
PHYS 3386	Quantum Mechanics 2	3
PHYS 3430	Honours Physics Laboratory	6
PHYS 3650	Classical Mechanics 2	3
PHYS 3670	Classical Thermodynamics	3
PHYS 3496	Mathematical Physics 2	3
PHYS 3630	Electro - and Magnetostatic Theory	3
9 credit hours of electives <sup>4,5</sup>		9
<b>Hours</b>		<b>30</b>
<b>Years 3-4</b>		
<b>Co-op Requirements (if selected):</b>		
SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>0</b>
<b>Year 4</b>		
PHYS 4676	Honours Thesis - Proposal and Preparation	3
PHYS 4678	Honours Thesis - Dissertation	3
PHYS 4386	Quantum Mechanics 3	3
PHYS 4646	Electro - and Magnetodynamics and Special Relativity	3
PHYS 4680	Statistical Mechanics	3
6 credit hours of 4000-level Physics		6
9 credit hours of electives <sup>4,5</sup>		9
<b>Hours</b>		<b>30</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Students must achieve a minimum grade of "C" in all courses contributing to the Honours program.

- <sup>2</sup>
- PHYS 1050 and PHYS 1070 are recommended.
  - **MATH 1210 (B), or MATH 1220 (C)** may be taken in place of MATH 1300;
  - **MATH 1230, or MATH 1510, or the former MATH 1520, or MATH 1524** may be taken in place of MATH 1500;
  - MATH 1232 or MATH 1710 may be taken in place of MATH 1700;
  - ~~MATH 1690 may be taken in place of MATH 1500 and MATH 1700.~~
- <sup>3</sup> Students who have already taken COMP 1010 before joining the program may count COMP 1010 in lieu of COMP 1012. However, students who have not taken COMP 1010 before entering the program must then take COMP 1012.
- <sup>4</sup> PHYS 1018 may not count towards the 120 credit hours required for this degree.
- <sup>5</sup> Although they are not required courses in the Physics programs, MATH 2080, MATH 2180, and MATH 3340 are recommended electives for the Physics Honours and Four Year Major degrees.

IMPORTANT: The Honours program need not be completed in the manner prescribed in the grid above. The grid indicates the recommended arrangement of the required courses and is meant to be a guide around which students can plan their program.

(Letters in brackets refer to minimum prerequisite standing required for further study.)

## Honours: Medical and Biological (Including Co-operative Option if Selected)

Note<sup>1</sup>

Year 1		Hours
One of: <sup>2</sup>		3
PHYS 1050	Physics 1: Mechanics	
PHYS 1020	General Physics 1	
One of: <sup>2</sup>		3
PHYS 1070	Physics 2: Waves and Modern Physics (B)	
PHYS 1030	General Physics 2 (B+)	
MATH 1300	Vector Geometry and Linear Algebra <sup>2</sup> <b>(C+)</b>	3
MATH 1500	Introduction to Calculus <sup>2</sup>	3
MATH 1700	Calculus 2 <sup>2</sup>	3
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
COMP 1012	Computer Programming for Scientists and Engineers <sup>3</sup>	3
6 credit hours from the Faculty of Arts including the "W" requirement		6
<b>Hours</b>		<b>30</b>
Year 2		
PHYS 2386	Introduction to Quantum Mechanics and Special Relativity	3
PHYS 2496	Mathematical Physics 1	3
PHYS 2600	Electromagnetic Field Theory	3
PHYS 2610	Circuit Theory and Introductory Electronics	3
PHYS 2650	Classical Mechanics 1	3
PHYS 2270	Introductory Physics for Life Sciences: Fundamentals and Applications	3
or PHYS 2272	or Physics for Medicine & Biology	
MATH 2090	Linear Algebra 2	3
MATH 2720	Multivariable Calculus	3
<b><u>or MATH 2150</u></b>	<b><u>or Multivariable Calculus</u></b>	

6 credit hours of electives <sup>4</sup>	6
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<b>Hours</b>	<b>30</b>
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### Year 3

PHYS 3220	Medical Physics and Physiological Measurement	3
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PHYS 3386	Quantum Mechanics 2	3
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PHYS 3430	Honours Physics Laboratory	6
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PHYS 3496	Mathematical Physics 2	3
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PHYS 3630	Electro - and Magnetostatic Theory	3
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PHYS 3670	Classical Thermodynamics	3
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STAT 1150	Introduction to Statistics and Computing <sup>5</sup>	3
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6 credit hours of electives <sup>4</sup>	6
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<b>Hours</b>	<b>30</b>
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### Years 3-4

#### Co-op Requirements (if selected):

SCI 3980	Co-operative Education Work Term 1	0
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SCI 3990	Co-operative Education Work Term 2	0
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SCI 4980	Co-operative Education Work Term 3	0
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SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
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<b>Hours</b>	<b>0</b>
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### Year 4

PHYS 4250	Computational Physics	3
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PHYS 4360	Medical Radiation Physics	3
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or PHYS 4400 or Linear Systems for Imaging

PHYS 4516	Introduction to Nuclear and Particle Physics	3
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PHYS 4646	Electro - and Magnetodynamics and Special Relativity	3
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PHYS 4676	Honours Thesis - Proposal and Preparation	3
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PHYS 4678	Honours Thesis - Dissertation	3
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PHYS 4680	Statistical Mechanics	3
9 credit hours of electives <sup>4</sup>		9
<b>Hours</b>		<b>30</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Students must achieve a minimum grade of "C" in all courses contributing to the Honours program.

- <sup>2</sup>
- PHYS 1050 and PHYS 1070 are recommended.
  - **MATH 1210 (B), or MATH 1220 (C)** may be taken in place of MATH 1300;
  - **MATH 1230, or MATH 1510, or the former MATH 1520, or MATH 1524** may be taken in place of MATH 1500;
  - MATH 1232 or MATH 1710 may be taken in place of MATH 1700;
  - ~~MATH 1690 may be taken in place of MATH 1500 and MATH 1700.~~

<sup>3</sup> Students who have already taken COMP 1010 before joining the program may count COMP 1010 in lieu of COMP 1012. However, students who have not taken COMP 1010 before entering the program must then take COMP 1012.

<sup>4</sup> PHYS 1018 may not count towards the 120 credit hours required for this degree.

<sup>5</sup> Students may take STAT 1000 and STAT 2000 in lieu of STAT 1150.

**IMPORTANT:** The Honours program need not be completed in the manner prescribed in the grid above. The grid indicates the recommended arrangement of the required courses and is meant to be a guide around which students can plan their program.

(Letters in brackets refer to minimum prerequisite standing required for further study.)

## Physics and Astronomy, B.Sc. Major

### Degree Requirements

#### Four Year Major (Including Co-operative Option if Selected)

Year 1		Hours
One of: <sup>1</sup>		3
PHYS 1050	Physics 1: Mechanics (C+)	
PHYS 1020	General Physics 1 (B)	
One of: <sup>1,2</sup>		3
PHYS 1070	Physics 2: Waves and Modern Physics (C+)	
PHYS 1030	General Physics 2 (B)	
MATH 1300	Vector Geometry and Linear Algebra <sup>1</sup> <b>(C+)</b>	3
MATH 1500	Introduction to Calculus <sup>1</sup>	3
MATH 1700	Calculus 2 <sup>1</sup>	3
COMP 1012	Computer Programming for Scientists and Engineers <sup>3</sup>	3
6 credit hours from the Faculty of Arts including the "W" requirement		6
6 credit hours of electives <sup>4</sup>		6
<b>Hours</b>		<b>30</b>
Year 2		Hours
One of: <sup>2</sup>		3
PHYS 2260	Optics	
PHYS 2610	Circuit Theory and Introductory Electronics	
PHYS 2386	Introduction to Quantum Mechanics and Special Relativity	3
PHYS 2496	Mathematical Physics 1	3
PHYS 2600	Electromagnetic Field Theory	3
MATH 2720	Multivariable Calculus	3
<b>or MATH 2150</b>	<b>or Multivariable Calculus</b>	
15 credit hours of electives <sup>4,5</sup>		15
<b>Hours</b>		<b>30</b>

**Year 3**

PHYS 2650	Classical Mechanics 1 <sup>2</sup>	3
PHYS 3670	Classical Thermodynamics	3
PHYS 3496	Mathematical Physics 2	3
MATH 2090	Linear Algebra 2	3
<b>Hours</b>		<b>12</b>

**Years 3-4**

12 credit hours of 3000 and/or 4000 level Physics and Astronomy courses, with at least 3 credit hours at the 4000 level 12

24 credit hours of electives <sup>4,5</sup> 24

**Co-op Requirements (if selected):**

SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>36</b>

**Year 4**

PHYS 3386	Quantum Mechanics 2	3
PHYS 3430	Honours Physics Laboratory	6
PHYS 3630	Electro - and Magnetostatic Theory	3
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

- <sup>1</sup>
- PHYS 1050 and PHYS 1070 are recommended.
  - **MATH 1210 (B), or MATH 1220 (C)** may be taken in place of MATH 1300;
  - **MATH 1230, or MATH 1510, or the former MATH 1520, or MATH 1524** may be taken in place of MATH 1500;
  - MATH 1232 or MATH 1710 may be taken in place of MATH 1700;
  - **MATH 1690 may be taken in place of MATH 1500 and MATH 1700.**



- <sup>2</sup> Students who do not take PHYS 1070 or PHYS 1030 in Year 1 must postpone PHYS 2600 until Year 3. PHYS 2260, PHYS 2610 and PHYS 2650 may be taken in Year 2 or Year 3 if the respective prerequisites are met.
- <sup>3</sup> Students who have already taken COMP 1010 before joining the program may count COMP 1010 in lieu of COMP 1012. However, students who have not taken COMP 1010 before entering the program must then take COMP 1012.
- <sup>4</sup> PHYS 1018 may not count towards the 120 credit hours required for this degree.
- <sup>5</sup> Although they are not required courses in the Physics programs, MATH 2080, MATH 2180, and MATH 3340 are recommended electives for the Physics Honours and Four Year Major degrees.

IMPORTANT: The four year Major program need not be completed in the manner prescribed in the grid above. The grid indicates the recommended arrangement of the required courses and is meant to be a guide around which students can plan their program

(Letters in brackets refer to minimum prerequisite standing required for further study.)

## Statistics

### Modifications:

STAT 1000 Basic Statistical Analysis 1 3 cr 0.0  
(Lab required) This course is not recommended for students in certain programs (see the description of STAT 1150). An introduction to the basic principles of statistics and procedures used for data analysis. Topics to be covered include: gathering data, displaying and summarizing data, examining relationships between variables, sampling distributions, estimation and significance tests, inference for means. May not be held with STAT 1001, STAT 1150, STAT 2220. Prerequisite: One of any grade 12 or 40S Mathematics (50%), MATH 1018, or MSKL 0100.

STAT 1150 Introduction to Statistics and Computing 3 cr 0.0  
(Lab required) This course is recommended for students in mathematically rich disciplines, including Statistics, Data Science, Mathematics, Actuarial Science, Computer Science, and related interdisciplinary programs. Topics to be covered include: summarizing and displaying large data sets, sampling, estimation and significance tests, probability calculations, random variables and probability distributions, introduction to regression and correlation analysis, statistical software. May not be held with STAT 1000, STAT 1001, STAT 2000, STAT 2001 and STAT 2220. Prerequisite: One of Pre-Calculus Mathematics 40S (70%), MATH 1018 (B), or MSKL 0100 (B).

STAT 2150 Statistics and Computing 3 cr 0.0  
(Lab required) This course is recommended for students in mathematically rich disciplines, including Statistics, Mathematics, Actuarial Science, Computer Science, and related interdisciplinary programs. Topics to be covered include: exploratory data analysis and visualization, graphical methods, random number generation, random variables, simple statistical models and computing, Monte Carlo methods, large sample and simulation-based inference, statistical software packages. Prerequisites: [one of STAT 1150, STAT 2000 (B), STAT 2001 (B), or STAT 2220] and [one of MATH 1230, MATH 1500, MATH 1501, MATH 1510, the former MATH 1520, or MATH 1524].

STAT 3000 Applied Linear Statistical Models 3 cr 0.0  
Applied linear regression, analysis of variance for designed experiments and related topics. This course is not for use in any of the Major, Honours or Joint Honours degree programs in Statistics. May not be held with STAT 3450, the former STAT 3120, or the former STAT 3470. Prerequisite: one of STAT 1150, STAT 2000, STAT 2001, or STAT 2220.

STAT 3450 Linear Models 3 cr 0.0  
Least-squares approach to simple and multiple regression, one-way analysis of variance, two-way analysis of variance and related topics. May not be held with STAT 3000, the former STAT 3120, or the former STAT 3470. Prerequisites: STAT 2150 and STAT 2400 and [one of MATH 1220, MATH 1210 (B), MATH 1211 (B), MATH 1300 (C+), or MATH 1301 (C+)].

STAT 4000 Applied Statistical Modelling 3 cr 0.0  
Generalizations of linear models, including polynomial regression, analysis of covariance, logistic regression and regression for count data. Other optional topics include: random effects and mixed models, models for dependent data, advanced concepts in designing experiments. This course is not for use in any of the Major, Honours or Joint Honours degree programs in

Statistics. May not be held with STAT 3550. Prerequisite: one of STAT 3000, STAT 3450, the former STAT 3120, or the former STAT 3470.

**NET CHANGE IN CREDIT HOURS: 0.0**

Program modifications:

Modifications to the programs listed below are detailed on the next 10 pages:

- **Bachelor of Science (Honours) in Statistics**
- **Bachelor of Science (Honours) in Statistics, Co-operative Option**
- **Bachelor of Science (Major) in Statistics**
- **Bachelor of Science (Major) in Statistics, Co-operative Option**

# Statistics, B.Sc. Honours

## Statistics Honours Entrance, Continuation, and Graduation Requirements

**To enter** the Honours program in Statistics, a student must have completed at least 24 credit hours with a minimum DGPA of 3.00, and also obtained a minimum grade of “B” in STAT 2150.

STAT 1150, MATH 1220, MATH 1230, MATH 1232 and MATH 1240 are all requirements of the Statistics Honours degree program and students are strongly encouraged to take these courses in Year 1.

**To continue** in the Statistics Honours program, students must maintain a minimum DGPA of 3.00, and complete a minimum of 9 credit hours during each Fall and Winter Term.

**To graduate** with the B.Sc. Honours degree, a student must achieve a minimum DGPA of 3.00 and minimum grade of “C” in each course that contributes to the 120 credit hours of the degree.

## Honours Co-operative Option

A co-operative education option is available for Honours students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course, grade requirements and minimum DGPA requirement for entry and continuation in the Co-operative Option are the same as that for regular Honours program.

~~Students are required to complete the first and second year requirements of the program; and STAT 2300 and STAT 3450 before beginning their first co-op work term.~~

**Students are required to complete STAT 2300, STAT 3150 and STAT 3450 before beginning their first co-op work term.**

# Statistics, B.Sc. Honours

## Degree Requirements

Honours (Including Co-operative Option if Selected)<sup>1</sup>

<b>Year 1</b>		<b>Hours</b>
STAT 1150	Introduction to Statistics and Computing <sup>2</sup>	3
MATH 1220	Linear Algebra 1 <sup>2</sup>	3
MATH 1230	Differential Calculus <sup>2</sup>	3
MATH 1232	Integral Calculus <sup>2</sup>	3
MATH 1240	Elementary Discrete Mathematics	3
<b>Hours</b>		<b>15</b>
<b>Years 1-2</b>		
The following must be completed in Year 1 or Year 2:		
COMP 1010	Introductory Computer Science 1 <sup>2</sup>	3
COMP 1020	Introductory Computer Science 2	3
STAT 2150	Statistics and Computing (B)	3
STAT 2300	Principles of Data Collection	3
6 credit hours from the Faculty of Arts, which should include the required "W" course		6
6 credit hours from the lists of Mathematics and Computer Science options (Lists B and C below)		6
9 credit hours of elective courses <sup>3,4</sup>		9
<b>Hours</b>		<b>33</b>
<b>Year 2</b>		
STAT 2400	Introduction to Probability 1	3
STAT 2800	Introduction to Probability 2	3
MATH 2080	Introduction to Analysis	3
MATH 2150	Multivariable Calculus <sup>2</sup>	3
<b>Hours</b>		<b>12</b>
<b>Year 3</b>		
STAT 3030	Introduction to Stochastic Processes	3
STAT 3100	Introduction to Statistical Inference	3
STAT 3150	Statistical Computing	3
STAT 3450	Linear Models	3
STAT 3690	Multivariate Analysis	3
<b>Hours</b>		<b>15</b>

### Years 3-4

24 credit hours from the list of Statistics options for the Honours program (List A below), with at least 15 credit hours at the 4000 level 24

6 credit hours from the lists of Statistics, Mathematics and Computer Science options for the Honours program (Lists A, B and C below) 6

12 credit hours of elective courses <sup>3,4</sup> 12

#### Co-op Requirements (if selected)<sup>5</sup>:

SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>		<b>42</b>

### Year 4

STAT 4100	Statistical Inference	3
<b>Hours</b>		<b>3</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> IMPORTANT: The four year Honours program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the required courses and is meant to be a guide around which students can plan their program.

<sup>2</sup> The following substitutes are allowed:

- **COMP 1012 in place of COMP 1010;**
- **MATH 1210 (B) or MATH 1300 (B) (C+)** in place of MATH 1220<sub>i</sub>;
- MATH 1500 (B) or MATH 1510 (B) in place of MATH 1230<sub>i</sub>;
- MATH 1700 (B) or MATH 1710 (B) in place of MATH 1232<sub>i</sub>;
- ~~MATH 1690 in place of MATH 1230 and MATH 1232;~~
- MATH 2720 in place of MATH 2150;
- STAT 1000 and STAT 2000 (B) in place of STAT 1150.

<sup>3</sup> Although not required, students are encouraged to select some of their electives from traditional fields of application in Statistics such as Biological Sciences, Microbiology, Actuarial Mathematics, Economics, Psychology, or Sociology.

<sup>4</sup> **The following courses are not to be used for credit in this program: STAT 3000, STAT 4000.**

<sup>5</sup> **Students in the Co-operative Option are required to complete STAT 2300, STAT 3150, and STAT 3450 before their first employment term.**

(Letters in brackets indicate minimum prerequisite standing for further study.)

Optional Courses for Honours Program

Course	Title	Hours
<b>List A: Statistics Options for the Honours Program</b>		
STAT 3170	Statistical Quality Control	3
STAT 3380	Introduction to Nonparametric Statistics	3
STAT 3490	Time Series Analysis	3
STAT 3550	Nonlinear Regression Models	3
STAT 3900	Intermediate Topics in Statistics	3
STAT 3910	Intermediate Topics in Statistics	3
STAT 4150	Bayesian Analysis and Computing	3
STAT 4170	Lifetime Data Analysis	3
STAT 4250	Statistical Learning	3
STAT 4520	Sampling Techniques	3
STAT 4530	Design of Experiments	3
STAT 4630	Stochastic Processes	3
STAT 4700	Statistical Consulting	3
STAT 4900	Advanced Topics in Statistics	3
STAT 4910	Advanced Topics in Statistics	3
STAT 4950	Honours Thesis in Statistics	6
<b>List B: Mathematics Options for the Honours Program</b>		
MATH 2030	Combinatorics 1	3
MATH 2070	Graph Theory 1	3
MATH 2090	Linear Algebra 2	3
MATH 2160	Numerical Analysis 1	3
MATH 2180	Real Analysis 1	3
MATH 2740	Mathematics of Data Science	3
MATH 3330	Computational Algebra	3
MATH 3340	Complex Analysis 1	3
MATH 3360	Combinatorics 2	3
MATH 3440	Ordinary Differential Equations	3
MATH 3460	Partial Differential Equations	3
MATH 3470	Real Analysis 2	3
MATH 3490	Optimization	3
MATH 3610	Introduction to Mathematical Modelling	3
MATH 4370	Linear Algebra and Matrix Analysis	3
MATH 4390	Numerical Approximation Theory	3

Course	Title	Hours
<b>List C: Computer Science Options for the Honours Program</b>		
COMP 2080	Analysis of Algorithms	3
COMP 2140	Data Structures and Algorithms	3
<b>COMP 2150</b>	<b>Object Orientation</b>	<b>3</b>
COMP 3170	Analysis of Algorithms and Data Structures	3
COMP 3190	Introduction to Artificial Intelligence	3
COMP 3380	Databases Concepts and Usage	3
COMP 3820	Introduction to Bioinformatics Algorithms	3
<b>COMP 4140</b>	<b>Introduction to Cryptography and Cryptosystems</b>	<b>3</b>
COMP 4190	Artificial Intelligence	3
COMP 4360	Machine Learning	3
COMP 4380	Database Implementation	3
COMP 4420	Advanced Design and Analysis of Algorithms	3
COMP 4710	Introduction to Data Mining	3



# Statistics, B.Sc. Major

## Statistics Major Entrance, Continuation, and Graduation Requirements

**To enter** the Major Degree program in Statistics, a student must have completed at least 24 credit hours with a minimum DGPA of 2.00, and also obtained a minimum grade of “C+” in STAT 2150.

STAT 1150, MATH 1220, MATH 1230, MATH 1232 and MATH 1240 are all requirements of the Statistics Major degree program and students are strongly encouraged to take these courses in Year 1.

**To continue** in the four year Major program a student must maintain a minimum DGPA of 2.00.

**To graduate** from the four year Major program a student must obtain a minimum DGPA of 2.00, and a minimum grade of “C” in the Major Program Specific courses, which include all program required courses (see program grid) and optional courses selected from lists A, B and C.

## Major Co-operative Option

A co-operative education option is available for Major students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course and minimum grade requirements for entry and continuation in the Co-operative Option are the same as those required for the regular Major program. However, the entry and continuation DGPA requirement is set at a minimum of 2.5.

~~Students are required to complete the first and second year requirements of the program; and STAT 2300 and STAT 3450 before beginning their first co-op work term.~~

**Students are required to complete STAT 2300, STAT 3150 and STAT 3450 before beginning their first co-op work term.**

# Degree Requirements

Four Year Major (Including Co-operative Option if Selected)<sup>1</sup>

		<b>Hours</b>
<b>Year 1</b>		
STAT 1150	Introduction to Statistics and Computing <sup>2</sup>	3
MATH 1220	Linear Algebra 1 <sup>2</sup>	3
MATH 1230	Differential Calculus <sup>2</sup>	3
MATH 1232	Integral Calculus <sup>2</sup>	3
MATH 1240	Elementary Discrete Mathematics	3
<b>Hours</b>		<b>15</b>
<b>Years 1-2</b>		
The following must be completed in Year 1 or Year 2:		
COMP 1010	Introductory Computer Science 1 <sup>2</sup>	3
COMP 1020	Introductory Computer Science 2	3
STAT 2150	Statistics and Computing (C+)	3
STAT 2300	Principles of Data Collection	3
6 credit hours from the Faculty of Arts, which should include the required “W” course		6
6 credit hours from the lists of Mathematics and Computer Science options for the Major program (Lists B and C below)		6
12 credit hours of elective courses <sup>3,4</sup>		12
<b>Hours</b>		<b>36</b>
<b>Year 2</b>		
STAT 2400	Introduction to Probability 1	3
STAT 2800	Introduction to Probability 2	3
MATH 2720	Multivariable Calculus <sup>2</sup>	3
<b>Hours</b>		<b>9</b>
<b>Year 3</b>		
STAT 3100	Introduction to Statistical Inference	3
STAT 3150	Statistical Computing	3
STAT 3450	Linear Models	3
STAT 3690	Multivariate Analysis	3
<b>Hours</b>		<b>12</b>
<b>Years 3-4</b>		
24 credit hours from the list of Statistics options for the Major program (List A below), with at least 15 credit hours at the 4000 level		24
9 credit hours from the lists of Statistics, Mathematics and Computer Science options for the Major program (Lists A, B and C below)		9
15 credit hours of elective courses <sup>3,4</sup>		15

**Co-op Requirements (if selected)<sup>5</sup>:**

SCI 3980	Co-operative Education Work Term 1	0
SCI 3990	Co-operative Education Work Term 2	0
SCI 4980	Co-operative Education Work Term 3	0
SCI 4990	Co-operative Education Work Term 4 (if a 4th work term is selected)	0
	<b>Hours</b>	<b>48</b>
	<b>Total Hours</b>	<b>120</b>

<sup>1</sup> IMPORTANT: The four year Major program need not be completed in the manner prescribed in the grid above. The grid indicates one possible arrangement of the required courses and is meant to be a guide around which students can plan their program.

<sup>2</sup> The following substitutes are allowed:

- **COMP 1012 in place of COMP 1010;**
- **MATH 1210 (B) or** MATH 1300 ~~(B)~~ **(C+)** in place of MATH 1220<sub>72</sub>
- MATH 1500 (B) or MATH 1510 (B) in place of MATH 1230<sub>72</sub>
- MATH 1700 (B) or MATH 1710 (B) in place of MATH 1232<sub>72</sub>
- ~~MATH 1690 in place of MATH 1230 and MATH 1232;~~
- ~~MATH 2720 in place of MATH 2150;~~
- **MATH 2150 in place of MATH 2720;**
- STAT 1000 and STAT 2000 (B) in place of STAT 1150.

<sup>3</sup> Although not required, students are encouraged to select some of their electives from traditional fields of application in Statistics such as Biological Sciences, Microbiology, Actuarial Mathematics, Economics, Psychology, or Sociology.

<sup>4</sup> **The following courses are not to be used for credit in this program: STAT 3000, STAT 4000.**

<sup>5</sup> **Students in the Co-operative Option are required to complete STAT 2300, STAT 3150, and STAT 3450 before their first employment term.**

(Letters in brackets indicate minimum prerequisite standing for further study.)

Optional Courses for the Major Program

Course	Title	Hours
<b>List A: Statistics Options for the Major Program</b>		
STAT 3030	Introduction to Stochastic Processes	3
STAT 3170	Statistical Quality Control	3
STAT 3380	Introduction to Nonparametric Statistics	3
STAT 3490	Time Series Analysis	3
STAT 3550	Nonlinear Regression Models	3
STAT 3900	Intermediate Topics in Statistics	3
STAT 3910	Intermediate Topics in Statistics	3
STAT 4100	Statistical Inference	3
STAT 4150	Bayesian Analysis and Computing	3
STAT 4170	Lifetime Data Analysis	3
STAT 4250	Statistical Learning	3
STAT 4520	Sampling Techniques	3
STAT 4530	Design of Experiments	3
STAT 4630	Stochastic Processes	3
STAT 4700	Statistical Consulting	3
STAT 4900	Advanced Topics in Statistics	3
STAT 4910	Advanced Topics in Statistics	3
<b>List B: Mathematics Options for the Major Program</b>		
MATH 2030	Combinatorics 1	3
MATH 2070	Graph Theory 1	3
MATH 2080	Introduction to Analysis	3
MATH 2090	Linear Algebra 2	3
MATH 2160	Numerical Analysis 1	3
MATH 2180	Real Analysis 1	3
MATH 2740	Mathematics of Data Science	3
MATH 3330	Computational Algebra	3
MATH 3340	Complex Analysis 1	3
MATH 3360	Combinatorics 2	3
MATH 3440	Ordinary Differential Equations	3
MATH 3460	Partial Differential Equations	3
MATH 3470	Real Analysis 2	3
MATH 3490	Optimization	3
MATH 3610	Introduction to Mathematical Modelling	3
MATH 4370	Linear Algebra and Matrix Analysis	3
MATH 4390	Numerical Approximation Theory	3

Course	Title	Hours
<b>List C: Computer Science Options for the Major Program</b>		
COMP 2080	Analysis of Algorithms	3
COMP 2140	Data Structures and Algorithms	3
<b>COMP 2150</b>	<b>Object Orientation</b>	<b>3</b>
COMP 3170	Analysis of Algorithms and Data Structures	3
COMP 3190	Introduction to Artificial Intelligence	3
COMP 3380	Databases Concepts and Usage	3
COMP 3820	Introduction to Bioinformatics Algorithms	3
<b>COMP 4140</b>	<b>Introduction to Cryptography and Cryptosystems</b>	<b>3</b>
COMP 4190	Artificial Intelligence	3
COMP 4360	Machine Learning	3
COMP 4380	Database Implementation	3
COMP 4420	Advanced Design and Analysis of Algorithms	3
COMP 4710	Introduction to Data Mining	3

Modifications to the programs listed below are detailed on the next 10 pages:

- **Bachelor of Science (Joint Honours) in Statistics and Computer Science**
- **Bachelor of Science (Joint Honours) in Statistics and Computer Science, Co-operative Option**
- **Bachelor of Science (Joint Honours) in Statistics and Economics**
- **Bachelor of Science (Joint Honours) in Statistics and Mathematics**
- **Bachelor of Science (Joint Honours) in Statistics and Mathematics, Co-operative Option**

# Computer Science - Statistics Joint, B.Sc. Honours

## Computer Science - Statistics Joint Honours Entrance, Continuation, and Graduation Requirements

The departments of Computer Science and Statistics offer a joint Honours program for in-depth study in both Computer Science and Statistics.

**To enter** the Joint Honours Computer Science - Statistics Program, the student must have a “B” or better in COMP 1020 and in STAT 2150 and a DGPA of 3.00. Note that MATH 1220<sup>1</sup>, MATH 1230<sup>1</sup> and MATH 1232<sup>1</sup> and MATH 1240 are not required to enter the program, however, it is recommended that they be completed in Year 1 as they are prerequisites to Year 2 courses.

<sup>1</sup>The following substitutions are allowed:

- MATH 1500 (B) or MATH 1510 (B) may be taken in place of MATH 1230;
- **MATH 1210 (B) or** MATH 1300 **(B) (C+)** may be taken in place of MATH 1220;
- MATH 1700 (B) or MATH 1710 (B) may be taken in place of MATH 1232.

**To continue** in the Joint Honours Computer Science - Statistics Program, students must maintain a DGPA of 3.00.

**To graduate** with the Honours degree a student must present a minimum grade of “C” in each course that contributes to the degree. In addition, the student must achieve a minimum DGPA of 3.00.

### Honours Co-operative Option

A co-operative education option is available for Honours students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course, grade requirements and minimum DGPA requirement for entry and continuation in the Co-operative Option are the same as that for regular Honours program.

~~Students are required to complete all the first and second year courses in the program grid before their first co-op work term.~~

**Students are required to complete the first and second year courses in the program grid, as well as COMP 3380, STAT 2300, STAT 3150 and STAT 3450 before their first co-op work term.**

# Computer Science - Statistics Joint, B.Sc. Honours

## Degree Requirements

Joint Honours (Including Co-operative Option if Selected)

		<b>Year 1</b>	<b>Hours</b>
COMP 1010	Introductory Computer Science 1 <sup>1</sup>		3
COMP 1020	Introductory Computer Science 2 (B)		3
STAT 1150	Introduction to Statistics and Computing <sup>1</sup>		3
STAT 2150	Statistics and Computing (B)		3
MATH 1220	Linear Algebra 1 <sup>1</sup>		3
MATH 1230	Differential Calculus <sup>1</sup>		3
MATH 1232	Integral Calculus <sup>1</sup>		3
MATH 1240	Elementary Discrete Mathematics		3
6 credit hours from the Faculty of Arts, which could include the required 3 credit hour "W" course			6
		<b>Hours</b>	<b>30</b>
		<b>Year 2</b>	
COMP 2080	Analysis of Algorithms		3
COMP 2140	Data Structures and Algorithms		3
COMP 2150	Object Orientation		3
COMP 2160	Programming Practices		3
STAT 2300	Principles of Data Collection		3
STAT 2400	Introduction to Probability 1		3
STAT 2800	Introduction to Probability 2		3
MATH 2080	Introduction to Analysis		3
MATH 2150	Multivariable Calculus <sup>1</sup>		3
3 credit hours of electives <sup>2</sup>			3
		<b>Hours</b>	<b>30</b>
		<b>Summer</b>	
<b>Co-op Requirements (if selected):</b>			<b>0</b>
SCI 3980	Co-operative Education Work Term 1		0
	<b>Hours</b>		<b>0</b>



### Year 3

COMP 3170	Analysis of Algorithms and Data Structures	3
COMP 3380	Databases Concepts and Usage	3
STAT 3030	Introduction to Stochastic Processes	3
STAT 3100	Introduction to Statistical Inference	3
STAT 3150	Statistical Computing	3
STAT 3450	Linear Models	3
12 credit hours of electives <sup>2,3</sup>		12
	Hours	30

### Summer Years 3-4

<b>Co-op Requirements (if selected)<sup>4</sup>:</b>		<b>0</b>
<b>SCI 3990</b>	<b>Co-operative Education Work Term 2</b>	<b>0</b>
<b>SCI 3980</b>	<b>Co-operative Education Work Term 1</b>	<b>0</b>
<b>SCI 3990</b>	<b>Co-operative Education Work Term 2</b>	<b>0</b>
<b>SCI 4980</b>	<b>Co-operative Education Work Term 3</b>	<b>0</b>
<b>SCI 4990</b>	<b>Co-operative Education Work Term 4 (if 4<sup>th</sup> work term selected)</b>	<b>0</b>
	Hours	0

### Year 4

STAT 4100	Statistical Inference	3
27 credit hours of electives <sup>2, 4<del>5</del></sup>		27
	Hours	30

### Summer

<b>Co-op Requirements (if selected):</b>		<b>0</b>
<b>COMP 4980</b>	<b>Workterm 3</b>	<b>0</b>
<b>COMP 4990</b>	<b>Workterm 4 (if a 4th work term is selected)</b>	<b>0</b>
	Hours	<b>0</b>
	Total Hours	120

<sup>1</sup>The following substitutions are allowed:

- **COMP 1012 may be taken in place of COMP 1010;**
- MATH 1500 (B) or MATH 1510 (B) may be taken in place of MATH 1230;
- **MATH 1210 (B) or** MATH 1300 ~~(B)~~ **(C+)** may be taken in place of MATH 1220;
- MATH 1700 (B) or MATH 1710 (B) may be taken in place of MATH 1232;
- MATH 2720 may be taken in place of MATH 2150;
- STAT 1000 and STAT 2000 (B) may be taken in place of STAT 1150.

<sup>2</sup> The work terms SCI 3980, SCI 3990 and SCI 4980 will normally be completed in the summers following Year 2, Year 3 and Year 4, respectively and must be completed by the last academic term.

**The following courses are not be used for credit in this program: STAT 3000, STAT 4000.**

<sup>3</sup> These must include 3 credit hours of COMP courses at the 3000 level. The following courses are suggested: COMP 3020, COMP 3350, COMP 3490, STAT 3490, STAT 3550, STAT 3690.

<sup>4</sup> **Students in the Co-operative Option are required to complete COMP 3380, STAT 2300, STAT 3150, and STAT 3450 before their first employment term.**

<sup>4</sup> <sup>5</sup> These must include 3 credit hours of COMP courses at the 3000 or 4000 level, 6 credit hours of COMP courses at the 4000 level, and 9 credit hours of STAT courses at the 4000 level. The following courses are suggested: COMP 4380, COMP 4710, STAT 4150, STAT 4250, STAT 4630.

(Letters in brackets indicate minimum prerequisite standing for further study.)

# Statistics - Economics Joint, B.Sc. Honours

## Statistics - Economics Joint Honours Entrance, Continuation, and Graduation Requirements

The Department of Statistics along with the Department of Economics (Faculty of Arts) offer a Joint Honours program for students wishing in depth study in Statistics and Economics. For Economics course listings, refer to the Faculty of Arts.

Students will normally take STAT 2150 in second year and enter Honours in Year 3.

**To enter** the Joint Honours Statistics - Economics program in the Faculty of Science, the student must have a minimum grade of "B" in both of ECON 1010 and ECON 1020 (or ECON 1210 and ECON 1220) and STAT 2150; and have satisfied the Faculty of Science requirements for entry to the honours program. Students are strongly encouraged to take MATH 1220, MATH 1230, MATH 1232 and MATH 1240 in Year 1.

**To continue** in the Joint Honours Statistics - Economics program in the Faculty of Science, a minimum DGPA of 3.00 is required.

**To graduate** with the B.Sc. Joint Honours Statistics - Economics degree from the Faculty of Science, a student must achieve a minimum DGPA of 3.00, and a minimum grade of "C" in each course that contributes to the 120 credit hours of the degree.

# Statistics - Economics Joint, B.Sc. Honours

## Degree Requirements

Joint Honours

### Plan of Study Grid

		<b>Year 1</b>	<b>Hours</b>
One of A or B:			6
A:			
	ECON 1010 Introduction to Microeconomic Principles (B)		
	ECON 1020 Introduction to Macroeconomic Principles (B)		
B:			
	ECON 1210 Introduction to Canadian Economic Issues and Policies (B)		
	ECON 1220 Introduction to Global and Environmental Economic Issues and Policies (B)		
STAT 1150	Introduction to Statistics and Computing <sup>1</sup>		3
MATH 1220	Linear Algebra 1 <sup>1</sup>		3
MATH 1230	Differential Calculus <sup>1</sup>		3
MATH 1232	Integral Calculus <sup>1</sup>		3
MATH 1240	Elementary Discrete Mathematics		3
COMP 1010	Introductory Computer Science 1 <sup>1</sup>		3
6 credit hours of electives including the required "W" course			6
Hours			30
<b>Year 2</b>			
ECON 2010	Microeconomic Theory 1		3
ECON 2020	Macroeconomic Theory 1		3
STAT 2150	Statistics and Computing (B)		3
STAT 2300	Principles of Data Collection		3
STAT 2400	Introduction to Probability 1		3
STAT 2800	Introduction to Probability 2		3
MATH 2080	Introduction to Analysis		3
MATH 2150	Multivariable Calculus <sup>1</sup>		3
6 credit hours of approved Economics electives <sup>2</sup>			6
Hours			30
<b>Year 3</b>			
ECON 3010	Microeconomic Theory 2		3
ECON 3020	Macroeconomic Theory 2		3

STAT 3100	Introduction to Statistical Inference	3
STAT 3150	Statistical Computing	3
STAT 3450	Linear Models	3
MATH 2160	Numerical Analysis 1	3
MATH 3610	Introduction to Mathematical Modelling	3
3 credit hours of approved Economics electives <sup>2</sup>		3
6 credit hours of approved Statistics electives <sup>3</sup>		6
Hours		30
<b>Year 4</b>		
ECON 4040	Seminar in Applied Econometrics	3
ECON 4042	Topics in Econometrics	3
STAT 4100	Statistical Inference	3
12 credit hours of approved Economics electives <sup>2</sup>		12
9 credit hours of approved Statistics electives <sup>3</sup>		9
Hours		30
Total Hours		120

<sup>1</sup> The following substitutes are allowed:

- **COMP 1012 in place of COMP 1010;**
- **MATH 1210 (B) or MATH 1300 (C+)** in place of MATH 1220;
- MATH 1500 **(B)** in place of MATH 1230;
- MATH 1700 **(B)** in place of MATH 1232;
- MATH 2720 in place of MATH 2150;
- STAT 1000 and STAT 2000 (B) in place of STAT 1150.

Students must attain specific grade requirements in order to meet the upper level course prerequisites. Consult course descriptions for further information.

<sup>2</sup> Of the 21 credit hours of electives in Economics in Years 2, 3 and 4, no more than 6 credit hours may be at the 2000 level or below; ECON 2030 and ECON 3040 are recommended in Year 2 or 3. The normal prerequisite for ECON 3040 is ECON 2040, which will be waived for students in this program who have completed Year 1.

<sup>3</sup> The 15 credit hours of electives in Statistics in Years 3 and 4 must all be at the 3000 level or higher, at least 9 of which must be at the 4000 level. The following courses are recommended: STAT 3030, STAT 3490, STAT 3550, STAT 3690, STAT 4150, STAT 4250, STAT 4630. **The following courses are not to be used for credit in this program: STAT 3000, STAT 4000.**

(Letters in brackets indicate minimum prerequisite standing for further study.)

# Statistics - Mathematics Joint, B.Sc. Honours

## Statistics - Mathematics Joint Honours Entrance, Continuation, and Graduation Requirements

The departments of Statistics and Mathematics offer a joint Honours program for students wishing in depth study in Statistics and Mathematics. A Co-op Option is available.

**To enter** the Honours program students must have satisfied the Faculty of Science requirements for entry to the program, and have obtained a minimum grade of "B" in STAT 2150, ~~and either~~ **and** MATH 1232 ~~or MATH 1690~~ (or a minimum grade of "A" in MATH 1700).

**To continue** in the Honours program, students must maintain a minimum DGPA of 3.00.

**To graduate** with the B. Sc. Honours degree, a student must achieve a minimum DGPA of 3.00 and a minimum grade of "C" on all remaining courses that contribute to the 120 credit hours of the degree.

## Honours Co-operative Option

A co-operative education option is available for Honours students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course, grade requirements and minimum DGPA requirement for entry and continuation in the Co-operative Option are the same as that for regular Honours program.

**Before beginning their first co-op work term, students are required to have completed MATH 2020, MATH 2150, MATH 2180, STAT 3150 and STAT 3450. Students are recommended to take MATH 3470 and MATH 3472 in the Fall and Winter (respectively) of the same academic year (similarly if they plan on taking both MATH 3320 and MATH 3322).**

# Statistics - Mathematics Joint, B.Sc. Honours

## Degree Requirements

Joint Honours (Including Co-operative Option if Selected)

### Plan of Study Grid

	<b>Year 1</b>	<b>Hours</b>
MATH 1220 Linear Algebra 1 <sup>1</sup>		3
MATH 1230 Differential Calculus <sup>1</sup>		3
MATH 1232 Integral Calculus (B) <sup>1</sup>		3
MATH 1240 Elementary Discrete Mathematics		3
Hours		12
<b>Years 1-2</b>		
The following courses must be taken in Year 1 or Year 2:		
STAT 1150 Introduction to Statistics and Computing <sup>1</sup>		3
STAT 2150 Statistics and Computing (B)		3
COMP 1010 Introductory Computer Science 1 <sup>1</sup>		3
6 credit hours from the Faculty of Arts, which should include the required "W" course		6
9 credit hours of approved electives <sup>2</sup>		9
Hours		24
<b>Year 2</b>		
STAT 2400 Introduction to Probability 1		3
STAT 2800 Introduction to Probability 2		3
MATH 2020 Algebra 1		3
MATH 2080 Introduction to Analysis		3
MATH 2090 Linear Algebra 2		3
MATH 2150 Multivariable Calculus		3
MATH 2160 Numerical Analysis 1		3
MATH 2180 Real Analysis 1		3
Hours		24
<b>Year 3</b>		
STAT 3030 Introduction to Stochastic Processes		3
STAT 3100 Introduction to Statistical Inference		3
STAT 3150 Statistical Computing		3
STAT 3450 Linear Models		3
Hours		12
<b>Years 3-4</b>		
MATH 2030 Combinatorics 1		3
MATH 3320 Algebra 2		3
MATH 3322 Algebra 3	343	3

MATH 3340 Complex Analysis 1	3
MATH 3470 Real Analysis 2	3
MATH 3472 Real Analysis 3	3
MATH 3440 Ordinary Differential Equations	3
MATH 3460 Partial Differential Equations	3
3 credit hours from:	3
MATH 2070 Graph Theory 1	
MATH 2170 Number Theory 1	
Any 3000/4000 level Mathematics courses	
<b>3 credit hours from any 3000/4000 level Mathematics courses</b>	<b>3</b>
3 credit hours from any 4000 level Mathematics courses	3
6 credit hours from any 4000 level Statistics courses <sup>2</sup>	6
9 credit hours of approved electives <sup>2</sup>	9
<b>Co-op Requirements (if selected)<sup>3</sup>:</b>	
SCI 3980 Co-operative Education Work Term 1	0
SCI 3990 Co-operative Education Work Term 2	0
SCI 4980 Co-operative Education Work Term 3	0
SCI 4990 Co-operative Education Work Term 4 (if a 4th work term is selected)	0
Hours	45
<b>Year 4</b>	
STAT 4100 Statistical Inference	3
Hours	3
Total Hours	120

<sup>1</sup> Students are strongly advised to take MATH 1220, MATH 1230, MATH 1232.

The following substitutions are allowed (but not advised), provided the grades indicated in brackets are achieved:

- **COMP 1012 in place of COMP 1010;**
- MATH 1210 (A) or MATH 1300 (A) in place of MATH 1220;
- MATH 1500 (A) or MATH 1510 (A) in place of MATH 1230;
- MATH 1700 (A) in place of MATH 1232;
- ~~MATH 1690 (B) in place of MATH 1230 and MATH 1232;~~
- STAT 1000 and STAT 2000 (B) in place of STAT 1150.

<sup>2</sup> **The following courses are not to be used for credit in this program: FA 1020, MATH 1010, MATH 1018, MATH 1020, MATH 1080, MATH 1090, STAT 3000, STAT 4000.**

<sup>3</sup> **Students in the Co-operative Option are required to complete MATH 2020, MATH 2150, MATH 2180, STAT 3150, and STAT 3450 before their first employment term.**

(Letters in brackets indicate minimum prerequisite standing for further study.)



## Université de Saint-Boniface

### École de traduction

#### Introductions:

TRAD 4503 Traduction juridique: Textes législatifs et réglementaires 3 cr +3.0  
Révision et application des principes et de la traduction vers le français de textes législatifs anglais. Fondements historiques, juridiques et linguistiques de la traduction législative au Canada. Application des techniques de transfert du discours législatif de l'anglais vers le français. Préalable : TRAD 4601.

TRAD 4511 Traduction juridique : Textes officiels 3 cr +3.0  
Révision et application des principes de la traduction à des documents officiels vers le français. Responsabilités liées à la traduction de documents officiels. Préalable : TRAD 4601.

TRAD 4521 Traduction juridique : Décisions judiciaires 3 cr +3.0  
Initiation aux principes de la traduction vers le français de décisions judiciaires. Techniques d'analyse de décisions judiciaires émanant de diverses instances judiciaires, techniques documentaires propres à la traduction de ce type de textes. Il est recommandé de suivre le cours TRAD 4621 avant de suivre ce cours. Préalable : TRAD 4601.

TRAD 4533 Traduction juridique : Textes du droit des affaires 3 cr +3.0  
Révision et application des principes de la traduction vers le français de textes en usage dans le domaine des affaires et des affaires mobilières, notamment les contrats, les prospectus, les états financiers et les rapports. Il est recommandé d'avoir suivi le cours TRAD 4631 avant de suivre ce cours. Préalable : TRAD 4601.

TRAD 4543 Traduction juridique : Doctrine 3 cr +3.0  
Initiation aux principes de la traduction vers le français de textes de doctrine. Problèmes propres à la traduction de textes de doctrine. Techniques d'analyse des textes et de recherche documentaire, en vue de l'adoption de stratégies efficaces de traduction. Préalable : TRAD 4611.

TRAD 4601 Culture juridique : Méthodologie et introduction aux systèmes juridiques 3 cr +3.0  
Introduction au droit et aux méthodes juridiques. Éléments d'analyse juridique et introduction à l'interprétation des lois, aux processus législatifs, au système judiciaire et aux règles des tribunaux. Initiation à la recherche juridique. Préalables : TRAD 3261 et TRAD 3131.

TRAD 4611 Culture juridique : Initiation au droit public 3 cr +3.0  
Initiation aux grands principes du droit constitutionnel canadien (parlementarisme, primauté du droit, séparation des pouvoirs, fédéralisme et protection des droits individuels et collectifs) et du droit administratif canadien (limites procédurales et substantives à l'exercice par le gouvernement des pouvoirs délégués). Préalable: TRAD 4601.

TRAD 4621 Culture juridique : Droit pénal et criminel 3 cr +3.0  
Initiation aux grands principes du droit pénal et criminel en contexte canadien. Procédure en matière pénale et criminelle. Organisation judiciaire et administration de la justice. Préalable : TRAD 4601.

TRAD 4631 Culture juridique: Droit des affaires 3 cr +3.0  
Initiation aux principes juridiques liés aux contrats (types de contrats, parties du contrat, effets juridiques), aux différents types d'entreprises commerciales (structure organisationnelle de l'entreprise, conseil d'administration, obligations, valeurs mobilières). Éléments du droit des délits, de droit de la propriété intellectuelle et du droit du travail. Préalable : TRAD 4601.

TRAD 4641 Culture juridique : Droit de la famille 3 cr +3.0  
Initiation aux questions juridiques touchant les relations familiales et la dissolution de ces relations dans la société canadienne. Mariage, union de fait, séparation, divorce. Filiation et enfants. Procédures en droit familial au Canada. Prise de conscience du rôle de la traduction dans la livraison des services. Préalable : TRAD 4601.

**NET CHANGE IN CREDIT HOURS: +30.0**

Program modifications:

Modifications to the **Baccalauréat es arts spécialisé en traduction** (par internet) are outlined on the next 12 pages.

**Modification du programme de baccalauréat spécialisé en traduction (par Internet) et ajout d'une concentration Formation de base en traduction juridique**

Tableau comparatif du programme actuel de baccalauréat spécialisé en traduction (par Internet) et du programme proposé de baccalauréat spécialisé en traduction (concentration Formation de base en traduction juridique)

<p><b>Texte actuel : Baccalauréat ès arts spécialisé en traduction (par Internet)</b></p>	<p><b>Texte proposé : Baccalauréat ès arts spécialisé en traduction (par Internet) — Concentration Formation de base en traduction juridique</b></p>
<p>Baccalauréat ès arts spécialisé en traduction (par Internet)</p> <p>1.0 Présentation du programme</p> <p>Ce programme de traduction vise à permettre aux étudiantes et aux étudiants d'acquérir à la fois les connaissances et l'expérience pratique nécessaires pour devenir traducteurs ou traductrices. Ils trouveront un grand choix de cours de version et de thème qui répondent aux exigences de formation de base du marché du travail.</p>	<p>Baccalauréat ès arts spécialisé en traduction (par Internet) — <b>Concentration Formation de base en traduction juridique</b></p> <p>1.0 Présentation du programme</p> <p>Le programme de baccalauréat spécialisé en traduction vise à permettre aux étudiantes et aux étudiants d'acquérir à la fois les connaissances et l'expérience pratique nécessaires pour devenir traducteurs ou traductrices. Il comprend un grand choix de cours de version et de thème qui répondent aux exigences de formation de base du marché du travail.</p> <p><b>La concentration Formation de base en traduction juridique vise les mêmes objectifs de formation que le baccalauréat spécialisé en traduction, mais il comprend, quant à lui, des cours de culture juridique et des cours de traduction juridique spécialisés portant sur des aspects ou des</b></p>

<p>Un tel choix exige, compte tenu du nombre total d'inscriptions à l'un des programmes de traduction, une alternance des cours de traduction spécialisée. Tous les cours présentés ci-dessous ne seront donc pas offerts tous les ans (s'adresser au Registrariat).</p> <p>2.0 Admission</p> <p>Note : Les conditions d'admission au B.A. spécialisé en traduction (Internet) diffèrent légèrement de celles du B.A. spécialisé en traduction donné sur place.</p> <p>2.1 Critères d'admission</p> <p>Les candidates et candidats au baccalauréat en traduction par Internet doivent être titulaires d'un diplôme d'études postsecondaires ou universitaires et être admissibles au <a href="#">statut d'étudiant régulier</a>. Les personnes actuellement inscrites au certificat de traduction et admises à titre d'« <a href="#">étudiants adultes</a> » pourraient être également admissibles au baccalauréat par Internet, à certaines conditions, toutefois.</p>	<p><b>types de textes spécifiques au domaine du droit.</b></p> <p>Un tel choix exige, compte tenu du nombre total d'inscriptions à l'un des programmes de traduction, une alternance des cours de traduction spécialisée. Tous les cours présentés ci-dessous ne seront donc pas offerts tous les ans (s'adresser au Registrariat).</p> <p>2.0 Admission</p> <p>Note : Les conditions d'admission <b>au B.A. spécialisé en traduction (Internet) — Concentration Formation de base en traduction juridique</b> diffèrent légèrement de celles du B.A. spécialisé en traduction donné sur place.</p> <p>2.1 Critères d'admission</p> <p>Les candidates et candidats <b>au B.A. spécialisé en traduction (Internet) — Concentration Formation de base en traduction juridique</b> doivent être titulaires d'un diplôme d'études postsecondaires ou universitaires et être admissibles au <a href="#">statut d'étudiant régulier</a>. Les personnes actuellement inscrites au certificat de traduction et admises à titre d'« <a href="#">étudiants adultes</a> » pourraient être également admissibles au baccalauréat par Internet, à certaines conditions, toutefois.</p>
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<p>Les candidates et candidats inscrits au programme de certificat en traduction qui font une demande d'admission sur la base de leur certificat ou qui ont réussi le certificat au cours des cinq dernières années n'ont pas besoin de passer de nouveau l'examen d'admission. Toutes les autres candidatures devront réussir l'examen d'admission afin que leur dossier soit étudié.</p> <p>Le ou la titulaire d'un diplôme d'études collégiales (DEC) pourrait se faire reconnaître 30 crédits sur 120 aux fins de l'équivalence de crédits des cours d'Université 1. La personne titulaire d'un diplôme universitaire de premier cycle (baccalauréat) pourrait se voir reconnaître jusqu'à 60 crédits, après étude de son dossier par l'École de traduction et le Registrariat.</p> <p>2.2 Examen d'admission à l'École de traduction</p> <p>Pour s'inscrire à l'un des programmes de traduction, on doit d'abord réussir l'examen d'admission. En plus de permettre de sélectionner les personnes susceptibles de réussir dans leur programme et dans les professions langagières, cet examen permet d'établir un diagnostic des compétences et des lacunes des divers candidats et candidates de façon à leur conseiller différentes voies de</p>	<p>Les candidates et candidats inscrits au programme de certificat en traduction qui font une demande d'admission sur la base de leur certificat ou qui ont réussi le certificat au cours des cinq dernières années n'ont pas besoin de passer de nouveau l'examen d'admission. Toutes les autres candidatures devront réussir l'examen d'admission afin que leur dossier soit étudié.</p> <p>Le ou la titulaire d'un diplôme d'études collégiales (DEC) pourrait se faire reconnaître 30 crédits sur 120 aux fins de l'équivalence de crédits des cours d'Université 1. La personne titulaire d'un diplôme universitaire de premier cycle (baccalauréat) pourrait se voir reconnaître jusqu'à <b>39</b> crédits, après étude de son dossier par l'École de traduction et le Registrariat. <b>En effet, la réussite des cours du tronc commun (51 crédits) et de tous les cours de la concentration (30 crédits) est obligatoire pour l'obtention du diplôme. Toutefois, la personne titulaire d'un baccalauréat en droit d'une université canadienne* pourrait être exemptée de certains cours de culture juridique de concentration, mais devra tout de même réussir les 15 crédits de traduction juridique obligatoires, soit un total de 66 crédits.</b></p> <p><b>* ou équivalent d'une université étrangère constaté par le Registrariat.</b></p>
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<p>perfectionnement. Un candidat pourrait donc se voir recommander de suivre des cours de perfectionnement en français ou en anglais qui ne compteront pas pour l'obtention de son diplôme.</p> <p>Vous devez déposer votre demande d'admission à l'USB avant de faire l'examen d'admission à l'École de traduction. Vous aurez accès à l'examen après réception de votre demande d'admission par le Registrariat. Le lien vers l'examen sera affiché dans la page Web vous permettant de suivre l'état de votre demande.</p> <p>Dans les jours ouvrables suivant l'envoi de votre examen d'admission à l'École de traduction, vous recevrez un message de confirmation de réussite, le cas échéant.</p>	<p>2.2 Examen d'admission à l'École de traduction</p> <p>Pour s'inscrire à l'un des programmes de traduction, on doit d'abord réussir l'examen d'admission. En plus de permettre de sélectionner les personnes susceptibles de réussir dans leur programme et dans les professions langagières, cet examen permet d'établir un diagnostic des compétences et des lacunes des divers candidats et candidates de façon à leur conseiller différentes voies de perfectionnement. Un candidat pourrait donc se voir recommander de suivre des cours de perfectionnement en français ou en anglais qui ne compteront pas pour l'obtention de son diplôme.</p> <p>Vous devez déposer votre demande d'admission à l'USB avant de faire l'examen d'admission à l'École de traduction. Vous aurez accès à l'examen après réception de votre demande d'admission par le Registrariat. Le lien vers l'examen sera affiché dans la page Web vous permettant de suivre l'état de votre demande.</p> <p>Dans les jours ouvrables suivant l'envoi de votre examen d'admission à l'École de traduction, vous recevrez un message de confirmation de réussite, le cas échéant.</p>
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<p><b>3.0 Exigences</b></p> <p>Le programme de B.A. spécialisé en traduction (par Internet) de l'USB compte 120 crédits, soit 30 crédits de formation générale (Université 1) et 90 crédits de formation spécialisée. La formation générale comprend des cours de français, de sciences, de sciences sociales et humaines.</p> <p><b>3.1 Exigences de cours du programme</b></p> <p>Le programme exige qu'une étudiante ou un étudiant obtienne le nombre de crédits suivants en plus des 30 crédits d'Université 1 :</p> <ul style="list-style-type: none"> <li>51 crédits de cours du tronc commun;</li> <li>24 crédits de cours à option parmi les cours de version et cours de thème;</li> <li>6 crédits de cours à option parmi les cours de rédaction, traduction et pratique;</li> <li>9 crédits parmi les cours au choix.</li> </ul> <p><b>3.2 Cours du tronc commun, à option et au choix</b></p> <p><b>COURS DU TRONC COMMUN (39 CREDITS)</b></p> <p><b>Bloc Formation de base obligatoire :</b></p> <table border="0"> <tr> <td style="padding-right: 20px;">TRAD 2111</td> <td>Informatique et traduction</td> </tr> </table>	TRAD 2111	Informatique et traduction	<p><b>3.0 Exigences</b></p> <p>Le <b>programme de B.A. spécialisé en traduction (par Internet) — Concentration Formation de base en traduction juridique</b> de l'USB compte 120 crédits, soit 30 crédits de formation générale (Université 1) et 90 crédits de formation spécialisée, <b>y compris les 30 crédits de la concentration</b>. La formation générale (Université 1) comprend des cours de français, de sciences, de sciences sociales et humaines.</p> <p><b>3.1 Exigences de cours du programme</b></p> <p>Le programme de <b>programme de B.A. spécialisé en traduction (par Internet) — Concentration Formation de base en traduction juridique</b> exige qu'une étudiante ou un étudiant obtienne le nombre de crédits suivants en plus des 30 crédits d'Université 1 :</p> <ul style="list-style-type: none"> <li>51 crédits de cours du tronc commun;</li> <li><b>30 crédits de cours de Concentration</b></li> <li><b>9 crédits de cours à option;</b></li> </ul> <p><b>3.2 Cours du tronc commun, à option et au choix</b></p> <p><b>COURS DU TRONC COMMUN (39 CREDITS)</b></p> <p><b>Bloc Formation de base obligatoire :</b></p> <table border="0"> <tr> <td style="padding-right: 20px;">TRAD 2111</td> <td>Informatique et traduction</td> </tr> <tr> <td style="padding-right: 20px;">TRAD 2151</td> <td>Introduction à la traduction</td> </tr> </table>	TRAD 2111	Informatique et traduction	TRAD 2151	Introduction à la traduction
TRAD 2111	Informatique et traduction						
TRAD 2111	Informatique et traduction						
TRAD 2151	Introduction à la traduction						

TRAD 2151	Introduction à la traduction	TRAD 3011	Lexicologie comparée
TRAD 3011	Lexicologie comparée	TRAD 3051	Syntaxe comparée
TRAD 3051	Syntaxe comparée	TRAD 3131	Terminologie bilingue et documentation
TRAD 3131	Terminologie bilingue et documentation	TRAD 3261	Traduction générale (anglais-français)
TRAD 3261	Traduction générale (anglais-français)	TRAD 3271	General Translation (French-English)
TRAD 3271	General Translation (French-English)	TRAD 4051	Révision
TRAD 4051	Révision	TRAD 4071	Mémoire de traduction*
TRAD 4071	Mémoire de traduction <sup>1</sup>	TRAD 4091	Gestion d'un service de traduction
TRAD 4091	Gestion d'un service de traduction	TRAD 4263	Théories de la traduction
TRAD 4263	Théories de la traduction	TRAD 4361	Traduction spécialisée
TRAD 4361	Traduction spécialisée	TRAD 4371	Specialized Translation
TRAD 4371	Specialized Translation		
<b>Bloc Pratique obligatoire (12 crédits) :</b>		<b>Bloc Pratique obligatoire (12 crédits) :</b>	
TRAD 3111	Laboratoire I	TRAD 3111	Laboratoire I
TRAD 3281	Sujets particuliers <sup>2</sup>	TRAD 3281	Sujets particuliers <sup>2</sup>
TRAD 4011	Atelier de traduction professionnelle	TRAD 4011	Atelier de traduction professionnelle
TRAD 4111	Laboratoire II	TRAD 4111	Laboratoire II
		<b>Concentration (30 crédits)</b>	
		<b>TRAD 4601 Culture juridique : Méthodologie et systèmes juridiques</b>	



	<p>TRAD 4611 Culture juridique : Droit public</p> <p>TRAD 4621 Culture juridique : Droit pénal et criminel</p> <p>TRAD 4631 Culture juridique : Droit des affaires</p> <p>TRAD 4641 Culture juridique : Droit de la famille</p> <p>TRAD 4503 Traduction juridique : Textes législatifs et réglementaires</p> <p>TRAD 4511 Traduction juridique : Textes officiels</p> <p>TRAD 4521 Traduction juridique : Décisions judiciaires<sup>1</sup></p> <p>TRAD 4533 Traduction juridique : Textes du droit des affaires<sup>2</sup></p> <p>TRAD 4543 Traduction juridique : Doctrine</p> <p>1. Il est recommandé d'avoir suivi le cours TRAD 4621 avant de suivre ce cours</p> <p>2. Il est recommandé d'avoir suivi le cours TRAD 4631 avant de suivre ce cours.</p>
<p><b>3.3 Cours à option (30 crédits)</b></p> <p>Cours de version (pour un total de 24 crédits de version et de thème) :</p>	<p><b>3.3 Cours à option (9 crédits)</b></p> <p>Cours de version et de thème, ou cours du bloc Rédaction, traduction et pratique, (pour un total de 9 crédits) :</p>
<p>TRAD 4273 Traduction biomédicale et pharmaceutique</p>	<p>TRAD 4273 Traduction biomédicale et pharmaceutique</p> <p>TRAD 4381 Traduction en sciences sociales</p>

TRAD 4381	Traduction en sciences sociales	TRAD 4401	Traduction littéraire
TRAD 4391	Traduction juridique	TRAD 4411	Traduction scientifique et technique
TRAD 4401	Traduction littéraire	TRAD 4421	Traduction commerciale et économique (anglais-français)
TRAD 4411	Traduction scientifique et technique	TRAD 4501	Initiation à la localisation
TRAD 4421	Traduction commerciale et économique (anglais-français)		
TRAD 4501	Initiation à la localisation		
<b>Cours de thème (pour un total de 24 crédits de version et de thème) :</b>		<b>Cours de thème :</b>	
TRAD 4231	Translation in the Social Sciences	TRAD 4231	Translation in the Social Sciences
TRAD 4241	Legal Translation	TRAD 4241	Legal Translation
TRAD 4251	Literary Translation	TRAD 4271	Scientific and Technical Translation
TRAD 4271	Scientific and Technical Translation		
<b>Cours de rédaction, traduction et pratique (6 crédits) :</b>		<b>Cours de rédaction, traduction et pratique :</b>	
TRAD 3141	Rédaction professionnelle comparée I	TRAD 3141	Rédaction professionnelle 1
TRAD 4061	Terminologie appliquée	TRAD 4061	Terminologie appliquée
TRAD 4101	Mémoire de terminologie <sup>1</sup>	TRAD 4101	Mémoire de terminologie*
TRAD 4141	Rédaction professionnelle comparée II	<b>* Les cours de mémoire marqués d'un astérisque devraient se faire à la fin du programme d'études. Les sujets choisis pour les mémoires devront se rapporter au domaine juridique.</b>	
TRAD 4281	Adaptation publicitaire	<b>3.4 Préalables, concomitants et disponibilité des cours</b>	

### 3.4 Cours au choix (9 crédits)

3 crédits      TRAD 3121 Lexicographie comparée (fortement recommandé)

3 crédits      (cours au choix) (hors traduction)

3 crédits      (cours au choix) (hors traduction)

### 3.5 Préalables, concomitants et disponibilité des cours

#### préalables

Si un cours est préalable à un autre, on devra avoir terminé le premier cours avant de s'inscrire au second.

#### concomitants

Si un cours est obligatoirement accompagné d'un second cours (cours concomitant), ces deux cours devront être suivis en même temps.

#### fortement recommandé

Si un cours est « fortement recommandé » par rapport aux autres cours, les étudiantes et les étudiants sont encouragés à le suivre, bien que la décision finale leur incombe. Il est recommandé de prendre connaissance des instructions propres à chaque discipline qui précèdent la description des cours.

#### disponibilité des cours

#### préalables

Si un cours est préalable à un autre, on devra avoir terminé le premier cours avant de s'inscrire au second.

#### concomitants

Si un cours est obligatoirement accompagné d'un second cours (cours concomitant), ces deux cours devront être suivis en même temps.

#### fortement recommandé

Si un cours est « fortement recommandé » par rapport aux autres cours, les étudiantes et les étudiants sont encouragés à le suivre, bien que la décision finale leur incombe. Il est recommandé de prendre connaissance des instructions propres à chaque discipline qui précèdent la description des cours.

#### disponibilité des cours

Tous les cours énumérés dans l'annuaire ne sont pas offerts chaque année. Les cours offerts pour les semestres en cours sont disponibles sur le [site Internet de l'Université de Saint-Boniface](#) et au [Registrariat](#).

### 3.5 Exigences linguistiques

Les exigences linguistiques varient selon les résultats obtenus à l'examen d'admission de l'École de traduction. Certains candidats pourraient se voir recommander de suivre, en plus des cours de leur programme, un cours non crédité de perfectionnement du français ou de l'anglais.

### 3.6 Conditions d'obtention de diplôme

Le programme mène au grade de B.A. spécialisé en traduction et exige qu'une

<p>Tous les cours énumérés dans l'annuaire ne sont pas offerts chaque année. Les cours offerts pour les semestres en cours sont disponibles sur le <a href="#">site Internet de l'Université de Saint-Boniface</a> et au <a href="#">Registrariat</a>.</p> <p><b>3.6 Exigences linguistiques</b></p> <p>Les exigences linguistiques varient selon les résultats obtenus à l'examen d'admission de l'École de traduction. Certains candidats pourraient se voir recommander de suivre, en plus des cours de leur programme, un cours non crédité de perfectionnement du français ou de l'anglais.</p> <p><b>3.7 Conditions d'obtention de diplôme</b></p> <p>Le programme mène au grade de B.A. spécialisé en traduction et exige qu'une étudiante ou un étudiant obtienne le nombre de crédits suivants en plus des 30 crédits d'Université 1 :</p> <ul style="list-style-type: none"> <li>• 51 crédits de cours du tronc commun;</li> <li>• 24 crédits de cours à option parmi les cours de version et cours de thème;</li> <li>• 6 crédits de cours à option parmi les cours de rédaction, traduction et pratique;</li> <li>• 9 crédits parmi les cours au choix.</li> </ul> <p><b>3.8 Note minimale de passage et seuil de rendement</b></p> <p>La note minimale de passage pour chaque cours du programme de baccalauréat en</p>	<p>étudiante ou un étudiant obtienne le nombre de crédits suivants en plus des 30 crédits d'Université 1 :</p> <ul style="list-style-type: none"> <li>• 51 crédits de cours du tronc commun;</li> <li>• <b>30 crédits de cours de la concentration;</b></li> <li>• <b>9 crédits de cours à option.</b></li> </ul> <p><b>3.7 Note minimale de passage et seuil de rendement</b></p> <p>La note minimale de passage pour chaque cours du programme de baccalauréat en traduction ou de certificat en traduction est de 2,0 (C). Toutefois, même si la note minimale de chacun des cours est de C, il faut maintenir une moyenne cumulative de 3,0 pour poursuivre ses études dans le programme sans condition particulière et obtenir son diplôme à la fin de son programme d'études. L'étudiante ou l'étudiant qui obtient une note de D ou de F dans un cours obligatoire préalable à un autre doit reprendre le cours en question.</p>
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<p>traduction ou de certificat en traduction est de 2,0 (C). Toutefois, même si la note minimale de chacun des cours est de C, il faut maintenir une moyenne cumulative de 3,0 pour poursuivre ses études dans le programme sans condition particulière et obtenir son diplôme à la fin de son programme d'études. L'étudiante ou l'étudiant qui obtient une note de D ou de F dans un cours obligatoire préalable à un autre doit reprendre le cours en question.</p>	
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### Annexe 3 — Cheminement des études

Le tableau suivant montre les trois parcours des études possibles après Université 1 selon que l'étudiante ou l'étudiant n'est titulaire d'aucun diplôme, qu'elle est titulaire d'un baccalauréat dans une discipline autre que le droit ou qu'elle est titulaire d'un baccalauréat en droit d'une université canadienne.

Même si l'annuaire prévoit qu'en règle générale, la personne titulaire d'un diplôme universitaire peut se faire reconnaître jusqu'à 60 crédits au titre du baccalauréat spécialisé en traduction, le nombre maximal de crédits que la personne pourrait se voir reconnaître aux fins du baccalauréat en traduction avec la concentration Formation de base en traduction est de 39 si elle est titulaire d'un baccalauréat d'une université canadienne, et de 54 si elle est titulaire d'un diplôme en droit. Il s'agit bien d'un maximum, car l'étudiant a toujours le choix de suivre 9 crédits parmi la liste des cours à option, ce qui est fortement recommandé d'ailleurs.

<b>Parcours normal</b>	<b>Parcours accéléré</b>	
<b>Sans diplôme</b>	<b>Avec baccalauréat dans n'importe quelle discipline d'une université canadienne (et reconnaissance d'un maximum de 39 crédits)</b>	<b>Avec diplôme en droit d'une université canadienne* (avec reconnaissance d'un maximum de 54 crédits, dont 15 crédits de cours de Culture juridique)</b> * ou équivalent d'une université étrangère constaté par le Registrariat.
Université 1	Université 1 (cours reconnus au titre d'université 1 au moment de l'admission)*	Université 1 (cours reconnus au titre d'université 1 au moment de l'admission)*
51 crédits de cours du tronc commun	51 crédits de cours du tronc commun	51 crédits de cours du tronc commun
30 crédits de cours de la concentration	30 crédits de cours de la concentration	15 crédits de cours de traduction juridique de la concentration
9 crédits de cours à option	(9 crédits de cours à option)* 30 crédits de cours de la concentration	(9 crédits de cours à option)*
	*Même si l'annuaire prévoit qu'en règle générale, la personne titulaire d'un diplôme universitaire peut se faire reconnaître jusqu'à 60 crédits au titre du baccalauréat spécialisé en traduction, le nombre maximal de crédits que la personne pourrait se voir reconnaître aux fins du baccalauréat en traduction avec la concentration Formation de base en traduction est de 39 si elle est titulaire d'un baccalauréat d'une université canadienne. Il s'agit bien d'un maximum, car l'étudiant a toujours le choix de suivre 9 crédits parmi la liste des cours à option, ce qui est fortement recommandé d'ailleurs.	*Même si l'annuaire prévoit qu'en règle générale, la personne titulaire d'un diplôme universitaire peut se faire reconnaître jusqu'à 60 crédits au titre du baccalauréat spécialisé en traduction, le nombre maximal de crédits que la personne pourrait se voir reconnaître aux fins du baccalauréat en traduction avec la concentration Formation de base en traduction est de 54 si elle est titulaire d'un diplôme en droit. Il s'agit bien d'un maximum, car l'étudiant a toujours le choix de suivre 9 crédits parmi la liste des cours à option, ce qui est fortement recommandé d'ailleurs.

## Report of the Senate Committee on Curriculum and Course Changes RE: Modification of the Preliminary Engineering Program

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### Preamble

1. The [terms of reference](#) for the Senate Committee on Curriculum and Course Changes (SCCCC) are available on the University Governance website. The SCCC is “to recommend to Senate on the introduction, modification or abolition of undergraduate programs, curricula or courses.”
2. At its meeting on November 3, 2022, the SCCC considered a proposal from the Price Faculty of Engineering to modify the curriculum of the Preliminary Engineering Program.
3. The Senate Committee on Admissions considered a proposal with corresponding changes to the admission requirements at its meeting on February 22, 2022.
4. Proposed changes to the curriculum and to the admission requirements (advanced entry), which follow from the curriculum changes, will take effect for the 2023 Fall Term/intake.

### Observations

1. The Committee considered a proposal from the Price Faculty of Engineering to modify the Preliminary Engineering Program, as set out in the attachment to the Report. One change is to revise the list of Written English Courses for Engineering Students to remove three Religion courses, RLGN 1322 Introduction to Eastern Religions, RLGN 1324 Introduction to Western Religions, and RLGN 1424 Religion and Sexuality. The change follows from course modification proposals submitted by the Department of Religion, Faculty of Arts, to SCCC to remove these courses from the University’s list of Written English Courses.
2. The Faculty had also proposed a revision to program note 3, to communicate that MATH 1690 Calculus was no longer offered. The revision followed a proposal from the Department of Mathematics, Faculty of Science, to delete the course. Based on a recommendation from the SCCC, note 3 was further revised to remove the reference to MATH 1690. As the course has not been offered for more than ten years, few students entering the Preliminary Engineering Program will have completed it.

### Recommendation

The Senate Committee on Curriculum and Course Changes recommends:

**THAT Senate approve modifications to the curriculum of the Preliminary Engineering Program, Price Faculty of Engineering, effective for the 2023 Fall Term.**

Respectfully submitted,

Professor Dean McNeill, Chair  
Senate Committee on Curriculum and Course Changes

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.

**Report of the Senate Committee on Admissions concerning a proposal from the Price Faculty of Engineering to modify the admission requirements for the Bachelor of Science in Engineering degree program (2022.09.22)**

**Preamble:**

1. The terms of reference for this committee can be found at: [http://umanitoba.ca/admin/governance/governing\\_documents/governance/sen\\_committees/490.htm](http://umanitoba.ca/admin/governance/governing_documents/governance/sen_committees/490.htm).
2. The Price Faculty of Engineering is proposing an amendment to the preliminary Engineering year course list; this list contains the courses students can present in order to be eligible for admission. The proposed amendments are being made to reflect some changes that have been made to the list of written English courses.
3. The proposal was approved by the Price Faculty of Engineering Faculty Council on September 7<sup>th</sup>, 2022 and was endorsed by SCADM on September 22<sup>nd</sup>, 2022.

**Observations:**

1. Engineering students must take one course from the written English courses for Engineering students list as part of their program. Courses from this list may be included in the GPA calculation used for admission purposes.
2. The Department of Religion submitted a change to remove the written English designation from three RLGN courses which are currently appear on the approved list of written English courses for Engineering students.
3. Given the changes from the Department of Religion, the three specified courses should be removed from the English courses for Engineering students list.

**Recommendation:**

The Senate Committee on Admissions recommends that the proposal to modify the admission requirements for the Bachelor of Science in Engineering degree program be approved effective for the Fall 2023 intake.

Respectfully submitted  
Laurie Schnarr, Chair, Senate Committee on Admissions



CourseLeaf Reference:

<https://catalog.umanitoba.ca/undergraduate-studies/engineering/preliminary-engineering-program/>

## Proposed Calendar Changes

### Preliminary Engineering Program

**Campus Address/General Office:** E1-262 EITC

**Telephone:** (204) 474 9807

**Email Address:** [eng\\_info@umanitoba.ca](mailto:eng_info@umanitoba.ca)

**Website:** [umanitoba.ca/engineering](http://umanitoba.ca/engineering)

The Preliminary Engineering Program is common to all programs in engineering. Students must complete a minimum of eight courses (excluding CHEM 1122) to be eligible to apply to one of the five degree granting engineering programs. A student must complete the following list of 13 courses as part of their engineering program in order to graduate with a BSc degree in engineering.

Course No.		Credit Hours
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics <sup>1</sup>	3
CHEM 1122	Introduction to Chemistry Techniques for Engineering 1 <sup>1</sup>	1.5
COMP 1012	Computer Programming for Scientists and Engineers	3
ENG 1430	Design in Engineering	3
ENG 1440	Introduction to Statics	3
ENG 1450	Introduction to Electrical and Computer Engineering	3
ENG 1460	Introduction to Thermal Sciences	3
MATH 1210	Techniques of Classical and Linear Algebra <sup>2</sup>	3
MATH 1510	Applied Calculus 1 or equivalent <sup>3</sup>	3
MATH 1710	Applied Calculus 2 or equivalent <sup>3</sup>	3
PHIL 1290	Critical Thinking <sup>4</sup>	3
PHYS 1050	Physics 1: Mechanics	3
	Written English Course <sup>5, 6</sup>	3

1 The former CHEM 1300 may be used in lieu of the combination of CHEM 1100 and CHEM 1122.

2 MATH 1300 is not an acceptable equivalent to MATH 1210.

3 Students intending to obtain a degree in Engineering are strongly advised to complete MATH 1510 and MATH 1710. However, MATH 1500 or MATH 1230 may be taken in lieu of MATH 1510; MATH 1700 or MATH 1232 may be taken in lieu of MATH 1710. ~~MATH 1690 fulfills the requirement of both MATH 1510 and MATH 1710.~~ MATH 1524 is not an acceptable equivalent to MATH 1510.

4 PHIL 1290 Critical Thinking is the recommended complementary studies elective. Students may; however, select any course from the Faculties of Arts or Management (Asper School of Business) at the 1000 level or above, except for ARTS 1110 Introduction to University.

5 Course selected from the list of approved Written English Courses for Engineering students.

6 Three credit hours are required to satisfy the written English course requirement. Should a student complete a six credit hour course, the additional three credit hours may be used to satisfy general complementary studies requirements within a student's program.

7 Equivalent courses offered through Université de Saint-Boniface may be used to satisfy program requirements.

### ENGLISH AND MATHEMATICS REQUIREMENTS

All students are required to complete the university written English and mathematics requirement within the first 60 credit hours of their program. This requirement is described in the chapter General Academic Regulations and Requirements of this Calendar. In the Engineering programs the mathematics requirement is satisfied by one of MATH 1510 or MATH 1710 (or an equivalent); the written English requirement is satisfied by completing a course selected from the following list of approved Written English Courses for Engineering Students.

Note that courses transferred from other institutions are evaluated for content, but are not assessed for the written English requirement unless the student explicitly requests such an assessment. Therefore, students wishing to transfer a course from another institution which may be considered equivalent to a course on the list of Written English Courses for Engineering Students should request that the transfer be assessed as meeting the written English requirement. If the assessed course is found not to meet the requirement, the student will be compelled to complete another course from the list.

### WRITTEN ENGLISH COURSES FOR ENGINEERING STUDENTS

Course No.		Credit Hours
ASIA 1420	Asian Civilization to 1500	3
ASIA 1430	Asian Civilization from 1500	3
CATH 1190	Introduction to Catholic Studies	3
ENGL 1200	Representative Literary Works	6
ENGL 1300	Literature Since 1900	6
ENGL 1340	Introduction to Literary Analysis	3
ENGL 1400	Thematic Approaches to the Study of Literature	3
GPE 2700	Perspectives on Global Political Economy	3
GRMN 1300	Masterpieces of German Literature in English Translation	3
GRMN 1310	Love in German Culture in English Translation	3
HIST 1XXX	Any 1000 level HIST course <sup>1</sup>	3 or 6
HIST 2XXX	Any 2000 level HIST course <sup>1</sup>	3 or 6
INDG 2020	The Métis in Canada	3
POL 1900	Love, Heroes and Patriotism in Contemporary Poland	3
POL 2600	Polish Culture until 1918	3
POL 2610	Polish Culture 1918 to the present	3
POLS 1502	Introduction to Political Studies <sup>2</sup>	3

RLGN 1322	Introduction to Eastern Religions	3
RLGN 1324	Introduction to Western Religions	3
RLGN 1424	Religion and Sexuality	3
RLGN 1440	Evil in World Religions	3
RLGN 2036	Introduction to Christianity	3
RLGN 2140	Introduction to Judaism	3
RLGN 2160	Hebrew Bible (Tanakh / "Old Testament)	3
RLGN 2170	Introduction to the New Testament	3
RLGN 2222	The Supernatural in Popular Culture	3
RLGN 2590	Religion and Social Issues	3
RUSN 1400	Masterpieces of Russian Literature in English Translation	3
RUSN 2280	Russian Culture until 1900	3
RUSN 2290	Russian Culture from 1900 to the present	3
RUSN 2310	Exploring Russia Through Film	3
UKRN 2200	Ukrainian Myths, Rites and Rituals	3
UKRN 2410	Ukrainian Canadian Cultural Experience	3
UKRN 2590	Ukrainian Literature and Film	3
UKRN 2770	Ukrainian Culture until 1900	3
UKRN 2780	Ukrainian Culture from 1900 to the present	3
UKRN 2820	Holodomor and Holocaust in Ukrainian Literature and Culture	3
WOMN 1500	Introduction to Women's and Gender Studies in the Humanities	3
WOMN 1600	Introduction to Women's and Gender Studies in the Social Sciences	3
WOMN 2560	Women, Science and Technology	3
1 Unallocated credits may not be used.		
2 This course requires a laboratory.		



TO: Jeff Leclerc, University Secretary

FROM: Jeff Adams, University Registrar and Executive Director, Enrolment Services

DATE: November 8, 2022

**Subject: 2022-23 and 2023-24 Academic Schedule Changes**

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***2022-23 Academic Schedule Changes***

We would like to request two modifications to the 2022-23 Academic Schedule:

1. *Section 2.1.4 Examination and Test Dates* - When originally published the examination dates for winter/summer distance and online spanned courses was inadvertently omitted from the Academic Schedule; we would like to add these dates to the schedule. The proposed dates are July 7-10, 2023
2. *Section 1.12.2 Start and End Dates for the Occupational Therapy Program* – The Basic Fieldwork placement is scheduled from November 21 – December 16, 2022. This year, a fieldwork site has offered a placement that will begin on November 23, 2022 and will end on December 20, 2022. As a result, the program would like to request the end date for the placement be moved to December 23, 2022. This will ensure students participating in this placement can be accommodated and it will also provide some make up days, if required, for students who are unable to attend a portion of their placement due to illness.

***2023-24 Academic Schedule Changes***

We would like to request some modifications to the 2023-24 Academic Schedule that was approved by Senate last month. The request is to add the following dates that were omitted from the original version:

- Section 2.1.4 Examination dates for winter/summer distance and online spanned courses – July 5-8, 2024
- Section 1.9.4 Dates applicable to Medicine (see attached document for dates)
  - Addition of last date to drop without penalty
  - Additional of voluntary withdrawal deadline
- Section 1.11.4 Dates applicable to Occupational Therapy (see attached document for dates)
  - Addition of last date to drop without penalty
  - Additional of voluntary withdrawal deadline

- Section 1.15.4 Dates applicable to Respiratory Therapy (see attached document for dates)
  - Addition of last date to drop without penalty
  - Additional of voluntary withdrawal deadline

CC:

Laurie Schnarr, Vice-Provost (Students)

Shannon Coyston, Associate University Secretary (Senate)

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the  
Report to Senate.

## 2022-2023 Academic Schedule Additions

### Section 2: Dates for Summer Term

#### 2.1.4 Examination and Test Dates

Winter/Summer Term Spanning distance and online courses.....July 7 to 10, 2023

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## 2023-2024 Academic Schedule Additions

### Dates applicable to Medicine

#### 1.9.4 Registration and Withdrawal Dates

##### Last Date to drop without Penalty

###### Year 1

Fall Term.....Sep 12, 2023

Winter Term.....Jan 29, 2024

###### Year 2

Fall Term.....Sep 18, 2023

Winter Term.....Jan 29, 2024

##### Voluntary Withdrawal Deadline

###### Year 1

Fall Term.....Nov 28, 2023

Winter Term.....Apr 22, 2024

###### Year 2

Fall Term.....Nov 27, 2023

Winter Term.....Apr 15, 2024

### Dates applicable to Occupational Therapy

#### 1.11.4 Registration and Withdrawal Dates

##### Last Date to drop without Penalty

###### Year 1

Fall Term.....Sep 11, 2023

Winter Term.....Jan 18, 2024

###### Year 2

Fall Term.....Sep 11, 2023

Winter Term.....Mar 18, 2024

**Voluntary Withdrawal Deadline**

**Year 1**

Fall Term.....Oct 30, 2023  
Winter Term.....Mar 28, 2024

**Year 2**

Fall Term.....Nov 20, 2023  
Winter Term.....May 27, 2024

**Dates applicable to Respiratory Therapy**

**1.15.4 Registration and Withdrawal Dates**

**Last Date to drop without Penalty**

**Year 1**

Fall Term.....Sep 19, 2023  
Winter Term.....Jan 22, 2024

**Year 2**

Fall Term.....Sep 19, 2023  
Winter Term.....Jan 22, 2024

**Year 3**

Fall Term.....Sep 15, 2023  
Winter Term.....Jan 29, 2024

**Voluntary Withdrawal Deadline**

**Year 1**

Fall Term.....Nov 28, 2023  
Winter Term.....Mar 25, 2024

**Year 2**

Fall Term.....Nov 28, 2023  
Winter Term.....Mar 25, 2024

**Year 3**

Fall Term.....Nov 24, 2023  
Winter Term.....Apr 22, 2024

**Section 2: Dates for Summer Term**

**2.1.4 Examination and Test Dates**

Winter/Summer Term Spanning distance and online courses.....July 5 to 8, 2024

## Memo

Date: October 17, 2022

To: Shannon Coyston, Associate University Secretary (Senate)

From: Rod Lastra, Acting Dean, Extended Education



**Re: Closure of Post-Baccalaureate Certificate in Applied Leadership (PBCAL)**

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I write to advise that at a meeting held on September 28, 2022, Extended Education's Council passed a motion to formally close the program, Post-Baccalaureate Certificate in Applied Leadership. Information provided to Extended Education's Council included that admission to the PBCAL had been formally suspended since Fall 2018 due to low enrolment. An analysis at the point of admission suspension found that the post-baccalaureate certificate designation was not in high demand, and that admission requirements to the post-baccalaureate certificate were too high. It was confirmed that there are no students remaining in the PBCAL.

With this memo, I am requesting that the closure of the PBCAL be recommended as a matter for concurrence without debate at the December 7, 2022 meeting of Senate.

If further information is required or would be helpful, please advise.

Thank you very much.

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the  
Report to Senate.



## Memo

Date: October 17, 2022

To: Shannon Coyston, Associate University Secretary (Senate)

From: Rod Lastra, Acting Dean, Extended Education



Re: **Closure of Post-Baccalaureate Certificate in E-Learning (PBCEL)**

---

I write to advise that at a meeting held on September 28, 2022, Extended Education's council passed a motion to formally close the program, Post-Baccalaureate Certificate in E-Learning. Information provided to Extended Education's Council included that admission to the PBCEL had been formally suspended since Fall 2019 due to low enrolment. An analysis at the point of admission suspension found that the post-baccalaureate certificate designation was not in high demand, and that admission requirements to the post-baccalaureate certificate were too high. It was confirmed that there are no students remaining in the PBCEL.

With this memo, I am requesting that the closure of the PBCEL be recommended as a matter for concurrence without debate at the December 7, 2022 meeting of Senate.

If further information is required or would be helpful, please advise.

Thank you very much.

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the  
Report to Senate.

## Report of the Executive Committee of the Faculty of Graduate Studies on Course and Curriculum Changes

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### Preamble

1. The Faculty of Graduate Studies (FGS) has responsibility for all matters relating to the submission of graduate course, curriculum, program and regulation changes. Recommendations for such are submitted by the Faculty Council of Graduate Studies for the approval of Senate.
2. In October 2007, the Faculty of Graduate Studies approved a process of *Streamlining Course Introductions, Modifications, & Deletions* which allows the Executive Committee to approve these changes in lieu of Faculty Council when the courses are not associated with a new program proposal.
3. The Faculty of Graduate Studies Executive Committee met on the above date to consider a proposal from the Dept. of Mathematics.

### Observations

1. The **Dept. of Mathematics** proposes (1) course introduction: MATH 7490. The topic of “optimization” was recently introduced at the undergraduate level (offered as MATH 3490) to provide core material for students in the Data Science program but is credit that is unavailable to graduate students in Computer Science and Statistics. Both Computer Science and Statistics support the creation of a cross-listed course to serve undergraduate and graduate students covering similar topics and at a higher level appropriate for a senior/introductory graduate level course. “Optimization” is a senior/graduate course at many Canadian universities including McGill, Toronto, Waterloo, and UBC. The desired effective date for this course is Winter 2023 term.

#### Course Introduction

##### **MATH 7490 Optimization**

**+3**

This course, cross-listed with MATH 4490, introduces the theory and practice of optimization. Topics include unconstrained optimization (quasi-Newton's, BFGS, nonlinear conjugate gradient methods), linear programming (Simplex method, duality), nonlinear constrained optimization (optimality conditions, duality, saddle point theory, barrier and penalty methods, Slater's condition) and integer programming (branch-and-bound, cutting plane and branch-and-cut methods). Applications to calculus of variations, statistics, data science, optimal control, signal processing and neural networks are given. Some computer programming will be required. This course is especially useful for students studying Data Science. Students cannot obtain credit for both MATH 4490 and MATH 7490. Prerequisite: permission of instructor.

#### **NET CREDIT HOUR CHANGE**

**+3**

### Recommendations

The Executive Committee recommends **THAT: the course change(s) from the unit listed below be approved by Senate:**

#### **Dept. of Mathematics**

Respectfully submitted,

Dr. Kelley Main, Chair  
Faculty of Graduate Studies Executive Committee

/ak

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the  
Report to Senate.

## Report of the Faculty Council of Graduate Studies on Course, Program, Supplementary Regulation and Regulation Changes

---

### Preamble

1. The Faculty of Graduate Studies (FGS) has responsibility for all matters relating to the submission of graduate course, program, supplementary regulation, and regulation changes. Recommendations for such are submitted by the Faculty Council of Graduate Studies for the approval of Senate.
2. The Faculty Council of Graduate Studies met on the above date to consider a proposal from the Faculty of Graduate Studies.

### Observations

1. The **Faculty of Graduate Studies** proposes to convert the existing Option in Disability Studies to a concentration entitled *Graduate Focus in Disability Studies*. The primary reason for this change is to formally code the option as a concentration in Banner; historically, the Option in Disability Studies was added as a comment on the student's record. The concentration would continue to appear on a student's transcript. The Option in Disability Studies was proposed at the time the Master's program in Disability Studies was proposed. These details may be referred to in the [May 9, 2001 Senate agenda](#).

The concentration (like the option currently) would be available to any graduate student who wants to attain an additional credential regardless of their academic program.

The concentration requires that students complete 6 or 9 CH of courses (these requirements remain unchanged from the original Option in Disability Studies):

- [DS 7020](#) History of Disability (3), and one of
- [DS 7010](#) Disability Studies (6) or
- [DS 7030](#) Evaluation and Application of Research Methods in Disability Studies (3).

### Recommendations

**Faculty Council of Graduate Studies recommends THAT the program changes from the unit listed below be approved by Senate:**

### Faculty of Graduate Studies

Respectfully submitted,

Dr. Kelley J. Main, Chair  
Faculty Council of Graduate Studies

/ak

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.



**To: Faculty of Graduate Studies Committees**  
**From: Dr. Kelley Main, Acting Dean, Faculty of Graduate Studies**  
**Date: August 11, 2022**  
**Re: Proposal for a concentration entitled Graduate Focus in Disability Studies**

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The Faculty of Graduate Studies is submitting a proposal to convert the existing Option in Disability Studies to a concentration entitled *Graduate Focus in Disability Studies*. The primary reason for this change is to formally code the option as a concentration in Banner; historically, the Option in Disability Studies was added as a comment on the student's record. The concentration would continue to appear on a student's transcript. The Option in Disability Studies was proposed at the time the Master's program in Disability Studies was proposed. These details may be referred to in the [May 9, 2001 Senate agenda](#) (starting on pg. 82 of the .pdf). Presently, the option is described as follows:

#### **OPTION IN DISABILITY STUDIES**

The Option in Disability Studies is offered to students in faculties and departments that currently have a graduate program and wish to include a focus on disability studies. Upon completion of the requirements, a concentration in Disability Studies will be recorded on the student's transcript. For information concerning the option, interested students are directed to their student advisor or to the Director of Disability Studies.

The concentration (like the option currently) would be available to any graduate student who wants to attain an additional credential regardless of their academic program.

The concentration requires that students complete 6 or 9 CH of courses (these requirements remain unchanged from the original Option in Disability Studies):

- [DS 7020](#) History of Disability (3), and one of
- [DS 7010](#) Disability Studies (6) or
- [DS 7030](#) Evaluation and Application of Research Methods in Disability Studies (3).

The *Proposal for New Academic Minor or Concentration* document is attached along with an administrative form that would be used to confirm the eligibility to receive the Graduate Focus in Disability Studies concentration.

Thank you for considering this proposal.



## Proposal for New Academic Program: Minor or Concentration

Please complete the form below and append supporting documents, as appropriate. Electronic copies of the completed proposals are to be submitted to the Office of the University Secretary and the Vice-Provost (Academic Planning and Programs) following endorsement of the proposal by the appropriate Faculty/College/School/Division Council.

It is advised that units initially discuss the proposed program with the Vice-Provost (Academic Planning and Programs) for undergraduate-level concentrations or minors, or with the Dean of the Faculty of Graduate Studies for graduate-level concentrations prior to completion and submission of the proposal form.

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### Section A: Proposing Unit

**Faculty/School/College/Division:** Faculty of Graduate Studies

**Department** (where applicable):

**Contact, Name and Title:** Kelley Main, Acting Dean

**Contact Email:** Kelley.main@umanitoba.ca

### Section B: Program Overview

**1. Program type:**

- Graduate-level concentration
- Undergraduate-level concentration
- Undergraduate minor

**2. Program name (30 characters):** Graduate Focus in Disability Studies

**For concentrations only, in the degree/major of:** any Master's or Ph.D. program

**3. Program length (credit hours):**

Master's or Doctoral students will be required to complete the requirements of the program to which they have been admitted and the requirements of the Graduate Focus in Disability Studies (6 or 9 credit hours of courses at the graduate level (e.g., 7000)).

Additional credit hours may be required in a student's program of study and may affect a student's time to complete their degree. However, many students may be able to attain their 6 or 9 credit hours of courses within the requirements of their degree program.

#### 4. **Proposed start term:** Fall 2023

### Section C: Program Requirements

#### 5. **Description and Intended Outcomes of the Program**

Provide a general overview of the program, including the purpose and objectives, and the intended outcomes of the program. Outline expected learning outcomes and how it will benefit students.

The Faculty of Graduate Studies is submitting a proposal to convert the existing Option in Disability Studies into a Graduate Focus in Disability Studies concentration. The primary reason for this change is to formally code the option as a concentration in Banner; historically, the Option in Disability Studies was added as a comment on the student's record.

The Graduate Focus in Disability Studies concentration will allow registered graduate students attending the University of Manitoba at either the Master's or Doctoral level (from any program) to gain official recognition for having supplemented their program of studies with coursework in disability studies. This program will be helpful in ensuring that the University of Manitoba is meeting its commitments associated with endorsing the principles of Equity, Diversity, Inclusion and Accessibility.

Program requirements would include:

Six (6) or Nine (9) credit hours of graduate (7000 level or higher) courses that focus on disability studies;

This concentration could be helpful for students seeking future employment or furthering their studies or training in disability studies as well as pursuing subsequent degrees or postdoctoral training.

It is requested that students received a notation on their transcript upon completion of the Graduate Focus in Disability Studies concentration.

#### 6. **Course Requirements**

List all courses used in the curriculum, including required and elective and existing and proposed courses. Include: the subject code, course number, course description. Identify proposed courses as "new." [Append associated course change forms, as appropriate.](#) Comment on any prerequisite requirements, where applicable.

The proposed concentration requires that students complete 6 or 9 CH of courses: [DS 7020](#) History of Disability (3); and one of [DS 7010](#) Disability Studies (6) or [DS 7030](#) Evaluation and Application of Research Methods in Disability Studies (3).

## 7. Entrance Requirements

Outline any entrance requirements to the program specific to the proposed minor or concentration, if applicable. Comment on any regulations the unit may have in respect to what point in a program students are required to declare the concentration/minor.

Available for current graduate students. Students will declare the concentration when they have successfully fulfilled the credit hour requirements.

## 8. Availability of Program

If proposing a minor, indicate whether the program will be made available to all students eligible to declare a minor or restricted to students in select programs. If the latter, indicate the program(s) and provide a brief explanation as to the restriction. If proposing a graduate-level or undergraduate-level concentration, indicate the program(s) in which the concentration will be available.

This concentration (like the option currently) would be available to any graduate student who wants to attain an additional credential regardless of their academic program.

## Section D: Program Development and Demand

## 9. Alignment with Strategic Direction and Priorities

Comment on how the program addresses institutional and unit level strategic priorities and plans, including how Accessibility, Equity, Diversity, and Inclusion and Indigenous achievement and engagement have been considered in the development of the program.

The UM has made a commitment to equity, diversity and inclusion and this concentration would fit squarely within that strategic priority. Disability Studies is a transdisciplinary field and it has the potential to provide students from a diverse background a grounding in disability studies to complement their graduate programs. Similar to the Concentration in Aging, this concentration is available to students from any discipline who feel their programs would benefit from taking 6 or 9 CH in this field.

## 10. Student Demand for Program

### a. Outline expected student demand and interest in the program.

Historically, approximately 10 students have earned the Option since inception (2003).

### b. What is the expected enrolment in the program?

We anticipate that there will be approximately 6 students annually who will be interested in the concentration.

### c. What is the maximum capacity, if applicable?

Defined as first-year enrolment capacity.

## 11. Community and Industry Need



Describe the current community and/or industry need for the program. Outline any consultation with community partners, industry partners, and other external stakeholders in the development of this program. If external feedback was not sought, comment on why. Append letters of support, as appropriate.

## 12. Internal Consultation

Outline the results of internal consultations, including, (i) faculty, staff, and students within the unit; (ii) relevant academic units in respect to use of courses and/or recognition of credit; (iii) the libraries to determine resource needs; (iv) the Office of the Registrar and Enrolment Services to determine system needs; and (v) other units in relation to resource needs, as appropriate. Append letters of support, as appropriate. See *SCCCC Consultation form* at <https://umanitoba.ca/governance/forms>.

This concentration is to replace the current Option in Disability Studies that was previously approved by Senate at the same time the MA and MSc in Disability Studies were approved. As students complete their degree in their home unit, there are no anticipated negative effects on other programs.

FGS has consulted with the Director of the Disability Studies program about converting the existing Option in Disability Studies into a concentration in order to increase its visibility.

## Section E: Resource Requirements

## 13. Projected Costs

For each section below, outline the resource requirements for the program, including consideration of any impact on other academic units providing coursework in support of the program. Units should consult with their Dean's /Director's Office, including the unit-level Financial/Business Manager, and the Financial Planning Office when addressing the below.

### a. Staffing Resources – New and Existing

Indicate the number of FTE *existing* and/or *new* academic and/or support staff positions required to develop, implement, and deliver the program. Identify the impact of any reallocation of existing staffing resources on other undergraduate and/or graduate programs offered by your unit and explain how these will be addressed.

N/A

### b. Capital and Operating Costs

Comment on how on-going delivery of the program will impact on the use of space (academic and non-academic), infrastructure, equipment, and IT resources, including student systems. Outline any new or incremental operating costs (direct and/or indirect), capital requirements (one-time and/or ongoing), requirements for space, or upgrades to facilities, including classrooms. If new or incremental costs are not anticipated, demonstrate that the course and/or program changes can be supported with existing resources.

N/A

### c. Library Resources

If the program requires new courses, comment on the adequacy of existing library resources.  
Append a letter of support from the Libraries.

N/A. The current courses and option already exist and are supported.

#### 14. Program Funding

Outline how the program will be funded and indicate whether new funds are required. If new funding is required, please contact the Vice-Provost (Academic Planning and Programs) for more information. If additional revenue will be required to support the program but the Faculty/College/School is not requesting any new funding, identify the revenue source(s) (e.g. tuition, laboratory fees, other fees, etc.) that will be used.

No new funds are requested.

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#### Section F: Appendices

As appropriate, please append the following:

- i) Course introduction/change forms.
- ii) *For undergraduate-level concentrations or minors*, SCCCC Program Modification Form
- iii) *For graduate-level concentrations*, revised supplemental regulations and BFARS, as appropriate.
- iv) Internal letters of support (See *SCCCC Consultation form* at <https://umanitoba.ca/governance/forms>), including a letter of support from the Libraries.
- v) External letters of support.

## Report of the Faculty Council of Graduate Studies on Course, Program, Supplementary Regulation and Regulation Changes

---

### Preamble

1. The Faculty of Graduate Studies (FGS) has responsibility for all matters relating to the submission of graduate course, program, supplementary regulation, and regulation changes. Recommendations for such are submitted by the Faculty Council of Graduate Studies for the approval of Senate.
2. The Faculty Council of Graduate Studies met on the above date to consider a proposal from the Dept. of Entomology.

### Observations

1. The **Dept. of Entomology** proposes supplementary regulation changes that would allow for committees at the M.Sc. or Ph.D. level to have two department members and a member from a different department **or** two department members and a UM adjunct. This will allow more flexibility in structuring committees so that they have the necessary expertise while keeping committees at a reasonable size, but still maintaining some diversity of opinion.

### Recommendations

**Faculty Council of Graduate Studies recommends THAT the program changes from the unit listed below be approved by Senate:**

### Dept. of Entomology

Respectfully submitted,

Dr. Kelley J. Main, Chair  
Faculty Council of Graduate Studies

/ak

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.



University of Manitoba | Faculty of Agricultural and Food Sciences

R. W. Currie  
Department of Entomology  
214 Animal Science/Entomology  
12 Dafoe Road  
Winnipeg, Manitoba  
Canada R3T 2N2  
T: 204 474-6020  
Rob.Currie@umanitoba.ca

19 April 2022

Dear Dr. Kirkland:

**Re: Modification of Supplemental Regulations for Entomology**

I am writing to submit a request for modification of our Departmental supplementary regulations as they pertain to the establishment of advisory committees at the M.Sc. and Ph.D. level.

The purpose of the requested change is to bring the Departmental regulations into closer alignment with changes in the Faculty of Graduate Studies regulations that allow for more flexible options in the formation of graduate student advisory committees. Our Departmental regulations for both the M.Sc. and Ph.D. currently state "The Advisory Committee is formed by the Advisor/Co-Advisor in consultation with the student and consists of an Advisor from the Department of Entomology, one additional member from the Department of Entomology, and one member from another department. Additional members with complementary expertise may be appointed to the committee. In some cases, the student may be co-supervised, in which case an additional departmental member must be appointed to the committee."

Our goal is to allow more flexibility in structuring committees so that they have the necessary expertise while keeping committees at a reasonable size, but still maintain some diversity of opinion. We want to allow for committees that either would have two department members and a member from a different Department **or** two department Members and a UM adjunct from a different institution (for example Agriculture Canada, University of Winnipeg, etc. who is a U of M adjunct whether a U of M appointed Adjunct in Entomology or a U of M appointed adjunct in another Department (some are Adjuncts in more than one Department).

To allow this, our proposed wording change is to add "...or adjunct from a different institution."

The motion to make the change was passed at our Department council on April 14<sup>th</sup>, 2022.

Sincerely,

Rob Currie Professor  
and Head  
Department of Entomology  
[Rob.Currie@UManitoba.ca](mailto:Rob.Currie@UManitoba.ca)  
(204) 474-6020

<https://umanitoba.ca/agricultural-food-sciences/entomology>

The advisor, co-advisor (if applicable) and student must discuss and complete the Faculty of Graduate Studies Advisor-Student Guidelines prior to the commencement of any research and no later than the submission of the first Progress Report for the student. If a student does not have an advisor/co-advisor, then the interim advisor will be required to complete the Advisor-Student Guidelines. The advisor/co-advisor and the student are required to approve the agreement. If the parties cannot agree on one or more component(s) of the Advisor Student Guidelines, the matter should be referred to the Department/Unit Head, Graduate Chair, or the Dean of the Faculty of Graduate Studies. A new Advisor-Student Guidelines is to be completed if there is a change in advisor/co-advisor or when a co-advisor is added mid-way through the student's program.

Should, during the student's program, the relationship between the student and advisor/co-advisor significantly deteriorate, the matter should be referred sequentially to the Department/Unit Graduate Chair, the Head of the department/unit, then to the Dean of the Faculty of Graduate Studies (or designate). It is the responsibility of the department/unit offering the program in which the student is studying to arrange an alternate advisor if this is appropriate and necessary. All students should consult department/unit supplementary regulations for specific details regarding advisor/co-advisor requirements.

**6.5 Advisory Committee**

**6.5.1 Conflict of Interest**

There are several circumstances that might lead to a real, perceived or potential Conflict of Interest (COI) in advisory and examining committees. A real COI could be present due to the existence of a (past or present) personal relationship that is romantic, sexual, marital, personal or familial. There is a potential for a perceived COI in cases of recent (within the last 5 years) collaboration among committee members, which may result in the perception of a lack of fairness or impartiality. These examples are not intended to be comprehensive, and are provided solely for illustration. The University of Manitoba [Conflict of Interest Policy](#) and [Conflict of Interest Procedures](#) as well as the [Conflict of Interest Between Evaluators and Students due to Close Personal Relationships](#) should also be consulted.

In addition to following the processes outlined in the above policies, COIs that exist within advisory and examining committees and proposed mitigation should be declared in writing to the Faculty of Graduate Studies to provide transparency to all relevant parties (including the student, committee members, unit leadership, and the Faculty of Graduate Studies). All reported conflicts will be reviewed by the Dean of the Faculty of Graduate Studies (or designate). If the conflict is deemed sufficiently significant and cannot be mitigated, a new committee may need to be struck.

**6.5.2 Thesis/Practicum Route**

Advisory committees are selected by the advisor/co-advisor in consultation with the student and should consist of individuals whose expertise is consistent with that necessary to provide additional advice and guidance to the student during their research program. The advisor/co-advisor is the Chair of the advisory committee.

The advisory committee must consist of a minimum of three (3) voting members (the advisor/co-advisor have a single vote), at least two (2) of whom must be members of the [Faculty of Graduate Studies](#).

All examiners must be deemed qualified by the Department/Unit Head and be willing to serve. **It is expected that advisory committee members will have a Master's degree or equivalent. Equivalency will be determined by the Dean of the Faculty of Graduate Studies or designate.**

Individuals who are not a member of the Faculty of Graduate Studies, and who do not hold a Master's degree or equivalent, but who possess specific and extensive expertise and experience, such as professionals, artists, Knowledge Keepers or

**Advisory Committee and Examination Committee:** The advisor/co-advisor is responsible for establishing an advisory committee for the M.Sc. student as soon as possible after the student first registers as a graduate student. There shall be at least two department members (including the advisor/co-advisor) and one member from a different department [or adjunct from a different institution](#) selected to serve on the committee, subject to approval by the Department Head or designate. Members of the advisory committee shall be members of the Faculty of Graduate Studies (FGS). The student's advisor/co-advisor shall act as the chair for the student's committee. It is the responsibility of the committee to approve the student's program of study and to exercise general supervision over the student's work until graduation. The advisor/co-advisor shall report on that progress to the Department and FGS. The

FGS Academic Guide Regulation 2022/23	Supplementary Regulation
<p>exceed eighteen (18) months after entry into the program before a permanent advisor is chosen.</p>	
<p><b>7.2.2 Student's Co-advisor</b></p> <p>In special circumstances, upon approval of the Head of the department/unit, an advisor and a maximum of one (1) co-advisor may advise a student. The co-advisor must:</p> <ul style="list-style-type: none"> <li>• be a member of the Faculty of Graduate Studies (see the <a href="#">FGS website</a> for details);</li> <li>• hold a Ph.D. or equivalent (see note below);</li> <li>• be active in research; and</li> <li>• have expertise in a discipline related to the student's program.</li> </ul> <p>Equivalency will be approved by the Dean of the Faculty of Graduate Studies and determined on a case-by-case basis and assessed by the potential co-advisor's demonstrated research record and current research activities. Note that M.D., D.M.D. and J.D. are undergraduate degrees and are not equivalent to a Ph.D.</p> <p>The co-advisor may be identified either at the beginning of, or midway through, a student's program. In all instances, the Faculty of Graduate Studies must be informed of, and approve, the co-advisor arrangement. If a co-advisor is added midway through the student's program, a new Advisor-Student Guidelines must be completed. When an advisor and co-advisor are assigned, together they fulfill the role of the advisor (that is, neither fulfills any other advisory or examining committee membership requirements for that student). One (1) advisor must be identified as the primary advisor. The advisor and co-advisor share a single vote. Both the advisor and co-advisor's signatures are required on all documents where the advisor's signature is required.</p>	
<p><b>7.2.3 Student's Advisor/Co-advisor</b></p> <p>A student who also holds an appointment at the University of Manitoba at the rank of Assistant Professor and above or Instructor 1 and above cannot have an advisor or co-advisor with an appointment in the same department/unit.</p> <p>The advisor, co-advisor (if applicable) and student must discuss and complete the Faculty of Graduate Studies Advisor-Student Guidelines prior to the commencement of any research and no later than the submission of the first Progress Report for the student. If a student does not have an advisor/co-advisor, the interim advisor will be required to complete the Advisor Student Guidelines. If the parties cannot agree on any component(s) of the Advisor Student Guidelines, the matter should be referred to the Department/Unit Graduate Chair, the Department/Unit Head, or the Dean of the Faculty of Graduate Studies. A new Advisor-Student Guidelines is to be completed if there is a change in advisor/co-advisor or when a co-advisor is added midway through the student's program.</p> <p>Should, during the student's program, the relationship between the student and advisor/co-advisor significantly deteriorate, the matter should be referred sequentially to the Department/Unit Graduate Chair, the Department/Unit Head, then to the Dean of the Faculty of Graduate Studies. It is the responsibility of the department/unit offering the program in which the student is studying to arrange an alternate advisor/co-advisor if this is appropriate and necessary.</p> <p>All students should consult department/unit supplementary regulations for specific details regarding advisor/co-advisor requirements.</p>	
<p><b>7.2.4 Advisory Committee</b></p> <p>The Department/Unit Head is responsible for recommending the advisory committee for each Ph.D. student. Advisory committees are selected by the advisor/co-advisor in consultation with the student and should consist of individuals whose expertise is</p>	<p>The Advisory Committee is formed by the Advisor/Co-Advisor in consultation with the student and consists of an Advisor from the Department of Entomology, one additional</p>

<p>consistent with that necessary to provide additional advice and guidance to the student during their program. The advisor/co-advisor is the Chair of the advisory committee</p> <p>The advisory committee must consist of a minimum of three (3) voting members (including the advisor/co-advisor as a single member sharing a single vote), all of whom must be <u>members of the Faculty of Graduate Studies</u>. It is expected that advisory committee members will have a Ph.D. degree or equivalent. Equivalency will be determined by the Dean of the Faculty of Graduate Studies or designate.</p> <p>In addition, individuals who are not a member of the Faculty of Graduate Studies, and who do not hold a Ph.D. degree or equivalent, but who possess specific and extensive expertise and experience, such as professionals, artists, Knowledge Keepers or Elders, may serve on the advisory committee as a full voting member. No more than one such knowledge expert may serve on any individual advisory committee and must be nominated by the Department/Unit Head or Graduate Chair with a justification of their role and be approved by the Dean of the Faculty of Graduate Studies or designate. Advisory committees may <u>alternatively</u> include one (1) non-voting invited member who has expertise in a related discipline but is not a member of the Faculty of Graduate Studies. Committees may include a Knowledge Expert or invited member, not both.</p> <p>Under no circumstances should graduate students, Post-Doctoral Fellows, and Research Assistants or Associates serve on graduate student advisory committees, regardless if they hold a rank of Adjunct Professor.</p> <p>The composition of, and any changes to, the advisory committee, including the advisor/co-advisor, must be approved by the Faculty of Graduate Studies on the "<u>Program of Study and Appointment of Advisory Committee</u>" form.</p> <p>Advisory committee meetings must be held at least annually and are not intended to take the place of meetings between the student and advisor/co-advisor which should occur with much greater frequency than the advisory committee meetings.</p>	<p>member from the Department of Entomology, and one member from another department <u>or adjunct from a different institution</u>. Additional members with complementary expertise may be appointed to the committee. In some cases the student may be co-supervised, in which case an additional departmental member must be appointed to the committee.</p>
<p><b>7.2.5 Conflict of Interest</b></p> <p>There are several circumstances that might lead to a real, perceived or potential Conflict of Interest (COI) in advisory and examining committees. A real COI could be present due to the existence of a (past or present) personal relationship that is romantic, sexual, marital, personal or familial. There is a potential for a perceived COI in cases of recent (within the last 5 years) collaboration among committee members, which may result in the perception of a lack of fairness or impartiality. These examples are not intended to be comprehensive, and are provided solely for illustration. The University of Manitoba <u>Conflict of Interest Policy and Conflict of Interest Procedures</u> as well as the <u>Conflict of Interest Between Evaluators and Students due to Close Personal Relationships</u> should also be consulted.</p> <p>In addition to following the processes outlined in the above policies, COIs that exist within advisory and examining committees and proposed mitigation should be declared in writing to the Faculty of Graduate Studies to provide transparency to all relevant parties (including the student, committee members, unit leadership, and the Faculty of Graduate Studies). All reported conflicts will be reviewed by the Dean of the Faculty of Graduate Studies (or designate). If the conflict is deemed sufficiently significant and cannot be mitigated, a new committee may need to be struck.</p>	
<p><b>7.3 Program of Study</b></p> <p>As soon as possible, but no later than 24 months after a student has commenced their program, the student's program of study should be registered with the Faculty of Graduate Studies on the "<u>Program of Study and Appointment of Advisory Committee</u>" form and should include:</p> <ul style="list-style-type: none"> <li>information about the minimum or expected time for completion of the degree;</li> </ul>	

## **Report of the Faculty Council of Graduate Studies on Course, Program, Supplementary Regulation and Regulation Changes**

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### **Preamble**

1. The Faculty of Graduate Studies (FGS) has responsibility for all matters relating to the submission of graduate course, program, supplementary regulation, and regulation changes. Recommendations for such are submitted by the Faculty Council of Graduate Studies for the approval of Senate.
2. The Faculty Council of Graduate Studies met on the above date to consider a proposal from the Dept. of Restorative Dentistry.

### **Observations**

1. The **Dept. of Restorative Dentistry** proposes supplementary regulation changes concerning the number of formal progress report meetings per year, the timing of required course, ANAT 7060 Advanced Human Macroscopic (Gross) Anatomy (6), and clarification around eligibility for advance credit.

### **Recommendations**

**Faculty Council of Graduate Studies recommends THAT the program changes from the unit listed below be approved by Senate:**

#### **Dept. of Restorative Dentistry**

Respectfully submitted,

Dr. Kelley J. Main, Chair  
Faculty Council of Graduate Studies

/ak

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.





Dr. Gerald Niznick College of Dentistry  
Graduate Programs, Dean's Office  
D113 – 780 Bannatyne Ave.  
Winnipeg, Manitoba  
Canada R3E 0W2  
T: 204-789-3571  
F: 204-272-3077

August 3, 2022

Dr. Kelley Main  
Dean (Acting), Faculty of Graduate Studies  
500 University Centre  
University of Manitoba, Winnipeg, MB

RE: Change to Supplementary Regulations – College of Dentistry – Restorative Dentistry

Dear Dr. Kelley Main,

We are submitting for approval, a couple of changes to the Restorative Dentistry Prosthodontic Supplementary Regulations. The first changes are to sections 2.3 Academic Performance, and 2.4 Performance in course work; and involve the number of formal progress meetings. The change we are requesting is to change the language to indicate that the Prosthodontic Program Committee will meet **at least once** per academic year, which is line with the FGS annual requirement for Progress Reports, and that additional meetings will occur if deemed necessary. This replaces the current requirement of twice annually. The second change is to help clarify the language around 6.3.1 corrected a few of the courses listed in the breakdown of coursework over the 36 months. As well as section 6.3.4 Advanced Credit some revisions to reduce confusion and reflect the changes that occurred regarding the national board exams.

A Word copy, with track changes, has been attached. Section 2.3, page 13 of 59, section 2.4, page 14 of 59, section 6.3.1 page 21&22 of 59, and 6.3.4 page 23 of 59 have the paragraphs to be revised.

The department council approved these changes on June 8th, 2022.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Igor J. Pesun'. The signature is fluid and cursive, written over a light blue horizontal line.

**Dr. Igor J. Pesun,**  
D.M.D., M.S., F.A.C.P., F.R.C.D.(C), F.I.C.D.(C), F.P.F.A.  
Associate Professor & Head Prosthodontics, Restorative Dentistry  
Director, Graduate Prosthodontic Program  
O: 204-789-3516  
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[umanitoba.ca/dentistry](http://umanitoba.ca/dentistry)

Student must produce a recorded/published thesis commensurate with degree being sought.	Master's <a href="#">GRAD 7000</a> Doctoral <a href="#">GRAD 8000</a>	<a href="#">GRAD 7000</a> <a href="#">GRAD 8000</a>
Student must successfully defend their thesis (where required), as determined by the assigned examining committee, in real-time.	Master's <a href="#">GRAD 7000</a> Doctoral <a href="#">GRAD 8000</a>	<a href="#">GRAD 7000</a> <a href="#">GRAD 8000</a>
Student in doctoral program must complete a candidacy exam (or equivalent) as required by their program and determined by the assigned examining committee.	<a href="#">GRAD 8010</a>	<a href="#">GRAD 8010</a>
Student must demonstrate knowledge of the University of Manitoba's policy on academic integrity, plagiarism, and cheating.	<a href="#">GRAD 7500</a>	<a href="#">GRAD 7500</a>
Student must conduct research in a safe and ethical manner, referring to their respective ethics board and supervisor(s) to ensure respect is maintained for: human dignity and/or animal welfare; vulnerable persons; informed consent; justice and diversity; confidentiality and privacy; beneficence and non-maleficence in the work that they conduct.	<a href="#">GRAD 7300</a>	<a href="#">GRAD 7300</a>
Student must complete coursework as required by their program.		

Individual unit BFARs available on the [Graduate Studies website](#).

**2.3 Academic Performance**

Student progress shall be reported **at least** annually, (but not to exceed once every four (4) months), to the Faculty of Graduate Studies on the "Progress Report" form. Performance that remains "Satisfactory" throughout the year does not need to be reported to the Faculty of Graduate Studies more than annually, but should remain on file in the department/unit.

Students who fail to maintain satisfactory performance may be Required to Withdraw on the recommendation of the Graduate Chair and/or Department/Unit Head to the Dean of the Faculty of Graduate Studies on the "Progress Report" form. Students who receive two (2) consecutive "in need of improvement" or one (1) "unsatisfactory" rating will normally be Required to Withdraw from the Faculty of Graduate Studies and the notation on the student record will be "Required to Withdraw".

Note: Progress Reports may be submitted more than annually to the Prosthodontic Program Committee which is made up of Clinical Teaching Faculty and Ad Hoc members from other departments involved in teaching in the Prosthodontic Program. The Prosthodontic Program Committee will meet at least ~~twice~~ once annually per academic year to discuss student progress and related matters. Additional meetings may be scheduled if deemed necessary.

The Prosthodontic Program Director and the student will meet ~~formally twice~~ at least once per academic year to review performance and complete a Progress Report. Informal meetings may be scheduled if deemed necessary. These reviews are intended to ensure that performance concerns are dealt with appropriately, and that both the program and the student are provided with all supports available to assist them. The Progress Reports will be forwarded to the Faculty of Graduate Studies and any student who fails to meet the minimum standards may be required to

	<p>withdraw from the program or spend additional time in the program.</p>
<p><b>2.4 Performance in Coursework</b></p> <p>A minimum degree grade point average (DGPA) of 3.0 with no grade below C+ must be maintained to continue in the Faculty of Graduate Studies. Departments/Units may specify, in their supplementary regulations, standards that are higher than those of the Faculty of Graduate Studies. Students who fail to maintain the specified grades or DGPA will be Required to Withdraw unless a department/unit recommends remedial action (subject to approval by the Dean of the Faculty of Graduate Studies).</p> <p>A student may be permitted to remove deficiencies in grades by repeating the course or replacing it with an equivalent substitute course as determined by the student's department/unit. In the event that a substitute course is used for remediation, the substituted course must be at the same or higher level as the failed course (e.g., at the graduate level for a failed graduate-level course). Each failed course may be repeated or replaced only once, to a maximum of six (6) credit hours of remediated coursework. If a course is repeated or replaced, the higher grade obtained will be used in the determination of the degree grade point average. Students receiving a grade of "C" or less in more than six (6) credit hours of coursework are normally Required to Withdraw, unless otherwise stated in the department/unit's supplementary regulations. A student may also be permitted the opportunity to improve a low DGPA as determined by the Graduate Chair of the student's department/unit through the registration and completion of additional course(s).</p> <p>Students are normally expected to complete remedial action by the end of the subsequent term.</p> <p>Graduate students are not permitted to repeat a previously passed course, unless the department/unit recommends that course(s) be re-taken if they have lapsed or expired (refer to <a href="#">Master's Degree General Regulations</a> and <a href="#">Doctor of Philosophy General Regulations</a>).</p> <p><b>Note:</b></p> <p>In exceptional circumstances, the department/unit may appeal to the Faculty of Graduate Studies for approval of remedial recommendation(s) falling outside those prescribed above.</p> <p>Supplemental exams are not permitted to students in the Master's or Ph.D. program, unless otherwise stated in the department/unit's supplementary regulations.</p> <p>A summary of all actions taken administratively are to be reported to the Faculty of Graduate Studies Executive Committee.</p>	<p>Failure to complete any one of the required courses within the prescribed time period may result in the student being awarded a failure in the course.</p> <p>The resident will receive feedback on their progress in their coursework <del>twice at least once</del> <a href="#">annually per academic year</a> at the time of the Progress Report. <a href="#">Additional meeting may be scheduled as deemed necessary to monitor progress.</a> Continual poor performance in coursework will result in a "in need of improvement" notation in the Progress Report. Failure to improve may result in the resident being required to withdraw from the program or, if deemed appropriate by the Prosthodontic Program Director, require remediation as outlined in the Progress Report. This might require additional time spent in the program.</p>
<p><b>2.5 Mandatory Academic Integrity Course</b></p> <p>All students, including those in a Pre-Master's program, are required to register for and complete <a href="#">GRAD 7500 Academic Integrity Tutorial</a> (0 credit hours) within their first term of initial registration. Université de Saint-Boniface graduate students may choose to complete <a href="#">GRAD 7500</a> or the French-language equivalent, <a href="#">GRAD 7501</a>.</p> <p>Failure to complete this course will result in a registration hold and a grade of "F/NP" being assigned to the course which may lead to being "Required to Withdraw from the graduate program."</p> <p><b>Notes:</b></p> <p>Students who have successfully completed GRAD 7500 in a previous program are not normally required to repeat the course upon entry to their new program so long as no more than one (1) term separates one program from another.</p>	

<b>FGS Academic Guide Regulation 2022/23</b>	<b>Supplementary Regulation</b>
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<ul style="list-style-type: none"> <li>• Project;</li> <li>• Major research paper.</li> </ul>	
<p><b>6.2 Admission</b></p> <p>Students who are eligible to be considered for direct admission to a program of study leading to the Master's degree include:</p> <ul style="list-style-type: none"> <li>• Graduates of four (4)-year undergraduate degree programs (or equivalent as deemed by the Faculty of Graduate Studies) from: <ul style="list-style-type: none"> <li>○ Canadian institutions empowered by law to grant degrees; or</li> <li>○ Colleges and universities outside Canada which are officially recognized by the Faculty of Graduate Studies.</li> </ul> </li> <li>• Graduates from first-cycle Bologna compliant degrees.</li> <li>• Students who have completed a Pre-Master's program from: <ul style="list-style-type: none"> <li>○ The University of Manitoba (see <a href="#">General Regulations - Pre-Master's</a>); or</li> <li>○ Canadian institutions empowered by law to grant degrees; or</li> <li>○ Colleges and universities outside Canada which are officially recognized by The Faculty of Graduate Studies.</li> </ul> </li> </ul> <p>All students applying for a Master's degree program must have attained a minimum GPA of 3.0 (or equivalent) in the last two (2) years of full-time university study (60 credit hours). This includes those applying for direct admission and those entering from a Pre-Master's program. Students who meet the minimum requirements for admission to the Faculty of Graduate Studies are not guaranteed admission.</p> <p><b>Note:</b> This is the minimum requirement of the Faculty of Graduate Studies and departments/units may have higher standards and additional criteria.</p>	<p>Prospective students must hold a DMD or DDS from a minimum 4 year undergraduate Dental School. A DMD or DDS that is only 3 years in length is acceptable if the undergraduate Dental School is accredited in Canada.</p>
<p><b>6.3 Program Requirements</b></p> <p>In general, students must complete one of the programs of study described below for the Master's degree. However, the program of study is determined by the department/unit and may follow the department/unit's supplementary regulations. . Some programs are subject to an external accrediting body. In such programs, the credit hours and course requirements shall reflect the requirements of the department/unit's external accrediting body. Students should refer to department/unit supplementary regulations.</p> <p>Any single course cannot be used for credit toward more than one degree.</p>	
<p><b>6.3.1 Thesis/Practicum Route</b></p> <p>A minimum of twelve (12) credit hours of coursework, unless otherwise stated in the department/unit's supplementary regulations, plus a thesis or practicum is required. The minimum must include at least six (6) credit hours at the 7000-level or above, with the balance of the coursework at the 3000-level or above. A maximum of twenty-four (24) credit hours of coursework is allowed unless the department/unit's supplementary regulations indicate otherwise. The student must complete the thesis/practicum at The University of Manitoba.</p>	<p><b>The program requires a total of 99 credit hours (CH) of coursework over 36 months.</b></p> <p><u>Year 1</u>  GRAD 7000 Masters Thesis – 0 CH  GRAD 7020 Masters Re-Registration – 0 CH  GRAD 7500 Academic Integrity – 0 CH  GRAD 7300 Research Integrity – 0 CH  RSTD 7010 Dental Laboratory Technology – 4 CH  RSTD 7016 Clinical Practice in Prosthodontics 1 – 8 CH  RSTD 7116 Clinical Practice in Prosthodontics 2 – 8 CH  CHSC 6810 Biostatistics for Clinicians – 3 CH  <a href="#">ANAT 7060 Advanced Human Macroscopic (Gross) Anatomy – 6 CH</a></p>

Year 1 or 2 (Courses Offered Bi-Yearly taken in Year 1 or Year 2)

[ANAT 7060 Advanced Human Macroscopic \(Gross\) Anatomy – 6 CH](#)  
 DDSS 7030 Advanced Oral Radiology – 1 CH  
 DDSS 7130 Occlusion – 3 CH  
 DDSS 7230 Advanced Oral Pathology – 6 CH  
 DDSS 7300 Dental Implantology – 3 CH  
 ORLB 7090 Pharmacology and Therapeutics – 3 CH  
 RSTD 7100 Dental Materials – 6 CH  
 RSTD 7014 Classic Fixed Prosthodontic Literature Review – 1 CH  
 RSTD 7114 Classic Removable Partial Denture Prosthodontic Literature Review – 1 CH  
 RSTD 7024 Classic Complete Denture Prosthodontic Literature Review – 1 CH  
 RSTD 7124 Classic Implant Prosthodontic Literature Review – 1 CH

Year 1 or 2 or 3 (Courses offered once every 3 years taken in Year 1 or 2 or 3)

RSTD 7012 Advanced Prosthodontic Seminars 1- TMD, Occlusion, Articulators – 1 CH  
 RSTD 7112 Advanced Prosthodontic Seminar 2 – Complete Dentures, Maxillofacial Prosthodontics – 1 CH  
 RSTD 7022 Advanced Prosthodontic Seminars 3 – Removable Partial Dentures, Dental Materials – 1 CH  
 RSTD 7122 Advanced Prosthodontic Seminars 4 – Conventional Fixed Prosthodontics– 1 CH  
 RSTD 7032 Advanced Prosthodontic Seminars 5 – Implant Prosthodontics– 1 CH  
 RSTD 7132 Advanced Prosthodontic Seminars 6 – Practice Management, Ethics, and Sleep Medicine– 1 CH  
 RSTD 7018 Current Prosthodontic Literature Review 1 – 1 CH  
 RSTD 7118 Current Prosthodontic Literature Review 2 – 1 CH  
 RSTD 7028 Current Prosthodontic Literature Review 3 – 1 CH  
 RSTD 7128 Current Prosthodontic Literature Review 4 – 1 CH  
 RSTD 7038 Current Prosthodontic Literature Review 5 – 1 CH  
 RSTD 7138 Current Prosthodontic Literature Review 6 – 1 CH

Year 2

RSTD 7026 Clinical Practice in Prosthodontics 3 – 8 CH  
 RSTD 7126 Clinical Practice in Prosthodontics 4 – 8 CH

Year 3

FGS Academic Guide Regulation 2022/23	Supplementary Regulation
	<p>RSTD 7036 Clinical Practice in Prosthodontics 5 – 8 CH  RSTD 7136 Clinical Practice in Prosthodontics 6 – 8 CH</p> <p>This program requires the completion of a Thesis that has been submitted for publication.</p>
<p><b>6.3.2 Course-based, Major Research Paper, Project or Comprehensive Examination Route</b></p> <p>A minimum of twenty-four (24) credit hours of coursework is required. If the student is in the comprehensive examination route, a comprehensive examination(s) is required. The minimum must include at least eighteen (18) credit hours at the 7000-level or above with the balance of the coursework at the 3000-level or above. A maximum of forty-eight (48) credit hours of coursework is allowed unless a department/unit's supplementary regulations indicate otherwise. Refer to unit supplementary regulations concerning specific regulations on coursework, major research paper, project and/or comprehensive examination requirements.</p>	
<p><b>6.3.3 Language Requirements</b></p> <p>Some department/units specify an additional language requirement for the Master's degree. Students should check department/unit supplementary regulations regarding this requirement.</p>	
<p><b>6.3.4 Advance Credit</b></p> <p>Advance credit for courses completed prior to admission to a Master's program will be considered on a case-by-case basis. The student's department/unit must make a request to the Faculty of Graduate Studies by completing the "<a href="#">Recommendation for Advance Credit-Transfer of Courses</a>" form.</p> <ul style="list-style-type: none"> <li>• Application for advance credit must be made within the first year of the program (see <a href="#">Lapse or Expiration of Credit of Courses</a>).</li> <li>• No more than 50% of the required coursework for the program can be achieved using advance credit.</li> <li>• A course may not be used for credit toward more than one degree</li> <li>• The student must register at The University of Manitoba for at least two (2) terms within a single academic year and must also complete all other program requirements at The University of Manitoba (or in the case of a Joint Master's Program student, at The University of Winnipeg).</li> <li>•</li> <li>• A Pre-Master's student may only transfer a maximum of 3 credit hours at the 7000 level taken as occasional into a prospective Master's program of study.</li> </ul> <p>Regardless of the number of courses approved for which advance credit is granted, all students are required to pay all applicable program fees (i.e., program fees will not be pro-rated according to advance credit granted).</p>	<p>The Prosthodontic Program does not give advanced credit <a href="#">for clinical courses</a>.</p> <p>Students holding a Master's or Ph.D. degree may apply for advanced credit in certain courses following Faculty of Graduate Studies procedures.</p> <p>No advanced credit is available for clinical courses. In circumstances where the student is <a href="#">not transferring-seeking credit</a> from a program <b>NOT</b> recognized as an Accredited Prosthodontic Program in Canada or the United States, the student is responsible for and must ensure that any program modifications they apply for, and are granted by the University of Manitoba, do not conflict with any subsequent application on their part to sit <a href="#">the National Specialty Certification Board's examinations-National Dental Specialty Examination which are administered by-OR</a> the Royal College of Dentists of Canada <a href="#">Fellowship Exam</a>.</p>
<p><b>6.3.5 Transfer Credit</b></p> <p>Courses within a program of study may be taken elsewhere and transferred for credit at The University of Manitoba. All such courses:</p> <ul style="list-style-type: none"> <li>• must be approved for transfer to the program of study by the department/unit and the Faculty of Graduate Studies before the student may register for them;</li> </ul>	<p>Courses or parts of courses taken at institutions outside the Province of Manitoba and not directly affiliated with the University of Manitoba must receive prior approval from the Department, the Prosthodontics Program, and from the Registrar of the University of Manitoba.</p>

October 26, 2022

Ms. Shannon Coyston, Academic Specialist  
Office of the University Secretary  
314C Administration Building

**Re: Application for Approval under Subsection 181 of the Regulated Health Professions Act –  
Dr. Juliana Romero-Diaz**

Dear Colleagues:

The Senate Committee on Medical Qualifications met on October 25, 2022 to consider the application from the Department of Internal Medicine, Max Rady College of Medicine, Rady Faculty of Health Sciences, to grant Dr. Juliana Romero-Diaz a certificate under the academic seal of the University. Dr. Romero-Diaz's Curriculum Vitae and letters of support are enclosed.

Dr. Romero-Diaz received her medical degree from the University of Puebla (Mexico) in 1998, trained in Internal Medicine (completed in 2002) and Rheumatology (completed in 2004) at the Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran in Mexico and obtained her Master's degree in Medical Sciences from the Universidad Autonoma de Mexico. She completed her postdoctoral training at Northwestern University Feinberg School of Medicine in Chicago (2011). Since 2011 she has as an Assistant Professor of Rheumatology at Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran in Mexico City, Mexico.

Dr. Romero-Diaz runs a large rheumatology clinical program, responsible for more than 1000 patients with a variety of diagnoses. She has been an active participant in local and international clinical research and clinical trials with a specific focus on systemic lupus erythematosus. Letters of support from international collaborators speak to her clinical skills and her contributions to international clinical research activities.

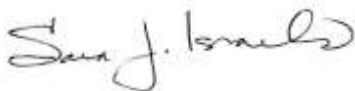
Dr. Romero-Diaz will be recruited as an academic clinician in the Section of Rheumatology at the rank of Associate Professor. Her clinical practice will involve 5-6 half-day clinics per week and 8-10 weeks per year of on-call and consult service. She will contribute 20% of her time to clinical research and 20% of her time to teaching. She will fill both academic and clinical needs in patient care, clinical supervision of postgraduate trainees, student teaching and clinical trial participation.

Having reviewed her application and letters of support, the Senate Committee on Medical Qualifications supports this application for the use of Subsection 181 of the Registered Health Professions Act pertaining to licensure for academic faculty. The Head of the Department of Internal Medicine, and the Senate Committee on Medical Qualifications agree that Dr. Romero-Diaz's

academic and clinical expertise will be highly beneficial in the Section of Rheumatology where she will be appointed with a GFT contract.

The Senate Committee on Medical Qualifications would appreciate your support for this application to grant Dr. Romero-Diaz a certificate under the academic seal of the University to the College of Physicians and Surgeons of Manitoba.

Sincerely,



Sara J. Israels, MD FRCPC  
Vice-Dean, Academic Affairs, Rady Faculty of Health Sciences  
Chair, Senate Committee on Medical Qualifications

cc: Dr. Eberhard Renner, Head, Department of Internal Medicine  
Dr. Peter Nickerson, Dean, Max Rady College of Medicine, Vice Provost, Rady Faculty of Health Sciences  
Dr. Anna Ziomek, Registrar, College of Physicians & Surgeons of Manitoba

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.





Dr Sara Israels  
Vice Dean, Academic Affairs  
Office of Academic Affairs, Rady Faculty of Health Sciences  
S204 Medical Services Building  
750 Bannatyne Avenue, Winnipeg MB R3E 0W2

August 5, 2022

**Re: Recruitment of Dr. Juanita Romero Díaz**

Dear Dr Israel:

This correspondence serves as a formal request to grant University certification for Dr Juanita Romero Díaz as per section 181 of *The Regulated Health Professional Act*. The Department of Internal Medicine has engaged with Dr Juanita Romero Díaz in regards to her recruitment to the Section of Rheumatology, Department of Internal Medicine, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba, Shared Health, Internal Medicine Program.

It is important to note that the Department completed a recruitment process utilizing both UM Careers, Shared Health recruitment sites and a number of journals. The position was widely advertised nationally and internationally and we did not receive any Canadian applicants. A total of four international applications were received. The Department short listed two to be interviewed and Dr Romero Díaz was unanimously selected as the successful candidate for the position.

Dr Romero Díaz is being recruited as a Clinician Teacher geographical full-time (GFT) appointment. The intent is to seek an academic appointment at the rank of Associate Professor for Dr Romero Díaz. Her clinical practice will involve 5-6 half day clinics per week and 8-10 weeks per year of on-call and consult service. Dr Romero Díaz will contribute 20% of her time to research activities and collaboration in research projects as well as 20% of her time to educational activities.

Attached to this correspondence are the following required documents:

- Confirmation the applicant meets the English language fluency criteria set by Council;
- Confirmation the applicant is or will be legally entitled to work or study in Manitoba engaging in professional practice; and
- Description of the applicant's current and proposed professional practice;
- Confirmation of medical degree from a medical school recognized by the College of Physicians and Surgeons of Manitoba
- Confirmation of University-based prelicensure training completed in the area of current registration equivalent to the College of Family Physicians of Canada or Royal College of Physicians and Surgeons of Canada
- Documentation describing in detail clinical training experience including number and length of rotations, type of responsibility, level of supervision, form of assessment and pass/fail status
- Confirmation that the applicant is not currently under erasure or suspension

- 3 references from colleagues who are currently practicing and who have direct knowledge of the candidate's practice during the last five years.

Should further information be required please do not hesitate to reach out to Hana Forbes, Managing Director Department of Internal Medicine email: [hforbes@hsc.mb.ca](mailto:hforbes@hsc.mb.ca)

Sincerely,



Eberhard L. Renner MD FRCPC FAASLD  
Professor and Head  
Department of Internal Medicine  
Max Rady College of Medicine  
University of Manitoba  
Provincial Specialty Lead – Internal Medicine  
Shared Health Manitoba

CC:

H. Forbes  
C. Peschken  
J. Veinot  
C. Beaudoin

June 17, 2022

To: Hana Forbes, Managing Director, Department of Internal Medicine, Max Rady College of Medicine

Re: Dr. Juanita Romero-Diaz

Dear Ms. Forbes,

Thank you for your letter of June 14, 2022 requesting a letter of reference for Dr. Juanita Romero-Diaz who has applied for an academic position in rheumatology at the University of Manitoba.

It is a great pleasure to support Dr. Romero-Diaz's application for this position. I have known Juanita for a number of years as we are both members of an international research group, the Systemic Lupus International Collaborating Clinics (SLICC). This research network has been in place for 30 years and currently consists of 45 members distributed across 16 countries. One of the major initiatives of SLICC has been the establishment of the largest disease inception cohort of SLE patients in the world which has been a rich source of data for several landmark publications related to several aspects of SLE. These have included studies on atherosclerosis, neuropsychiatric disease, lupus nephritis, malignancy, health economics, and frailty amongst others. The SLICC site with the largest recruitment to the inception core was Mexico City due in large part to Juanita's efforts both before and following her appointment as head of the lupus service at that center. Undoubtedly, much of the academic success of the inception cohort is directly attributable to her efforts. She has been a full member of SLICC for a number of years.

As I was the project lead for three of the initiatives within the SLICC inception cohort (neuropsychiatric disease, lupus nephritis and frailty) I can speak directly to the quality of the data provided by Juanita and her team. This continued over the 20 years of data collection and in large part was achieved without much funding support. This speaks to Juanita's commitment to clinical research and her ability and determination to deliver over the long haul.

She was a frequent attender at SLICC meetings and although a quiet personality she provided helpful insights during important discussions. She was always collegial and got along very well with all other SLICC members. Her administrative skills were of the highest caliber given the coordination of a research team at her site to provide data for the inception cohort.

I have no hesitation in recommending Juanita to your department and feel that she will be an excellent team player and further enhance the significant academic achievements of the section of rheumatology.

I trust that these comments will be helpful to you and please do not hesitate to contact me directly if you need any additional information.

Yours Sincerely.



John Hanly, MD, FRCP(C)  
Professor of Medicine and Pathology  
Research Director, Division of Rheumatology  
Division of Rheumatology, Department of Medicine  
Queen Elizabeth II Health Sciences Center and Dalhousie University  
Halifax, Nova Scotia, Canada

JH/jb

## Christine Peschken

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**From:** Hanly, John <John.Hanly@nshealth.ca>  
**Sent:** Monday, April 25, 2022 3:22 PM  
**To:** Christine Peschken  
**Subject:** RE: Reference for Dr Romero-Diaz

**Caution:** This message was sent from outside the University of Manitoba.

Hi Christine,

My only interaction with Juanita has been through SLICC --- ie her support for data collection in the SLICC inception cohort and at SLICC meetings. Initially she worked under Jorge's guidance but took on full responsibility for patient recruitment and followup after Jorge relocated to Toronto. As a research collaborator, Juanita has been exceptional. Her site has been the biggest recruiter to the Inception cohort and the followup has also been excellent.

At SLICC meetings she is usually one of the quieter members, but this is, in part, I suspect due to the fact that English is not her first language and it can also be a rather intimidating environment. I suspect that in a more serene and supportive environment she would have a lot to contribute.

She did an MSc in epi with Roz Ramsey-Goldman in Chicago but I cannot speak to her ability as an independent investigator.

Personally, I have always found her a delight to meet and interact with.

From the description of the position that you're trying to fill, I think that she would be a good fit.

Hope this helps,  
John

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**From:** Christine Peschken <Christine.Peschken@umanitoba.ca>  
**Sent:** Monday, April 25, 2022 3:48 PM  
**To:** Hanly, John <John.Hanly@nshealth.ca>  
**Subject:** Reference for Dr Romero-Diaz

Hi John

Juanita Romero-Diaz has applied for a position at the University of Manitoba, and has listed you as a reference. The position is as a full-time university based clinician teacher, with protected time for research but as a collaborator, not someone expected to run a research program/ write grants, etc..

We have already interviewed her extensively, and I don't personally have any doubts or questions, but would value your thoughts.

Regards, Christine

Christine A. Peschken MD MSc FRCPC  
Professor of Medicine and Community Health Sciences  
Rady Faculty of Health Sciences  
Head, Section of Rheumatology  
University of Manitoba

Chair, Canadian Network for Improved Outcomes in Systematic Lupus Erythematosus

Phone 204-787-1851

Fax 204-787-2475



**Rosalind Ramsey-Goldman, MD DrPH**  
Gallagher Research Professor of Medicine  
Division of Rheumatology

633 N. St Clair, 18<sup>th</sup> Floor  
Chicago, IL 60611  
Tel: (312) 503-8003  
Fax: (312) 503-4939  
Email: rgramsey@northwestern.edu

May 26, 2022

Christine A. Peschken MD MSc FRCPC  
Professor of Medicine and Community Health Sciences  
Rady Faculty of Health Sciences  
Head, Section of Rheumatology  
University of Manitoba  
Chair, Canadian Network for Improved Outcomes in Systemic Lupus Erythematosus

Re: Letter of Recommendation for Dr. Juanita Romero-Diaz, MD, M.Sc.

Dear Dr. Peschken:

I am delighted to write a letter of recommendation on behalf of Dr. Juanita Romero-Diaz as part of the consideration for a faculty appointment at the University of Manitoba. I have known Dr. Romero-Diaz for more than 10 years as a member of the Systemic Lupus International Collaborating Clinics but also during a one-year position as a visiting scholar at Northwestern University. Therefore, based on this first-hand knowledge of her work, I am confident that I can summarize her outstanding qualities that would benefit your section and institution.

During her time at Northwestern, she updated all research files, participated in research meetings providing valuable insights, and co-authored several papers, both review and original research. Due to US rules regarding licensing for patient care, she was not allowed to participate in clinic or see research patients. It was clear to me she could perform those activities, particularly with respect to research, but my institution would not allow it. Therefore, although I did not observe patient care, based on our discussions and her productivity with research data, I am confident she has the requisite skills. In fact, she sees over 50 SLE patients per day in Mexico and I am sure she provides excellent care.

In reviewing her CV, she has vast clinical trials experience, has mentored junior faculty, directs a lupus clinic at her home institution, and is an active participant in SLICC activities by contributing to discussion and manuscripts.

Her integrity, professionalism, ethics, respect for privacy and confidentiality are without question. If circumstances were different here and she did not have to redo her training I would have offered her a position at Northwestern.

On a personal note, I have met with her when able and always enjoy her company. She will be an invaluable asset to your section.

Please let me know if you need any additional information.

Sincerely yours,

A handwritten signature in black ink that reads "Rosalind Ramsey-Goldman". The signature is written in a cursive, flowing style.

Rosalind Ramsey-Goldman, MD, DrPH  
Gallagher Research Professor in Rheumatology



Toronto, ON. November 22, 2021

Chair, Rheumatology  
Department of Internal Medicine  
Room GC425, Health Sciences Centre  
820 Sherbrook Street  
Winnipeg, MB  
Canada R3A 1R9

Dear Sir,

I am delighted to write in very strong support of **Dr. Juanita Romero-Diaz** who is applying for Full-time Staff position in the Section of Rheumatology, Department of Internal Medicine, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba. I have known Dr. Romero-Diaz for the past 24 years, back when she was a medical student, and have watched with approval and admiration her development into a first-class clinician with training in Internal Medicine, Rheumatology, and Clinical Epidemiology.

I received my medical degree from the University of Guadalajara (Mexico), and trained in Internal Medicine and Rheumatology at the Instituto Nacional de la Nutricion in Mexico. I obtained a Master of Science Degree from Harvard School of Public Health and did post-doctoral training at the Brigham and Women's Hospital in Boston. From 1987 to 2011, I was a staff Internist and Rheumatologist at the Instituto Nacional de la Nutricion, where I then became the Head of the Department of Immunology and Rheumatology (2002-2011). I moved to Toronto in June 2011 to take on the responsibilities as the Rheumatology Division Head for University Health Network/Mount Sinai Hospital (UHN/MSH). My main area of research is Systemic Lupus Erythematosus. I am a member of the Systemic Lupus Erythematosus International Collaborating Clinics (SLICC) since 1991 and of the Medical-Scientific Advisory Council of the Lupus Foundation of America since 1997.

I met Dr. Romero-Diaz during her last year of undergraduate medical school when she decided to spend one year of Social Service in Clinical Research in the Department of Immunology and Rheumatology at the Instituto Nacional de la Nutricion. Dr. Romero-Diaz was a highly motivated and intelligent young physician with a deep interest in research. Her performance during the year of Social Service was excellent and she stayed a few months after working in research. She was accepted as Internal Medicine Resident during four years and then as Rheumatology Fellow for two years at the Instituto Nacional de la Nutricion Salvador Zubiran in Mexico City. During this time, she started a Master in Clinical Epidemiology Program at the Universidad Nacional Autonoma de Mexico. In 2004, at the end of her training, considering her capacity, interest, and potential, she was recruited as a Staff

**399 Bathurst St., Toronto Western Hospital, 1E – 414, Toronto, Ontario M5T 2S8**  
**tel: 416-603-5664 email: [Jorge.Sanchez-Guerrero@uhn.ca](mailto:Jorge.Sanchez-Guerrero@uhn.ca)**

**Jorge Sanchez-Guerrero, MD, MS**  
**Head, Division of Rheumatology, UHN/SHS**  
**Professor of Medicine, UofT**

Rheumatologist in the Department. A few years after, she did a fellowship at Northwestern University with Dr. Rosalind Ramsey-Goldman to expand her knowledge in Systemic Lupus Erythematosus (SLE). Recently she finished the PhD program in Epidemiology at the Universidad Nacional Autonoma de Mexico and is waiting for the graduation.

The Department of Immunology and Rheumatology at the Instituto Nacional de Ciencias Medicas y Nutricion is a referral Centre for rheumatic diseases in Mexico. Currently, over 7000 patients are followed regularly. Eighty-five percent of them have inflammatory arthritis or other systemic autoimmune diseases. Specifically, over 2000 are diagnosed with systemic lupus erythematosus. Dr. Romero-Diaz leads the clinic as well as research work in SLE, but she also sees patients with rheumatoid arthritis, other inflammatory arthritis, systemic vasculitis, scleroderma, inflammatory myopathies, etc. In addition, she keeps her skills in Internal Medicine as one month per year, she is in charge of the Rheumatology ward where 12 – 15 patients are hospitalized due to their rheumatic diseases or related health complications. In addition, during the COVID Pandemic she was called to support the internal Medicine ward due to the hospital workload.

In research, she follows a large inception cohort of patients with lupus. In addition to her own field of research, has experience collaborating in multicenter international studies and major clinical trials. She has published over 75 papers in peer-reviewed journals, and is an active member of the Systemic Lupus Erythematosus International Collaborating Clinics (SLICC), the most influential research consortium in SLE.

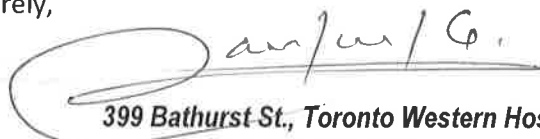
Since 2004, she participates actively in the educational activities at undergraduate and graduate level. She has mentored trainees in Internal Medicine, Rheumatology and Master program.

During my professional career, I have been asked to write many letters of recommendation. The top three letters have been for two successful staff applicants to the Divisions of Rheumatology at the Mayo Clinic in Rochester, MN, and the Beth Israel Deaconess Center in Boston, MA. Please accept this letter as the strongest of the three.

In summary, Dr. Romero-Diaz is an outstanding and dedicated physician who has much to offer in Rheumatology, Clinical Research and Education. I am sure that she will continue to excel and her recruitment will be very valuable to the University of Manitoba.

Please do not hesitate to contact me if you have any questions.

Sincerely,



**399 Bathurst St., Toronto Western Hospital, 1E – 414, Toronto, Ontario M5T 2S8**  
**tel: 416-603-5664 email: Jorge.Sanchez-Guerrero@uhn.ca**



Mexico City, Mexico. July 04, 2022

**Dr. Eberhard L. Renner**  
Professor and Head  
Max Rady College of Medicine  
University of Manitoba  
Provincial Specialty Lead, Internal Medicine  
Shared Health Manitoba

**Dr. Sarah Israels**  
Vice-Dean, Academic Affairs  
Rady Faculty of Health Sciences  
University of Manitoba

Dear Dr. Renner,

I would like to express my full support to the application of Dr. Juanita Romero-Diaz for the full-time Staff position in the Section of Rheumatology, Department of Internal Medicine, Max Rady College of Medicine, Rady Faculty of Medical Sciences, University of Manitoba.

Dr. Romero-Diaz joined the Department of Immunology and Rheumatology of the Instituto Nacional de Ciencias Médicas y Nutrición S.Z. in March 2004 after completing her Internal Medicine and Rheumatology residence training. Throughout her stay, I have witnessed her performance as a clinician, researcher, and teacher, being consistently outstanding in all of them.

Particularly, Dr. Romero-Diaz has shown strong motivation and sense of responsibility toward all the different activities in which she is involved. She is proactive in her clinical activities, both in Internal Medicine and in Rheumatology, and she oversees the Rheumatology ward one month per year, where 12 patients, on average, are hospitalized due to health complications, complex cases requiring a multidisciplinary approach, or severe disease flares. In addition, she participates actively in the ambulatory care of rheumatology patients, dedicating two full days per week to the clinic, where she is in charge of, at least, 600 patients, and collaborates with different subspecialties as required.

Furthermore, as clinician, Dr. Romero-Diaz is a dedicated physician with remarkable skill regarding the patient-physician relationship.

Please do not hesitate to contact me through email if you have further questions.

Sincerely,

**Dr. Judith González-Sánchez**  
Head of the Outpatient Clinic  
Department of Ambulatory Care  
Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán  
Email: [judith.gonzalezs@incmnsz.mx](mailto:judith.gonzalezs@incmnsz.mx)  
Phone: +52 55 5487 0900 Ext. 5436



## James George Blanchard

James George Blanchard was born on June 27, 1948 in Minnedosa, Manitoba to Alvin Gourlay Blanchard and Mabel Lois Blanchard. He died in Winnipeg, Manitoba on September 23, 2022.

Jim was the third child of four, brother to Bev (Fran), Francie (d. 1945) and Lois (Roy). He was a thoughtful, droll boy, with a keen interest in history that was sparked in part by Grandpa William, a man whom Jim described as being of different era, one of steam engines and dray horse teams delivering freight from the railyards.

Jim was of a different era too. As a child he built models of knights, which a curious Lois would sometimes break. He loved classical music, spent his Saturdays among books at the Brandon library and when he was 20, he attended seminary college for a year. He did his undergraduate and graduate degrees in history and although he was a librarian by trade, it was his work preserving Winnipeg's history that earned him local celebrity.

Although he was introverted, Jim had a captivating stage presence and loved music. He played a brilliant lead in a school production of Brigadoon, he studied piano and was adept at playing by ear. In the 1970s he performed Punch and Judy puppet shows at Assiniboine Park for children. When Jim became a dad, the puppet shows were reprised – over the back of a sofa to Pili as she played audience and director, and with a lovingly handcrafted puppet theatre for Jesse and Ben.

Jim loved Winnipeg. It was the city where he met Laurie, where they raised their kids as partners and then as lifelong friends, and where he forged a respected career as a librarian. He worked at the Winnipeg Public Library, the Canadian Grain Commission, as Director of Public Library Services for the province, and as Head of Reference Services at Elizabeth Dafoe Library at the University of Manitoba. After his 2014 retirement, he was named Librarian Emeritus at the University of Manitoba. He wrote six books about the city's history, four of them winning the Margaret McWilliams Popular History Award, including *Winnipeg 1912*, which remains the most popular account of early 20<sup>th</sup> century Winnipeg.

In 2019, Jim received the Lieutenant Governor's Award for Historical Preservation and Promotion. A maple tree, planted in his honour, grows in the front gardens of Dalnavert Museum.

Jim's extracurriculars were many. He was a mentor to young librarians, president of the Manitoba Historical Society, an ESL teacher for children and adults. He went to comedy festivals, watched James Bond films with Ben, attending MHS dinners and hosted talks and launches for his books. At events, he'd have friends in stitches making dry running commentary that was funny – or cutting – and always wise. He hosted gatherings at home (fretting over whether there'd be enough chairs) and spent time with his dear friend Mel. Jim was great company, but he cherished time alone in his study, handwriting meticulous notes in blue fountain pen, and working on his books.

Jim survived by his children, Pili (Clif), Jesse and Ben (Sam), and his grandchildren, Mathias, Soren, Bram, Max and Mia.

Jim read an ee cummings poem at Pili's wedding, and although it's a love poem, the final stanzas instruct all those who love and will remember Jim.

“here is the deepest secret nobody know / (here is the root of the root  
and the bud of the bud / and the sky of the sky of a tree called life;  
which grows / higher than soul can hope or mind can hide) / and this is  
the wonder that’s keeping the stars apart / I carry your heart (I carry it  
in my heart)

## In Memoriam

### Dr. Henry Janzen

Dr. Henry Janzen passed away on July 22, 2022. Upon his passing, colleagues recalled Henry as a kind and generous coach and teacher as well as a visionary university administrator. Henry had a long and distinguished career at the University of Manitoba that began in 1966 when he served as the Athletic Director, Professor of Physical Education, and Head Football Coach. Henry attained a BSc from the University of North Dakota in 1964, a MA from the University of Northern Colorado in 1966, and an Ed. D. from the University of Northern Colorado in 1970. As the Head Football Coach, Henry led the Bisons to back-to-back national championships in 1969-70. This was only the beginning of his legacy. In 1978, he was appointed Dean of the School of Physical Education and served in that role until 1997. To this day, he remains the longest standing Dean in the faculty's history. This was a transformative era for the faculty thanks to Henry's vision, talent as an administrator, and tenacity. Henry led the significant transition from a School of Physical Education to the Faculty of Physical Education and Recreation Studies. Over the years, his attention shifted from athletic excellence to academic and research excellence. He was committed to advancing the faculty's profile as a research-intensive academic unit and played an integral role in the establishment of what became the Health, Leisure, and Human Performance Research Institute. He also championed the creation of the faculty's graduate program.

Henry was a collaborator and a savvy administrator who cultivated partnerships across the U of M campus. Colleagues recall his exceptional and creative capacity to fundraise on behalf of the faculty. These efforts led to two significant Henry Janzen legacies. He raised in excess of one million dollars for the Faculty's Sport and Exercise Science Research Endowment. Over the years, this endowment has grown significantly and continues to fund innovation and research excellence. It is hard to imagine the U of M campus without the Max Bell Centre. We owe our gratitude to Henry for championing this major capital project and for his successful fundraising related to its construction. This unique combination of fieldhouse, arena, research labs, and administrative offices literally changed the landscape and future direction of the faculty's academic, sport and recreation enterprises.

Beyond his professional achievements at the university, Henry Janzen was a celebrated athlete with the Winnipeg Blue Bombers being named CFL Rookie of the Year in 1959 as well as recognition as a CFL All-Star. Throughout his life, he was a community builder lending his time and expertise to many organizations that make up the fabric of this City and Province. For example, he was the Chair and a Founding Board Member of the Manitoba Institute of Trade and Technology. At a national level, he served as Chair and member for the National Advisory Council for Fitness and Amateur Sport. Henry Janzen received many honours throughout his life including receiving the Queen Elizabeth II Diamond Jubilee Medal, induction into the Manitoba Sports Hall of Fame, and being named an Honorary Citizen of Winnipeg.

Henry Janzen leaves behind his loving wife Judy, son Dean, daughter Joanne, and their families, his brothers Walter and Rudy, and extended family.

## REPORT OF THE SENATE COMMITTEE ON AWARDS

### **Preamble**

Terms of reference for the Senate Committee on Awards include the following responsibility:

On behalf of Senate, to approve and inform Senate of all new offers and revised offers of awards that comply with the Student Awards Policy.

### **Observations**

At its meeting of October 25, 2022, the Senate Committee on Awards approved 7 new offers, 5 revised offers and 5 withdrawals as set out in the *Report of the Senate Committee on Awards (October 25, 2022)*.

### **Recommendations**

On behalf of Senate, the Senate Committee on Awards recommends that the Board of Governors approve 7 new offers, 5 revised offers and 5 withdrawals as set out in the *Report of the Senate Committee on Awards (October 25, 2022)*. These award decisions comply with the Student Awards Policy.

Respectfully submitted,

Dr Jared Carlberg  
Chair, Senate Committee on Awards

## SENATE COMMITTEE ON AWARDS

October 25, 2022

### 1. NEW OFFERS

#### **Associates Master of Supply Chain Management and Logistics Convocation Prize**

The Associates of the Asper School of Business offer an annual convocation prize of \$1,000 in the Master of Supply Chain Management and Logistics (MSCM) program. The purpose of the prize is to reward the academic achievements of a student in the Stu Clark Graduate School MSCM program. Beginning in the 2022-2023 academic year, one convocation prize will be offered to a graduating student who:

- (1) was enrolled part-time or full-time in the Stu Clark Graduate School in the final year of study in the Master of Supply Chain Management and Logistics degree program in the year in which the award was tenable;
- (2) has successfully completed the requirements for the Master of Supply Chain Management and Logistics program; and
- (3) has achieved the highest degree grade point average among all graduating students, with a minimum degree grade point average of 3.25.

In the event of a tie, a decision will be made using the following criteria, in priority order: (i) the degree grade point average, calculated to the fourth decimal place; or (ii) the higher proportion of A+ and A grades in a total during the program.

The Vice-Provost (Graduate Education) and Dean of the Faculty of Graduate Studies (or designate) will ask the Associate Dean of Professional Programs at the Stu Clark Graduate School through the Asper School of Business to name the selection committee for this award.

This agreement may be amended by the mutual consent of the donor (or designate) and the University of Manitoba. All such amendments shall be in writing. In the absence of the donor (or designate) and providing all reasonable efforts have been made to consult, the Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

#### **Indigenous Doctoral Scholarship in Education**

With the support of the Faculty of Education's Endowment Fund, a scholarship was established to reward the academic achievement of Indigenous students who are pursuing doctoral degrees in the Faculty of Education at the University of Manitoba. Each year, beginning in 2022-2023, two scholarships valued at \$10,000 each will be offered to graduate students who:

- (1) have self-declared as a First Nations, Métis or Inuit people from Canada;
- (2) are enrolled part-time or full-time in the Faculty of Graduate Studies in the doctoral program offered by the Faculty of Education;
- (3) have achieved a minimum degree grade point average of 3.0 based on the last 60 credit hours (or equivalent) of study; and
- (4) are undertaking, or are about to undertake, research related to Indigenous education.

Preference will be given to a student in their first year of study.



Candidates are required to submit: (i) a statement (maximum 250 words) outlining their research goals in Indigenous education; and (ii) a statement (maximum 500 words) describing their Indigenous identity and attesting to their experiences related to Indigenous education.

The scholarship may be renewable in a subsequent year of study provided the recipients continue to meet the numbered criteria outlined above. Renewals are subject to the availability of funds.

In the event that there are no eligible candidates, the funds will be allocated to the Indigenous Master's Scholarship in Education (Award # TBD) to award additional scholarships for that year.

The Vice-Provost (Graduate Education) and Dean of the Faculty of Graduate Studies (or designate) will ask the Dean of the Faculty of Education (or designate) to name the selection committee for this award, which will include a representative from the Faculty of Education's Indigenous Education Council.

This agreement may be amended by the mutual consent of the donor (or designate) and the University of Manitoba. All such amendments shall be in writing. In the absence of the donor (or designate), and providing all reasonable efforts have been made to consult, the Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

### **Indigenous Master's Scholarship in Education**

With the support of the Faculty of Education's Endowment Fund, a scholarship was established to reward the academic achievement of Indigenous students who are pursuing Master of Education degrees in the Faculty of Education at the University of Manitoba. The scholarship will be awarded to one Master's student in the Department of Educational Administration, Foundations and Psychology and one Master's student in the Department of Curriculum, Teaching and Learning. Each year, beginning in 2022-2023, two scholarships valued at \$5,000 each will be offered to graduate students who:

- (1) have self-declared as a First Nations, Métis or Inuit people from Canada;
- (2) are enrolled part-time or full-time in the Faculty of Graduate Studies in either the Master's in Department of Educational Administration, Foundations and Psychology or the Master's in the Department of Curriculum, Teaching and Learning offered by the Faculty of Education;
- (3) have achieved a minimum degree grade point average of 3.0 based on the last 60 credit hours (or equivalent) of study; and
- (4) have demonstrated experience with Indigenous education (e.g. volunteer and/or community work with Indigenous peoples and/or communities, activities to support and promote Indigenous peoples and issues).

Preference will be given to a student in their first year of study.

Candidates must submit a statement (maximum 500 words) describing their Indigenous identity and attesting to their experiences related to Indigenous education.

The scholarship may be renewable in a subsequent year of study provided the student maintains all of the numbered criteria outlined above. Renewals are subject to the availability of funds.

In the event that there are no eligible candidates, the funds will be allocated to the Indigenous Undergraduate Scholarship in Education (Award # TBD) to award additional scholarships for that year.

The Vice-Provost (Graduate Education) and Dean of the Faculty of Graduate Studies (or designate) will ask the Dean of the Faculty of Education (or designate) to name the selection committee for this award, which will include a representative from the Faculty of Education's Indigenous Education Council.

This agreement may be amended by the mutual consent of the donor (or designate) and the University of Manitoba. All such amendments shall be in writing. In the absence of the donor (or designate), and providing all reasonable efforts have been made to consult, the Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

### **Indigenous Undergraduate Scholarship in Education**

With the support of the Faculty of Education's Endowment Fund, a scholarship was established to reward the academic achievement of Indigenous students who are pursuing Bachelor of Education degrees in the Faculty of Education at the University of Manitoba. Three scholarships will be made available annually, one for each of the Faculty of Education's three Bachelor of Education streams: Early Years, Middle Years, and Senior Years. Each year, beginning in 2022-2023, three scholarships valued at \$5,000 each will be offered to undergraduate students who:

- (1) have self-declared as a First Nations, Métis or Inuit people from Canada;
- (2) are enrolled part-time or full-time in either the Early Years, Middle Years, or Senior Years stream in the Bachelor of Education program;
- (3) have achieved a minimum degree grade point average of 3.0; and
- (4) have demonstrated experience with Indigenous education (e.g. volunteer and/or community work with Indigenous peoples and/or communities, activities to support and promote Indigenous peoples and issues).

Preference will be given to a student in their first year of study.

Candidates are required to submit a statement (maximum 500 words) describing their Indigenous identity and attesting to their experiences related to Indigenous education.

The scholarship may be renewable in a subsequent year of study provided the recipients continue to meet all of the numbered criteria outlined above. Renewals are subject to the availability of funds.

In the event that there are no eligible candidates in a stream(s), the scholarship will be allocated to one or more of the other streams for that year.

The Dean of the Faculty of Education (or designate) will name the selection committee for this award, which will include a representative from the Faculty of Education's Indigenous Education Council.

This agreement may be amended by the mutual consent of the donor (or designate) and the University of Manitoba. All such amendments shall be in writing. In the absence of the donor (or designate), and providing all reasonable efforts have been made to consult, the Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

### **Madhav and Sharda Sinha Prize for Quality Assurance**

Madhav and Sharda Sinha established the Madhav and Sharda Sinha Prize for Quality Assurance with an initial gift of \$10,000 in 2022. The purpose of the prize is to reward the academic achievement of the top student graduating from the Quality Management Certificate Program in Extended Education at the University of Manitoba. Each year, beginning in the 2022-2023 academic year, one prize valued at \$1,000 will be offered to a student who:

- (1) was enrolled in the Quality Management Certificate Program in Extended Education in the year in which the award was tenable;
- (2) has achieved a minimum cumulative grade point average of 3.5; and
- (3) of those who have met criteria (1) and (2), have achieved the highest cumulative grade point average.

Ties are to be broken using the following criteria, in priority sequence: (i) the Cumulative Grade Point Average, calculated to the fourth decimal place; (ii) the higher proportion of A+ and A grades in a total program; (iii) the highest number of credit hours completed in the degree program; (iv) the greater proportion of senior- or advanced-level courses in the total program.

The Dean of Extended Education (or designate) will name the selection committee for this award.

This agreement may be amended by the mutual consent of the donor (or designate) and the University of Manitoba. All such amendments shall be in writing. In the absence of the donor (or designate), and providing all reasonable efforts have been made to consult, the Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

### **Melanie Kitson Olthof Memorial Scholarship**

In memory of her niece, Melanie Kitson Olthof, a dedicated educator, Gladys Boehler (B.A./'66) established an endowment fund at the University of Manitoba with an initial gift of \$50,000 in 2021. When funds are available, the Manitoba Scholarship and Bursary Initiative may make a contribution to the award. The purpose of the scholarship is to support undergraduate students in the Faculty of Education at the University of Manitoba who intend to teach Science Education. Each year, beginning 2022-2023, the available annual income from the fund will be used to offer one or more scholarships to undergraduate students who:

- (1) are enrolled part-time or full-time in any stream of the Bachelor of Education program in the Faculty of Education;
- (2) have a teachable major in General Science, Biology, Chemistry, or Physics (or their equivalent) and/or hold a Bachelor of Science degree;
- (3) have achieved a minimum degree grade point average of 3.0; and
- (4) have demonstrated a commitment, interest, and involvement in Science Education as determined by the selection committee.

Candidates are required to submit: (i) a statement (maximum 250 words) which outlines how they meet criterion (4), and (ii) one letter of reference which supports their statement.

Candidates may also be nominated by a faculty member (professor or instructor), faculty advisor (faculty supervisor in the practicum), and/or cooperating teacher (supervising teacher in

the practicum classroom) with a letter of nomination. Letters of nomination must directly address the student's demonstrated commitment, interest, and involvement in Science Education.

In the event that there are no eligible candidates who meet all of the criteria listed above, the scholarship may be awarded to students who meet criteria (1), (2), and (4), with a teachable major in a related area (e.g., Mathematics).

The selection committee will have the discretion to determine the number and value of awards offered each year based on the available funds, as outlined in the criteria above.

The Dean of the Faculty of Education (or designate) will name the selection committee for this award.

This agreement may be amended by the mutual consent of the donor (or designate) and the University of Manitoba. All such amendments shall be in writing. In the absence of the donor (or designate), and providing all reasonable efforts have been made to consult, the Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

### **Ruth Eden Memorial Scholarship**

A scholarship fund was created through The Winnipeg Foundation in memory of Ruth Eden. The purpose of the fund is to support female students pursuing studies in the Price Faculty of Engineering. The Winnipeg Foundation will confirm the value of these awards annually. Each year, beginning in 2023-2024 three scholarships with a combined total of \$3,000 will be offered to female civil engineering students.

Each year, one scholarship valued at a minimum of \$1,000 will be offered to an undergraduate student who:

- (1) identifies as female;
- (2) is enrolled full-time (minimum 80% course load) in the third year of study in the Bachelor of Science (Civil Engineering) degree program in the Price Faculty of Engineering;
- (3) has achieved a minimum degree grade point average of 3.0; and
- (4) has obtained the highest mark in Fluid Mechanics (currently numbered CIVL 2790) in the previous academic year from those students who meet criterion (1).

Each year, one scholarship valued at a minimum of \$1,000 will be offered to an undergraduate student who:

- (1) identifies as female;
- (2) is enrolled full-time (minimum 80% course load) in the fourth year in the Bachelor of Science (Civil Engineering) degree program in the Price Faculty of Engineering;
- (3) has achieved a minimum degree grade point average of 3.0; and
- (4) has obtained the highest mark in Design of Steel Structures (currently numbered CIVL 3770) in the previous academic year from those students who meet criterion (1).

Each year, one scholarship valued at a minimum of \$1,000 will be offered to a graduate student who:

- (1) identifies as female;

- (2) is enrolled full-time in the Faculty of Graduate Studies in the Master of Science (Civil Engineering) program offered by the Price Faculty of Engineering;
- (3) has achieved a minimum grade point average of 3.5 based on the last 60 credit hours (or equivalent) of study; and
- (4) has a research focus on water resources engineering, structural engineering or bridge engineering from those students who meet criterion (1).

Preference will be given to students with a research focus on bridge engineering.

In order for graduate students to demonstrate how they meet criterion (4), applicants must submit a written statement (maximum 500 words).

The selection committee will be the Scholarships, Bursaries, and Awards Committee of the Price Faculty of Engineering for the undergraduate student awards. The Vice-Provost (Graduate Education) and Dean of the Faculty of Graduate Studies (or designate) will ask the Scholarships, Bursaries, and Awards Committee of the Price Faculty of Engineering to be the selection committee for this graduate student award.

The Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Any future modifications that may be necessary due to changed conditions will require complete consultation with The Winnipeg Foundation.

## 2. AMENDMENTS

### Desautels Faculty of Music

The following amendments were made to the terms of reference for the Faculty of Music:

- The title was revised to:  
*Desautels Faculty of Music*
- The Gold Medal was revised to:
  - A. University Gold Medal in Music**  
*The University Gold Medal will be awarded to a graduating undergraduate student who:*
    - (1) *has achieved the highest degree grade point average (minimum 3.75) for the entire four-year undergraduate program (including non-Music electives); and*
    - (2) *has completed the undergraduate program within four years. This may include any work taken during summer and intersession. All work must be done in residence at the University of Manitoba.*
- The Program Medals were revised to:
  - B. Desautels Faculty of Music Program Medals**  
*Desautels Faculty of Music B.Mus. (General Studies) Medal*  
*Desautels Faculty of Music B.Mus. (Composition) Medal*  
*Desautels Faculty of Music B.Mus. (History) Medal*  
*Desautels Faculty of Music B.Mus. (Performance) Medal*  
*Desautels Faculty of Music B.Mus. (Jazz Studies) Medal*

### **Desautels Faculty of Music B.Mus (Music Education) Medal**

*The Faculty of Music Program Medals will be awarded to the graduating undergraduate student in each music program who:*

- (1) has achieved the highest degree grade point average (minimum 3.75) for the entire four-year undergraduate program (including non-Music electives); and*
- (2) has completed the undergraduate program within four years. This may include any work taken during summer and intersession. All work must be done in residence at the University of Manitoba.*

- The tiebreaking paragraph was revised to:

#### ***Tie-Breaking Mechanism***

*In the event of a tie based upon the criteria described above, the following mechanism will be used to break the tie:*

- (1) the degree grade point average is to be calculated to the fourth decimal place;*
- (2) preference will be given to the student who has a higher proportion of “A+”s and “A”s in a total program;*
- (3) preference will be given to students who have taken the largest number of credit hours; and*
- (4) preference will be given to the students with a greater proportion of senior or advanced-level courses in their program. If the tie still persists, the Faculty of Music Scholarship, Bursaries and Awards Committee, along with any others appointed by the Dean, will meet to select the recipient.*

- The selection committee paragraph was revised to:

*The selection committee will be named by the Dean of the Desautels Faculty of Music.*

- The standard Board of Governors statement was added.

### **Julia Alice Saddington Memorial Scholarship**

The following amendments were made to the terms of reference for the Julia Alice Saddington Memorial Scholarship:

- The preamble was revised to:

*In honour of the memory of his wife Julia Alice Saddington, Harold Ross Saddington established an endowment fund at the University of Manitoba with an initial gift of \$20,000 in 1997. The Manitoba Scholarship and Bursary Initiative made a contribution to this fund. The purpose of the fund is to reward the academic achievements of students and encourage nursing in the field of community health. Each year, the available annual income from the fund will be used to offer one scholarship valued at \$2,000 to an undergraduate student who:*

- The numbered criteria were revised to:

- (1) is enrolled full-time (minimum 80% course load) in the fourth year of study in the Bachelor of Nursing program offered through the College of Nursing;*
- (2) has achieved a minimum degree grade point average of 3.5;*
- (3) has demonstrated evidence of achievement in the theory of and the application of concepts in community health nursing or in the clinical practice of community health;*

and

(4) *has intent to pursue a career in community health nursing or public health nursing.*

- The paragraph following the numbered criteria was revised to:

*In order to demonstrate how they meet criteria (3) and (4), applicants must submit a brief personal biography outlining their aptitude for and interest in a career in community health through their studies, work, experience, and career goals (maximum 500 words). The selection committee will consider academic standings for related courses in previous years of the bachelor program.*

- The following paragraph was revised to:

*In years when \$2,000 of unspent revenue has accumulated, a second scholarship of \$2,000 will be awarded.*

- The standard Board of Governors statement was added.

### **Manitoba Aerospace Engineering Scholarship**

The following amendments were made to the terms of reference for the Manitoba Aerospace Engineering Scholarship:

- The preamble was revised to:

*The Manitoba Aerospace Association (MAA) established an endowment fund with an initial gift of \$10,000 to the University of Manitoba in 2015. The Manitoba Scholarship and Bursary Initiative made a contribution to the fund. This fund supports the Manitoba Aerospace Engineering Scholarship and the ENGAP Awards (scholarship portion #24443). The purpose of the fund is to reward the academic achievements of a student in the Price Faculty of Engineering.*

*Each year, one scholarship with a minimum value of \$1,500 will be offered to an undergraduate student who:*

- The numbered criteria were revised to:

*(1) is enrolled full-time (minimum 80% course load) and has completed a minimum of 48 credit hours of study in the Price Faculty of Engineering at the University of Manitoba;*

*(2) has achieved a minimum degree grade point average of 3.0;*

*(3) is a member of one of the following competition teams: University of Manitoba Society of Automotive Engineers (UMSAE), the ¼ Scale Tractor Competition, the University of Manitoba Space Applications and Technology Society (UMSATS), or the Canadian Aerospace Institute (CASI); and*

*(4) has demonstrated leadership, innovation and team involvement as a member of the competition team.*

- The paragraph following the numbered criteria was revised to:

*In order to demonstrate how they meet criteria (3) and (4), applicants will be required to submit an essay (maximum 500 words) that describes their involvement with a student competition team and discusses how they have demonstrated the following six characteristics:*

*(i) Teamwork*

- (ii) *Reliability*
- (iii) *Work Ethic*
- (iv) *Integrity*
- (v) *Innovation*
- (vi) *Leadership*

- The selection paragraph was revised to:
 

*The Chair of the Undergraduate Scholarships, Bursaries and Awards Committee of the Price Faculty of Engineering (or designate) will name the selection committee for this award, which will include the Design Engineer-in-Residence (or designate) and a representative of Manitoba Aerospace Association.*
- The following paragraph was added:
 

*Each year, the remaining available annual income will be offered as a top-up to the ENGAP Award (Scholarship #24443) as per the donor's wish.*
- The standard Board of Governors statement was added.

### **Manitoba Association for Resource Recovery Scholarship**

The following amendments were made to the Manitoba Association for Resource Recovery Scholarship:

- The preamble was revised to:
 

*The Manitoba Association for Resource Recovery established an annually funded scholarship at the University of Manitoba. The purpose of the fund is to reward the academic achievements of a student in the Clayton H. Riddell Faculty of Environment, Earth, and Resources. Each year, one scholarship, valued at \$1,500, will be offered to an undergraduate student who:*
- The numbered criteria were revised to:
  - (1) *is enrolled full-time (minimum 80% course load) in the second year of study in the Clayton H. Riddell Faculty of Environment, Earth, and Resources at the University of Manitoba;*
  - (2) *has chosen a Major or Honours program in a Bachelor of Environmental Science;*
  - (3) *has achieved a minimum degree grade point average of 3.0; and*
  - (4) *in the opinion of the selection committee, wrote the best descriptive short essay on how to improve used oil product collections in Manitoba.*
- The paragraph following the numbered criteria was added:
 

*In order to demonstrate how they meet criterion (4), applicants must submit a written statement (maximum 200 words).*
- The selection paragraph was revised to:
 

*The Dean of the Clayton H. Riddell Faculty of Environment, Earth, and Resources (or designate) will ask the head of the Department of Environment and Geography (or designate) to name the selection committee for this award, which will include one representative from the Manitoba Association for Recovery Resource Corporation.*
- The standard Board of Governors statement was added.



## **Maxwell Starkman Scholarship in Architecture**

The following amendments were made to the terms of reference for the Maxwell Starkman Scholarship in Architecture:

- The preamble was revised to:

*Mr. Maxwell Starkman established an endowment fund at the University of Manitoba with an initial gift of \$10,000 in 1999. The purpose of the fund is to reward the academic achievements of a student in the Faculty of Architecture. This prestigious award will enable its recipients to gain experience and knowledge with the freedom to explore contemporary design issues in a global context, anywhere in the world, through scholarly research which may lead to a written paper worthy of consideration for publication in a juried journal. The Manitoba Scholarship and Bursary Initiative has made a contribution to this fund.*

*Each year, the available annual income from the fund will be used to offer one or more scholarships to graduate students who:*

- The numbered criteria were revised to:

*(1) are enrolled full-time in the Faculty of Graduate Studies in any one of the four graduate programs in the Faculty of Architecture (City Planning, Landscape Architecture, Interior Design, and Architecture) or in the Ph.D. in Design and Planning;*

*(2) have achieved a minimum grade point average of 3.5 based on the last 60 credit hours (or equivalent) of study; and*

*(3) have demonstrated a high level of writing skill and an ability to show the importance of the proposed research topic, as presented in the scholarship application.*

- The following paragraph was revised to:

*In order to demonstrate how they meet criterion (3), applicants must (i) submit a written proposal (maximum 1,000 words) with a proposed budget and a draft abstract for a publication-worthy paper, (ii) the proposal must state the theme and scope of the proposed inquiry, including a time-line of how the study will proceed, and (iii) two letters of reference (one an academic reference and the second a character reference from someone other than a family member).*

- The selection committee paragraph was revised to:

*The Vice-Provost (Graduate Education) and Dean of the Faculty of Graduate Studies (or designate) will ask the Dean of the Faculty of Architecture (or designate) to name the selection committee for this award which will include a representative from each one of the four graduate programs.*

- The standard Board of Governors statement was added.

### **3. WITHDRAWALS**

#### **CSCE Department of Civil and Geological Engineering Thesis Competition Prize**

At the request of the donor.

**Graduate Fellowship in Mathematics**

At the request of the donor.

**James A. Aitkin Graduate Scholarships in Mechanical Engineering**

At the request of the donor.

**Lockhart Award in Family Social Science**

At the request of the donor.

**The Canadian Medical Association's 150th Anniversary Bursary**

At the request of the donor.



**DATE:** November 3, 2022

**TO:** Jeff Leclerc, University Secretary

**FROM:** Michael Benarroch, Ph.D.  
President and Vice-Chancellor *M Benarroch*

**RE:** Temporary Suspension of Admissions to the Master of Dentistry in Pediatric Dentistry

---

I attach a recommendation from Dr. Greg Smith, Vice-Provost (Academic Planning and Programs) to temporarily suspend admissions to the Master of Dentistry in Pediatric Dentistry for the 2023-24 academic year.

Under the Admission Targets Policy, the President may suspend admissions to a program following consultation and discussion with the applicable unit's dean or director, with Senate and with the Board of Governors, subject to the provisions of the provincial Programs of Study Regulation.

Accordingly, please place this item on the agenda for the November 23, 2022, Senate Executive meeting and the December 7, 2022 Senate Meeting.

**Cc:** Diane Hiebert-Murphy, Provost and Vice-President (Academic)  
Greg Smith, Vice-Provost (Academic Planning and Programs)  
Laurie Schnarr, Vice-Provost (Students)  
Peter Nickerson, Vice-Provost (Health Sciences) and Dean, Rady Faculty of Health Sciences  
Kelley Main, Acting Dean, Faculty of Graduate Studies  
Anastasia Kelekis-Cholakis, Dean, Dr. Gerald Niznick College of Dentistry  
Jeff Adams, Registrar and Executive Director, Enrolment Services  
Randy Roller, Executive Director, OIA  
Cassandra Davidson, Academic Program Specialist



**University  
of Manitoba**

Office of the Provost and Vice-President (Academic)

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Winnipeg, Manitoba  
Canada R3T 2N2  
Telephone (204) 480-1408  
Fax (204) 275-1160

**Date:** November 2, 2022

**To:** Dr. Michael Benarroch, President and Vice-Chancellor

**From:** Dr. Greg Smith, Vice-Provost (Academic Planning and Programs)

**Re:** Request for Temporary Suspension of Admissions, Master of Dentistry in Pediatric Dentistry

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Under the Admission Targets Policy and at the request of Dr. Anastasia Kelekis-Cholakis, Dean, Dr. Gerald Niznick College of Dentistry, and Dr. Kelley Main, Acting Dean, Faculty of Graduate Studies, please find attached a request for a temporary suspension of intake into the Master of Dentistry (M.Dent.) in Pediatric Dentistry for the 2023-24 academic year.

The request for a suspension of admissions to the program has been triggered by on-going issues with faculty staffing shortages that recently became more critical with the unexpected vacancy of the program director position. While the College has already begun preparations to address this shortfall in both the short-term and long-term, it is felt that the necessary resources will not be in place for the 2023-24 academic year and as such, existing resources should be prioritized to allow current students to complete their programs and to ensure minimal impact on clinical and patient care.

Consistent with the Admission Targets Policy and Procedure, the President may suspend admissions to a program following consultation with the Dean, Senate, and the Board of Governors, subject to the provincial Programs of Study Regulation.

In seeking advice from the province, should your decision be favourable, the UM will seek an 'Unintended Temporary Cessation' of the program which may be requested where unforeseen circumstances arise that impact on the ongoing delivery of the program. This process provides for an expedited provincial review, allowing us to remain responsive to the immediate needs of our students.

Please provide your advice concerning this matter to the Office of the University Secretary by Wednesday, November 9, 2022, so that, if supported, the request may receive timely consideration by Senate and the Board of Governors.

Cc: Diane Hiebert-Murphy, Provost and Vice-President (Academic)  
Laurie Schnarr, Vice-Provost (Students)  
Peter Nickerson, Vice-Provost (Health Sciences) and Dean, Rady Faculty of Health Sciences  
Kelley Main, Acting Dean, Faculty of Graduate Studies  
Anastasia Kelekis-Cholakis, Dean, Dr. Gerald Niznick College of Dentistry  
Jeff Leclerc, University Secretary  
Jeff Adams, Registrar and Executive Director, Enrolment Services  
Randy Roller, Executive Director, Office of Institutional Analysis  
Cassandra Davidson, Academic Program Specialist

/cd



Date: October 28<sup>th</sup>, 2023

To: Dr. Greg Smith, Vice Provost – Academic Planning and Programs

From: Kelley Main (Acting Dean, Faculty of Graduate Studies) and

Anastasia Kelekis-Cholakis (Dean, Dr. Gerald Niznick College of Dentistry)

RE: Temporary Cessation of Pediatric Dentistry Intake for 2023-2024

Please accept this request for a twelve (12) month temporary cessation of intake of pediatric residents in the Graduate Pediatric Dentistry program for the 2023-2024 academic year, due to faculty staffing shortages. The Dr. Gerald Niznick College of Dentistry advertised two faculty positions in Pediatric Dentistry in March 2022 and in May 2022. Neither searches were successful and the program reached a critical state when the Program Director position became vacant on October 1, 2022.

The College has since been able to recruit an Acting Program Director, Dr. Mitch Vodrey for two days/week on a one year term contract. We plan to advertise the Program Director position in the upcoming months, however given our current faculty shortages and the uncertainty in recruitment, it is prudent to postpone resident intake for the upcoming academic year so we can serve the current residents in the program.

There are currently 5 residents in the program, two of whom are expected to complete their program requirements in the summer of 2023. The delivery of didactic and clinical components is anticipated to be maintained for the current learner cohorts, using existing University and community member resources. An informal discussion with the graduate pediatric residents and Dr. Cliff Yaffe the Associate Dean, Postgraduate Medical Education took place on September 29, 2022 and their feedback was obtained and discussed.

To assist with the delivery of patient care and required on- call duties, we hope to enroll two Clinical Fellows for a one-year fellowship in 2023-2024 with the hope that we will be able to recruit these individuals as future faculty members. As a result, we anticipate minimal impact to patient care delivery as a result of the intake suspension.


The Dental College Council will be made aware of this request and the surrounding circumstances on November 2<sup>nd</sup>, 2022 and the Faculty of Graduate Studies Faculty Council on November 4<sup>th</sup>, 2022.

The funding used to deliver the program has been re-allocated to the Acting Program Director's salary and the salaries of additional part-time faculty, including out of province locums to fill in the clinical and didactic teaching needs.



**DATE:** October 11, 2022

**TO:** Jeff Leclerc, University Secretary

**FROM:** Michael Benarroch, Ph.D.  
President and Vice-Chancellor 

**RE:** Increase to Admission Target, Bachelor of Respiratory Therapy Program, Fall 2024

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The College of Rehabilitation Science has requested an increase of 20 seats to the undergraduate admission target for the Bachelor of Respiratory Therapy program to alleviate demand for respiratory therapists within the province. The proposal was forwarded for consultation to the Senate Planning and Priorities Committee on August 29, 2022, Senate on October 7, 2022, and the Board of Governors on September 28, 2022.

While no significant concerns were raised in respect to the proposed increase, concerns were raised in respect to the timing of securing the requested funding to complete the requisite capital improvements, purchase equipment, and hire the new academic and support staff needed to implement the expansion. As such, the first intake of the additional seats will be for Fall 2024, to allow for the time needed to implement the expansion plans.

Under the Admission Targets Policy, the President approves changes to, and the introduction of, admission targets following consultation and discussion with the applicable dean or director, with Senate, and with the Board of Governors, subject to the provisions of the provincial Programs of Study Regulation.

In accordance with this policy, I approve an increase to the undergraduate admission target to the Bachelor of Respiratory Therapy program from 20 to 40 seats effective the Fall 2024 intake, subject to approval by the province and confirmation of the requested one-time and new on-going provincial funding needed to support the expansion.

Please proceed accordingly.

Cc: Diane Hiebert-Murphy, Provost and Vice-President (Academic)  
Greg Smith, Vice-Provost (Academic Planning and Programs)  
Laurie Schnarr, Vice-Provost (Students)  
Peter Nickerson, Dean, Rady Faculty of Health Sciences and Vice-Provost (Health Sciences)  
Reg Urbanowski, Dean, College of Rehabilitation Sciences  
Jeff Adams, Registrar and Executive Director, Enrolment Services  
Shelley Hopkins, Executive Director, Financial Planning  
Randy Roller, Executive Director, Office of Institutional Analysis  
Cassandra Davidson, Academic Programs Specialist

October 18, 2022

**Report of the Senate Committee on Academic Review RE: Undergraduate, Graduate, and Combined Program Reviews** *(for information)*

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**Preamble:**

1. The [terms of reference](#) for the Senate Committee on Academic Review (SCAR) are found on the University Governance website.
2. At its meeting on October 18, 2022, the Committee considered summaries of four undergraduate program reviews. The committee also received follow-up reports on four undergraduate program reviews, one graduate program review, and one combined program review.

**Observations:**

1. The Committee considered summaries of four undergraduate program reviews concerning (a) the Faculty of Agricultural and Food Sciences (Agribusiness, Agriculture, Agroecology, and Food Science), (b) Philosophy, (c) Science (General Science), and (d) the Ukrainian Canadian Heritage Studies Program (Attachments 1.a through 1.d, respectively).
2. The Committee received follow-up reports on four undergraduate program reviews, for Global Political Economy, Interdisciplinary Health Program, Integrated Studies (B.A.I.S.), and Linguistics; one graduate program review, for Environment and Geography; and one combined program review for Statistics.

Respectfully submitted,

Dr. Greg Smith, Chair  
Senate Committee on Academic Review





**University  
of Manitoba**

Office of the Provost and Vice-President (Academic)

Attachment 1.a

208 Administration Building  
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Fax (204) 275-1160

Date: October 5, 2022

To: Members of the Senate Committee on Academic Review (SCAR)

From: Greg Smith, Vice-Provost (Academic Planning and Programs) and Chair, Senate Committee on Academic Review

Subject: Report on the Undergraduate Program Review, Faculty of Agricultural and Food Sciences

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## 1. Preamble

In May 2000, the Senate of the University of Manitoba endorsed a process for the periodic review of undergraduate programs to assess the quality of undergraduate programming presently provided at the University of Manitoba, and to stimulate strategic planning and actions for future enhancements. The purpose of this report is to summarize the highlights of the undergraduate program review teams' evaluation of the Bachelor programs in the Faculty of Agricultural and Food Sciences (FAFS), the responses to the report, recommendations, actions taken to date, and a disposition of the process from the perspective of the Provost.

## 2. Chronology

Four separate reviews of different undergraduate programs in the FAFS have been conducted since 2013.

The undergraduate program review of Agribusiness was initiated in 2013 and the Self-Evaluation Report (SER) for the review was received in September 2015. An external review team (the reviewers) comprised of two external members (Dr. William Brown, University of Saskatchewan, and Dr Alan Ker, University of Guelph), and one internal member (Dr. Pinaki Bose, Faculty of Arts, University of Manitoba), undertook a site visit in November 2015.

The undergraduate program review of Food Science was initiated in 2014, and the SER for the review was received in September 2014. The reviewers, comprised of two external members (Dr. Art Hill, University of Guelph and Dr. Michael Gänzle, University of Alberta), and one internal member (Dr. Carla Taylor, Faculty of Agricultural and Food Sciences, University of Manitoba), undertook a site visit over December 9 and 10, 2015.

The undergraduate program review of Agroecology was initiated in 2014 and the SER for the review was received in February 2016. The reviewers, comprised of two external members (Dr. Clarence Swanton, University of Guelph, and Dr. Steven Shirtliffe, University of Saskatchewan) and one internal member (Dr. Rick Baydack, Clayton H. Riddell Faculty of Environment, Earth, and Resources, University of Manitoba), undertook a site visit over April 13 and 14, 2016.

The undergraduate program review of Agriculture (Agronomy, Animal Systems, Plant Biotechnology) was initiated in 2015 and the SER for the review was received in March 2016. The reviewers, comprised of three external members (Dr. Fran Walley, University of Saskatchewan; Dr. Leluo Guan, University of Alberta, and Dr. Rene Van Acker, University of Guelph), and one internal member (Dr. Michele Piercey-Normore, University of Manitoba), undertook a site visit over April 18 and 19, 2016.

During each review, the reviewers met with relevant academic and administrative staff, and students in the Faculty of Agricultural and Food Sciences and the Office of the Provost and Vice-President (Academic). The resulting report of the reviewers (the report) for Food Science was received on December 2015, Agribusiness was received on November 2015, Agriculture was received in May 2016 and Agroecology was received on April 2016.

The FAFS provided a response to all four program reviews in one document which was received from the Dean in September 2019. All of the above documents are attached to this report. On behalf of the Provost, I would like to thank everyone who contributed to this review.

### **3. Program overview**

The FAFS supports the following undergraduate degrees:

- B.Sc. Agribusiness
- B.Sc. Food Science
- B.Sc. Agroecology
- B.Sc. Agriculture

The B.Sc. in Agribusiness is an applied business or economics program with an agricultural focus. The degree is built upon academic learning, relevant industry partnerships and a vibrant Manitoba-based agricultural community. The Agribusiness Program has three areas of specialization: Agribusiness Management, Agricultural Economics, and International Agribusiness. The most popular of these options is the Agribusiness Management Option which focuses on facilitating the development of the skills and principles involved in managing or working for a business in Manitoba's agricultural industry.

The B.Sc. in Food Science is an applied science and a multi-disciplinary program that aims to use the fundamentals learned in the areas of biology, chemistry and physics to evaluate the way in which food is handled between the farm gate and the consumers' plate. The program aims to equip graduates to work in many facets of the food industry in areas such as quality control, product development and sales and management. The program contains both a Science option and a Business option which allows students to specialize.

The B.Sc. in Agroecology is a Faculty-based program that provides instruction in the management and conservation of natural and agricultural resources. Agroecologists develop environmentally friendly weed, insect and disease controls and also help farmers conserve their land and protect Canada's wildlife and water supply. As a Faculty-based program, Agroecology has members from most departments participating in course delivery and serving as potential advisors for the research projects undertaken by 4-year major students.

Three B.Sc. in Agriculture programs, namely: Agronomy, Plant Biotechnology, and Animal Systems, were reviewed together. *The Agronomy* program educates and trains students in the fundamentals underlying agricultural crop management practices (e. g. biological and chemical sciences), as well as the application of those sciences to the production of food, feed, fuel and industrial products. The *Animal Systems* program equips students with an integrated and comprehensive understanding of factors and processes involved in the science of farmed animal production. *The Plant Biotechnology* program provides students with a robust background in three disciplines: genetics, physiology, and pathology.

#### 4. Academic Program Review

The review report for Agribusiness notes that the program is the only four-year degree program of its kind in the Manitoba and that “the program’s focus on the business and economics of food is a novel feature.” The reviewers note that a primary strength of the program is the opportunities it provides to its graduates who seem to be in high demand for well-paying jobs in primary agriculture, agribusiness, and the government. The reviewers also acknowledged the strong sense of identity students have with the department and the high quality of undergraduate student advising provided. The reviewers however express concern regarding the potential impact of Faculty retirements on workload given increasing class sizes. *The reviewers did not provide a categorical rating for the Agribusiness program; however, no critical issues were identified for remediation.*

The review report for Food Science states that the program’s importance is in training professionals for the food industry, thereby allowing the university to be a key contributor to Manitoba’s economic well-being. The reviewers note that the program’s designation as one of the four Canadian programs approved by the Institute of Food Technologists (IFT) “provides confidence that it meets accepted standards of food science training.” The review identifies weaknesses with respect to high teaching loads and/or administrative assignments for academic staff and potential gaps in expertise due to retirements. The external review team categorized the Department of Food Science’s undergraduate program as *Adequate, with minor revisions (2)*.

The review report for Agroecology acknowledges the uniqueness of the program in Canada and the fact that it is the only program in the Faculty that requires students to complete an undergraduate thesis and that strongly encourages students to go on to pursue graduate studies. The reviewers note that students identified strongly with the program and highly valued the intimacy of small classes for facilitating interaction with instructors and classmates. While the reviewers recognize the importance of the program, they identify various challenges including low student enrolment, poor visibility and a limited number of faculty. Hence, the reviewers strongly recommend that the program be strategically restructured. The external review team categorized the Agroecology undergraduate program as *Adequate, with minor revisions (2)*.

The review report for the B.Sc. Agriculture programs states that in general, the programs “are closely connected with industry and alumni and provide high levels of student employment during and after program completion.” The reviewers also commend the focus on experiential learning and the flexibility that allows students to switch from one program to another within the first two years without losing time. The review also identifies some inadequacies around infrastructure and teaching spaces, faculty renewal and academic advising. The external review team categorized the BSc Agriculture undergraduate program as *Adequate, with minor revisions (2)*.

#### 5. Recommendations and Responses

The external reviewers' reports make a number of suggestions and recommendations for improvements to the programs reviewed that pertain both to the university administration and to the Faculty. As these have been addressed in the response by the Faculty, they will be summarized below and supplemented as necessary with comments from the Vice-Provost (Academic Planning and Programs).

### **Agribusiness**

- i. The reviewers recommend setting aside a term for international experiences such as an international work term or an international placement at a similar institution*

The Faculty's response clarifies that few students have participated in the international exchange programs that currently exist. The Faculty suggests that students may be more encouraged to undertake international co-op and study options once the ongoing work to make the curriculum more flexible is completed.

- ii. The reviewers recommend allowing Agribusiness students take some of their electives in the diploma classes*

The Faculty notes that this will need to be approved on a case-by-case basis.

- iii. The reviewers recommend carrying out a survey of past graduates and employers to identify new areas of focus for the program*

The Faculty's submission notes that the employer and alumni surveys carried out in 2017/18 (after the reviewers' report was received) indicated the need for new areas of training in data management tools, AI and other trends. The Faculty indicates that a program renewal is underway to "update and enhance training for future students."

- iv. The reviewers recommend activating the co-op program*

The Faculty notes that the co-op program was reviewed and updated in 2016, though they are still seeking to address barriers (such as ensuring students can complete their degree within four years and providing adequate co-op program oversight and support) through program renewal efforts.

- v. The reviewers recommend more targeted recruiting efforts to increase Indigenous student enrolment*

The Faculty identifies several efforts that have been undertaken to recruit and support Indigenous students including the appointment of an Indigenous scholar, the creation of awards and a trust fund for Indigenous students, the development of a new course on Indigenous Issues in Food Systems and engagement in programs with high populations of Indigenous students (e.g. Verna Kirkness and CanU).

- vi. The reviewers recommend the use of more case studies throughout the curriculum*

The Faculty notes that the program already uses some case studies in its courses although the Program Committee "was tasked to review and address this recommendation in 2019."

### **Food Science**

vii. *The reviewers recommend the creation of an industry committee to advise on program outcomes*

The Faculty agrees with the recommendation and intended to begin considering potential candidates for an external advisory committee in 2019/20.

viii. *The reviewers recommend strengthening the co-op program through a dedicated faculty member and consolidation of co-op logistics centrally (University-wide)*

The Faculty indicates that they are trying to improve co-op uptake by ensuring that students taking co-ops can still graduate in 4 years and that co-op programs are well coordinated.

ix. *The reviewers recommend integrating teaching in Food Science with other disciplines to make better use of existing resources and to increase the number of domestic students in Food Science*

The Faculty response notes that the departments of Food Science and Human Nutritional Sciences merged in 2017 “to support better integration between the two disciplines in teaching and research.” Restructuring of specific courses and curriculum renewal is also being considered to address this recommendation

## **Agroecology**

The reviewers recommend that “the status quo should **not** be considered an option as the program moves forward” but that the following options be considered in their strategic planning:

- x. *Maintain program but enhance partnerships and profile*
- xi. *Align more closely with current core agronomy/ animal science programs and provide a minor or stream entitled Agroecology*

While the Faculty “agrees that the status quo is not sustainable and may not be in the best interests of our students,” it decided to maintain the degree program while making changes to address some of these concerns through the degree curriculum renewal process. The Faculty notes that the proposed curriculum revisions for Fall 2020 will “increase the Agrology content in the degree to meet the national ‘Agrologist’ professional standard,” while retaining an additional ecology course offered in Science and removing the existing undergraduate thesis course to allow more flexibility for students.

## **Agriculture**

xii. *The reviewers recommend the development of a strategy for increasing program demand and growth*

The Faculty response indicates that a recruitment strategy has been implemented and Science credit requirements are being reduced to address bottleneck courses.

*xiii. The reviewers encourage the Faculty to continue student recruitment efforts despite meeting intake targets*

The Faculty notes that in addition to its recruitment strategy, it has implemented two pilot experiential learning courses to increase hands-on learning opportunities in animal facilities.

*xiv. The reviewers recommend the complement of faculty members be increased to maintain program quality*

The Faculty has “approved one position for renewal (Animal Systems), with plans to approve a second position (Animal Physiology) to reduce use of sessional instructors.”

*xv. The reviewers see an opportunity to provide enhanced research opportunities for students*

The Faculty states that support to undergraduate research assistants have been increased in 2018, though the reason why few undergraduate students participate in research paper submissions or oral presentations despite how much these are advertised is still being explored.

*xvi. The reviewers encourage that the co-op option be re-examined*

The Faculty response indicates that co-op uptake is being reviewed through the program renewal process to ensure that students who take co-ops can still graduate in 4 years and that co-op programs are well coordinated.

*xvii. The reviewers recommend that internationalization be enhanced within the programs*

The Faculty notes that the “proposed curriculum renewal allows that at least one term have the flexibility to support an international exchange or co-op work experience for students.” The Faculty is also requesting classroom technology to increase in-class interaction with academics and industry in other countries.

*xviii. The reviewers recommend the development of cornerstone courses to create community amongst students in the Faculty*

The Faculty indicates that their proposed curriculum renewal includes introductory courses for all undergraduate students in the faculty as well as a capstone course that will require cross-discipline interaction.

*xix. The reviewers recommend that shortfalls around student advising be addressed*

The Dean is reviewing the role of both faculty and support staff in carrying out student advising across degree programs to ensure uniformity, as the cost in terms of academic time is high for some units.

*xx. The reviewers identify the need to upgrade teaching spaces with up-to-date technology*

The Faculty response notes that the Dean will continue to engage in fundraising for equipment upgrades and also “review progress of classroom and lab renewal with the Provost as we have limited ability to proceed without approval from Central Administration.”

The Provost’s Office notes that significant resources have been allocated to classroom renewal as a result of the Front and Centre campaign, and that it continues to make strategic allocations

toward this ongoing issue. The Faculty is encouraged to work with the office of the Vice-Provost, Teaching and Learning to identify and prioritize classroom and lab needs.

xxxi. *The reviewers identify the need to ensure that the central classroom booking system recognizes the specialized teaching/classroom requirements for these programs*

The Faculty states that through the ongoing discussion with the Registrar's Office to address challenges with the booking system "some progress has been made, which is appreciated, but we continue to see compromises in teaching opportunities due to lack of recognition of the special requirements..."

The Provost's Office notes that Faculty schedulers are encouraged to coordinate classroom priorities annually with the Office of the Registrar and Enrollment Services to ensure that specialty classrooms located with the Faculty's home buildings are given priority in the room optimization process.

xxcii. *The reviewers recommend flexibility in prerequisites to facilitate time to completion*

The Faculty response notes that the proposed curriculum has reduced course prerequisites where possible.

xxciii. *The reviewers recommend packaging existing courses into concentrations/specialization*

In line with this recommendation, the Faculty indicates a new Minor in Agronomy has been proposed.

xxciv. *The reviewers recommend enhancing administrative efficiency to free up faculty for teaching*

The Faculty submission indicates that the Dean is encouraging department heads to assign teaching loads in accordance with the teaching guidelines approved by the faculty members in 2016.

xxcv. *The reviewers recommend continuing discussions with Science on program delivery efficiency*

The Faculty notes that the proposed curriculum renewal "will include reduced Science course requirements where possible through adjustment of content in other courses."

xxcvi. *The reviewers recommend the development of measurable learning outcomes for courses and programs*

The Faculty notes that it has moved forward on this recommendation in the proposed curriculum renewal.

## 6. Summary

Consistent with the UM policy on Academic Program Reviews,<sup>1</sup> regular program reviews are conducted to maintain the academic integrity of academic programs at the University of Manitoba and, to ensure through an exercise of self-reflection and external observation, that our academic programs maintain academic excellence. On behalf of the University, I would like to

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<sup>1</sup> [https://umanitoba.ca/admin/governance/governing\\_documents/academic/364.html](https://umanitoba.ca/admin/governance/governing_documents/academic/364.html)

acknowledge the four groups of reviewers for their efforts in support of the review of the undergraduate programs in the Faculty of Agriculture and Food Sciences (FAFS). Their report provided a number of detailed recommendations that will facilitate substantial improvements to undergraduate programs in FAFS, the majority of which the Faculty has committed to supporting. I would also like to recognize the faculty, staff and students in the Faculty for their very positive engagement with this process.

The curriculum and course changes proposed by the Faculty in response to the reviewers' recommendations were approved by Senate in September 2020. These changes involved the introduction of thirteen courses, deletion of nineteen courses, and the modification of forty-five courses across the Faculty. Other modifications to the various degree programs include the three options that were closed in Agribusiness and the minor introduced in Agronomy, among others.

## **7. Recommendation for Follow-up**

I recommend that the Senate Committee of Academic Review request a follow-up report on progress toward the recommendations supported by the Faculty. The report should be submitted by August 1, 2023 and specifically address the following:

- Progress with degree program renewal based on findings of the 2017/18 employer and alumni survey (Agribusiness)
- Improvements to coop program (Agriculture, Agribusiness & Food Science)
- Status of industry advisory committee (Food Science)
- Outcome of curriculum renewal for Agroecology
- Undergraduate students' research participation (Agriculture)
- Management of gaps in student advising (Agriculture)
- Implementation of new curriculum (Agriculture)
- Outcome of Dean's review of faculty and support staff advising (Agriculture)
- Performance of the Minor in Agronomy

Cc: Diane Hiebert-Murphy, Provost and Vice-President (Academic)  
Martin Scanlon, Dean Faculty of Agriculture and Food Sciences  
Jeff Leclerc, University Secretary  
Cassandra Davidson, Academic Program Specialist





**University  
of Manitoba**

Office of the Provost and Vice-President (Academic)

Attachment 1.b

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Date: October 5, 2022  
To: Members of the Senate Committee on Academic Review (SCAR)  
From: Greg Smith, Vice-Provost (Academic Planning and Programs) and Chair, Senate Committee on Academic Review  
Subject: Report on the Undergraduate Program Review, Department of Philosophy

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### 1. Preamble

In May 2000, the Senate of the University of Manitoba endorsed a process for the periodic review of undergraduate programs to assess the quality of undergraduate programming presently provided at the University of Manitoba, and to stimulate strategic planning and actions for future enhancements. The purpose of this report is to summarize the highlights of the undergraduate program review team's evaluation of the Bachelor's program in the Department of Philosophy, the responses to the report, recommendations, actions taken to date, and a disposition of the process from the perspective of the Provost.

### 2. Chronology

The undergraduate program review of Philosophy was initiated in 2017, and the Self-Evaluation Report (SER) for the review was received in September 2018. An external review team (the reviewers) comprised of two external members (Dr. Tim Kenyon, Brock University and Ann Levey, University of Calgary) and one internal member (Dr. Judith Owens, Department of English, Theatre, Film and Media, University of Manitoba) undertook a site visit over Nov 19 and 20, 2018.

The reviewers met with relevant academic and administrative staff, and students from the Department of Philosophy, the Faculty of Arts and the Office of the Provost and Vice-President (Academic). The resulting report of the reviewers (the report) was subsequently submitted in January 2019. Responses to the report were received from the Department of Philosophy in May 2019, and from Dr. Steven Lecce, Associate Dean, Faculty of Arts in January 2020. All of the above documents are attached to this report.

On behalf of the Provost, I would like to thank everyone who contributed to this review.

### 3. Program overview

The Department of Philosophy offers a standard education in analytic philosophy, with a core set of courses that cover the main areas – history of philosophy, logic, metaphysics, epistemology, and value theory. The programs focus on imbuing students with specific skills and habits such as evaluating evidence, assessing the positions of others comprehensively and

fairly, presenting difficult ideas clearly in both the written and verbal forms, providing insightful and helpful solutions to intellectual problems, and finding common ground between two apparently incompatible positions. The department's objectives include the intention to provide students with the training needed to pursue philosophy at the graduate level and contribute to the provision of a liberal arts education to Faculty of Arts students.

The department offers the following undergraduate programs:

- B.A. (Gen.), Philosophy;
- B.A. (Adv.), Philosophy; and
- B.A. (Hons.), Philosophy

#### **4. Academic Program Review**

The review report notes that “the Department is recognized and appreciated at the institutional level as a publicly engaged teaching and research unit.” The reviewers explain that although enrolment in the Philosophy program is low relative to some other similarly resourced programs at the University of Manitoba, it is “not drastically out of line with the numbers in comparable program across Canada.” The reviewers also note that the Department contributes significantly to the university by delivering high-demand foundational teaching courses for students in various Faculties.

The reviewers identify other major strengths of the program including the close-knit relationships within the student body and between students and faculty; productive synergies between undergraduate and graduate students; personalized, sustained attention to students by knowledgeable and helpful staff; and an excellent record of placing students in graduate programs. While they acknowledge the high quality of the personalized advising provided at the Department level, the reviewers note that students would better benefit from having a dedicated faculty advisor. The external review team categorized the Department of Philosophy's undergraduate programs as *Category 2: Adequate, with revisions as noted*.

#### **5. Recommendations and Responses**

The external reviewers' report made 19 suggestions and recommendations for improvements to the Philosophy undergraduate degree programs pertaining both to the university administration and to the Faculty. As these have been addressed in the respective responses by the Department and Faculty, they will be summarized below and supplemented as necessary with comments from the Vice-Provost (Academic Planning and Programs).

- i. The reviewers recommend moving specific 2000 level courses to the 3000 level*

The department response agrees with this recommendation with reservations, noting that it will “use the current 3000 topics course to introduce courses that might be better taught at the 3000 level. If those courses are successful, then we will make a CPAC proposal to put those courses on the books.” They have decided that 2000 level courses are best conceived as survey courses while 3000 level courses are more narrowly focused.

- ii. The reviewers recommend offering more survey/introductory courses at the 2000 level*

The department disagrees, arguing that they cannot offer more courses unless they hire more faculty. The Faculty Associate Dean (AD) rejects the assumption this recommendation is based on, which is the idea that the *number* of courses determines how many major/honours students are recruited. The Faculty AD instead recommends that the department considers altering the mix of courses and how they are scaffolded, and offers to share other strategies for boosting enrollment with the department.

*iii. The reviewers recommend revising the curriculum to better reflect interests of current department members*

The department indicates they have provided a CPAC proposal revising the program to reflect what the department currently offers.

*iv. The reviewers recommend reducing and possibly eliminating prerequisites for most second year courses*

The department notes that they have “created a series of CPAC proposals to eliminate prerequisites for most 2000 courses.”

*v. The reviewers recommend offering Philosophy of the Mind and Philosophy of Language at the 3000 level*

Addressed under response one.

*vi. The reviewers recommend converting 4000-level seminars into topics courses*

The department agrees with reservations, noting that they already have two 4000-level topics courses and are working on a third.

*vii. The reviewers recommend streamlining 4000-level seminars into a managed minimum per year*

The department notes that this will be handled during the annual timetabling meetings.

*viii. The reviewers recommend re-envisioning Introduction to Philosophy (i.e. determining whether the 6 credit-hour courses should be replaced with 3-CH courses).*

The department decided to retain the 6-credit hour Introduction to Philosophy, while introducing other 3 credit hour first year courses. The department felt that “while a 6 credit hour introductory course fares modestly in terms of attraction (students might not sign up because of the 6 credit hour commitment), it likely outperforms 3 credit hour courses in terms of conversion because professors have more time to win students over.” The department also indicates a web package on the benefits of majoring or minoring in philosophy will be developed as part of first- and second-year courses.

The Provost’s Office recommends paying attention to trends in enrollment in the 6 ch courses as students now have more variety of courses to experience in their initial years, and full year courses are increasingly difficult to timetable against other competing interests and future program needs.

*ix. The reviewers recommend rewriting course descriptions for the Academic Calendar*

The department notes that each faculty member has reviewed the descriptions of the courses they teach in order to revise them appropriately.

*x. The reviewers recommend designating a faculty member to advise students in the program.*

The department notes that an advisory committee will be struck to meet this need.

The department also identifies a challenge of “not being able to know who all of their students are due to students often not declaring their majors early on in their degrees.” They have asked the Dean for ways to identify interested undecided students (e.g., students who have taken 9 credit hours or more in Philosophy) and the Faculty indicates that the Department is now being supported in this area. The Faculty also recommends the department consider the common practice of emailing students who achieve whatever is considered to be a strong predictor of future success in Philosophy, and inviting them to speak with the Head and/or enroll in the program.

The Provost’s Office supports all initiatives to encourage students to declare a program of study as soon as possible. While students may change their majors or minors over time, it is valuable to Faculties and to the University to know where student interest and demand may lie for strategic planning purposes.

*xi. The reviewers recommend holding an open house annually, as a recruitment strategy*

The department notes that various events have been held to attract students and they will continue to build on the success from these, though they indicate they have had less money in their departmental budget to support these activities.

The Provost’s Office notes that since the review took place, the Faculty has allocated more substantial control over the departmental budgets and their discretionary funds.

*xii. The reviewers recommend establishing undergraduate student awards*

*xiii. The reviewers recommend holding an annual event to celebrate outstanding student achievement*

The department indicated that while they agree with these recommendations, there is uncertainty around their ability to fund such initiatives due to “budget cutbacks from the Faculty of Arts, as well as uncertainty about how finances will be handled in the future.”

The Faculty AD in their response sought to clarify the issue of budget cutbacks, noting that the Department had had money temporarily cut back by the Faculty because their budget did not prioritize the kind of student initiatives recommended by the external reviewers, instead spending funds on “unapproved renovations and computer purchases.”

The Provost’s Office notes that long term or perpetual awards are frequently established by alumni and other interested donors to support student success. The department can work with the Faculty and with the office of Donor Relations to prioritize needs for future awards. It is also worth considering how undergraduate students might be supported through funding obtained by the unit’s research faculty, who are eligible to apply for SSHRC and other external grants.

*xiv. The reviewers recommend formulating a Departmental strategy on diversity*

The department states that it has formulated a plan that involves diversifying reading lists, providing more structured advising for undergraduates and working to develop a position request “that would increase the odds of our being able to hire a diverse candidate, as well as increase the odds that we’d be able to hire someone whose area of expertise would allow them to introduce Indigenous issues into our curriculum.”

The Provost’s Office notes that since the review, the EDI Task force has now completed its work and the Office of the EDI Executive Lead, Equity, Diversity & Inclusion is available to facilitate discussions on this issue.

*xv. The reviewers recommend pursuing a commitment to Indigenous issues and perspectives*

The department indicates that it has begun incorporating Indigenous content into courses.

The Provost’s Office notes that since the review, the Office of the Vice-President Indigenous has been fully staffed and is available to facilitate discussions on this issue.

*xvi. The reviewers recommend a departmental retreat to agree on the fundamental aims of the program, and then redesign the course offerings/ curriculum*

The department has agreed to plan a departmental retreat that will address “deep vision” tasks as well as tasks that should be addressed on an ongoing basis.

*xvii. The reviewers recommend pursuing opportunities for intra- and inter-departmental team-teaching*

The department notes they have experienced some administrative difficulties with team teaching in the past but are willing to consider it again.

*xviii. The reviewers recommend strengthening ties with the Centre for Professional and Applied Ethics*

The Department notes that active cooperation has been made a priority and this is paying off through participation in Center events, though budget cutbacks are impacting the ability to actively support the Centre.

*xix. The reviewers recommend that the department reduce its prerequisites and requirements*

The departmental response indicates that this is part of the ‘deep vision’ tasks to be considered in the departmental retreat, and that “inflexible program requirements that convey assumptions about what counts as core versus non-core subjects” are already being eliminated.

## 6. Summary

Consistent with the UM policy on Academic Program Reviews,<sup>1</sup> regular program reviews are conducted to maintain the academic integrity of academic programs at the University of

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<sup>1</sup> [https://umanitoba.ca/admin/governance/governing\\_documents/academic/364.html](https://umanitoba.ca/admin/governance/governing_documents/academic/364.html)

Manitoba and, to ensure through an exercise of self-reflection and external observation, that our academic programs maintain academic excellence. On behalf of the University, I would like to acknowledge the reviewers (Dr. Tim Kenyon, Dr. Ann Levey, and Dr. Judith Owens) for their efforts in support of the review of the undergraduate programs in the Department of Philosophy. Their report provided a number of detailed recommendations that will facilitate substantial improvements to the undergraduate programs in Philosophy, the majority of which the Faculty has committed to supporting. I would also like to recognize the faculty, staff and students of the Department of Philosophy for their very positive engagement with this process.

## **7. Recommendation for Follow-up**

I recommend that the Senate Committee of Academic Review request a follow-up report on progress toward those recommendations supported by the unit, particularly those that were identified as needing further exploration at a departmental retreat. This report should be submitted by August 1, 2023. The report should specifically address the following:

- Departmental strategy to encourage diversity
- Current approach to minimizing prerequisites and requirements
- Performance of the newly introduced 3 credit hour first year courses
- Functioning of departmental student advisory committee
- Results of identifying, contacting and recruiting interested but undecided students who have not yet declared Philosophy as a Major
- Undergraduate student awards and annual event to celebrate outstanding student achievement
- Progress with hiring practices designed to attract colleagues who will contribute to the diversity of the unit
- Progress with incorporating Indigenous content into courses
- Outcome of departmental retreat, re the fundamental aims of the program and curriculum redesign
- Progress with intra- and inter-departmental team-teaching

Cc: Diane Hiebert-Murphy, Provost and Vice-President (Academic)  
Jeffery Taylor, Dean Faculty of Arts  
Rhonda Martens, Department Head Associate Professor  
Jeff Leclerc, University Secretary  
Cassandra Davidson, Academic Program Specialist



**University  
of Manitoba**

Office of the Provost  
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Date: October 5, 2022

To: Members of the Senate Committee on Academic Review (SCAR)

From: Greg Smith, Vice-Provost (Academic Planning and Programs) and Chair, Senate Committee on Academic Review

Subject: Report on the Undergraduate Program Review, Bachelor of Science General Program

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## 1. Preamble

In May 2000, the Senate of the University of Manitoba endorsed a process for the periodic review of undergraduate programs to assess the quality of undergraduate programming presently provided at the University of Manitoba, and to stimulate strategic planning and actions for future enhancements. The purpose of this report is to summarize the highlights of the undergraduate program review team's evaluation of the Bachelor of Science General Program, the responses to the report, recommendations, actions taken to date, and a disposition of the process from the perspective of the Provost.

## 2. Chronology

The undergraduate program review of the BSc General Program was initiated in 2017, and the Self-Evaluation Report (SER) for the review was received in May 2018. An external review team (the reviewers) comprised of two external members (Dr. Philip Dutton, University of Windsor and Dr. Jens Franck, University of Winnipeg) and one internal member (Dr. Jason Leboe-McGowan, Associate Dean, Faculty of Arts, University of Manitoba) undertook a site visit over Feb 19 and 20, 2019. The reviewers met with relevant academic and administrative staff, and students from the BSc General Program, the Faculty of Science and the Office of the Provost and Vice-President (Academic). The resulting report of the reviewers (the report) was subsequently submitted in March 2019. Responses to the report were received from the unit and from Dr. Stefi Baum, Dean, Faculty of Science in February 2020. All of the above documents are attached to this report.

On behalf of the Provost, I would like to thank everyone who contributed to this review.

### **3. Program overview**

The BSc General program is a 3-year program that provides a broad education to students interested in Science. Students enrolled in this program are exposed to multiple areas of Science at an introductory level and are required to have more advanced study in at least two Science areas unless they choose the Biological Sciences or Chemistry specialization. The program serves many students (between 2300 to 3300) in various ways because of its broad and flexible nature.

Many of the students enrolled in the BSc program are interested in pursuing professional degrees or after-degree programs such as dentistry, law, medicine, pharmacy, education, etc. There are also students that are enrolled in the BSc program because they currently cannot get into the program of choice (many want to enter programs like engineering, nursing, or a Major or Honours program in Science). The program is also popular among students who want to enter a field that only requires a university degree that is not necessarily science focused. Other students in the BSc General program will ultimately transfer into a 4-year major/honours program, so academic advisors play an important role in helping students make informed course choices while still in the program to facilitate this.

### **4. Academic Program Review**

The review report states that the size of the BSc General program makes it a central part of the Faculty's central strategic plan. The reviewers believe that the strength of the program is in its ability to provide students with a "high-quality, broad undergraduate education in Science" and as much depth as is possible for a 90-credit degree. The reviewers also note that the program provides experiential learning opportunities to work in research laboratories as well as participate in university life outside of the classroom. The reviewers indicate that the design of the program is flexible for students not interested in pursuing an advanced degree or graduate studies, although this also means that students who wish to easily transition into a 4-year, BSc Major program from the General program may require more careful advanced planning.

The review report identifies some challenges associated with the flexibility of the BSc General program, which can make it easier for students to fail in their plan to transfer into a BSc Major or advanced program if they selected first year courses that do not fulfill the requirements. The reviewers also identified the challenges with the Faculty's continuation policy that allows students to accumulate 12 failed courses before being placed on academic suspension. Overall, the external review team categorized the Science General Program as *Category 2: Adequate, with minor revisions*.

### **5. Recommendations and Responses**

The external reviewers' report makes 12 suggestions and recommendations for improvements to the BSc General Program pertaining both to the university administration and to the Faculty. As these have been addressed in the respective responses by the unit and Faculty, they will be summarized below and supplemented as necessary with comments from the Vice-Provost (Academic Planning and Programs).



- i. *The reviewers recommend that advisors be rotated through the various areas of specialization*

The program response indicates that this process of assigning advisors to areas of specialization is underway and that the advisors will retain generalized knowledge in addition to their assigned area.

- ii. *The reviewers recommend that BSc General students be required to complete the same 1st-year courses as BSc Major students*

The response from the program and the Dean both disagree with this recommendation (and by extension recommendations 7 and 8), arguing that the role of the BSc General is to provide broad scientific knowledge and skills, and this is qualitatively different from Major programs which are more focused on a field of specialization. The program response argues that the significant breadth of Science programs make it such that “it’s not possible to define a single common set of classes that students can take in the first year that allows them to pursue any major in science.”

The Dean further notes that while implementing these recommendations will not be in the students’ best interests, the Faculty is willing to explore modifications to the 4-year Major degrees that can make it easier for students in BSc General programs to transition into them.

The Provost’s Office notes that The Centre for the Advancement of Teaching and Learning can provide advice and assistance with curriculum mapping which may further inform the viability of this recommendation.

- iii. *The reviewers recommend that bottleneck courses be addressed by adding more sections and developing blended course offerings*

The program response notes that various approaches are underway to reduce bottlenecks including reviewing the curriculum, offering more sections, opening up more lab space and revising progression regulations.

- iv. *The reviewers recommend the development of formal articulation agreements with other institutions to provide an avenue for low performing students to improve their academic skills in smaller classes before continuing their studies at the University of Manitoba.*

The program response identifies actions that will improve student performance including University 1’s new transit model, the Faculty’s ongoing work on updating progression rules and the preparatory courses aimed at students who made need extra remedial help. The program has also contacted Red River College to discuss some of the recommendations and is “open to exploring academic relationships with other institutions.”

- v. *The reviewers encourage the Faculty and the University to continue their ongoing efforts to improve classroom and laboratory spaces.*

The program and Faculty responses note that while they would welcome better classrooms and laboratories, implementing this would require university-wide cooperation and participation.

The Provost's office notes that the Vice-Provost Teaching and Learning coordinates teaching facility needs across the campuses, and will continue to work with Faculties to assess and prioritize space resource needs. Moreover, significant resources have been allocated to classroom renewal as a result of the Front and Centre campaign, and the Office continues to make strategic allocations toward this ongoing issue. The Faculty is encouraged to work with the office of the Vice-Provost, Teaching and Learning to identify and prioritise classroom and lab needs.

vi. *The reviewers recommend that student advising & communication be strengthened*

The program identifies ongoing initiatives around student advising and communication including a website revamp, social media and public screens, town-halls with students and collaborations with U1.

vii. *The reviewers recommend enabling a seamless transition from the BSc General program to the 4-year BSc Major degree programs by creating a 3-year BSc General degree in each disciplinary area*

viii. *The reviewers recommend modifying current introductory course requirements to support a more fluid transition from BSc General programs into a 4-year BSc Major program*

The responses from both the program and Dean disagree with these recommendations. See the responses to recommendation 2 above.

The program response notes that they are in the process of conducting a survey to get alumni & student's input regarding the BSc General degree.

ix. *The reviewers recommend tying students' continuation in their degree program to their end of year GPA.*

The program response indicates that the ongoing revision to the progression rules and the new U1 transit regulations would assist with addressing this recommendation.

x. *The reviewers recommend limiting the number of times that students are permitted to enrol in a course after failing it*

The program notes that the university currently has a limited access policy and suggests that if this needs to be changed it must be a university-wide initiative and not a Science initiative.

The Provost Office agrees that any policy changes related to student continuation and success must proceed through the normal consultative processes and be a collective decision of Senate.

xi. *The reviewers recommend identifying the specific learning outcomes for BSc General students*

The program response reports that this is ongoing as part of the revisions to the BSc General degree.

- xii. *The reviewers recommend determining whether BSc General graduates consider the training that they received as valuable*

The program notes that the process of surveying their Alumni and current students is ongoing.

## 6. Summary

Consistent with the UM policy on Academic Program Reviews,<sup>1</sup> regular program reviews are conducted to maintain the academic integrity of academic programs at the University of Manitoba and, to ensure through an exercise of self-reflection and external observation, that our academic programs maintain academic excellence. On behalf of the University, I would like to acknowledge the reviewers (Dr. Philip Dutton, Dr. Jens Franck, and Dr. Jason Leboe-McGowan) for their efforts in support of the review of the BSc General Program. Their report provided a number of detailed recommendations that will facilitate substantial improvements to the program, the majority of which the Faculty has committed to supporting. I would also like to recognize the faculty, staff and students of the Science General Program for their very positive engagement with this process.

## 7. Recommendation for Follow-up

I recommend that the Senate Committee of Academic Review request a follow-up report on progress toward those recommendations supported by the program by August 1, 2023. The report should specifically address the following:

- Findings of the survey with the alumni and current students about the value of the BSc General program degree
- Learning outcomes for the BSc General program
- Structural changes made to ease students' transition from the BSc General program to a 4-year Major.
- Modifications to 4-year Major programs to ease students' transition from the BSc General programs
- Opportunities created for advisors to specialize in specific areas while also acquiring general knowledge
- Progress with addressing bottleneck courses
- Improvements to student progression, including through articulation agreements with other institutions that provide an avenue for low performing students to improve their academic skills
- Improvements to student advising and communication
- Revisions to student progression rules

Cc: Diane Hiebert-Murphy, Provost and Vice-President (Academic)  
Brian Mark, Dean and Professor, Faculty of Science  
Jeff Leclerc, University Secretary  
Cassandra Davidson, Academic Program Specialist

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<sup>1</sup> [https://umanitoba.ca/admin/governance/governing\\_documents/academic/364.html](https://umanitoba.ca/admin/governance/governing_documents/academic/364.html)



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Date: October 5, 2022

To: Members of the Senate Committee on Academic Review (SCAR)

From: Greg Smith, Vice-Provost (Academic Planning and Programs) and Chair, Senate Committee on Academic Review

Subject: Report on the Undergraduate Program Review, Ukrainian Canadian Heritage Studies

## 1. Preamble

In May 2000, the Senate of the University of Manitoba endorsed a process for the periodic review of undergraduate programs to assess the quality of undergraduate programming presently provided at the University of Manitoba, and to stimulate strategic planning and actions for future enhancements. The purpose of this report is to summarize the highlights of the undergraduate program review team's evaluation of the Bachelor's program in Ukrainian Canadian Heritage Studies, the responses to the report, recommendations, actions taken to date, and a disposition of the process from the perspective of the Provost.

## 2. Chronology

The undergraduate program review of the Ukrainian Canadian Heritage Studies was initiated in 2017, and the Self-Evaluation Report (SER) for the review was received in September 2019. An external review team (the reviewers) comprised of two external members (Dr. Serge Cipko, University of Alberta and Dr. Christopher Hyrnkow, University of Saskatchewan) and one internal member (Dr. Charlotte Enns, University of Manitoba) undertook a site visit over December 11 and 12, 2019.

The reviewers met with relevant academic and administrative staff, and students from the Centre for Ukrainian Canadian Studies, the Faculty of Arts, and the Office of the Provost and Vice-President (Academic). The resulting report of the reviewers (the report) was subsequently submitted in January 2020. The response from the program was received from Dr. Maureen Flaherty (Acting Director, Centre for Ukrainian Canadian Studies) in March 2020. The response from the Faculty of Arts was received from Dr. Jason Leboe-McGowan, Associate Dean (Academic Affairs) in April 2020. All of the above documents are attached to this report.

On behalf of the Provost, I would like to thank everyone who contributed to this review.

### 3. Program overview

The Ukrainian Canadian Heritage Studies (UCHS) program is an interdisciplinary program housed within the Centre for Ukrainian Canadian Studies ('the Center'). Physically located in St. Andrew's College on the University of Manitoba's Fort Garry Campus, the program is closely tied to the Ukrainian community in Manitoba and in Ukraine through the Centre. The program supports the study of Ukrainian Canadian popular culture, history, religious traditions, art and culture among other themes. UCHS courses can be taken singly for general interest, as options or as components of programs involving majors and minors in various departments. The program is supported by other academic work at the Center, which also encourages and promotes research and scholarship in all areas relating to Ukrainian Canadian Studies both in Canada and in Ukraine. Financial and community support for students of UCHS comes through the Centre, St. Andrew's College, and the University of Manitoba.

The Centre offers the following undergraduate programs:

- B.A. Bachelor of Arts, Ukrainian Canadian Heritage Studies (General) - 3 years
- B.A. (Adv.) Bachelor of Arts, Ukrainian Canadian Heritage Studies (Advanced) – 4 years
- B.A. Minor, Ukrainian Canadian Heritage Studies

### 4. Academic Program Review

The reviewers' report states that since "there are currently no students that declare UCHS as their major or minor, and this has been the case for a number of years," the purpose of the review is to determine how to revive the Program. The reviewers note that the UCHS program is important to the University due to its strong connection with the community and its unique focus on the Ukrainian-Canadian experience. The reviewers also explain that the program incorporates the Canadian experience of a Ukrainian diasporic community more significantly than the Ukrainian Studies programs at the University of Saskatchewan and the University of Alberta.

The reviewers believe the program has the potential to be truly engaged with the community, provide community service-learning opportunities to students, and facilitate thorough undergraduate research through the rich data available. The reviewers note that this potential is a result of the major strengths of the UCHS Program such as the strong support received from the local and national community, the resources regarding Ukrainian Canadian heritage available through library archives, and the links with St. Andrew's College and the Centre. Despite these advantages, the program review notes that the potential of the program is being inhibited by challenges such as the lack of stability in the Program Director position, the reduction of funding, inconsistency in course offerings and the limited number of students declaring either a major or minor in the program. The external review team categorized the Ukrainian Canadian Heritage Studies program as *Category 3: Inadequate, requiring major revisions or restructuring*.

## 5. Recommendations and Responses

The external reviewers' report makes 14 suggestions and recommendations for improvements to the UCHS Program pertaining both to the university administration and to the unit. As these have been addressed in the respective responses by the program and Faculty, they will be summarized below and supplemented as necessary with comments from the Vice-Provost (Academic Planning and Programs).

i. *Establish two University of Manitoba Faculty Positions affiliated with the UCHS program*

The reviewers propose that in order to attract more students, the program would require two additional faculty members (one in the Department of History and the other in the Department of Sociology and Criminology) to offer more courses and research opportunities. The program response acknowledges the need for these positions, noting that one of these Faculty would also serve as a permanent program director. The program also indicates that in the interim, a half-time, term (other academic) position is being developed to manage the UCHS program and engage in research development for the Center.

The Faculty of Arts' response "encourages Dr. Flaherty and the Center to approach the Departments of History and Sociology and Criminology to explore the possibility of submitting joint hiring proposals for the Dean's consideration, as we develop new faculty hiring priorities."

The Provost's Office notes that the subject specializations envisioned in the degree programs go beyond the disciplinary strengths of the Faculty of Arts alone. Subject specialists in Music, Art, Education, and other academic units across the University may be in a position to contribute to the program's teaching and/or administrative needs.

ii. *Solidify Course Rotation/Offerings*

The reviewers recommend that at least 6 courses (with some online components) be offered by the UCHS program each year to attract students. The program response notes that approaches to increase/synergize course offerings are being considered in collaboration with the Department of German and Slavic Studies, with implementation planned for Fall 2021. The program indicates that additional funding is needed to implement these and the Faculty "commits to continue working with Dr. Flaherty (Acting Director) to investigate potential sources of University funding to support augmenting their existing course offerings."

iii. *Enhance student recruitment efforts*

The reviewers suggest that the program may succeed at recruiting more students by hosting events and engaging in outreach to local bilingual schools. The program response indicates that this would be difficult to accomplish due to limited administrative support and the reliance on a seconded Acting Director. The program proposes that current efforts to recruit a more permanent director and enlist more volunteers would aid the implementation of such recruitment initiatives and the Faculty's response indicates a commitment to support this work.

- iv. *The reviewers recommend re-establishing university level solutions to the financial support provided to the Center*

Both the program and the Faculty indicate that support from the University will be necessary to enable the appointment of a permanent Director and to increase the number of courses the program has the capacity to offer.

The Provost's Office notes that while a campaign for support from those keen to support the UCHS program is likely necessary to build a sustainable financial operating position, the charitable focus for Ukrainian communities in Manitoba and Canada has been seriously altered due to the military conflict that arose after the program was reviewed. The unit and the Faculty should nevertheless continue to build a case for support for the program in anticipation of its longer term stability and potentially renewed interest.

- v. *The reviewers recommend re-organizing the Policy Council into a Working Board Model*

The program notes that the recommended revisions to the Policy Council structure are being implemented – the council has shifted from having an annual meeting to meeting three times a year, with additional sub-committee meetings. The Faculty supports these changes, noting that in “the absence of significant funding from the University, increasing financial support from the community will be an essential component for meeting the reviewers’ recommendations.”

- vi. *The reviewers recommend building a culture of researching Canadian-Ukrainian experiences*

The program response notes that the Acting Director recently received approval for a research project focused on the experiences of new Ukrainian Canadians and that this will be a significant step towards fulfilling this recommendation. The Faculty indicates that a complete implementation of this recommendation would require meeting the other high priority recommendations made by the reviewers including recruiting additional faculty members (and a permanent Director), increasing course offerings and recruiting more students.

- vii. *The reviewers recommend exploring identity connections with Indigenous Studies*

- viii. *The reviewers recommend rekindling cooperation with Judaic and Mennonite Studies*

The program response recognizes the importance of making these connections with scholars engaged in Indigenous Studies and Judaic, and Mennonite Studies, noting that efforts to address the other recommendations will make it possible to establish those connections. The Faculty response encourages the program to contact other existing research centres in the Faculty to discuss how they can develop such connections.

The Provost's Office adds on this point, in light of recent events, that interest in the history of the region, the geopolitics of forced migration and the ties to peace and conflict studies and human rights offer immediate connections with faculty expertise across the University of Manitoba.

- ix. *The reviewers recommend re-invigorating the presence of graduate students*

The program response notes that as long as the research program continues to grow, more graduate students will be attracted.

- x. *The reviewers recommend building up small units*

The program and Faculty note that doing this will require targeted financial support from the university or alternatively, from community fundraising initiatives.

- xi. *The reviewers recommend cross-listing and cross-promoting classes*

The responses indicate that the program is working on implementing this recommendation in collaboration with German and Slavic Studies and the Asper School of Business, and the Dean's Office is committed to providing support and advice to help facilitate these arrangements.

- xii. *The reviewers recommend enhancing promotion materials in St. Andrew's Cafeteria*

The program response indicates that there are promotional materials present in the Cafeteria and the Faculty notes that their marketing specialists can work with the UCHS program to make these materials more visible.

The Provost's Office notes that while this may generate interest from students who have some familiarity with Ukraine and Ukrainian-Canadian issues, the desire to grow the interest and enrollment in the program will require a more complete approach to recruiting and program restructuring to capitalize on interest from a wide range of students.

- xiii. *The reviewers recommend emphasizing the ability of the program to take St. Andrew's "Beyond the Orthodox"*

The program and Faculty believe that "this recommendation will be fulfilled as a natural consequence of the enhanced community connections developed through the implementation of other recommendations that the reviewers have provided."

- xiv. *The reviewers recommend offering a colloquium series based on student-led community engaged research projects*

The Faculty and program responses support this recommendation as a "valuable, longer-term goal that should be implemented, following success in implementing the higher priority recommendations provided by the reviewers."

The Provost's Office notes the creation of a micro-credential in this vein, established since the conclusion of the review.

## **6. Summary**

Consistent with the UM policy on Academic Program Reviews, regular program reviews are conducted to maintain the academic integrity of academic programs at the University of Manitoba and, to ensure through an exercise of self-reflection and external observation, that our academic programs maintain academic excellence. On behalf of the University, I would like to acknowledge the reviewers (Dr. Serge Cipko, Dr. Christopher Hyrnkow and Dr. Charlotte Enns) for their efforts in support of the review of the UCHS program. Their report provided a number of detailed recommendations that will facilitate substantial improvements to the program, the majority of which the Faculty has committed to supporting. I would also like to



recognize the faculty, staff and students associated with the CUCS and UCHS program for their very positive engagement with this process.

### **7. Recommendation for Follow-up**

I recommend that the Senate Committee of Academic Review request a follow-up report on progress toward those recommendations supported by the program. The report should be submitted by August 1, 2023 and specifically address the following:

- Offering courses through collaboration with the Departments of German and Slavic Studies, Political Studies, School of Art, Desautels School of Music, Peace and Conflict Studies
- Cross-listing and cross-promotion of classes
- Current organizational form of the UCHS policy council
- State of research into Canadian-Ukrainian experiences
- Progress with connecting to scholars in Indigenous Studies, Judaic, and Mennonite Studies
- Improvement to ability to attract graduate students
- Enhanced use of promotional materials
- Joint hiring proposals with the Departments of History, Sociology and Criminology

Cc: Diane Hiebert-Murphy, Provost and Vice-President (Academic)  
Jeffery Taylor, Dean Faculty of Arts  
Yuliia Ivaniuk, Coordinator  
Jason Leboe-McGowan, Associate Dean Faculty of Arts  
Jeff Leclerc, University Secretary  
Cassandra Davidson, Academic Program Specialist

November 23, 2022

## **Report of the Senate Executive Committee**

### **Preamble**

The Executive Committee of Senate held its regular monthly meeting on the above date.

### **Observations**

#### **1. Speaker for the Executive Committee of Senate**

Professor John Anderson will be the Speaker for the Executive Committee for the December 7, 2022, meeting of Senate.

#### **2. Comments of the Executive Committee of Senate**

Other comments of the Executive Committee accompany the report on which they are made.

Respectfully submitted,

Dr. Michael Benarroch, Chair  
Senate Executive Committee

[Terms of Reference](#)

## Report of the Faculty Council of Graduate Studies on Course, Program, Supplementary Regulation and Regulation Changes

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### Preamble

1. The Faculty of Graduate Studies (FGS) has responsibility for all matters relating to the submission of graduate course, program, supplementary regulation, and regulation changes. Recommendations for such are submitted by the Faculty Council of Graduate Studies for the approval of Senate.
2. The Faculty Council of Graduate Studies met on the above date to consider a proposal from the College of Dentistry.

### Observations

1. The **College of Dentistry** proposes several changes to their professional graduate dental programs.

The purpose of the proposal is (i) to change the credentials for some programs, from an M.Sc. to an M.Dent., as the latter credential is more appropriate given the clinical nature of the programs and (ii) to ensure the names of the majors are consistent with the program names previously approved by Senate and for alignment with accreditation standards. In order to unify these programs as all M.Dent, the Orthodontics and Prosthodontics programs have prepared the UM Significant Modification – Credential Change forms for approval.

In addition to the credential changes for Orthodontics and Prosthodontics, the following additional changes are being requested to ensure that program specialties are accurately named and align with accreditation program names, and are included as *majors* in order for them to be used on graduation parchments and transcripts. These specialty name changes better align with the CDAC (Commission on Dental Accreditation of Canada) terminology, which in turn aligns with CODA (Commission on Dental Accreditation) in the U.S. due to the reciprocal agreement between CDAC and CODA for mutual recognition of the Clinically-based Dental Specialities.

The following summarizes the proposed changes:

<u>Program</u>	<u>Present Credential</u>	<u>Proposed Credential</u>	<u>Present Concentration Name</u>	<u>Proposed Major Name*</u>
Oral and Maxillofacial Surgery	M.Dent.	no change	Oral and Maxillofacial Surgery	Oral and Maxillofacial Surgery
Periodontics	M.Dent.	no change	Periodontics	Periodontics
Pediatric Dentistry	M.Dent.	no change	Pediatric Dentistry	Pediatric Dentistry
Dental Science (a.k.a. Orthodontics)	M.Sc.	M.Dent.	Dental Science (a.k.a. Orthodontics)	Orthodontics and Dentofacial Orthopedics
Prosthodontics	M.Sc.	M.Dent.	n/a	Prosthodontics

\*The Office of the Registrar & Enrolment Services confirms in their letter of support that the proposed major names will appear on graduand's parchments when all credentials have changed to M.Dent.

**Recommendations**

**Faculty Council of Graduate Studies recommends THAT the program changes from the unit listed below be approved by Senate:**

**College of Dentistry**

Respectfully submitted,

Dr. Kelley J. Main, Chair  
Faculty Council of Graduate Studies

/ak

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the  
Report to Senate.



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August 25, 2022

To: Dr. Kelley Main, Dean (acting), Faculty of Graduate Studies

From: Dr. Anastasia Kelekis-Cholakis, Dean, College of Dentistry

Subject: Request for Credential Change from MSc to M.Dent

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Dear Dr. Main,

The Dr. Gerald Niznick College of Dentistry Preventive Dental Science Department Council met on March 25th, 2022 and voted in support of the motion to change the credential for the Orthodontics graduate program from a Master of Science degree to a Master of Dentistry degree, and to also change the program name to "Orthodontics and Dentofacial Orthopedics" to match the CDAC accredited program name. The Restorative Dentistry Department Council met on May 17th, 2022 and also voted in favour of the motion to change the credential for the Prosthodontics graduate program from a Master of Science degree to a Master of Dentistry degree.

This change in credential is better aligned with the more clinical nature of the programs. Both of these programs have a significant clinical practical component which is more appropriate for an M.Dent degree than an MSc degree which is more highly focused on research.

In addition to this credential change, we would like to make sure that the major names correctly reflect the program names in line with accreditation and senate approved program names. Please see executive summary of changes, modification to program of study form for each program and the supporting documents package attached.

We ask that you forward this request to Faculty Council for consideration.

Thank you,

A handwritten signature in black ink, appearing to be 'AKC', written in a cursive style.

**Anastasia Kelekis-Cholakis**, BA, DMD, Dip. Perio, FRCD(C)  
Dean, Dr. Gerald Niznick College of Dentistry, University of Manitoba  
Associate Professor and Director Graduate Periodontics (Acting)

## **Executive Summary of Requested Changes within the Graduate Programs in the College of Dentistry**

In an effort to enable the University to be able to include program specialty titles on graduate parchments we have been advised that all programs are required to be Master of Dentistry (M.Dent) programs, instead of some M.Dent and some Master of Science (MSc). Unifying all programs as M.Dent degrees also better aligns with the clinical nature of the programs. In order to unify these programs as all M.Dent, the Orthodontics and Prosthodontics programs have prepared the UM Significant Modification – Credential Change forms for approval.

In addition to the credential changes for Orthodontics and Prosthodontics, the following additional changes are being requested to ensure that program specialties are accurately named and align with accreditation program names and are included as Major's in order for them to be used on graduation parchments and transcripts. These specialty name changes better align with the CDAC (Commission on Dental Accreditation of Canada) terminology, which in turn aligns with CODA (Commission on Dental Accreditation) in the US due to the reciprocal agreement between CDAC and CODA for mutual recognition of the Clinically-based Dental Specialities.

- **M.Dent., Oral and Maxillofacial Surgery** – currently OMFS is captured as a concentration tied to the 'Dental Diagnostics and Surgical Sciences' major; However, the program name (i.e. the name of the major) as approved by Senate (June 2000) is 'Oral and Maxillofacial Surgery'. We would like to have the senate approved program name be used as the Major, instead of having the program name being at the concentration level. This is in order to have the program name be identified on graduate parchments. We believe that no approval is required to make this change of major to "Oral and Maxillofacial Surgery" given what was originally approved by Senate, and would ask that this change be included with this package as it is part of the larger end goal. The intent of this request is to make the change in Banner in order to be reflected on graduation parchments.
- **M.Dent., Periodontics** – currently Periodontics is captured as a concentration tied to the 'Dental Diagnostics and Surgical Sciences' major; however, the program name (i.e. the name of the major) as approved by Senate (June 2000) is 'Periodontics'. We would like to have the senate approved program name be used as the Major, instead of having the program name being at the concentration level. This is in order to have the program name be identified on graduate parchments. We believe that no approval is required to make this change of major to "Periodontics" given what was originally approved by Senate, and would ask that this change be included with this package as it is part of the larger end goal. The intent of this request is to make the change in Banner in order to be reflected on graduation parchments.
- **M.Dent, Pediatric Dentistry** – currently Pediatrics is captured as a concentration tied to the 'Preventive Dental Science' major; however, the program name, as approved by Senate (March 2010) is 'Pediatric Dentistry'. We would like to have the senate approved program name be used as the Major, instead of having the program name being at the concentration level. This is in order to have the program name be identified on graduate parchments. We believe that no approval is required to make this change of major to "Pediatric Dentistry" given what was originally approved by Senate, and would ask that this change be included with this package as it is part of the larger end goal. The intent of this request is to make the change in Banner in order to be reflected on graduation parchments.

- **M.Sc., Dental Science** (*a.k.a Orthodontics*) – currently the program is captured as a major in ‘Preventive Dental Science’; however, the program name as approved by Senate (1964?) is Dental Science. It has been the program’s understanding that “Orthodontics” was the approved program name, however the senate documents confirming this haven’t been located. It seems as though perhaps a concentration of ‘Orthodontics’ may be understood to have been implicitly approved based on various program modifications brought to Senate over time and changes reflected in supplemental regulations, but this does not appear as such on a student’s academic record. At this time, we would like to ask for FGS and Senate approval to change the program name to “Orthodontics and Dentofacial Orthopedics” and have this be the name that appears as the Major. This program name change aligns with the current accredited program name. The intent of this part of the request is to make the change in Banner in order to be reflected on graduation parchments. In addition to the program name change, we are looking to have this program credential changed from an MSc to an **M.Dent.** So with these two paired changes, the credential would then be an **M.Dent. in Orthodontics and Dentofacial Orthopedics** – The proposal form, attached here for approval by the FGS Council (and relevant FGS committees), Senate Executive and Senate, to change a credential, as well as the proposed program name change to the current CDAC accredited name, were approved by Department council on March 25<sup>th</sup>, 2022. Once approved by Senate, provincial approval will also be required.
- **M.Sc., Prosthodontics** – Currently, Prosthodontics is listed as the major so will be ready to be included on parchments as soon as the option is turned on. At this time we are looking to change the program credential to an **M.Dent, Prosthodontics**, so that this feature aligns with the other clinical dentistry programs and so that the option to turn on/activate the major to be included on the parchments is available. The proposal form to change a credential has been approved by Department council on May 17<sup>th</sup>, 2022 and is attached here for approval by the FGS Council (and relevant FGS Committees), Senate Executive and Senate. Once approved by Senate, provincial approval will also be required.

**SIGNIFICANT MODIFICATION TO A PROGRAM OF STUDY**

Under The Advanced Education Administration Act

Universities and colleges requesting approval for a **significant modification** to a program of study from Education and Training must apply using this application form. This form reflects the requirements set out in the Programs of Study Regulation (MR 134/2015) under The Advanced Education Administration Act.

**UM INTERNAL REQUIREMENTS**

**University  
of Manitoba**

1. Please complete the application below and submit one (1) electronic copy (.pdf format) each to the Deputy Provost (Academic Planning and Programs) and the Office of the University Secretary, (where indicated) along with the following supplemental documentation:
  - a. A cover letter justifying and summarizing the rationale behind the request for a significant modification.
  - b. Letters of support from internal and/or external stakeholders that were consulted as part of this proposal, if applicable.
2. Note that internal approval of the proposed modification will vary depending on the type of modification (see SECTION C). Please work with the Provost's Office and the Office of the University Secretary in advance, in identifying the appropriate procedures and approval processes. In general, please note the following for each type of modification:
  - a. **CHANGE OF SITE** – may require Senate approval if the site requires modifications to admission and/or program requirements (e.g. new admission category).
  - b. **CHANGE TO SEAT CAPACITY** – please refer to the Admission Targets Policy and Procedures ([http://umanitoba.ca/admin/governance/governing\\_documents/academic/admission\\_targets.html](http://umanitoba.ca/admin/governance/governing_documents/academic/admission_targets.html)). Changes may also require Senate approval if there are modifications to admission and/or program requirements.
  - c. **CHANGE TO TIME-TO-COMPLETION** – any addition to or reduction of hours to program requirements, requires Senate approval. For undergraduate programs, please refer to SCCC Guidelines found at - <http://umanitoba.ca/admin/governance/forms/index.html>. For graduate programs, please contact FGS for approval process.
  - d. **CHANGE TO APPROVED DELIVERY MODEL** – please notify the Provost's Office of any significant changes to course or program delivery method.
  - e. **CHANGE TO STATUS OF JOINT PROGRAM** – depending on the significance of the changes resulting from the proposal, this will either require Senate approval as a program modification or will require the introduction of a new program. Please contact the Provost's Office with more details on how becoming a joint program or ceasing a joint program will impact the program.
  - f. **CHANGE TO CREDENTIAL** – requires Senate approval, with report to the Board of Governors.
  - g. **CHANGES TO CAPITAL OR OPERATING RESOURCES REQUIRED** -
3. Please direct questions to Cassandra Davidson, Academic Programs Specialist, Office of the Provost and Vice-President (Academic) at [Cassandra.Davidson@umanitoba.ca](mailto:Cassandra.Davidson@umanitoba.ca) or 204.474.7847.



**SECTION A – PROPOSAL DETAILS**

Institution: **University of Manitoba**

Applicable faculties/department with responsibility for the program: **Faculty of Graduate Studies AND RFHS / Dr Gerald Niznick College of Dentistry / Department of Preventive Dental Science**

If program is a joint program, list all participating institutions and the roles of each in delivering the proposed program:

Program name: **Master of Science in Preventive Dental Science**

Credential awarded: **MSc**

Funding request: **No additional funding requested**

*Office Use Only*

One-time funding: \_\_\_\_\_

On-going funding: \_\_\_\_\_

Proposed start date: **Fall 2023**

List any critical issues that may impact the start date of the program:

Institutional Program Code(s) (PSIS reporting number):

## SECTION B – PROGRAM DESCRIPTION AND DELIVERY

**B-1 Provide a general description of the significantly modified program and its objectives:** *(Include intended purpose, curriculum design, and highlight distinctive attributes)*

This is a request to change the name of the credential. No modifications have been made to the program.

The objectives of the program are to train biologically-based, critical-thinking orthodontic Residents in state-of-the-art facilities with a diversity of orthodontic philosophies at the cutting edge of the dynamic orthodontic profession via facilitating didactic and clinical learning in an evidence-based and research-based, innovative environment, stimulating an urge for self-discovery, life-long learning and ethical behaviour with the patients' best interests always foremost in the graduate orthodontists' mind.

### Teaching Philosophy of the Program

1. Students bear primary responsibility for their education.
2. Didactic learning is student-based and evidence-driven where the student is primarily responsible for researching knowledge and leading seminars on assigned topics followed by peer discussion which is professor-led
3. Teachers can learn from students.
4. Students are colleagues.
5. Students will participate actively in their education.
6. Solving problems through investigation and consultation is standard procedure.
7. There may be more than one right answer to a problem.
8. Learning is case-based in a small group cooperative environment.
9. Students learn from outcomes-based clinical assessment of their patients.

The Program provides an applied background in the basic sciences underlying orthodontic treatment and instills a critical thinking and independent discovery, problem-solving approach toward clinical practice. In the Basic Sciences, our Residents are fully supported by specialist Oral Pathologists, Oral Radiologists, Periodontists, Prosthodontists, Pediatric Dentists and OMF Surgeons who are on full-time staff appointments in the College.

Treatment is provided in a modern 14-chair orthodontic clinic with state-of-the-art computerized diagnostic equipment and an on-site dedicated orthodontic technician.

Graduate students have an opportunity to treat at least 40-50 new patients and a number of transfer patients (10-25) using a wide variety of orthodontic techniques.

The strength of the clinical program is the wide range of diversity in instructor philosophies of treatment and the opportunity to learn several techniques such as:

- o full fixed modified edgewise.
- o clear aligner treatment.
- o lingual orthodontics.
- o sectional arch mechanics.
- o early treatment philosophies.
- o functional orthopedics.
- o surgical and cleft palate combination orthodontic-surgical cases.

Graduate Residents' research and community responsibilities include:

- Preparation of a Master's Thesis.
- Oral defense of their research project.
- Presentation of their research at an international scientific forum.
- Submission of an article for publication based on their research in a peer-reviewed journal.

- Limited teaching in the graduate orthodontic clinic to undergraduate students via a mentorship approach.
- Participation in outreach to under-served and geographically-isolated and socio-economically deprived communities via the Interceptive ortho-pedo clinic on Fridays in the Main Clinic and rotations at the SmilePlus outreach facility in Winnipeg.

In addition to equipment in the general research laboratories of the College of Dentistry, we also have a state-of-the-art Zwick materials testing machine and 3dMD machine.

All our Residents provide a Masters thesis defense prior to graduation. They challenge the RCDC and/or NDSE exam if they wish to practice in Canada and/or often write and are successful in the ABO. They are expected to complete all of their patients from start to finish and present a case at the CDABO annually at the AAO meeting. They are rigorously examined in the 1st , 2nd, and 3rd year, in the 3rd year via external examination.

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**B-2 Describe how this program serves and advances the academic, cultural, social and economic needs and interests of students and the province:** The Graduate orthodontic program has been producing specialist orthodontists to the world for the past 55 years, having over 160 alumni from the program who have treated thousands of patients world-wide over the past 55 years, making an enormous contribution to health care in Manitoba, Canada, North America and world wide with our orthodontic alumni providing patient care on a daily basis in countries like Ireland, Australia, the USA, Taiwan , Columbia and the UAE, *inter alia*. Significant research and publication has been provided by the program over the past 55 years and orthodontic residents complete a masters research thesis in addition to academic and clinical training during the 36 month full-time program length.

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**B-3 Describe the existing and anticipated post-secondary learning needs of students in Manitoba that this program addresses and responds to:** This program has produced many specialist orthodontists who went on to establish clinical offices throughout the province of Manitoba (and beyond) during its 55 years of existence.

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**B-4 Will the program be available for part-time study?** This program DOES NOT support part-time study. Specialty training in dentistry is a full-time 36 month program

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**B-5 Is there a cooperative education, work placement, internship or practicum component?** Clinical Experience is significant portion of the graduate program throughout the 36 months of the program.

Patient-based clinical interaction is the model we use in the clinic whereby mentorship in a “learning pod” style, led by the senior 3rd year Resident occurs. This peer-driven model was introduced for the first time in 2006 where a G1, G2 and G3’s work in “learning pods” in clinic with the expectation that patients remain in a specific pod which facilitates continuity during patient transfers. Instructors are assigned to all clinics, which are thematically and technique –based in

most instances e.g., Thursdays are orthognathic surgery and Craniofacial Differences CFD, Tuesday mornings are Alexander / Bioprogressive and Functional therapy etc.

During the first 3 months of the program dedicated time is set aside to prepare the G1 Resident for the demanding psychomotor skills required by an orthodontist via a rigorous pre-clinical program which includes impression taking, casting and trimming orthodontic models in hard Plaster of Paris to the very highest degree of accuracy. They are also given instruction and required to produce the wire bending skills for the manufacture of orthodontic laboratory appliances, retainers etc., and expected to demonstrate appliance adjustments.

In addition, Residents are required to start and finish a four premolar typodont extraction case employing the Alexander Discipline and undertake intraoral wire bending exercises, prior to commencement of patient care and placing full fixed orthodontic appliances. Residents are taught how to take intra- and extra-oral photographs as well as cephalometric and panoramic radiographs, in addition to 3dMD images.

Orthodontic Residents can treat several Craniofacial Differences' patients (CFD). We have an assigned full-time orthodontic instructor with a PhD (Manchester, UK) in CFD who is the principal CFD orthodontist. Residents can rotate with the instructor in the multidisciplinary CFD clinic monthly with the full CFD team in attendance.

One afternoon a month we have a combined ortho-perio-prostho clinic. We have an orthodontist, a periodontist and prosthodontist dedicated to this seminar series.

Thursday mornings once a month are devoted to ortho-orthognathic clinics with a dedicated orthodontist and oral surgeon in attendance. Combined treatment planning seminars for orthognathic surgery patients are also held.

45 to 50 new patients with a wide and clinically representative range of malocclusions are assigned to Residents in 1st year as well as transfer cases and a number of retention patients which need to be monitored. The program expects Residents to use several treatment techniques and philosophies of treatment: Modified edgewise (Alexander, Bioprogressive, MBT, Roth, Andrews etc.), Self-ligation (Damon, Speed, Innovation etc.), Clear aligners (Invisalign), Lingual braces (GAC, Speed, Incognito) as well as be involved in TAD placement cases and Class II correctors, multi-disciplinary cases (Prostho, Perio, OMFS) cases which are extraction and non-extraction, mixed dentition cases with partial fixed braces and removable appliances and growth modification cases for Class II and III skeletal dysplasia. Cutting edge technologies such as TAD's are introduced into the program when appropriate. All Residents are assigned a variety of patients which cover the entire range of malocclusions. In rare cases where a patient in every category cannot be found for a Resident, Residents will follow the treatment of the missing malocclusion in the portfolio of their patients with a similar patient who is being treated within the POD by a neighbour POD Resident.

Rotations in the Craniofacial Differences Clinic offer the orthodontic Resident the opportunity to interact with plastic surgeons, speech therapists, geneticists, psychologists, ENT specialists, nursing sisters, etc. Residents also have the opportunity to attend their patients with the oral surgeon for orthognathic surgery in the operating room and observe the in-operative procedures first-hand, also giving Residents the opportunity to gown and glove up in a sterile environment and observe the anaesthesiologist at work as well.

## SECTION C – MODIFICATION TYP

Complete the appropriate section(s) as indicated below depending on the approved characteristic(s) being modified.

### C-6 Change to the credential conferred.

6-1 - Current credential / program name: MSc (Master of Science)

6-2 - Proposed credential / program name: Master of Dentistry (M.Dent)

Concurrent to the credential change, we are also preparing a name change to the major through UM Senate, with the major being revised to “Orthodontics and Dentofacial Orthopedics” in order to better align with the programming and CDAC accredited program name.

6-3 - Describe any associated changes to the curriculum: No curricular changes – We would like to change the credential in order to better reflect the significant clinical nature of the program, and to align with the other clinical dentistry programs (OMFS, Periodontics, and Pediatric Dentistry) which are already M.Dent degrees.

6-4 - Provide a rationale for credential change: We would like to change the credential from MSc to M.Dent because we think that the M.Dent degree better reflects the more clinical nature of the program since there is a significant clinical component throughout the 36 months of the program. We also think that this change will better align with the other clinical dentistry programs in the Dr. Gerald Niznick College of Dentistry. In addition to the credential change being a better fit for the clinical nature of the programs, this change will also allow for degree specialties to be included when residents graduate, which will resolve a longstanding issue for licensing bodies worldwide.

## SECTION D – MODIFICATION INFORMATION

**D-1 Describe how this significant modification aligns with the strategic plans of your institution: The continuation of the graduate orthodontic program, after 55 years of existence is vital for Manitoba and Canada to continue to produce orthodontic specialists to serve health care and provide patient treatment, part of the strategic plan of the university to support a faculty of Health Sciences and a College of Dentistry**

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**D-2 Outline the internal approval process (i.e. committees, governing bodies) for approving this significant modification within your institution and indicate any dates of decision. (Governing Council, Board of Governors, Board of Regents, Senate, other)**

Decision-Making body: **Department council approval, FGS**

**approval** Decision:

Date:

Decision-Making body: Senate

Decision:

Date:

Decision-Making body: Board of Governors (for information)

Decision:

Date:

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### D-3 Responsibility to consult

D-3.1 If this program subject to mandatory review or approval by organizations external to the institution (*such as regulatory bodies, Apprenticeship Manitoba, etc.*), please describe any consultation processes and provide copies of reports or letter from these organizations providing support:

**The program is accredited by Commission of Dental Accreditation of Canada (CDAC). There are no changes to the curriculum or program with this requested credential change as it is a change only to the credential name. We have communicated with the Coordinator at CDAC, as well as the Registrar at Manitoba Dental Association and have obtained a letter of support from MDA, and an email confirmation from CDAC that since there is no impact to their accreditation they don't believe a letter of support from them is needed. See attached.**

D-3.2 What agencies, groups, or institutions have been consulted regarding the significant modification of this program? **As noted above, CDAC and MDA were contacted and we explained our rationale for requesting this credential change. In addition, there has been verbal consultation with various regulatory bodies in Canada and through out the world regarding the need to have the graduate specialty programs included on degrees**

and transcripts when students graduate. This credential change will also support the ability to have this addressed.

D-3.3 How have students and faculty been informed of the intent to modify this program? **Faculty were informed at a department Council meeting where there was unanimous support; and students were informed and provided their unanimous support as well at a meeting with the orthodontic specialty residents. The students have provided a signed letter of support.**

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**D-4 List any similar programs offered in Manitoba:** *(Provide such information as institution, programs, and credentials offered in addition to any impacts on these programs, explain rationale for duplication.)* **This is the only program in Graduate Orthodontics offered in Manitoba.**

D-4.1 Describe any specific laddering, articulation and/or credit transfer options for Manitoban students that are anticipated to change as a result of the significant modification of this program: **None**

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**D-5 List any similar programs offered in Canada:** *(Provide such information as institution, programs, and credentials offered in addition to any impacts on these programs, explain rationale for duplication.)* **Graduate orthodontic programs, all at the masters level are offered at U. Toronto, U Montreal, Western University, U Alberta and UBC. Six in total counting the U Manitoba**

D-5.1 Describe any specific laddering, articulation and/or credit transfer options for Manitoban students that are anticipated to change as a result of the significant modification of this program. **The 6 graduate orthodontic programs in Canada do not accept transfer students. No requests for transfer are anticipated as this is a strong request for change by our residents.**

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**D-6 Describe any changes in labour market demands in Manitoba for graduates of this Program as a result of this significant modification:**

*(Provide such information as probable employment destinations or further educational opportunities available to graduates of this new program of study. Attach any formal reports such as those from Associations, Statistics Canada, Sector Councils, Industry or Regulators.)* **No changes anticipated**

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**D-7 If copies of any internal or peer evaluations with respect to the significant modification of this program of study are being provided with this proposal, please indicated how any issues identified by these evaluations have been addressed and attach any relevant documents as available:**

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**D-8 Does this significant modification entail an increase to tuition, or the establishment of or increase to fees that apply to students in this program of study?**

**No**

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**SECTION E – REQUIRED RESOURCES AND FINANCIAL IMPLICATIONS**

**E-1 If one-time or pilot funding is being requested to support the significant modification of this program of study, please identify the amount of funding being requested:**

**N/A**

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**E-2 If ongoing funding is being requested to support the significant modification of this program of study, please identify the amount of funding being requested:**

**No changes in funding due to this name change request**

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**E-3 If new funding is not being requested, how will the significant modifications to the program be funded? (Include such information as: where reallocated funding will come from, and the implications of reallocating that funding on other programs/activities of the institution.)**

**Continuation of existing funding**

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**E-4 What are the resource implications to the institution in delivering the significantly modified program of study? (Include such information as; budget, IT, library, laboratory, computer, space, practicum liability insurance, student services, etc)**

**None**

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**E-5 Please describe new and existing staffing resources needed to provide this significantly modified program of study. (Include reallocation of existing faculty, hiring of new faculty, administrative and support services and any other considerations.)**

**This is a request for a credential name change only and has no effect on staffing**

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**E-6 Please describe the effect of the significant modification of this program on existing capital infrastructure and equipment:**

**This is a request for a credential name change only and has no effect on staffing**

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**SECTION F – SIGNATURES**

*(A second signature section is provided for joint programs only)*

**SUBMITTED BY:**

**President:**

Name:

Signature:

Date: Click here to enter a date.

**Vice-President/Academic:**

Name:

Signature:

Date: Click here to enter a date.

*For use by joint programs only:*

**President:**

Name:

Signature:

Date: Click here to enter a date.

**Vice-President/Academic:**

Name:

Signature:

Date: Click here to enter a date.

**SUBMIT COMPLETED FORM**

Once completed and signed, please submit this application form to Post-Secondary Education and Labour Market Outcomes at PSE-LMO@gov.mb.ca with the following attachments *(double-click to engage check box)*:

- Cover letter
- Program of Study Financial Form
- Any supporting documentation *(reviews, letters of support, etc.)*

**If you have any questions or require further information, please contact:**

Post-Secondary Education and Labour Market Outcomes  
 Manitoba Education and Training  
 400-800 Portage Avenue Winnipeg MB R3C 0C4  
 (204) 945-1833  
 PSE-LMO@gov.mb.ca

**SIGNIFICANT MODIFICATION TO A PROGRAM OF STUDY**

Under The Advanced Education Administration Act

Universities and colleges requesting approval for a **significant modification** to a program of study from Education and Training must apply using this application form. This form reflects the requirements set out in the Programs of Study Regulation (MR 134/2015) under The Advanced Education Administration Act.

**UM INTERNAL REQUIREMENTS**

**University  
of Manitoba**

1. Please complete the application below and submit one (1) electronic copy (.pdf format) each to the Deputy Provost (Academic Planning and Programs) and the Office of the University Secretary, (where indicated) along with the following supplemental documentation:
  - a. A cover letter justifying and summarizing the rationale behind the request for a significant modification.
  - b. Letters of support from internal and/or external stakeholders that were consulted as part of this proposal, if applicable.
2. Note that internal approval of the proposed modification will vary depending on the type of modification (see SECTION C). Please work with the Provost's Office and the Office of the University Secretary in advance, in identifying the appropriate procedures and approval processes. In general, please note the following for each type of modification:
  - a. **CHANGE OF SITE** – may require Senate approval if the site requires modifications to admission and/or program requirements (e.g. new admission category).
  - b. **CHANGE TO SEAT CAPACITY** – please refer to the Admission Targets Policy and Procedures ([http://umanitoba.ca/admin/governance/governing\\_documents/academic/admission\\_targets.html](http://umanitoba.ca/admin/governance/governing_documents/academic/admission_targets.html)). Changes may also require Senate approval if there are modifications to admission and/or program requirements.
  - c. **CHANGE TO TIME-TO-COMPLETION** – any addition to or reduction of hours to program requirements, requires Senate approval. For undergraduate programs, please refer to SCCC Guidelines found at - <http://umanitoba.ca/admin/governance/forms/index.html>. For graduate programs, please contact FGS for approval process.
  - d. **CHANGE TO APPROVED DELIVERY MODEL** – please notify the Provost's Office of any significant changes to course or program delivery method.
  - e. **CHANGE TO STATUS OF JOINT PROGRAM** – depending on the significance of the changes resulting from the proposal, this will either require Senate approval as a program modification or will require the introduction of a new program. Please contact the Provost's Office with more details on how becoming a joint program or ceasing a joint program will impact the program.
  - f. **CHANGE TO CREDENTIAL** – requires Senate approval, with report to the Board of Governors.
  - g. **CHANGES TO CAPITAL OR OPERATING RESOURCES REQUIRED** -
3. Please direct questions to Cassandra Davidson, Academic Programs Specialist, Office of the Provost and Vice-President (Academic) at [Cassandra.Davidson@umanitoba.ca](mailto:Cassandra.Davidson@umanitoba.ca) or 204.474.7847.

**SECTION A – PROPOSAL DETAILS**

Institution: **University of Manitoba**

Applicable faculties/department with responsibility for the program:

**Faculty of Graduate Studies and Rady Faculty of Health Sciences/ Dr. Gerald Niznick College of Dentistry/ Department of Restorative Dentistry**

If program is a joint program, list all participating institutions and the roles of each in delivering the proposed program:

Program name: **Master of Science in Prosthodontics**

Credential awarded: **MSc**

Funding request: **No additional funding requested**

Proposed start date: **Fall 2023**

List any critical issues that may impact the start date of the program:

Institutional Program Code(s) (PSIS reporting number):

*Office Use Only*

One-time	funding:
_____	On-going funding:
_____	

## SECTION B – PROGRAM DESCRIPTION AND DELIVERY

**B-1 Provide a general description of the significantly modified program and its objectives:** *(Include intended purpose, curriculum design, and highlight distinctive attributes)*

This is a request to change the name of the credential. No modifications have been made to the program.

The objectives of the program are to develop Prosthodontic dental specialists who achieve clinical excellence with an understanding of the importance of the current state of research balanced with the need for dental well-being. We endeavour to create an underlying culture of evidence-based practice in all aspects of programming. Ensuring that teaching methods require residents to continuously access, apply, and review primary research. Residents participate in grand rounds, including presentation at dental and medical meetings. Residents are continuously queried on the evidence behind the procedures they perform.

### **Objectives** [LINKED TO THE FOLLOWING OUTCOMES]

1. Develop and implement an integrated treatment plan for comprehensive patient care. (1,5,6)
2. Communicate effectively with patients and interpret the nature of their prosthodontic problems and needs, and obtain informed consent. (1,5,6)
3. Communicate effectively with dental and other health professionals, interpret their advice and integrate information in the overall management of patients. (1,7)
4. Manage masticatory, articulation and speech, swallowing and other functional relationships to achieve normal function; including the management of prosthodontic care for geriatric patients, and those with maxillofacial disorders.(1,5,6)
5. Manage prosthodontic patients requiring common surgical and traumatic prosthodontic treatments and the prosthetic care of patients with a variety of complicating problems.(1,5,6)
6. Manage various single and multiple tooth restorations employing various restorative materials in dentate patients or in partially edentulous patients with various combinations of other prostheses.(1,5,6,9)
7. Manage various fixed prosthodontics restorations from a few units to complete arch restorations in combination with other fixed and/or removable prostheses. (1,5,6,9)
8. Manage the fabrication of removable partial dentures alone or in combination with fixed partial or complete dentures.(1,5,6)
9. Manage the fabrication of complete dentures for both arches and for one arch in combination with natural teeth and/or other prostheses.(1,5,6)
10. Critically evaluate both short term and long term treatment outcomes. (1,5,6,7)
11. Treat patients with prosthodontic needs in a hospital setting and other health care facilities. (5,7)
12. Assess advances in prosthodontic and cross-disciplinary treatment techniques and biomaterials in order to provide the best available prosthodontic management of patients. (5,6,7)
13. Utilize, appropriate pharmacological agents in the management of patients undergoing prosthodontic treatment. (1,3,5,6)
14. Efficiently retrieve and critically appraise the best available evidence on focused clinical questions to maintain competency in prosthodontics. (2,3,4)
15. Competent in the treatment of patient with temporomandibular disorders, myofascial pain and sleep disorders. (5,6,9)

### **Outcomes**

The following indicators reflect the outcome of the quality of the Graduate Periodontics Program:

1. RCDC Examination
2. NDSE Examination
3. ABP board examination
4. Number of Publications

5. Completion of Thesis/ Research Project
6. Presentation at National/international Conferences
7. Clinical Evaluations
8. Rotations to other clinics
9. American College of Prosthodontics In-Service Examinations

The Prosthodontic Program uses a variety of pedagogical approaches in order to actively engage learners in the educational process and to ensure different learning styles are supported. While traditional didactic lecture is a necessary and important part of the program, its use is minimized to the extent possible. More emphasis is placed on social learning methods such as seminars, tutorial, simulations, and self-directed learning. With this in mind, a self-directed educational approach is used for all in-house courses, including considerable course content where appropriate. The approach used for teaching psychomotor skills (clinical teaching) includes knowledge of contemporary social issues and the principles of professional behaviour as well as the understanding of infection control and its application in clinical practice. This is conducted with the provision of care to the patients in the graduate clinic, attending extramural rotations, seminars, working with the invited lecturers and by teaching the undergraduate students.

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**B-2 Describe how this program serves and advances the academic, cultural, social and economic needs and interests of students and the province:**

**The Graduate Prosthodontic Program is a relatively new Graduate Program. We are in the 5th year of the program and have graduated two classes, 3 residents. The program makes an enormous contribution to health care in Manitoba, with our program providing patient care on a daily basis. We see patients with complex dental needs, those with Craniofacial differences, including those patients with cancer, genetic and acquired deformities. The program undertakes research and publication in addition to academic and clinical training during the 36 month full-time program length.**

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**B-3 Describe the existing and anticipated post-secondary learning needs of students in Manitoba that this program addresses and responds to:**

**This program will produce specialist prosthodontists to establish clinical offices and academics throughout the province of Manitoba and beyond. There is a significant shortage of Prosthodontists in the area from Southern Ontario to Alberta. The hope is to provide opportunities for patients to receive care a little closer to home by graduating prosthodontists from this program.**

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**B-4 Will the program be available for part-time study?**

**No**

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**B-5 Is there a cooperative education, work placement, internship or practicum component?**

Clinical Experience is significant portion of the graduate program throughout the 36 months of the program.

Residents from the Prosthodontic Program will participate in the Craniofacial Dysplasia clinic at the Children's Hospital. Prosthodontic residents also provide maxillofacial dental treatment to patients of the Cancer Care Manitoba. They participate in the Head and Neck Cancer group grand rounds and provide Maxillofacial Prosthodontic for Cancer Care Manitoba patients. Residents also attend external rotations at the Deer Lodge Centre, a progressive 429 bed long term care and rehabilitation facility. The Dental Clinic at Deer Lodge Centre provides a variety of inpatient and outpatient

geriatric care. In these clinics during their scheduled rotations, residents are providing prosthodontic care to dental patients of the facility. During the internal rotations residents attend didactic classes with a number of basic science courses at the University of Manitoba.

Each resident is assigned with a variety of patients, each resident has at least 40 assigned patients, representing a wide disease and management spectrum and ensure an appropriate amount of experience as defined in the program. The resident has the primary ethical, moral and professional responsibility and is held accountable for the patient's total care.

Each patient assigned to a resident is examined and receive an updated comprehensive treatment plan which is then evaluated, modified and approved by the supervising instructor. Patient treatment plans may be presented to other residents upon the recommendation of the supervising instructor.

During the provision of care to patients, residents are directly supervised by a clinical instructor who is present in the clinic. In order to track the residents experiences longitudinally, every procedure performed is entered in the electronic patient record. This treatment information is to be verified and graded by the supervising instructor.

The patient record system (AxiUm) includes appropriate dates, signature and authorization, medical and dental histories, results of examinations, diagnostic aids, record of radiographic procedures, consultations, diagnosis/problem list, integrated and comprehensive treatment planning (including estimated fee) details of treatment entered, cost, completion, review and follow-up procedures. Residents are evaluated on the accuracy and completeness of their record-keeping. Residents are to be part of the clinical audit and the re-evaluation of the provision of care to patients.

## **SECTION C – MODIFICATION TYP**

*Complete the appropriate section(s) as indicated below depending on the approved characteristic(s) being modified.*

### **C-6 Change to the credential conferred.**

6-1 - Current credential / program name: **Master of Science (MSc) in Prosthodontics**

6-2 - Proposed credential / program name: **Master of Dentistry (M.Dent) in Prosthodontics**

6-3 - Describe any associated changes to the curriculum:

No curricular changes – We would like to change the credential in order to better reflect the significant clinical nature of the program, and to align with the other clinical dentistry programs (Oral and Maxillofacial Surgery, Periodontics, and Pediatric Dentistry) which are already M.Dent degrees.

6-4 - Provide a rationale for credential change:

We would like to change the credential from MSc to M.Dent because we think that the M.Dent degree better reflects the more clinical nature of the program since there is a significant clinical component throughout the 36 months of the program. We also think that this change will better align with the other clinical dentistry programs in the Dr. Gerald Niznick College of Dentistry. In addition to the credential change being a better fit for the clinical nature of the programs, this change will also allow for degree specialties to be included when residents graduate, which will resolve a longstanding issue for licensing bodies worldwide.

## SECTION D – MODIFICATION INFORMATION

### D-1 Describe how this significant modification aligns with the strategic plans of your institution:

The continuation of the graduate prosthodontic program, is vital for Manitoba and Canada to continue to produce prosthodontic specialists to serve health care and provide patient treatment, part of the strategic plan of the University of Manitoba to support the Rady Faculty of Health Sciences and Dr. Gerald Niznick College of Dentistry.

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### D-2 Outline the internal approval process (i.e. committees, governing bodies) for approving this significant

modification within your institution and indicate any dates of decision. (*Governing Council, Board of Governors, Board of Regents, Senate, other*)

Decision-Making body: Faculty Council

Decision:

Date:

Decision-Making body: Senate

Decision:

Date:

Decision-Making body: Board of Governors (for  
information) Decision:

Date:

---

### D-3 Responsibility to consult

D-3.1 If this program subject to mandatory review or approval by organizations external to the institution (*such as regulatory bodies, Apprenticeship Manitoba, etc.*), please describe any consultation processes and provide copies of reports or letter from these organizations providing support:

**The program is accredited by Commission of Dental Accreditation of Canada (CDAC). There are no changes to the curriculum or program with this requested credential change as it is a change only to the credential name. We have communicated with the Coordinator at CDAC, as well as the Registrar at Manitoba Dental Association and have obtained a letter of support from MDA, and an email confirmation from CDAC that since there is no impact to their accreditation they don't believe a letter of support from them is needed. See attached documents.**

D-3.2 What agencies, groups, or institutions have been consulted regarding the significant modification of this program?

**As noted above, CDAC and MDA were contacted and we explained our rationale for requesting this credential change. In addition, there has been verbal consultation with various regulatory bodies in Canada and through out the world regarding the need to have the graduate specialty programs included on degrees and transcripts when students graduate. This credential change will also support the ability to have this addressed.**

D-3.3 How have students and faculty been informed of the intent to modify this program?

**Faculty were informed at a department Council meeting where there was unanimous support; and students were informed and provided their unanimous support as well at a meeting with the Prosthodontic specialty residents. The students have provided a signed letter of support.**

---

**D-4 List any similar programs offered in Manitoba:** *(Provide such information as institution, programs, and credentials offered in addition to any impacts on these programs, explain rationale for duplication.)*

**This is the only program in Graduate Prosthodontics offered in Manitoba.**

D-4.1 Describe any specific laddering, articulation and/or credit transfer options for Manitoban students that are anticipated to change as a result of the significant modification of this program: **None**

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**D-5 List any similar programs offered in Canada:** *(Provide such information as institution, programs, and credentials offered in addition to any impacts on these programs, explain rationale for duplication.)*

**There are three Graduate Prosthodontic programs in Canada. All are at the Master's level. The other programs are also offered at the University of Toronto, University of British Columbia.**

D-5.1 Describe any specific laddering, articulation and/or credit transfer options for Manitoban students that are anticipated to change as a result of the significant modification of this program.

**We do not accept transfer students. No requests for transfer are anticipated. This is a strong request for change by our residents.**

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**D-6 Describe any changes in labour market demands in Manitoba for graduates of this Program as a result of this significant modification:**

*(Provide such information as probable employment destinations or further educational opportunities available to graduates of this new program of study. Attach any formal reports such as those from Associations, Statistics Canada, Sector Councils, Industry or Regulators.)*

**No changes anticipated**

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**D-7 If copies of any internal or peer evaluations with respect to the significant modification of this program of study are being provided with this proposal, please indicated how any issues identified by these evaluations have been addressed and attach any relevant documents as available:**

**None**

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**D-8 Does this significant modification entail an increase to tuition, or the establishment of or increase to fees that apply to students in this program of study?**

**No**

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**SECTION E – REQUIRED RESOURCES AND FINANCIAL IMPLICATIONS**

**E-1 If one-time or pilot funding is being requested to support the significant modification of this program of study, please identify the amount of funding being requested:**

N/A

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**E-2 If ongoing funding is being requested to support the significant modification of this program of study, please identify the amount of funding being requested:**

No changes in funding due to this name change request

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**E-3 If new funding is not being requested, how will the significant modifications to the program be funded?** *(Include such information as: where reallocated funding will come from, and the implications of reallocating that funding on other programs/activities of the institution.)*

**Continuation of existing funding**

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**E-4 What are the resource implications to the institution in delivering the significantly modified program of study?** *(Include such information as; budget, IT, library, laboratory, computer, space, practicum liability insurance, student services, etc)*

**None**

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**E-5 Please describe new and existing staffing resources needed to provide this significantly modified program of study:***(Include reallocation of existing faculty, hiring of new faculty, administrative and support services and any other considerations.)*

**This is a request for a credential name change only and has no effect on staffing**

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**E-6 Please describe the effect of the significant modification of this program on existing capital infrastructure and equipment:**

**This is a request for a credential name change only and has no effect on existing capital infrastructure and equipment.**

**SECTION F – SIGNATURES**

*(A second signature section is provided for joint programs only)*

**SUBMITTED BY:**

**President:**

Name:

Signature:

Date:

**Vice-President/Academic:**

Name:

Signature:

Date:

*For use by joint programs only:*

**President:**

Name:

Signature:

Date:

**Vice-President/Academic:**

Name:

Signature:

Date:

**SUBMIT COMPLETED FORM**

Once completed and signed, please submit this application form to Post-Secondary Education and Labour Market Outcomes at [PSE-LMO@gov.mb.ca](mailto:PSE-LMO@gov.mb.ca) with the following attachments *(double-click to engage check box)*:

- Cover letter
- Program of Study Financial Form
- Any supporting documentation *(reviews, letters of support, etc.)*

**If you have any questions or require further information, please contact:**

Post-Secondary Education and Labour Market Outcomes  
Manitoba Education and Training  
400-800 Portage Avenue Winnipeg MB R3C 0C4  
(204) 945-1833  
[PSE-LMO@gov.mb.ca](mailto:PSE-LMO@gov.mb.ca)



March 22, 2022

Dr. Kelley Main  
Acting Dean, Faculty of Graduate Studies  
500 UMSU University Centre  
65 Chancellors Circle  
University of Manitoba  
Winnipeg, MB, R3T 2N2

RE: Resident Support of Program Name Change

Dear Dr. Main,

This letter is written on behalf of the graduate residents in the Orthodontics program at the University of Manitoba, Dr. Gerald Niznick College of Dentistry.

We, the undersigned, are in support of the Graduate Orthodontics Program credential being changed from an MSc to an MDent, which will better reflect the clinical nature of our program. In addition, this change will allow the University to include our specialty on our graduation parchments which will resolve a longstanding issue when registering with regulatory bodies world-wide. The programs office is working with the University to get this recognized and we would like to express our unanimous support of this change from MSc to MDent for our degrees.

Sincerely,

Dr. Katherine Kazak

Dr. Hye-Rim Moon

Dr. Alice Huang

Dr. Mithun Manohar



March 22, 2022

Dr. Kelley Main  
Acting Dean, Faculty of Graduate Studies  
500 UMSU University Centre  
65 Chancellors Circle  
University of Manitoba  
Winnipeg, MB, R3T 2N2

RE: Resident Support of Program Name Change

Dear Dr. Main,

This letter is written on behalf of the graduate residents in the Prosthodontics program at the University of Manitoba, Dr. Gerald Niznick College of Dentistry.

We, the undersigned, are in support of the Graduate Orthodontics Program credential being changed from an MSc to an MDent, which will better reflect the clinical nature of our program. In addition, this change will allow the University to include our specialty on our graduation parchments which will resolve a longstanding issue when registering with regulatory bodies world-wide. The programs office is working with the University to get this recognized and we would like to express our unanimous support of this change from MSc to MDent for our degrees.

Sincerely,

Dr. Max Li

Dr. Gaurav Singla

Dr. Karan Handa

Dr. Paul Mikhail

Dr. Ana Schettini



# MANITOBA DENTAL ASSOCIATION

May 12, 2022

Dr. Kelley Main  
Acting Dean, Faculty of Graduate Studies  
500 UMSU University Centre  
65 Chancellors Circle  
University of Manitoba  
Winnipeg, MB. R3T 2N2

Dear Dr. Main,

I understand that the Dr. Gerald Niznick College of Dentistry is proposing that two of their graduate dental specialty programmes, namely Orthodontics and Prosthodontics, be changed to an MDent designation. As with other dental specialty programmes, the nature of the education provided is weighted heavily with a clinical component. As such, The Manitoba Dental Association supports this designation change. This change will serve to align these two graduate programmes with other dental regulatory authorities, which will, in turn, accommodate recognition from regulators in other jurisdictions.

There is also a request for a change in the name of "Orthodontics" to "Orthodontics and Dentofacial Orthopedics." The Manitoba Dental Association is also supportive of this, as it better reflects this specialty's training and scope of practice.

Please feel free to reach out to me should you have any questions.

Sincerely,

Dr. Arun Misra, BSc, LLB, DMD  
Registrar, Manitoba Dental Association



**University  
of Manitoba**

Office of the Registrar and  
Enrolment Services

400 University Centre  
Winnipeg, Manitoba  
Canada R3T 2N2  
T: 204-474-8820  
F: 204-474-7554

**TO:** Anastasia Cholakis, Dean, Dr. Gerald Niznick College of Dentistry

**FROM:** Jeff Adams, University Registrar & Executive Director, Enrolment Services

**DATE:** August 29, 2022

**SUBJECT:** Letter of support for graduate program changes

---

I have reviewed the College's proposal regarding some credential changes at the graduate level. Based on the information provided I am confident that the desired changes, including how the programs appear on the parchment can be accommodated. Once the changes are approved it will be important to work with my office to finalize the details so that things can be implemented as desired.

I look forward to supporting the College as they move this proposal through the approval process.

Cc: Laurie Schnarr, Vice-Provost (Students)

**From:** [Frédéric Duguay](#)  
**To:** [Erin Langford](#)  
**Cc:** [Diane Dumas](#)  
**Subject:** RE: Request for letter of support  
**Date:** April 12, 2022 9:42:04 AM  
**Attachments:** [image001.png](#)

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**Caution:** This message was sent from outside the University of Manitoba.

Good Morning Ms. Langford,

I hope you are doing well.

Although we hope that programs always strive to improve and aim for excellence, CDAC's mandate and core responsibility is to accredit programs by assessing if they meet published national standards. Since the change in designation does not impact the programs' ability to meet these accreditation standards, we are unfortunately unable to provide a letter of support.

Please don't hesitate to contact me if you have any questions or require additional information.

Regards,  
Frederic

Frédéric Duguay  
**Director | Directeur**  
Commission on Dental Accreditation of Canada (CDAC) |  
Commission de l'agrément dentaire du Canada (CADC)  
1815 Alta Vista, Ottawa, ON K1G 3Y6  
(613) 520-5057 or 1-866-521-2322 ext./poste 4  
Fax/Télec.: (613) 523-7489  
[fduguay@cdac-cadc.ca](mailto:fduguay@cdac-cadc.ca)

[www.cdac-cadc.ca](http://www.cdac-cadc.ca)

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**From:** Diane Dumas <ddumas@cdac-cadc.ca>  
**Sent:** April 12, 2022 10:27 AM  
**To:** Frédéric Duguay <fduguay@cdac-cadc.ca>  
**Subject:** FW: Request for letter of support  
**Importance:** High

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**From:** Erin Langford <[Erin.Langford@umanitoba.ca](mailto:Erin.Langford@umanitoba.ca)>  
**Sent:** Tuesday, April 12, 2022 10:24 AM  
**To:** CDAC <[cdac@cda-adc.ca](mailto:cdac@cda-adc.ca)>  
**Subject:** FW: Request for letter of support

## Report of the Faculty Council of Graduate Studies on Course, Program, Supplementary Regulation and Regulation Changes

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### Preamble

1. The Faculty of Graduate Studies (FGS) has responsibility for all matters relating to the submission of graduate course, program, supplementary regulation, and regulation changes. Recommendations for such are submitted by the Faculty Council of Graduate Studies for the approval of Senate.
2. The Faculty Council of Graduate Studies met on the above date to consider a proposal from the Faculty of Law.

### Observations

1. The **Faculty of Law** proposes (1) course deletion, (2) course introductions, and supplementary regulation changes. LAW 7110 will be replaced by LAW 7112 to increase the number of credit hours of the course from 2 to 3, a recommendation that stemmed from the LLM's most recent graduate program review. This change is reflected in the supplementary regulations. LAW 7140 is being introduced as an elective to provide LLM students with experiential learning/clinical experience.

#### Course Deletion

**LAW 7110 Graduate Legal Research and Theory** -2

#### Course Introductions

**LAW 7112 Graduate Legal Research and Theory** +3

This course introduces students to select theoretical and methodological approaches to law. In doing so, the course moves students beyond research interests to the selection of appropriate theories and methodologies that inform modern legal scholarship and the range of research methods that can be applied to legal questions. Through readings, class discussions, guest presentations, and writing assignments, students will become familiar with select theoretical and methodological approaches to law. Through exposure to and collaborative analysis of a wide range of scholarship, students will learn about which kinds of research methods are well-suited to answering which kinds of research questions, and the value and limitations of different perspectives on law. May not be held with former LAW 7110.

**LAW 7140 Topics in Clinical Legal Practice** +3

An elective course for LL.M. students, this one-semester clinical course students will undertake critical and practical study, at an advanced level, of a significant major topic or set of topics in clinical legal practice. Students may earn multiple credits for this course only when the course subtitle is different. Must obtain consent of the Associate Dean (Research and Graduate Studies).

**NET CREDIT HOUR CHANGE** +4

### Recommendations



**Faculty Council of Graduate Studies recommends THAT the program changes from the unit listed below be approved by Senate:**

**Faculty of Law**

Respectfully submitted,

Dr. Kelley J. Main, Chair  
Faculty Council of Graduate Studies

/ak

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the  
Report to Senate.

July 25, 2022

Dr. Kelley Main  
Dean (Acting), Faculty of Graduate Studies  
500 University Centre  
University of Manitoba  
Winnipeg, MB

**Re: Proposed Changes re: Courses – LLM – Faculty of Law**

Dear Dr. Kelley Main:

As a result of suggestions made to us in the most recent external review of the LLM program, Law Faculty Council (“LFC”) approved the following changes on March 23, 2022:

**1. An increase to the number of credit hours (from 2 to 3) and credits earned (from 2 to 3) for Graduate Legal Research & Theory**

This requires the deletion of the current two credit (two hours) LAW 7110 (Graduate Legal Research & Theory) by way of a course deletion form. The syllabus for this course is also enclosed.

Accordingly, LFC proposed the introduction of three credit (three hours) LAW 7112 (Graduate Legal Research & Theory) by way of a course introduction form. A course syllabus for LAW 7112 is enclosed.

In addition, the change from two credits to three credits for Graduate Legal Research & Theory necessitated a minor change to the Supplemental Regulations. A copy with changes tracked is included.

**2. Increased experiential learning/clinical opportunities for LLM students**

To provide LLM students with experiential learning/clinical experience, LFC proposed the introduction of LAW 7140 (Clinical Legal Practice) as an elective. Students involved in confidential work in the community will submit appropriately anonymized field reports. This course is not mandatory. A course introduction form and course syllabus for LAW 7140 is included.

Please let me know if you have any questions. Thank you.

Sincerely,



Donn Short JD, PhD  
**Professor of Law & Associate Dean (Research & Graduate Studies)**

FGS Academic Guide Regulation 2022/23	Supplementary Regulation
<ul style="list-style-type: none"> <li>o Colleges and universities outside Canada which are officially recognized by the Faculty of Graduate Studies.</li> <li>• Graduates from first-cycle Bologna compliant degrees.</li> <li>• Students who have completed a Pre-Master's program from: <ul style="list-style-type: none"> <li>o The University of Manitoba (see <a href="#">General Regulations - Pre-Master's</a>); or</li> <li>o Canadian institutions empowered by law to grant degrees; or</li> <li>o Colleges and universities outside Canada which are officially recognized by The Faculty of Graduate Studies.</li> </ul> </li> </ul> <p>All students applying for a Master's degree program must have attained a minimum GPA of 3.0 (or equivalent) in the last two (2) years of full-time university study (60 credit hours). This includes those applying for direct admission and those entering from a Pre-Master's program. Students who meet the minimum requirements for admission to the Faculty of Graduate Studies are not guaranteed admission.</p> <p><b>Note:</b> This is the minimum requirement of the Faculty of Graduate Studies and departments/units may have higher standards and additional criteria.</p>	<p>An admissions/selection committee, to be named by the program Director, will review all applications.</p> <ol style="list-style-type: none"> <li>1. At least one undergraduate-level course in human rights or equivalent field experience is preferred.</li> <li>2. Two letters of reference. Letters may be academic and/or professional.</li> <li>3. Statement of interest (maximum two pages) that includes reasons for seeking admission, an outline of the applicant's relevant background, a tentative indication of whether the student is likely to pursue a thesis or practicum, and a potential thesis topic, if applicable.</li> <li>4. Current resume or CV</li> <li>5. An academic writing sample (only upon request).</li> </ol>
<p><b>6.3 Program Requirements</b></p> <p>In general, students must complete one of the programs of study described below for the Master's degree. However, the program of study is determined by the department/unit and may follow the department/unit's supplementary regulations. . Some programs are subject to an external accrediting body. In such programs, the credit hours and course requirements shall reflect the requirements of the department/unit's external accrediting body. Students should refer to department/unit supplementary regulations.</p> <p>Any single course cannot be used for credit toward more than one degree.</p>	
<p><b>6.3.1 Thesis/Practicum Route</b></p> <p>A minimum of twelve (12) credit hours of coursework, unless otherwise stated in the department/unit's supplementary regulations, plus a thesis or practicum is required. The minimum must include at least six (6) credit hours at the 7000-level or above, with the balance of the coursework at the 3000-level or above. A maximum of twenty-four (24) credit hours of coursework is allowed unless the department/unit's supplementary regulations indicate otherwise. The student must complete the thesis/practicum at The University of Manitoba.</p>	<p><u>LLM</u></p> <p>Students must successfully complete:</p> <ul style="list-style-type: none"> <li>• <del>LAW 7112 The Graduate Legal Research and Theory and Research Seminar</del> – <del>LAW-7110</del> – <b>23 credit hours</b></li> <li>• Two additional courses (<b>4-6 credit hours</b>) relevant to the thesis research, one of which must be in the Faculty of Law (<b>4-6 credit hours</b>)</li> </ul> <p><u>MHR</u></p> <p>Students will complete 18 course credits and one of the following:</p> <ul style="list-style-type: none"> <li>• a practicum (GRAD 7030) with a related major research paper (7,500-10,000 words) suitable for external evaluation; or</li> <li>• a thesis (GRAD 7000).</li> </ul> <p>Students must complete three (9 credit hours of) required 7000-level graduate courses and at least three (9 credit hours of) additional graduate-level (7000), Law or post-baccalaureate (5000-level) courses from an approved list. The list of</p>

## Report of the Faculty Council of Graduate Studies on Course, Program, Supplementary Regulation and Regulation Changes

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### Preamble

1. The Faculty of Graduate Studies (FGS) has responsibility for all matters relating to the submission of graduate course, program, supplementary regulation, and regulation changes. Recommendations for such are submitted by the Faculty Council of Graduate Studies for the approval of Senate.
2. The Faculty Council of Graduate Studies met on the above date to consider a proposal from the Desautels Faculty of Music.

### Observations

1. The **Desautels Faculty of Music** proposes (2) course deletions: MUSC 7000, MUSC 7110, and supplementary regulation changes.

The supplementary regulation changes remove language indicating that students admitted by video audition would be only provisionally admitted and be subject to a subsequent in-person audition. Current FGS policies on admission fraud make this requirement redundant and the restriction on “provisional” admission creates unnecessary complication with FGS Admissions.

*MUSC 7110 Music Theory Seminar* is proposed for deletion as it is replaced by *MUSC 7200 Proseminar in Music Theory*, which was approved as part of the M.A. in Music Research. MUSC 7200 is a functionally similar course and will serve the same function in the M.Mus. curriculum that MUSC 7110 did.

Similarly, *MUSC 7000 Music History Seminar* is proposed for deletion as it is replaced by *MUSC 7100 Proseminar in Musicology*. MUSC 7100 is a functionally similar course, updated to reflect best practices in the field and the current state of the discipline. The requirement for M.Mus. students to complete MUSC 7000 has been replaced by a requirement to complete one 3 CH musicology course at the 7000-level, of which MUSC 7100 is now one of several applicable offerings.

#### Course Deletions

<b>MUSC 7000 Music History Seminar</b>	<b>-3</b>
<b>MUSC 7110 Music Theory Seminar</b>	<b>-3</b>
<b><u>NET CREDIT HOUR CHANGE</u></b>	<b><u>-6</u></b>

### Recommendations

**Faculty Council of Graduate Studies recommends THAT the program changes from the unit listed below be approved by Senate:**

#### **Desautels Faculty of Music**

Respectfully submitted,

Dr. Kelley J. Main, Chair  
Faculty Council of Graduate Studies

/ak

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the  
Report to Senate.

29 August 2022

Dr. Kelley Main, Acting Dean  
Dr. Randall Jamieson, Associate Dean  
Faculty of Graduate Studies  
University of Manitoba  
500 University Centre  
Winnipeg, MB R3T 2N2

Dear Drs. Main and Jamieson:

Please find attached a Word document containing proposed final revisions to the current FGS Supplementary Regulations for Music. These have been approved by the DFOM Faculty Council. These represent minor revisions following the overhaul of the M.Mus. Supplementary Regulations for Music on 25 October 2021; this endorsement included a provision allowing the DFOM Associate Dean (Graduate Programs & Research) to make corrections as necessary and to make any changes suggested or required by FGS. The attached document also reflects the harmonization of these revised policies with those approved by DFOM Faculty Council on 7 May 2020 for the new M.A. in Music Research. With many thanks to Andrea Kailer for harmonizing the two sets of regulations, this collects all Supplementary Regulations for Music programs in a single document.

A summary of the changes are as follows:

### **Section 6.2 Admission**

Language indicating that students admitted by video audition would be only provisionally and be subject to a subsequent in-person audition removed on the recommendation of FGS. Current FGS policies on admission fraud make this requirement redundant and the restriction on “provisional” admission creates unnecessary complication with FGS Admissions.

### **Section 6.3 Program Requirements**

MUSC 7110: Music Theory Seminar replaced by MUSC 7200: Proseminar in Music Theory. MUSC 7110 will be retired now that the M.A. in Music Research has been approved. MUSC 7200 is a functionally similar course and will serve the same function in the M.Mus. curriculum that MUSC 7110 did. This corrects an oversight from the 2021 revision of the regulations; a course deletion form is enclosed with this submission.

Similarly, MUSC 7000 will be retired and replaced with MUSC 7100: Proseminar in Musicology. MUSC 7100 is a functionally similar course, updated to reflect best practices in the field and the current state of the discipline. The requirement for M.Mus. students to complete MUSC 7000 has



**University  
of Manitoba**

Desautels Faculty of Music  
319-150 Dafoe Road  
Winnipeg, Manitoba  
Canada R3T 2N2  
T: 204.474.9310  
F: 204.474.7546

E: [music@umanitoba.ca](mailto:music@umanitoba.ca)

been replaced by a requirement to complete 1 3-CRH musicology course at the 7000-level, of which MUSC 7100 is now one of several applicable offerings; a course deletion form is enclosed with this submission.

Please contact me at [james.maiello@umanitoba.ca](mailto:james.maiello@umanitoba.ca) should you have questions or concerns, or should you require additional information.

Thank you for your consideration in this matter.

Sincerely,

James V. Maiello, Ph.D.  
Associate Dean, Graduate Programs & Research  
Associate Professor of Musicology

enc. (3) Proposed Revisions to FGS Supplementary Regulations for Music  
Course deletion form for MUSC 7110: Music Theory Seminar  
Course deletion form for MUSC 7000: Music History Seminar

cc: Andrea Kailer, Programs Coordinator, FGS  
Edward Jurkowski, Dean, DFOM  
Amanda Wiebe, Graduate Program Assistant, DFOM



**Desautels**  
FACULTY of MUSIC

[umanitoba.ca/music](http://umanitoba.ca/music)

FGS Academic Guide Regulation 2022/23	Supplementary Regulation
<p>Permission is granted in the form of a <a href="#">Letter of Permission</a> which may be obtained by making an application to the Faculty of Graduate Studies; an original transcript and course equivalency must be provided.</p>	
<p><b>5.6 Recognition for Credit</b></p> <p>Graduate-level courses completed as part of a Graduate Diploma may be recognized toward a graduate degree program (where appropriate) and subject to the Senate approved program regulations. Graduate Diplomas may be stackable or laddered (refer to definitions per the <a href="#">Certificate and Diploma Framework</a>) into graduate degree programs in same or related fields of study.</p>	
<p><b>SECTION 6: General Regulations: Master's</b></p> <p><b>6.1 General</b></p> <p>Although general regulations apply to all students, individual departments/units may have additional regulations that supplement these general regulations. All such supplementary regulations must be approved (as specified by the By-Laws of the Faculty of Graduate Studies), be published and available to students (please refer to the following <a href="#">link</a>), and be kept on record in the Faculty of Graduate Studies. All students should consult department/unit supplementary regulations for specific details regarding admission, program requirements, progression, and completion.</p> <p>Individual departments/units may offer Master's programs by one or more of the following:</p> <ul style="list-style-type: none"> <li>• Thesis/practicum-based;</li> <li>• Course-based;</li> <li>• Comprehensive Exam;</li> <li>• Project;</li> <li>• Major research paper.</li> </ul>	
<p><b>6.2 Admission</b></p> <p>Students who are eligible to be considered for direct admission to a program of study leading to the Master's degree include:</p> <ul style="list-style-type: none"> <li>• Graduates of four (4)-year undergraduate degree programs (or equivalent as deemed by the Faculty of Graduate Studies) from: <ul style="list-style-type: none"> <li>○ Canadian institutions empowered by law to grant degrees; or</li> <li>○ Colleges and universities outside Canada which are officially recognized by the Faculty of Graduate Studies.</li> </ul> </li> <li>• Graduates from first-cycle Bologna compliant degrees.</li> <li>• Students who have completed a Pre-Master's program from: <ul style="list-style-type: none"> <li>○ The University of Manitoba (see <a href="#">General Regulations - Pre-Master's</a>); or</li> <li>○ Canadian institutions empowered by law to grant degrees; or</li> <li>○ Colleges and universities outside Canada which are officially recognized by The Faculty of Graduate Studies.</li> </ul> </li> </ul> <p>All students applying for a Master's degree program must have attained a minimum GPA of 3.0 (or equivalent) in the last two (2) years of full-time university study (60 credit hours). This includes those applying for direct admission and those entering from a Pre-Master's program. Students who meet the minimum requirements for admission to the Faculty of Graduate Studies are not guaranteed admission.</p>	<p><u>M.Mus.</u></p> <p>Applicants must normally hold an undergraduate degree with a major in music from an institution recognized by the Faculty of Graduate Studies (e.g. Bachelor of Music, Bachelor of Arts with a major in Music, etc.). The DFOM may recommend for admission applicants holding other qualifications (e.g. conservatory diplomas) on the basis of exceptional professional experience and accomplishment.</p> <p><del>Applicants admitted on the basis of a video audition will be granted provisional status in the M.Mus. program pending a successful live audition after the student's arrival on campus.</del></p> <p><u>M.A. Music Research</u></p> <p>Applicants must normally hold a Bachelor of Music, a Bachelor of Arts with a major in music, or a related degree with sufficient background in the content area (as determined by the Desautels Faculty of Music) from an accredited post-secondary institution recognized by the University of Manitoba.</p>



**Note:** This is the minimum requirement of the Faculty of Graduate Studies and departments/units may have higher standards and additional criteria.

### 6.3 Program Requirements

In general, students must complete one of the programs of study described below for the Master's degree. However, the program of study is determined by the department/unit and may follow the department/unit's supplementary regulations. . Some programs are subject to an external accrediting body. In such programs, the credit hours and course requirements shall reflect the requirements of the department/unit's external accrediting body. Students should refer to department/unit supplementary regulations.

Any single course cannot be used for credit toward more than one degree.

#### 6.3.1 Thesis/Practicum Route

A minimum of twelve (12) credit hours of coursework, unless otherwise stated in the department/unit's supplementary regulations, plus a thesis or practicum is required. The minimum must include at least six (6) credit hours at the 7000-level or above, with the balance of the coursework at the 3000-level or above. A maximum of twenty-four (24) credit hours of coursework is allowed unless the department/unit's supplementary regulations indicate otherwise. The student must complete the thesis/practicum at The University of Manitoba.

M.Mus.

The DFOM offers the Thesis/Practicum route to the M.Mus.

#### Coursework:

**Core Courses Required by all M.Mus. Students:**

**7000-level musicology course** (e.g. [MUSC 7000](#), MUSC 7100, or similar) (3 CRH)

**MUSC 7050: Bibliography and Research Methods** (3 CRH)

**MUSC 7200/140: Music Theory Seminar/Proseminar in Music Theory** (3 CRH)  
Students who achieve satisfactory evaluations on all components of the music theory diagnostic exam may substitute another 7000-level music theory/analysis course with the permission of the instructor.

**MUSC: 7400 Major Practical Study 1** (3 CRH)

**MUSC: 7410 Major Practical Study 2** (3 CRH)

**GRAD 7030: Thesis/Practicum** (0 CRH)

**Additional Coursework by Concentration:**

#### Performance: Core plus 9 CRH:

Additional requirements:

**MUSC 7180: Ensemble** (3 CRH)

**MUSC Elective** (3 CRH)

**MUSC Elective** (3 CRH)

#### Composition: Core plus 9 CRH:

Additional requirements:

**MUSC 7600: Advanced Orchestration** (3 CRH)

M.Mus. students who have successfully completed MUSC 7600 prior to enrolment in the M.Mus. program may substitute 3 CRH of elective coursework.

**MUSC 7810: Electroacoustic Music Elective** (3 CRH)

## **Report of the Faculty Council of Graduate Studies on Course, Program, Supplementary Regulation and Regulation Changes**

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### **Preamble**

1. The Faculty of Graduate Studies (FGS) has responsibility for all matters relating to the submission of graduate course, program, supplementary regulation, and regulation changes. Recommendations for such are submitted by the Faculty Council of Graduate Studies for the approval of Senate.
2. The Faculty Council of Graduate Studies met on the above date to consider a proposal from the Dept. of Physical Therapy.

### **Observations**

1. The **Dept. of Physical Therapy** proposes supplementary regulation changes concerning the introduction of a 3-credit hour Indigenous content course requirement for admission to the MPT beginning with the program's fall 2025 intake. The course may be taught in any academic unit but must address the historical, political, social, and/or economic context and contemporary issues of Canadian Indigenous Peoples. The implementation of the requirement is in response to the TRC Call to Action and supports the University's Strategic Plan. The proposal includes a non-exhaustive list of possible courses available to satisfy the requirement.

### **Recommendations**

**Faculty Council of Graduate Studies recommends THAT the program changes from the unit listed below be approved by Senate:**

#### **Dept. of Physical Therapy**

Respectfully submitted,

Dr. Kelley J. Main, Chair  
Faculty Council of Graduate Studies

/ak

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.

June 11, 2022

Dr. Kelley Main  
Acting Dean  
Faculty of Graduate Studies

Dear Dr. Main,

Re: Proposal for a change to the Master of Physical Therapy (MPT) program prerequisite courses.

**Proposal:** *All applicants to the MPT program will include a prerequisite course in Indigenous content (3 credit hours), beginning with the intake for 2025.*

The proposed addition of an Indigenous content course to the MPT prerequisite course requirements was approved by the MPT Admissions Committee on December 15, 2020, the Department of Physical Therapy Council on March 19, 2021, and the College of Rehabilitation Sciences Council on April 28, 2021.

### **Rationale for Changes**

The MPT Program is committed to supporting and implementing the TRC Calls to Action. The requirement of a pre-requisite course that focuses on Indigenous content would assist in addressing the TRC Call to Action #24 which is focused on health,

*"We call upon medical and nursing schools<sup>1</sup> in Canada to require all students to take a course dealing with Aboriginal health issues, including the history and legacy of residential schools, the United Nations Declaration on the Rights of Indigenous Peoples, Treaties and Aboriginal rights, and Indigenous teachings and practices. This will require skills-based training in intercultural competency, conflict resolution, human rights, and anti-racism."*

In addition, the University of Manitoba Strategic Plan identified the need for all students to learn about Indigenous perspectives as the first priority in creating pathways to Indigenous achievement. All physical therapists need to have knowledge of the history of Canadian Indigenous Peoples including the history and legacy of colonialism. Taking steps towards ensuring that all students entering the MPT program have a basis in the Canadian and Manitoban history of Indigenous Peoples in Canada will provide a foundation for additional teaching and learning in the MPT program that supports the development of an anti-racist health practitioner.

### **Minimum 3 Credit Hours Indigenous Content Pre-Requisite Courses and Course Equivalencies**

Over the years, the MPT Admissions committee has developed a list of course equivalencies at other Canadian institutions for all pre-requisite courses. This list continues to evolve as new courses are submitted for equivalency requests; course equivalency requests are considered at every admission intake. The same process would be used for Indigenous content courses.

The MPT program is requiring an Indigenous content course that can be taught in any academic unit but must address the historical, political, social, and/or economic context and contemporary issues of Canadian Indigenous Peoples. The MPT Admissions committee, which includes Indigenous and non-Indigenous faculty members and a representative from Ongomiizwin Education, developed a list of pre-requisite Indigenous content courses that meet the MPT program pre-requisite requirements (see *Appendix A*), and will also accept equivalencies to the University of Manitoba (UM) courses on this list that are listed in the UM transfer credit database.

Prerequisite equivalencies from post-secondary institutions of students applying from out-of-province or internationally and not on the developed list of equivalencies, nor listed in the UM course equivalency database will be reviewed based on the following criteria:

1. Course must be a minimum of 3 credit hours
2. Addresses the historical, political, social, and/or economic context and contemporary issues of Canadian Indigenous Peoples.

All students applying for admission to the MPT program will require the Indigenous content pre-requisite course, including students in the Canadian Indigenous Peoples admissions category. As outlined in *Appendix A*, Indigenous content courses are available online and in-person across the country, making them accessible to all potential applicants including international applicants. As for other pre-requisite courses, all applicants can also submit other courses that they would like reviewed for equivalency.

Please find the following supporting documents attached:

1. The *2022/23 MPT Supplementary Regulations* with Tracked Changes (pp. 4 & 22).
2. Letter of support from Dr. Niigaan Sinclair, Associate Professor & Acting Head, Department of Native Studies, approving and recommending the revision that all applicants to the MPT program will have completed a 3-credit hour Indigenous content course at the time of application to the program.

Please don't hesitate to contact me if you require any additional information regarding this proposal.

Sincerely,  
Mark



Mark Garrett, PhD  
Head, Department of Physical Therapy, College of Rehabilitation Sciences  
P: 204-396-5480; [mark.garrett@umanitoba.ca](mailto:mark.garrett@umanitoba.ca)

**Appendix A**  
**Master of Physical Therapy**  
**Indigenous Content Pre-Requisite Courses and Course Equivalencies**

Students may complete any of the courses listed below to satisfy the 3-credit hour Indigenous content requirement. We will also honour any courses listed as equivalent to these courses in the University of Manitoba course equivalency database. Courses can also be submitted for review for equivalency.

**MANITOBA**

**UNIVERSITY OF MANITOBA**

<b>Faculty of Arts (Effective Fall 2022)</b>		
Course Number	Course Title	Credit hours
INDG* 1200	INDIGENOUS PEOPLES IN CANADA	6cr
INDG* 1220	INDIGENOUS PEOPLES IN CANADA PART 1	3cr
INDG* 1240	INDIGENOUS PEOPLES IN CANADA PART 2	3cr
INDG* /HIST 2010	INDIGENOUS HISTORY IN CANADA	3cr
INDG* /HIST 2020	METIS PEOPLE IN CANADA	3cr
INDG* 2080	INUIT SOCIETY AND CULTURE	3cr
HIST 4120	HISTORY OF ABORIGINAL RIGHTS	3cr
POLS 2802	INTRODUCTION TO INDIGENOUS POLITICS	3cr
POLS 3870	POLITICS OF INDIGENOUS-SETTLER RELATIONS	3cr
SOC 3762	LAW, JUSTICE, AND INDIGENOUS PEOPLES	3cr
WOMN 2630	INDIGENOUS FEMINISMS	3cr
For course titles and descriptions see the relevant faculty entries in this <i>Calendar</i> . <a href="https://aurora.umanitoba.ca/banprod/twbkwbis.P_GenMenu?name=homepage">https://aurora.umanitoba.ca/banprod/twbkwbis.P_GenMenu?name=homepage</a>		

\* Formerly NATV 1200, NATV 1220, NATV 1240, NATV/HIST 2010, NATV/HIST 2020, and NATV 2080

**UNIVERSITY OF WINNIPEG**

**IS-1015(6) Introduction to Indigenous Studies (Le3)**

This course will provide a background on the development of the field of Indigenous Studies. It will be a survey consisting of three primary themes: the diversity of Indigenous cultures; historic and contemporary interactions between the nation-states and indigenous peoples; and representations of Indigenous peoples in literature and other artistic forms. We will explore varied meanings and definitions of indigenism in the milieu of the personal, social, political, legal, academic, and economic. Identity, power, ownership of knowledge, and tensions surrounding authenticity all serve to complicate this topic. While the topic is global, there will be a particular focus on Canada.

**IS-2020(3) Colonization and Aboriginal Peoples (Le3)**

This course examines the Aboriginal colonial experience, particularly in Western Canada, and the impact colonization has had and continues to have on the relationship between Aboriginal peoples and Canadian governments. This course emphasizes the contemporary effects of colonization, particularly as regards identity issues and how they play out in the urban and inner-city environment, and also processes and strategies for decolonization.

CROSS-LISTED: POL-2020(3) AND UIC-2020(3)

**IS-2040(3) Indigenous Women and Resilience (Le3)**

The contributions and resilience of Indigenous (First Nations, Métis, Inuit) women have become increasingly well known in the North American and international political, economic, and cultural arenas. Contrary to historical representations and stereotypes, Indigenous women have been leading advocates, actors, and activists in Indigenous struggles for centuries, making significant contributions to their families, communities, and nations. Of importance are the policies that reflect changing perceptions and approaches to the “Indian problem,” with particular focus on gender. Students develop critical thinking skills as we consider stereotypes and the impact they have on law and Indigenous rights in Canada and internationally.

**IS-3101(3) International Rights of Indigenous Peoples (Le3)**

This course examines the current developments at the international level with respect to the rights of Indigenous peoples, particularly the right to self-determination. The course also examines issues of decolonization as the concept is used in reference to Indigenous peoples. It includes a review of the Draft Declaration of Indigenous peoples and the Organization of American States (OAS) Draft Declaration. In addition, the course reviews the United Nations bodies that deal with Indigenous issues, including issues dealing with cultural rights. Various international reports on Indigenous people’s rights to land and treaty interpretation are considered and compared to Canada’s current policy in maintaining a colonial relationship. Moreover, developments and issues of concern to the Indigenous Peoples Permanent Forum are covered in the course.

**IS-4020(6) Indigenous Self Determination (Le3)**

This course brings to the academy a pivotal concept for the present and future of Indigenous peoples. How Indigenous peoples face and deal with colonization, imperialism, and globalization will depend upon the critical understanding and realizations of self-determination. The legal, political, social, and cultural connotations around self-determination for Indigenous peoples are considered. The course is focused not only on theoretical considerations but is designed to bring issues of self-determination into the collective and individuals lives of those who identify themselves with the concerns of Indigenous peoples

**IS-4021(6) Pathways to Indigenous Knowledge (Le3)**

This course provides theoretical and practical grounding in Indigenous perspectives of governance based on the teachings and philosophies of Indigenous peoples in the central area of Turtle Island (North America). The course will be taught by an Elder who is expert in indigenous governance systems.

**IS-4022(6) Indigenous Research Methods (Le3)**

This course provides review of the movement towards the decolonization of the western model of research and the revitalization of Aboriginal research frameworks and methodologies. The unique issues and principals involving ethical research in Indigenous communities are explored. The course also includes an overview of the governance by Indigenous communities of their own research and ethical

review process.

## **BRANDON UNIVERSITY**

### **68:151 Introduction to Native Studies I (3)**

Prerequisite: Nil. A basic course designed to acquaint the student with the area of Native Studies. Native Studies I covers the relationship between Aboriginal peoples and the Canadian Government, including Treaties, the Indian Act, Reserve systems, political and constitutional questions, family issues, education, health care, economic development, the justice system and land claims. 3 lecture hours per week, one term.

### **68:275 The Metis (3)**

Prerequisite: 68:151 or permission of Instructor. An analysis of the development of the Métis as a group, their culture and life styles. Emphasis on the historical significance of the Métis in the development of Western Canada though the course will evaluate the national role of Métis people. Cross-registered with (Anthropology) 12:275 and (History) 54:275. 3 lecture hours per week, one term

### **68:279 History of Native Peoples in Canada (3)**

Prerequisite: 68:151 or 12:153 or (54:155 and 54:156). A history of Canadian Native peoples from European contact to the present time, examining Native society as it existed in precontact times, and as it continued on its own terms through the development of the fur trade, governmental Native policies, the development of the Department of Indian Affairs and the Indian Act, and the resurgence of Native identity and political activity since World War II. Cross-registered with (Anthropology) 12:153 and (History) 54:279. 3 lecture hours per week, one term.

### **36:347 Indigenous Feminism (3)**

Prerequisite: 36:162 or 68:151. The famous quote “To be or not to be, that is the question” has long impacted many Indigenous women when first confronted with a feminist movement. There is a growing interest in feminism by Indigenous women but this movement has also led to much more suspicion, fear, and rejection. This course will address both rejection and growing interest. The course will investigate ways in which Aboriginal women can participate in a rich dialogue with mainstream feminism and post-colonial discussions while strengthening awareness of the social/political concerns of Indigenous peoples. Indigenous feminist scholars will be introduced from varying disciplines paving the way for voices not often heard in academia. Cross-registered with (Native Studies) 68:347. 3 lecture hours per week, one term.

## **UNIVERSITE DE ST. BONIFACE**

### **CDSB 7061: Indigenous Peoples of Canada: Native Americans, Inuit and Metis (3)**

This online course will provide an understanding of the diversity of Indigenous peoples in Canada, understand the challenges they face, and analyze their relationships with other parts of Canadian society and the rest of the world. The focus will be on their aspirations, their perspectives, their demands, their successes and their contribution to the formation of Canadian identity.

### **ANTH 2041: The Native North American: A Socio-Cultural Study (3)**

Previously-076.204) An ethnographic overview of the cultures of the Native North American. You cannot be credited with ANTH 2041 and ANTH 2040 (076.204) or the old 076.345 or 076.358. Prerequisite: a

minimum grade of C in one of ANTH 1221, ANTH 1220 (076.122), ANTH 1520 (076.152), 076.109, 076.120, 076.102 or the written permission of the professor.

**ANTH 2071: Native Americans and Inuit Religions (3)**

Previously-076.207) A comparative and interpretative study of the values, beliefs and religious practices specific to Aboriginal traditions. Special attention given to traditional religions, to the impact of Christianity on these religions, and to the emergence of contemporary Indigenous spirituality with an emphasis on the experience and structures, functions and meanings of the myths, stories and rituals that make up Indigenous religious ideology.

**ANTH 3461: Ethnology of the Native North American (3)**

(Previously-076.346) Ethnographic and ethnological studies of some Native American societies in North America. We will also study the changes that have occurred since the first contacts. The student cannot be credited with both the ANTH 3461 (or 076.346) and the ANTH 3460 (or 076.346). Prerequisite: a minimum grade of C in one of the following courses: ANTH 1220 (or 076.122), ANTH 1221 (or 076.122), ANTH 1520 (or 076.152), old 076.109, 076.120, or written authorization from the professor

**EDUA 3313: Indigenous Perspectives in a School Context (3)**

Introduction to Aboriginal and Metis cultural perspectives in a school context: historical, anthropological, ethical and educational dimensions. Development of professional skills related to teaching in an Aboriginal and Metis environment

**SWRK 4221: Indigenous Peoples and Social Work (6)**

Analysis of social work practice and welfare policy from an Indigenous perspective. Study of historical and contemporary themes that have influenced the relationship between Indigenous peoples and the Canadian state. The exploration of various change approaches and practices (client system and service system) that will support the survival, self-determination, socio-cultural well-being and resilience of the Aboriginal community.

**CANADIAN MENNONITE UNIVERSITY**

**INDS-1010 Native Peoples of Canada I (3)**

This course introduces students to the Aboriginal Peoples of Canada by providing a survey of their political, social, economic and cultural contexts and situations. Beginning with pre-contact times and cultural frameworks spanning Indigenous communities across North America, it will outline the history of colonization and the long-term effects of this process on First Nations, Métis and Inuit. This course will also explore de-colonization, resistance movements and manifestation. Given the interdisciplinary nature of Native Studies, this course approaches the various topics from a variety of disciplinary perspectives. It will place emphasis on Aboriginal culture and spirituality, history, politics, economics, education, ethnography, and more. *Students may not hold credit in both INDS-1010/1020 and INDS-1050.*

**INDS-1020 Native Peoples of Canada II (3)**

Continuation of INDS-1010. *Students may not hold credit in both INDS-1010/1020 and INDS-1050.*



### **INDS-1050 Indigenous Peoples of Canada (3)**

An overview of aboriginal societies in Manitoba and Canada, linking processes of the past with contemporary aboriginal life and issues. The course covers topics such as stages of colonization, pre- and post-contact periods, aboriginal kinship systems, the fur trade, the treaties, the Indian Act, residential schools, Metis nationhood and land issues, the Federal White Paper Policy (1969), Bill C-31 (1985), aboriginal rights, aboriginal land claims, aboriginal economic development, aboriginal urbanization and aboriginal gender issues. *Students may not hold credit in both INDS-1010/1020 and INDS-1050.*

## **INDIGENOUS INSTITUTIONS**

### **FIRST NATIONS UNIVERSITY OF CANADA**

(specializes in Indigenous knowledge at post-secondary level for Indigenous and non-Indigenous students).

### **INDG 100 Introduction to Indigenous Studies (3)**

This course is subject of Indigenous Studies with a survey of Indigenous peoples in Canada from their origins, through European influence and to the present. \*Note: INDG 100 and INDG 101 can be taken concurrently with permission of the Department Head.

### **INDG 260 History of Residential Schools in Canada (3)**

A historical look at the rationale, ideology, operations and deficiencies of the Indian Residential School system of Canada including underfunding, physical and spiritual abuse, and student mortality. \*Prerequisite: INDG 100 or permission of Department Head.

### **INDG 262 Reconciliation and Indigenous Resurgence in Canada (3)**

This course explores different perspectives and policies towards renewing the relationship between Indigenous People and Settler Canada. Students will consider how the implementation of the Truth and Reconciliation calls to action may guide reconciliation and Indigenous resurgence in Canada.

## **ONLINE OPTIONS FOR NATIONAL AND INTERNATIONAL STUDENTS**

**ATHABASCA UNIVERSITY** (flexible start and end dates that promote accessibility):

### **INST 201 Indigenous Studies I (3)**

This course introduces the historical, anthropological, sociological, and political science perspectives on the origins and implications of major federal and provincial government policies bearing on Aboriginal peoples. The course analyses, in broad terms, the history of Aboriginal-European relations from the beginning of contact between the two groups to the current time. The course introduces the principle legal and statutory documents, such as treaties, the Indian Act, the British North America Act of 1867, and the Constitution Act of 1982, that form the basis of Canadian state policies towards Indigenous peoples.

### **INST 205 Indigenous Studies (3)**

In this survey course, we introduce the concepts of internal colonialism, decolonization, and Indigenous self-government. We also explore the impact of Canadian economic policies, with special emphasis on

how resource exploitation and the extension of social services have affected northern Indigenous peoples socially, culturally, politically, and economically. Finally, we discuss Aboriginal land claims, using case studies of claims that have been or are being settled, either through the courts or by negotiations. This survey includes an examination of the significance of a land-based economy to the establishment of effective and sustainable Indigenous government.

### **INST 358 Aboriginal Women in Canada (3)**

This course examines the roles of women in traditional, pre-contact Aboriginal societies, the changes facing this group of women as a consequence of colonization, and contemporary issues of concern for Aboriginal women in Canada. While the course deals with Aboriginal women in Canada, particular emphasis will be on Western and Northern Canadian contexts and experiences and the women of those territories wherever the existing resources and materials permit. The course has been designed thematically and chronologically in order for patterns of experience to emerge and become evident. Throughout this course, the terms 'Indian', Inuit and 'Metis' will be used as they are the terms used in the Constitution Act (1982) to identify Aboriginal peoples of Canada and because these terms reflect historical usage. In the context of this course they are applied exclusive of the derogatory context which has sometimes arisen as a result of cultural misconceptions.

### **INST 369 Indigenous Peoples in Canada Since 1830 (3)**

INST 369 introduces major themes in the political, social, and economic history of Canada's first peoples from 1830 to the modern era. Throughout the course we see the conflicts between government and First Nations objectives and worldviews. Among topics approached are the conflicting views of governments and Native peoples regarding the meaning of treaties, the conflict between European-Canadian goals of economic development and First Nations efforts to maintain control over their traditional lands, and political and cultural efforts of Native peoples over time to assert their rights within Canada.

### **INST 370 The Métis (3)**

HIST 370/INST 370 traces the historical development of Canada's Métis from the period of the fur trade to the present. It includes discussion and debates about the origins of Métis nationalism, the validity of Métis land claims, and the character of Métis struggles for social justice from the Seven Oaks rebellion of 1816 through the two Northwest rebellions to the present. It also examines the changes in the lives of Métis women that occurred as a result of the impact of churches, education, and racism. Throughout there is an attempt to examine the evolving character of Métis societies and the impact of Euro-Canadian government policies on these societies.

### **ANTH 362 First Peoples of Canada (3)**

This course provides an introduction to the diversity of cultures in Canadian First Peoples, including those people who identify as First Nations, Inuit, and Métis. Students will be exposed to ethnographic content through textbooks, ethnographic texts, and film. This course is divided into geographical linguistic and culture areas, providing students with a wide breadth of precolonization, colonization, and current perspectives, including truth and reconciliation, from case studies across the country. An introductory course in cultural or social anthropology is a recommended prerequisite for this course. Pre-requisite ANTH 275 or HIST 224 or INST 203, or INST 205



**University  
of Manitoba**

**Department of Native Studies**

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Winnipeg, Manitoba  
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Telephone (204) 474-9266  
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September 14, 2021

To whom it may concern:

The Department of Native Studies is in full support of the proposed change to the admission requirements for the Master of Physical Therapy (MPT) program in the College of Rehabilitation Sciences, University of Manitoba, that all applicants to have completed a 3 credit hour course in Indigenous Studies during their undergraduate degree prior to entering the MPT program.

We are very pleased to see, and cannot begin to tell you how important and vital the vision of a change like this is and how this is how we prepare our community for the future - and fulfill our university's commitment to the TRC calls to action.

Should you have any questions or concern, please do not hesitate to contact myself, or our Administrative Assistant Brittany Bowman.

Thanks,

Dr. Niigaan Sinclair  
Associate Professor & Acting Head, Dept. of Native Studies  
204 Isbister Building  
The University of Manitoba, Wpg, MB, R3T 2N2  
[niigaan.sinclair@umanitoba.ca](mailto:niigaan.sinclair@umanitoba.ca)  
office: (204) 474-7026  
fax: (204) 474-7657

FGS Academic Guide Regulation 2022/23	Supplementary Regulation
<p><b>1.1.9 Admission Tests</b></p> <p>Some departments/units require admissions tests, such as the Graduate Record Examination (GRE®) or the Graduate Management Aptitude Test (GMAT™). These requirements are listed in the department/unit's supplementary regulations. If required, the scores must be submitted at the time of application.</p>	<p>CASPer Test administered by Altus Assessments.</p>
<p><b>1.1.10 Entrance Requirements</b></p> <p>The minimum standard for acceptance into any category in the Faculty of Graduate Studies is a 3.0 Grade Point Average (GPA) (or equivalent) in the last two (2) previous years of full-time university study (60 credit hours).</p> <p><b>Note:</b> This is the minimum requirement of the Faculty of Graduate Studies and departments/units may have higher standards and additional criteria.</p>	<p><u>Program entry requirements:</u></p> <ul style="list-style-type: none"> <li>• completion of a 3 year or 4 year undergraduate degree;</li> <li>• a completed self-declaration form for Adult Criminal Record including Vulnerable Sector check, Child Abuse Registry check and Adult Abuse Registry check;</li> <li>• proof of Indigenous ancestry (treaty number, Manitoba Métis Federation number or letter from Band Council), if applicable;</li> <li>• a minimum cumulative grade point average of 3.25 (on a 4.5 scale) in the last 60 credit hours of university-level courses;</li> <li>• equivalent IB and/or AP courses will be accepted in lieu of university courses;</li> <li>• completion of the following pre-requisite courses or equivalents, with no grade below a B (3.0 on a 4.5 scale): <ul style="list-style-type: none"> <li>- Human Anatomy (3 credit hours)</li> <li>- Human Physiology (3 credit hours)</li> <li>- Psychology department course (3 credit hours)</li> <li>- Introductory Statistics (3 credit hours)</li> <li>- English department course (3 credit hours)</li> <li>- <u>Indigenous content course or equivalent (3 credit hours)</u></li> </ul> </li> </ul> <p>Human Physiology must have been completed within five years of application; all other pre-requisite courses need to have been completed within the last 10 years or the equivalency within higher level courses.</p>
<p><b>1.1.11 Eligibility of University of Manitoba Staff Members</b></p> <p>A staff member at The University of Manitoba at the rank of Assistant Professor and above or Instructor 1 and above, is not eligible to apply for admission to a graduate program in the department/unit in which the appointment is held.</p>	
<p><b>1.2 Registration Procedures</b></p> <p><b>1.2.1 Undergraduate Student Registration in Graduate Level Courses</b></p> <p>Undergraduate students may be permitted to register in 7000-level courses or above on recommendation of the department/unit offering the graduate course, subject to the conditions listed below.</p> <ul style="list-style-type: none"> <li>• Undergraduate students must obtain permission from the Department/Unit Head and course instructor before registering for a graduate course.</li> <li>• Only undergraduate students completing an undergraduate degree at the University of Manitoba are eligible to enroll in a graduate course (i.e., undergraduate students from other institutions and those completing courses</li> </ul>	

<ul style="list-style-type: none"> <li>• Course-based;</li> <li>• Comprehensive Exam;</li> <li>• Project;</li> <li>• Major research paper.</li> </ul>	
<p><b>6.2 Admission</b></p> <p>Students who are eligible to be considered for direct admission to a program of study leading to the Master's degree include:</p> <ul style="list-style-type: none"> <li>• Graduates of four (4)-year undergraduate degree programs (or equivalent as deemed by the Faculty of Graduate Studies) from:             <ul style="list-style-type: none"> <li>○ Canadian institutions empowered by law to grant degrees; or</li> <li>○ Colleges and universities outside Canada which are officially recognized by the Faculty of Graduate Studies.</li> </ul> </li> <li>• Graduates from first-cycle Bologna compliant degrees.</li> <li>• Students who have completed a Pre-Master's program from:             <ul style="list-style-type: none"> <li>○ The University of Manitoba (see <u>General Regulations - Pre-Master's</u>); or</li> <li>○ Canadian institutions empowered by law to grant degrees; or</li> <li>○ Colleges and universities outside Canada which are officially recognized by The Faculty of Graduate Studies.</li> </ul> </li> </ul> <p>All students applying for a Master's degree program must have attained a minimum GPA of 3.0 (or equivalent) in the last two (2) years of full-time university study (60 credit hours). This includes those applying for direct admission and those entering from a Pre-Master's program. Students who meet the minimum requirements for admission to the Faculty of Graduate Studies are not guaranteed admission.</p> <p><b>Note:</b> This is the minimum requirement of the Faculty of Graduate Studies and departments/units may have higher standards and additional criteria.</p>	<p>The Admissions and Selection Committee will review all applicants and select an annual quota of up to 50 students.</p> <p>The Admissions and Selection Committee is made up of the Chair of the Committee, the Head of the Department of Physical Therapy, the Dean of the College of Rehabilitation Sciences, two faculty members from the Department of Physical Therapy, a MPT student representative, and a representative from the College of Physiotherapists of Manitoba.</p> <p>Students are selected on a competitive basis using the entry requirements and ranking criteria indicated below. In addition, Canadian Indigenous people who meet all entry requirements will be given priority for up to 20% of the enrolment quota; proof of ancestry is required.</p> <p>Eligible applicants will be considered in the following order of priority:</p> <ol style="list-style-type: none"> <li>1) Manitoba applicants. Proof of residency may be required such as Manitoba Driver's License, Manitoba Health Card, or Manitoba High School diploma.</li> <li>2) Canadians who reside in other provinces or territories.</li> </ol> <p><u>Program Entry Requirements</u></p> <ul style="list-style-type: none"> <li>• completion of a 3 year or 4 year undergraduate degree;</li> <li>• a completed self-declaration of criminal record including vulnerable sector check and adult/child abuse registry check;</li> <li>• proof of Indigenous ancestry (treaty number, Manitoba Métis Federation number or letter from Band Council), if applicable;</li> <li>• a minimum cumulative grade point average of 3.25 (on a 4.5 scale) in the last 60 credit hours of university-level courses;</li> <li>• equivalent IB and/or AP courses will be accepted in lieu of university courses;</li> <li>• completion of the following pre-requisite courses or equivalents, with no grade below a B (3.0 on a 4.5 scale):             <ul style="list-style-type: none"> <li>- Human Anatomy (3 credit hours);</li> <li>- Human Physiology (3 credit hours);</li> <li>- Psychology department course (3 credit hours);</li> <li>- Introductory Statistics (3 credit hours);</li> <li>- English department course (3 credit hours)</li> </ul> </li> </ul>

- Indigenous content course or equivalent (3 credit hours)

Human Physiology must have been completed within five years of application; all other pre-requisite courses need to have been completed within the last 10 years or the equivalency within higher level courses.

A list of pre-requisite courses and equivalents is available from:

[http://www.umanitoba.ca/faculties/medicine/units/medrehab/pt/pt\\_mpt\\_eligibility.html](http://www.umanitoba.ca/faculties/medicine/units/medrehab/pt/pt_mpt_eligibility.html)

Selected eligible applicants are interviewed and are ranked within their priority group as listed above, using a weighting of:

1. 60% based on the GPA of the last 60 credit hours of university-level pre-requisite courses (GPA<sub>L60PC</sub>); and
2. 40% based on the Multiple-Mini Interview (MMI) score.

The MMI is a series of mini-interviews lasting 10 minutes each. The MMI evaluates non-cognitive attributes important for success in the health sciences, such as, critical thinking, ethical/moral decision making, self-evaluation, communication, cultural sensitivity and empathy.

GPA<sub>L60PC</sub> scores and MMI scores are converted into standardized z-scores before being combined into an overall ranking score. Information on the MMI can be found at

[www.umanitoba.ca/medrehab/media/pt\\_mmi\\_presentation.pdf](http://www.umanitoba.ca/medrehab/media/pt_mmi_presentation.pdf).

In order to pass the MMI, the applicant must:

1. pass a minimum of six of the eight stations. A "pass" on an individual station constitutes a score of 4 or more on a 7-point scale;
2. attain a minimum interview score of 32/56 (57%) based on a grading scale of 1-7; and
3. maintain confidentiality in regards to the content of the MMI. A breach of confidentiality constitutes an automatic failure of the MMI.

Successful applicants who accept an offer of admission to the Master of Physical Therapy program must submit the following documentation to the department within the **first 6 weeks** of classes of the year in which they are admitted:

- Child Abuse Registry Check;
- Adult Abuse Registry Check;
- Criminal Record including Vulnerable Sector Check;

## **Report of the Faculty Council of Graduate Studies on Course, Program, Supplementary Regulation and Regulation Changes**

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### **Preamble**

1. The Faculty of Graduate Studies (FGS) has responsibility for all matters relating to the submission of graduate course, program, supplementary regulation, and regulation changes. Recommendations for such are submitted by the Faculty Council of Graduate Studies for the approval of Senate.
2. The Faculty Council of Graduate Studies met on the above date to consider a proposal from the Université de Saint-Boniface (Canadian & Intercultural Studies).

### **Observations**

1. The **Université de Saint-Boniface (Canadian & Intercultural Studies)** proposes supplementary regulation changes concerning admission to the M. es Arts, specifically, that “120 credit hours of undergraduate study may be considered as the equivalent of a four-year undergraduate degree program. The 120 credits must include a completed undergraduate degree”. Canadian and Intercultural Studies is an interdisciplinary discipline which rarely sees applicants from four-year programs in Canadian Studies. Rather, applicants derive from a diverse range of undergraduate disciplines; they wish to further their studies while adding a Canadianist dimension. Accepting 120 credits of undergraduate study as the equivalence of a four-year degree program will allow the program the flexibility to admit students from diverse disciplinary backgrounds while ensuring that a requisite amount of undergraduate study has been assured.

### **Recommendations**

**Faculty Council of Graduate Studies recommends THAT the program changes from the unit listed below be approved by Senate:**

#### **Université de Saint-Boniface (Canadian & Intercultural Studies)**

Respectfully submitted,

Dr. Kelley J. Main, Chair  
Faculty Council of Graduate Studies

/ak

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.

**Études canadiennes et interculturelles / Canadian and Intercultural Studies**

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**Subject:** Proposed Addition of a Supplementary Regulation Regarding Admissions to the Master's Programme in Canadian and Intercultural Studies

**From:** Paul Morris, Coordinator, Canadian and Intercultural Studies, Université de Saint-Boniface

**To:** Faculty of Graduate Studies, University of Manitoba

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The following memorandum is to request the addition of a Supplementary Regulation to section "6.2 Admission" of the Supplementary Regulations for the unit M.A. Études canadiennes et interculturelles / Canadian and International Studies at the Université de Saint-Boniface.

**The Proposed Regulation:**

The proposed regulation would read as follows: **"For the purposes of admission to the M.A. program in Canadian and Intercultural Studies, 120 credits of undergraduate study may be considered as the equivalent of a four-year undergraduate degree program. The 120 credits must include a completed undergraduate degree."**

This language is explicitly chosen to reference the wording of the current FGS Academic Guide Regulation which states the following: "Students who are eligible to be considered for direct admission to a program of study leading to the Master's degree include: Graduates of four (4)-year undergraduate degree programs (or equivalent as deemed by the Faculty of Graduate Studies)...."

**Justification:**

Canadian and Intercultural Studies is an interdisciplinary discipline which rarely sees applicants from four-year programs in Canadian Studies. Rather, our applicants derive from a diverse range of undergraduate disciplines; they wish to further their studies while adding a Canadianist dimension. Accepting 120 credits of undergraduate study as the equivalence of a four-year degree program will allow the program the flexibility to admit students from diverse disciplinary backgrounds while ensuring that a requisite amount of undergraduate study has been assured.

The modal verb "may" is intended to allow discretionary leeway should the 120 credits not be considered a proper equivalent for the requirement of the FGS Academic Guide Regulation.

**Conformity with Past Practice:**

This supplementary regulation is also intended to formally reflect the precedent established by long-standing admissions practice where students holding three-year degrees have been admitted upon demonstration that they have accumulated an equivalence in the form of at least 120 credits of study: for example, undergraduates from Québec who hold a three-year BA but who have also completed 2 years of post-secondary education at CGEP, or students who have completed a three undergraduate degree and subsequent graduate credits (for instance, post-baccalaureate programs in Education).

Thank you for your consideration,

Paul Morris  
Coordinator, Études canadiennes et interculturelles, Université de Saint-Boniface.



- Course-based;
- Comprehensive Exam;
- Project;
- Major research paper.

## 6.2 Admission

Students who are eligible to be considered for direct admission to a program of study leading to the Master's degree include:

- Graduates of four (4)-year undergraduate degree programs (or equivalent as deemed by the Faculty of Graduate Studies) from:
  - Canadian institutions empowered by law to grant degrees; or
  - Colleges and universities outside Canada which are officially recognized by the Faculty of Graduate Studies.
- Graduates from first-cycle Bologna compliant degrees.
- Students who have completed a Pre-Master's program from:
  - The University of Manitoba (see [General Regulations - Pre-Master's](#)); or
  - Canadian institutions empowered by law to grant degrees; or
  - Colleges and universities outside Canada which are officially recognized by The Faculty of Graduate Studies.

All students applying for a Master's degree program must have attained a minimum GPA of 3.0 (or equivalent) in the last two (2) years of full-time university study (60 credit hours). This includes those applying for direct admission and those entering from a Pre-Master's program. Students who meet the minimum requirements for admission to the Faculty of Graduate Studies are not guaranteed admission.

**Note:** This is the minimum requirement of the Faculty of Graduate Studies and departments/units may have higher standards and additional criteria.

### Admission

Aux fins d'admission au programme de maîtrise en études canadiennes et interculturelles, 120 crédits d'études de premier cycle peuvent être considérés comme l'équivalent d'un programme de premier cycle de quatre ans. Les 120 crédits doivent inclure un diplôme de premier cycle complété.

### **Exigences d'admission supplémentaires**

En plus de satisfaire aux exigences minimales de la Faculté des études supérieures de l'Université du Manitoba, toute demande d'admission au programme de M.A. Études canadiennes et interculturelles à l'USB doit être accompagnée :

- d'une lettre de 500 mots en français décrivant les objectifs de formation de la candidate ou du candidat dans son programme de M.A. Études canadiennes et interculturelles;
- d'un curriculum vitae.

### Admission

For the purposes of admission to the M.A. program in Canadian and Intercultural Studies, 120 credits of undergraduate study may be considered as the equivalent of a four-year undergraduate degree program. The 120 credits must include a completed undergraduate degree.

### **Additional Admission Requirements**

In addition to meeting the minimum requirements of the Faculty of Graduate Studies, applications to the M.A. Études canadiennes et interculturelles program at USB will also require :

- a 500-word statement in French outlining the applicant's objectives for pursuing this degree;
- a resume.

### **Cas exceptionnels**

Dans des cas *exceptionnels*, ces exigences supplémentaires *pourraient* être modifiées à la discrétion du coordonnateur du programme ou du doyen de la Faculté des arts de l'USB pourvu que la candidate ou le candidat ne se soustraie pas aux exigences d'admission de la Faculté des études supérieures de l'Université du Manitoba.

### **Exceptional cases**

These additional admission requirements *may* be waived in *exceptional* cases, subject to the discretion of the program coordinator or the Dean of the Faculty of Arts of USB, provided that the

## **Report of the Senate Committee on Curriculum and Course Changes RE: Undergraduate Course Changes Beyond Nine Credit Hours, Faculty of Law**

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### **Preamble:**

1. The [terms of reference](#) for the Senate Committee on Curriculum and Course Changes (SCCCC) are available on the University Governance website. The SCCCC is “to recommend to Senate on the introduction, modification or abolition of undergraduate programs, curricula or courses.”
2. At its meetings on October 25 and November 3, 2022, the SCCCC considered course and curriculum changes proposed by the Faculty of Law.
3. The course and curriculum changes were endorsed by the Faculty Council of the Faculty of Law at its meetings on November 25, 2021 and May 20 and June 15, 2022.
4. The Senate Planning and Priorities Committee (SPPC) considered resource implications of the proposed course changes at its meeting on September 26, 2022.

### **Observations**

1. The Faculty of Law is proposing the introduction of eight (8) courses and the modification of forty-six (46) courses, as outlined in the attachments to this Report. The course changes would result in a net increase of twenty-four (24) credit hours of course offerings. All the courses to be introduced have previously been taught as topics course sections under the topics course LAW 3980 Current Legal Problems B.
2. Proposed modifications to the Juris Doctor degree include: the introduction of a mandatory Indigenous content course requirement in Year 2, which would involve the completion of the proposed LAW 3290 Indigenous Legal Methodologies and Perspectives; revisions to List A: Writing Requirement Courses, to include other courses proposed for introduction; and the introduction of three 15-credit hour concentrations in Private Enterprise and the Law, Law and Society, and Criminal Law and Justice, with requirements as set out in the attachment to this Report. The 15-credit hours completed toward a Concentration would also contribute to the 92 credit hours of LAW courses required in the J.D. degree. The three proposed concentrations, in addition to the existing Concentration in Access to Justice in French that was recently approved by Senate (January 12, 2021), will provide J.D. students with an opportunity to distinguish themselves and their degree in a particular area of private or public law.
3. In addition to LAW 3290, three of the new elective courses include significant Indigenous content. Also, in the previous year, the Faculty reviewed course descriptions for existing courses to ensure they reflected Indigenous perspectives and content already being covered in courses. Based on that review, the Faculty is proposing modifications to more than forty course descriptions, to reflect where this content is being taught.
4. At the meetings, Faculty representatives indicated that the Indigenous content in courses, including in existing course and in the proposed LAW 3290 and LAW 3282 Indigenous Peoples, Oral History, and the Law, had been developed with input from the Faculty’s Truth and Reconciliation Action Team, which includes Indigenous legal practitioners and the Faculty’s Indigenous Legal Studies Coordinator.

## **Recommendation**

The Senate Committee on Curriculum and Course Changes recommends:

**THAT Senate approve course and curriculum changes proposed by the Faculty of Law, effective for the 2023 Fall Term.**

Respectfully submitted,  
Professor Dean McNeill, Chair  
Senate Committee on Curriculum and Course Changes

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.

**Report of the Senate Planning and Priorities Committee RE: Undergraduate Course Changes Beyond Nine Credit Hours, Faculty of Law**

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**Preamble:**

1. The [terms of reference](#) for Senate Planning and Priorities Committee (SPPC) charge the committee to report to Senate on curriculum changes with significant resource implications, including additions to departmental curricula of more than nine credit hours.
2. At its meeting on September 26, 2022, the SPPC considered and endorsed proposals from the Faculty of Law for undergraduate course changes beyond nine (9) credit hours, as well as modifications to the curriculum of the Juris Doctor degree, including the introduction of three concentrations within the degree.
3. The Faculty Council of the Faculty of Law endorsed the proposed course and curriculum changes at its meetings on November 25, 2021, and June 15, 2022. The proposals were also considered by the Senate Committee on Curriculum and Course Changes (SCCCC) at its meetings on October 25 and November 3, 2022.

**Observations:**

1. The Faculty of Law is proposing the introduction of eight (8) courses and the modification of forty-six (46) courses, for a net addition of 24 credit hours, as set out in the attachment to the Report.
2. The Faculty would not require additional resources, including teaching resources, nor would it request any new or additional subvention from the University Fund to deliver the new courses. All the courses have been offered in recent years as topics course sections, so associated costs have been factored into the Faculty's operating budget. One course, LAW 3290 Indigenous Legal Methodologies and Perspectives, would have resource implications for the Faculty. It would use a portion of the revenue from the Law Faculty Endowment Fund to cover expenses (\$15,250) associated with a field trip to Turtle Lodge (International Centre for Indigenous Education and Wellness), at Sagkeeng First Nation.  
  
Existing teaching resources include faculty and staff with expertise to develop and deliver new courses with significant Indigenous content, including LAW 3290 and three new elective courses (LAW 3272 Criminal Justice, Family Law and Indigeneity; LAW 3278 Indigenous Economic Development and the Law; LAW 3282 Indigenous Peoples, Oral History and the Law). The courses were developed by faculty members with the support of the Faculty's Indigenous Legal Studies Coordinator. In the summer 2022, the Faculty hired two new faculty with the expertise to teach the Indigenous legal curriculum.
3. The Library has indicated its collection can support each of the courses proposed for introduction.
4. The Faculty is proposing several modifications to the curriculum of the Juris Doctor degree, some of which are connected to the course introductions. Specifically, LAW 3290 Indigenous Legal Methodologies and Perspectives would be added as a program requirement and the other new courses would be added to List A: Writing Requirement Courses.

Other curriculum modifications involve the introduction of three 15-credit hour Concentrations. The Concentrations would make use of existing courses and/or courses to be introduced that have previously been offered as topics course sections, as set out in the attachment to the Report. The 15-credit hours completed toward a Concentration would also contribute to the 92 credit hours of LAW courses required in the J.D. program.

The proposed Concentration in Law and Society would explore how legal and social systems are interconnected and how law is interwoven into communities. The objective would be for students to better understand how law both impacts and reflects culture through its social and historical construction. The Concentration in Criminal Law and Justice would provide a foundation of knowledge that includes critical and Indigenous perspectives and issues in criminal law and justice beyond the mandatory curriculum. It would benefit students who intend to pursue careers as prosecutors or defense attorneys, who require expertise and skills to apply criminal statutes, prosecute or defend accused persons based on legal and EDI considerations that are relevant when the accused is an Indigenous, Black, or racialized person. The Concentration in Private Enterprise and the Law would prepare J.D. graduates to support Indigenous economic development and small and medium enterprises and family businesses, by providing them with the expertise and skills relevant to the challenges and opportunities presented to such economic entities and their stakeholders.

5. Establishment of the Concentrations would not result in incremental enrolment or tuition revenue, as registration in the Concentrations would be restricted to students admitted to the J.D. program.
6. The committee wishes to acknowledge that the course and curriculum changes proposed by the Faculty, including a majority of the forty-six course modifications that involve revisions to the course descriptions to make the Indigenous content evident to students, including Indigenous Law students, respond to the Truth and Reconciliation Commission of Canada's Call to Action (CTA) 28 and to the SPPC's concern, in its Report to Senate dated August 31, 2021, that the Faculty increase Indigenous content in its courses and curricula and address CTA 28.

### **Recommendation:**

The Senate Planning and Priorities Committee recommends:

**THAT Senate approve the Report of the Senate Planning and Priorities Committee concerning undergraduate course changes beyond nine credit hours and modifications to the Juris Doctor, including the introduction of Concentrations in Law and Society, Criminal Law and Justice, and Private Enterprise and Law, in the Faculty of Law, effective for the 2023 Fall Term.**

Respectfully submitted,

Professor Derek Oliver, Chair  
Senate Planning and Priorities Committee

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.

## Faculty of Law

### Introductions:

- LAW 3272 Criminal Justice, Family Law and Indigeneity 3 cr +3.0  
This course is meant to provide a comprehensive treatment of the social realities and issues faced by Indigenous peoples in the Canadian criminal justice system as well as the Child Protection System. A large number of topics will be covered with a view towards exploring the problems faced by Indigenous peoples in the Justice System, the search for positive solutions to those problems, and problems/issues that have been identified with those solutions. May not be held with LAW 3980 when titled "Aboriginal Law - Criminal Justice and Family Law."
- LAW 3274 Advanced Family Law 3 cr +3.0  
The course provides an in-depth study of issues in family law. Some topics covered: adoptions and guardianships; assisted human reproduction/fertility law; child protection; access to justice in family law, domestic violence; collaborative family law; and family property. May not be held with LAW 3980 when titled "Advanced Family Law." Prerequisite: LAW 2640.
- LAW 3278 Indigenous Economic Development and the Law 3 cr +3.0  
This course examines how Canadian law both hinders and promotes the economies of Indigenous communities. Concepts include: economic development activities by Indigenous communities; Aboriginal rights; the duty to consult and accommodate; the Indian Act; First Nations entering contracts; land tenure on reserve; urban reserves; economic security; resource development in Canada; and the promotion of Indigenous business. May not be held with LAW 3980 when titled "Indigenous Economic Development and the Law."
- LAW 3282 Indigenous Peoples, Oral History, and the Law 3 cr +3.0  
This course explores the roots of oral histories and traditions, which are becoming vital in Canadian legal and political systems. Concepts include: biblical and African oral traditions; specific physical Indigenous traditions of memory encoding; unique media and methodologies of remembering the past; public perceptions of oral history; modes of memory recall; orality relation and transmission; the effect of trauma; and the reliability of eyewitness testimony. May not be held with LAW 3980 when titled "Oral History, Indigenous Peoples, and the Law."
- LAW 3284 International Criminal Justice 3 cr +3.0  
This course examines some of the most serious crimes, such as genocide (including the residential school system as a system of genocide for Indigenous peoples), crimes against humanity, and war crimes. May not be held with LAW 3980 when titled "International Criminal Justice."
- LAW 3286 Law and Religion 3 cr +3.0  
This course considers how the law reflects, leverages, engages, and clashes with these concepts of spiritualities. The course examines the concepts of truth, personal responsibility, and forgiveness as they apply to different spiritual/ religious traditions and perspectives including Indigenous, the Abrahamic faiths, Hinduism, and Sikhism. May not be held with LAW 3980 when titled "Law and Religion."
- LAW 3288 Refugee Law 3 cr +3.0  
This course examines refugee law within international, regional and national frameworks. It covers international treaties and other materials produced by organizations such as the United Nations, and specific agencies like the United Nations High Commissioner for Refugees.

Emphasis will be placed on the Canadian legal context. May not be held with LAW 3980 when titled "Refugee Law."

LAW 3290 Indigenous Legal Methodologies and Perspectives 3 cr +3.0  
This course covers past and contemporary reconciliation efforts with Canadian Indigenous peoples, including common law "Aboriginal law" cases as well as Indigenous legal Orders. It will include a land-based field trip or a land-based learning experience in the community. May not be held with LAW 3980 when titled "Indigenous Legal Methodologies and Perspectives."

**NET CHANGE IN CREDIT HOURS: +24.0**

Modifications:

LAW 1102 Contracts 5 cr 0.0  
This course covers the basic principles of contract law, including: how a contract is formed; what is an offer; what constitutes acceptance; whether all promises are enforceable as a contract; when parties should be allowed to avoid obligations; what happens if one party misrepresents the quality of subject matter of the contract; what happens when a party makes a mistake about what they buy or sell; what should happen if one party takes advantage of another for a better deal for themselves. The course also considers Indigenous perspectives related to contract law. May not be held with LAW 1100.

LAW 1140 Criminal Law and Procedure 5 cr 0.0  
A general introduction to criminal law and procedure dealing with principles of criminal liability, common defenses to criminal charges, selected specific offences, anti-Indigenous racism and discrimination in the criminal justice system, and the basic procedures to be followed in the administration of criminal justice in Canada.

LAW 1460 Constitutional Law 5 cr 0.0  
An examination of the legal problems arising from the nature of the Canadian political structure and, in particular, the distribution of legislative powers between the federal parliament and the provincial legislatures, Aboriginal rights in Canada, and an introduction to the impact of the Canadian Charter of Rights and Freedoms.

LAW 1480 Torts and Compensation Systems 5 cr 0.0  
Tort law is the law of wrongs that are someone's fault. It is private law, which means it concerns relationships between people wherein harms to the person, property, dignity or wealth occur. Tort law consists of a collection of various private law actions and is most often divided between conduct that is intentional and conduct that is negligent. The reality of modern day civil litigation is that the overwhelming majority of tort law suits focus on negligence. As such, the entire first term will be spent on the tort of negligence. In the second term, we will examine the intentional torts (e.g., battery) and other torts such as defamation. Additionally, we will consider the historical and current impact of racism and sexism on tort law and civil litigation, for e.g., in the quantification of damages for Indigenous plaintiffs, etc. We will study legal responses to Residential Schools and various areas where Tort law needs to improve.

LAW 1500 Property 5 cr 0.0  
A general introduction to the principles of property law including both personal and real property law. Personal property law focuses on the concept of possession through finders, gifts and bailment. Real property includes the concepts of estates and interests in land including their

historical development and modern application. A study of Indigenous land rights will be introduced including the study of: Aboriginal title, the *sui generis* nature of rights, land claims, UNDRIP, and Treaty rights.

LAW 1530 Legal System 2 cr 0.0

An introduction to the study of law including initial analysis of various aspects of legal history, the structure of the legal system situated in the context of colonialism and Indigenous reconciliation, legal reasoning, statutory interpretation, dispute resolution and the role of the judiciary.

LAW 1540 Legal Methods 5 cr 0.0

This course provides foundational skills of legal research, analysis, citation, and writing; statutory interpretation; and professional standards and responsibilities. Treaties, Indigenous legal systems, and responsibilities in Call to Action #28 of the Truth and Reconciliation Commission are included in readings, assignments, class discussions and course delivery. May not be held with LAW 1542. This course is graded on a pass/fail basis

LAW 2400 Wills and Succession 3 cr 0.0

The law of testate and intestate succession, The Indian Act, Part IV of The Marital Property Act, and The Dependents' Relief Act.

LAW 2490 Trusts 3 cr 0.0

The nature and functions of modern inter vivos and testamentary trusts. The creation of express, private trusts, charitable trusts, resulting trusts, and constructive trusts. The administration of trusts, and real and personal remedies of beneficiaries under trusts. Trusts are also considered as they apply to Indigenous communities.

LAW 2602 Evidence 3 cr 0.0

A study of the rules relating to the admissibility and weight of evidence in judicial proceedings. The impact of the rules of evidence on equity-seeking groups, including Indigenous litigants may be considered. May not be held with LAW 2600.

LAW 2640 Family Law 3 cr 0.0

An overview of key legal issues regarding familial relationships and family breakdown in Canadian society. Topics include cohabitation, marriage, separation, divorce, child custody and access, spousal and child support and property division. Indigenous perspectives as they apply to family law are also considered.

LAW 2672 Civil Procedure 3 cr 0.0

This course covers the procedural elements of a civil lawsuit as it progresses toward a potential trial, focusing on the Court of King's Bench Rules. We will discuss procedural decisions that litigators must consider on topics such as: parties and standing; costs awards; limitation periods; motions; discovery; procedural aspects of a trial; and appeals. We will also discuss specific considerations for Indigenous clients and Access to Justice issues. Through a combination of lectures, class discussion, and assignments students will learn the basic steps of a lawsuit in Canada and how to draft procedural documents (with a focus on Manitoba). May not be held with LAW 2670.

LAW 2680 Legal Negotiation 3 cr 0.0

Most legal disputes settle before trial. This course examines how lawyers assist their clients through effective interviewing, counseling, strategic planning and negotiation as well as some of



the mechanisms, both judicial and non-judicial, that facilitate pre-trial dispute settlement. This course also considers Indigenous topics related to negotiation.

LAW 2690 Corporations I 3 cr 0.0

A study of the major legal, practical and policy issues arising out of the formation and operation of business organizations in Canada, with a particular focus on business corporations. Students will examine major principles of Canadian corporate law, including corporate personality, management power, majority rule and minority protection. The corporate form in Indigenous contexts is also considered.

LAW 2700 Income Tax Law and Policy 3 cr 0.0

The object of this course is to develop a working knowledge of the basic principles and rules of the income tax system as these apply to individuals. A parallel objective is the discovery of the major policy positions that inform the personal income tax system and the development of the ability to use tax policy analysis to evaluate advantages of, and problems with, the current system. Aspects of the taxation of Indigenous peoples are also considered.

LAW 3012 International Business Law 3 cr 0.0

Explores the legal, practical and social realities of international business transactions including issues involving Indigenous businesses and international business.

LAW 3018 Human Rights Law 3 cr 0.0

Critical and constructive study, at an advanced level, of a significant major subject or set of topics (including among others the historic development of human rights, international and domestic human rights, Indigenous Rights, etc.) in Human Rights Law.

LAW 3024 The Legal Profession and Professional Responsibility 3 cr 0.0

A general introduction to the problems of professional responsibility and the ethics of lawyers individually, as well as the legal profession collectively. Topics will include ethical problems of the lawyer in the role of the advocate and in the role of counsellor (confidentiality, conflict of interest, intercultural awareness and cultural competency as it applies to Indigenous culture, etc.); professional responsibility in the delivery of legal service (competency, fee determination, specialization, regulation, etc.); and the legal profession and the public interest (governance of profession, discipline, professional liability etc.). These problems are to be studied by the critical examination of case law, codes, canons, and other published materials, by classroom discussion and debate on problems; and by workshops and panels which involve practising lawyers.

LAW 3032 Court of King's Bench Clerkship 3 cr 0.0

Students will be expected to provide research assistance to the Justices, and students will be asked to provide written memoranda and other research to help the Justices prepare for trial or application hearings. Discussions of legal issues may follow from the work that students do. May not be held with LAW 3250 when titled " Court of Queen's Bench Clerkship" Grading: Pass/Fail.

LAW 3050 Commercial Law 3 cr 0.0

A study of secured transactions and negotiable instruments, including enforcing security interests on reserve land and against First Nation individuals and bands under the Indian Act.

LAW 3070 Gender and the Law 3 cr 0.0

This course will explore ideas about gender differentiation in laws and legal and social systems and organizations. The course will start with an introduction to feminist and gender-based critiques of law and theories about sexual equality, anti-racist and anti-colonial approaches and intersectionality (i.e. the complex phenomena of overlapping forms of discrimination and inequality.) We will then focus on some specific issues related to gender-based violence, reproductive justice, and queer issues. Students will be introduced to complexities of gender regulation in Indigenous cultures and be introduced to the MMIWG Calls to Justice.

LAW 3090 Children, Youth and the Law 3 cr 0.0

Relationships between child, family, state and law are examined within an interdisciplinary context, focusing on such issues as: rights theories and the public/private distinction; regulation of young offenders, child protection and state intervention; children in the courts; principles of Indigenous reconciliation and various rights frameworks for the regulation of children and youth and their families; the systemic racism within the current legal regime governing children, youth, and their families; and the particular challenges of older children/ young adults at the boundary between childhood and adulthood.

LAW 3170 Dispute Resolution 3 cr 0.0

This is a research paper course. It offers an exploration of key dispute resolution topics with a particular focus on mediation. Current topics in the field of dispute resolution will be examined from theoretical, critical, and practical perspectives. Students will be encouraged to develop approaches to dispute resolution that incorporate current issues and research findings, to actively practice mediation skills, and to present their work to their classmates. Students will be introduced to restorative approaches and Indigenous dispute resolution philosophies. May not be held with the former LAW 3160 or LAW 3162.

LAW 3336 Law and Popular Culture 3 cr 0.0

This course is a research paper course and offers an in-depth exploration of popular cultural texts such as television programs and films that are concerned with law and justice themes. We will examine these texts with a view to discovering how popular culture constitutes law and how law helps create popular cultural understandings of justice. We will use a number of theoretical approaches including: critical legal studies, critical race theory, feminist legal theory, Indigenous legal theory, conflict resolution theory, and cultural studies theory. These theories will inform our readings of each of the popular culture texts and will assist us in our critique of the jurisprudence offered in films and TV shows. May not be held with LAW 3980 when titled "Law and Popular Culture."

LAW 3338 Sentencing 3 cr 0.0

The vast majority of criminal charges result in a conviction, whether by guilty plea or conviction at trial. This seminar focuses on the principles and practice of sentencing, while also looking in some detail at the sanction of imprisonment, penal policy, Aboriginal peoples and sentencing, and prisoner's rights. May not be held with LAW 3980 when titled "Sentencing."

LAW 3346 Access to Justice 3 cr 0.0

This course explores how individuals seek to manage their legal problems by engaging with and navigating the civil justice system in Manitoba. Topics which may be covered in the course include: public legal services; the proliferation of self-represented litigants; the role of pro bono services; rural and remote Access to Justice (A2J); the costs of justice; the state of A2J research; the provision of legal services by non-lawyers; on line dispute resolution; and, technology, innovation and the legal practice of the future. Indigenous perspectives for access

to justice and the administration of justice are also considered. May not be held with LAW 3980 when titled " Access to Justice

LAW 3348 Bankruptcy and Insolvency 3 cr 0.0  
This course provides students with an introduction to Canadian bankruptcy insolvency law under the Bankruptcy and Insolvency Act. By the end of the course students will understand the main components of Canadian bankruptcy and insolvency law as well as the key policy issues. The Indian Act will also be considered in relation to topics of bankruptcy. May not be held with LAW 3980 when titled " Bankruptcy and Insolvency."

LAW 3352 Sexual Expression, Conduct and Work in Canada 3 cr 0.0  
This course surveys selected issues involving sexual work, performances, expression and the criminal law. The main focus of the course is on the development of obscenity and indecency laws, prostitution-related laws, voyeurism laws, artistic expression, revenge pornography, cyber sexual crimes, bestiality laws, campus sexual regulation and hateful sexual speech. Study of these topic areas is based on a doctrinal, socio-legal and anthropological history of sexual regulation beginning in ancient Pompeii and leads to an assessment of law in modern day Canada. The course thus explores theories underpinning freedom of expression, equality and liberty. Indigenous sexual depictions and modern-day oppressions against Indigenous peoples, new Canadians, and impoverished populations are also considered. The course engages doctrinal issues in criminal law, constitutional law, tort law and to a certain extent, jurisprudence and the philosophies inherent in law and society approaches. WARNING: This course contains graphic (though legal) sexual content. May not be held with LAW 3980 when titled " Sexual Expression, Conduct and Work in Canada."

LAW 3360 Advanced Legal Research 3 cr 0.0  
A skills-based course which provides training in research-related skills. The course covers researching legislation, case law, Indigenous law, and foreign and international law.

LAW 3362 Animals and the Law 3 cr 0.0  
The course considers a range of legal relationships and responsibilities as they relate to animals. Topics will include: Crown versus private property ownership; regulatory takings; natural resources and environmental legal frameworks; First Nations and natural resources; tort, trade, and property law; regulation (intellectual property, biotechnology, food, and agriculture); immigration law and policy; animal health, welfare, rights, and morality (including cultural, religious, spiritual, and Indigenous perspectives); and the role of law. May not be held with LAW 3980 when titled " Animals and the Law."

LAW 3364 Law and Resistance 3 cr 0.0  
This course examines the intersections between law and myriad practices of resistance. The course considers how resistance plays a role in the life of the law, and vice-versa. Resisters may have an impact (directly or indirectly) in shaping the law – including its creation, interpretation, or enforcement. Students reflect on the spectrum of responses that legal systems employ to legitimize or punish the conduct of resisters. Through readings and class discussions, students explore how individuals, groups and/or communities may challenge those who exercise dominant power and the contexts in which such resistance occur. These contexts may include Indigenous peoples' historical and ongoing defiance to colonial/state policies and practices, in addition to resistance waged by women, and marginalized communities to various types of discrimination. May not be held with LAW 3980 when titled "Law and Resistance."

- LAW 3370 The Legislative Process 3 cr 0.0  
 A study of how statutes and regulations are made in the Province of Manitoba, and how lawyers can effectively represent their clients in the context of lawmaking by politicians, civil servants and regulators, including Indigenous Rights of Self Government.
- LAW 3380 Issues in Law and Bio Ethics 3 cr 0.0  
 The course deals with the legal aspects of prevention, creation, alteration, maintenance and termination of life through medical and other scientific means. Topics include Indigenous perspectives, law and ethical traditions with respect to medical decision-making, minor children and genomic research.
- LAW 3394 Internet and E-Commerce Law 3 cr 0.0  
 This course covers legislation, case law and practical drafting techniques in many areas in order to better equip students in the practice of law, and at the same time invite students to reflect upon the political and social issues that arise as "cyberlaw" develops. Subject matter of the course: legislation, court decisions, policy debates and practical drafting and litigation techniques connected with the internet and e-commerce. A variety of issues will be covered, including: freedom of expression issues, jurisdiction, internet speech regulation; online privacy issues; intellectual property issues, including domain names and downloading of copyright material; internet commerce issues, such as the law of contracts pertaining to online contracting; digital communication and voting as a source of Indigenous self-government. May not be held with LAW 3980 when titled "Internet and Ecommerce Law."
- LAW 3410 Canadian Legal History 3 cr 0.0  
 The historical background of the Canadian legal system. Topics include, among others, rights development; Indigenous Peoples in Canada; historical developments relating to contemporary law, form, substance, and interpretation of law; British and American influence on Canadian law.
- LAW 3530 Administrative Law 3 cr 0.0  
 An introduction to administrative law generally, with concentration on the judicial review of the exercise of statutory authority by administrative entities. The impact of administrative decisions upon Aboriginal rights may also be considered.
- LAW 3532 Intensive Criminal Law 3 cr 0.0  
 This course follows the general introduction to the complexities and principles of criminal law presented in earlier courses on criminal law and evidence. It emphasizes the ways in which these complexities and principles play out in practice and has a strong practical component. It is well-suited for students considering working in the field of criminal law. The first half of the course will address the demands placed on prosecutors and defence counsel at various points of a prosecution, including, inter alia, application for judicial interim release, the preparation of pre-trial motions, direct and cross-examination, and sentencing. These demands are not only statutory, but also logistical, tactical and ethical. The second half of the course will look at these demands in the context of certain "special" criminal law contexts, including, inter alia, impaired driving, young offenders, domestic violence, and drug prosecutions. Provisions of the Criminal Code as they apply to Gladue and Ipeelee are also considered. Intended for students entering their third year of full-time study. May not be held with LAW 3250 when titled "Intensive Criminal Law." Grading: Pass/Fail

- LAW 3590 Charter Issues in Criminal Law 3 cr 0.0  
 The rules of Criminal Procedure and principles underlying and unifying such rules with a particular emphasis on the effect of the Charter of Rights and Freedoms on those rules. Indigenous issues regarding sentencing, Constitutional exemptions, representative juries, and journal papers are also considered.
- LAW 3600 Environmental Law 3 cr 0.0  
 This course provides insight into Canadian legal approaches concerning environmental protection, sustainable development, and access to environmental justice. Key topics include: legal jurisdiction of municipal, provincial, federal and Indigenous governments; international environmental law; environmental enforcement; environmental rights; biodiversity; and climate change.
- LAW 3620 Comparative Law 3 cr 0.0  
 Comparative law is a tool for solving legal problems. In this course, we will look at the roots of modern comparative law in 19th century continental Europe and consider the impact that has had on this discipline. This course will introduce you to key comparative law concepts and topics of study and some of the methods of comparative law. In looking at comparative law as a discipline, this course will also introduce you to a variety of legal cultures and systems within those cultures, including: Indigenous legal cultures, civil law cultures and Marxist legal cultures.
- LAW 3674 Advanced Public Law 3 cr 0.0  
 This course provides students with a fuller appreciation and knowledge of several topics of interest and importance for Canadian public law, including the changing boundaries of public law in our "shrinking" state, the scope and meaning of judicial, administrative and bureaucratic independence, the implementation of the duty to consult and accommodate Indigenous peoples, the role of international human rights norms in Canadian constitutional and administrative law, the intersection between the Canadian Charter of Rights and Freedoms and administrative law and the role of guidelines, policies and other "soft law" in public administration. Although focused on Canadian public law, the course may include a comparative component and draw from the public law experience of other jurisdictions. May not be held with LAW 3980 when titled "Advanced Public Law." **Prerequisite: LAW 3530.**
- LAW 3740 Public International Law 3 cr 0.0  
 Public international law has a complex history, one that lends itself to conflicting interpretations. It has also been the object of a variety of competing theoretical projects, most of which diverge radically on questions of form and substance. This course provides an historically and theoretically reinforced introduction to the basic rules, principles, and institutions of public international law. The application and status of international law in Canadian law, including Indigenous rights, is also considered.
- LAW 3770 Labour-Management Relations 3 cr 0.0  
 A survey of the development of trade unions, their present status under both federal and provincial legislation regarding the right of association, collective bargaining, and the settlement of disputes. Race and racism in labour relations are considered.
- LAW 3828 Preventing Wrongful Convictions 3 cr 0.0  
 This course examines the causes of wrongful convictions, how to avoid them, detection mechanisms and remedies that should be provided under international instruments when a miscarriage of justice has occurred. The course starts by examining the environmental factors that nurture a miscarriage of justice, including the adversarial system of criminal justice. It then

examines the role of the various players in the criminal justice system, and how each can inadvertently feed into a wrongful conviction - individually, or in combination with other factors. Further, cultural insensitivity is considered with respect to the overrepresentation of marginalized individuals, including Indigenous accused persons. Cognitive bias and unreliable evidence are also considered. May not be held with LAW 3980 when titled "Preventing Wrongful Convictions."

LAW 3880 Municipal and Planning Law 3 cr 0.0

A general course in municipal law, including important aspects of land-use control and planning law. Although the course deals generally with the nature, structure, functions, and powers of the various units comprising the local level of government, the focus is primarily on municipal corporations. Topics covered include assessment and taxation, land-use planning and control (including consideration of Indigenous issues in planning), tort liability, judicial review of bylaws, qualification and accountability of councillors, and the law relating to expropriation, as well as some discussion of contemporary urban problems.

LAW 3940 Canadian Charter of Rights and Freedoms 3 cr 0.0

An in-depth study of the Canadian Charter of Rights and Freedoms including its roots in the International, European and American experiences. In this course, we will consider some of the key controversies arising from Charter jurisprudence. We will also look at emerging issues including the resolution of claims by differently situated rights holders and the potential use of the Charter to advance the rights of Indigenous claimants

Juris Doctor, J.D. Program Chart Reflecting Proposed Program Modification  
Degree Requirements

Year 1: Each full-time student is required to take all of the following courses.

Additional requirements for students participating in the Access to Justice in French Concentration are described below under Concentrations.<sup>1</sup>

<b>Year 1</b>		<b>Hours</b>
LAW 1102	Contracts	5
LAW 1140	Criminal Law and Procedure	5
LAW 1460	Constitutional Law	5
LAW 1480	Torts and Compensation Systems	5
LAW 1500	Property	5
LAW 1540	Legal Methods <sup>2</sup>	5
LAW 1530	Legal System	2
	<b>Hours</b>	<b>30</b>
	<b>Total Hours<sup>3</sup></b>	<b>32</b>

<sup>1</sup> Students participating in the Access to Justice in French Concentration must take LAW 1378 Passeport du droit en français 1 (1 cr) in Year One of their program and LAW 2378 Passeport du droit en français 3 (1 cr) in Year Two of their program. Together these courses constitute an ongoing course over the six terms of the J.D. program (equivalent to 0.5 credit per term) in which students in all three years learn together. Each 1 credit is graded on a pass/fail basis at the end of each year. Students are expected to complete all three 1 credit Passeport du droit en français for a total of 3 credits in lieu of a 3-credit elective in Year Three.

<sup>2</sup> Students participating in the Access to Justice in French Concentration must instead take LAW 1542 Méthodes juridiques (5cr), a bilingual course substantively equivalent to LAW1540. Students who do not complete this course will not be eligible for the Concentration.

<sup>3</sup> Students participating in the Access to Justice in French Concentration will earn 33 credit hours in Year One because they are required to take LAW 1378 Passeport du droit en français 1 (1 cr). Students are expected to complete all three 1 credit Passeport du droit en français for a total of 3 credits in lieu of a 3-credit elective in Year Three.

Year 2: Each full-time student in Second Year is required to take a total of 30 credit hours. Additional requirements for students participating in the Access to Justice in French Concentration are described below under Concentrations.<sup>1</sup>

<b>Year 2</b>		<b>Hours</b>
LAW 2602	Evidence	3
LAW 2650	Introduction to Advocacy <sup>2</sup>	3
LAW 2680	Legal Negotiation <sup>3</sup>	3
LAW 2690	Corporations 1	3
<b>LAW 3290</b>	<b>Indigenous Legal Methodologies and Perspectives</b>	<b>3</b>
LAW 3530	Administrative Law	3
Select <del>15</del> <b>12</b> credit hours of Electives from List A or List B <sup>4</sup>		<del>15</del> <b>12</b>
	<b>Hours</b>	<b>30</b>
	<b>Total Hours</b>	<b>30</b>

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<sup>1</sup> Students participating in the Access to Justice in French Concentration will earn 16 mandatory credits in Year Two because they are required to take LAW 2378 Passeport du droit en français 2 (1 cr). They will earn a total of 31 credits in Year Two.

<sup>2</sup> Students participating in the Access to Justice in French Concentration must instead take LAW 2652 Introduction à la plaidoirie (3 cr), a bilingual course substantively equivalent to LAW 2650.

<sup>3</sup> Students participating in the Access to Justice in French Concentration must instead take LAW 2682 Négociation juridique (3 cr), a bilingual course substantively equivalent to LAW 2680.

<sup>4</sup> Must include a minimum of one Writing Course (List A) taken in the Second and Third year.



Year 3: Each full-time student in Third Year is required to take a total of 30 credit hours. Additional requirements for students participating in the Access to Justice in French Concentration are described below under Concentrations. <sup>1</sup>

<b>Year 3</b>		<b>Hours</b>
LAW 3024	The Legal Profession and Professional Responsibility	3
Select 27 credit hours of Electives from List A, List B and/or List C <sup>2</sup>		27
	<b>Hours</b>	<b>3</b>
	<b>Total Hours</b>	<b>30</b>

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<sup>1</sup> Students participating in the Access to Justice in French Concentration will earn 4 mandatory credits in Year Three because they are required to take LAW 3378 Passeport du droit en français 3 (1 cr). They will earn a total of 28 credits in Year Three.

<sup>2</sup> Must include a minimum of one Writing Requirement Course (List A) taken in the Second and Third year.

List A: Writing Requirement Courses

(Second or Third Year)

<b>Course</b>	<b>Title</b>	<b>Hours</b>
LAW 3012	International Business Law	3
LAW 3014	International Trade Law	3
LAW 3018	Human Rights Law	3
LAW 3030	Research Paper B	3
LAW 3070	Gender and the Law	3
LAW 3090	Children, Youth and the Law	3
LAW 3120	Philanthropy and the Law	3
LAW 3170	Dispute Resolution	3
LAW 3230	Aboriginal Peoples and Land Claims	3
<b>LAW 3272</b>	<b>Criminal Justice, Family Law and Indigeneity</b>	<b>3</b>
<b>LAW 3274</b>	<b>Advanced Family Law</b>	<b>3</b>
<b>LAW 3278</b>	<b>Indigenous Economic Development and the Law</b>	<b>3</b>
<b>LAW 3282</b>	<b>Indigenous Peoples, Oral History, and the Law</b>	<b>3</b>
<b>LAW 3284</b>	<b>International Criminal Justice</b>	<b>3</b>
<b>LAW 3286</b>	<b>Law and Religion</b>	<b>3</b>
<b>LAW 3288</b>	<b>Refugee Law</b>	<b>3</b>
LAW 3310	Aboriginal Peoples and the Law	3
LAW 3370	The Legislative Process	3
LAW 3334	Global and Domestic Governance of Tainted Finance	3
LAW 3336	Law and Popular Culture	3

LAW 3338	Sentencing	3
LAW 3346	Access to Justice	3
LAW 3352	Sexual Expression, Conduct and Work in Canada	3
LAW 3362	Animals and the Law	3
LAW 3364	Law and Resistance	3
LAW 3376	Droits linguistiques	3
LAW 3380	Issues in Law and Bio Ethics	3
LAW 3394	Internet and E-Commerce Law	3
LAW 3410	Canadian Legal History	3
LAW 3620	Comparative Law	3
LAW 3674	Advanced Public Law	3
LAW 3740	Public International Law	3
LAW 3828	Preventing Wrongful Convictions	3
LAW 3940	Canadian Charter of Rights and Freedoms	3
LAW 3980	Current Legal Problems B	3

List B: Elective Courses

(Second or Third Year)

<b>Course</b>	<b>Title</b>	<b>Hours</b>
LAW 2378	Passeport du droit en Francais 2	1
LAW 2400	Wills and Succession	3
LAW 2490	Trusts	3
LAW 2640	Family Law	3
LAW 2642	Droit de la famille	3

LAW 2672	Civil Procedure	3
LAW 2700	Income Tax Law and Policy	3
LAW 3016	Corporations II	3
LAW 3026	Trademarks and Patents	3
LAW 3050	Commercial Law	3
LAW 3022	Insurance Law	3
LAW 3212	Immigration Law	3
LAW 3220	Competitions B	3
LAW 3330	Employment Law	3
LAW 3342	Agency and Partnership	3
LAW 3348	Bankruptcy and Insolvency	3
LAW 3354	Moot Researcher	3
LAW 3372	Francais juridique – droit public	3
LAW 3374	Francais juridique – droit prive	3
LAW 3378	Passeport du droit en Francais 3	1
LAW 3392	Securities Law	3
LAW 3590	Charter Issues in Criminal Law	3
LAW 3600	Environmental Law	3
LAW 3770	Labour-Management Relations	3
LAW 3824	Scholarly Publications	3
LAW 3832	Legal Aid Clinic	3
LAW 3852	Private International Law	3
LAW 3880	Municipal and Planning Law	3

LAW 3980	Current Legal Problems B	3
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List C: Elective Courses

(Third Year Only)

<b>Course</b>	<b>Title</b>	<b>Hours</b>
LAW 3020	Clinical Administrative Law	3
LAW 2132	Clinical Family	3
LAW 3032	Court of Queen's Bench Clerkship	3
LAW 3034	Court of Appeal Clerkship	3
LAW 3302	Clinical Criminal Law	6
LAW 3340	Advanced Advocacy	3
LAW 3344	Internships	3
LAW 3532	Intensive Criminal Law	3
LAW 3360	Advanced Legal Research	3
LAW 3450	Remedies	3
LAW 3510	Corporate Taxation	3
LAW 3520	Taxation of Trusts and Estates	3
LAW 3862	Business Transactions: The Art of the Deal	6
LAW 3980	Current Legal Problems B	3
LAW 3990	Externship	12

**~~Students admitted prior to September 2018, please refer to the Academic Calendar for the year you were admitted.~~**



Office of the Provost and Vice-President (Academic)

## PROPOSAL FOR NEW ACADEMIC MINOR OR CONCENTRATION

Please enter the requested information below and submit both hardcopies and electronic copies to the Office of the University Secretary and the Deputy Provost (Academic Planning and Programs). If you have any questions, please contact Cassandra Davidson, Academic Program Specialist, at [cassandra.davidson@umanitoba.ca](mailto:cassandra.davidson@umanitoba.ca).

It is advised that the unit initially discuss the proposed new minor/concentration with the Deputy Provost (Academic Planning and Programs) prior to completion of and submission of this form.

**Date:** 14 March 2022

**Faculty:** Law

**Department:** Law

**Contact Details:** Associate Dean Dr. Jennifer Schulz– [jennifer.schulz@umanitoba.ca](mailto:jennifer.schulz@umanitoba.ca)

### Section 1: Program Overview

**1. Program type:** Minor:  Concentration:

**2. Proposed program name:** Law and Society Concentration

**3. Length of program:** *Indicate the required number of credit hours including associated pre-requisite requirements.*

15 credit hours

No specific prerequisite requirements other than the completion of the first-year mandatory courses

**4. Proposed start of program:**

September, 2023

### Section 2: Program Details

**5. Description of program:** *Provide a brief outline of the program, its objectives and how it will benefit student.*

Law does not stand outside of the social world but is deeply embedded within society and therefore must be understood in context. The proposed concentration in Law and Society explores how legal and social systems are interconnected, how people live, and how law is woven into

communities. The objective of the concentration is for students to better understand how law both impacts and reflects culture through its social and historical construction.

The program is also intended to differentiate our graduates in the market by demonstrating an understanding of what happens when legal innovations and institutions succeed, and what the outcomes are when they fail. The concentration will support law students in their commitment to the comprehensive practice of law within the context of sociological scholarship and access to justice, as they practice law in public defender offices, legal aid, lower courts, administrative agencies, work with juries or police, or as prosecutors.

We note that there has been a trend in the market to address wider business, political, and social questions to deal with today's complex social challenges and responsibilities. Our intention is to focus on the complexities of justice, violence, and resistance in shaping the development, interpretation, and enforcement of law, including how these affect Indigenous legal traditions and communities. This has relevance to the prairie provinces, and to Manitoba in particular. This concentration, declared as a fulfilment of requirements, rather than an intention, will provide law students with a foundation of knowledge in the important area of law and society. With an emphasis on Indigenous law, this concentration will deliver significant long-term value to students, as formal recognition of a specialism at the intersection of law with society will set them apart from other law school graduates with potential employers and give them a marketplace advantage through their careers.

**6. Course requirements:** *Provide a list of courses (include course codes) and breakdown of course requirements by level (e.g. 6 hours at the 1000 level, 3 hours at the 2000 level, etc.). Indicate whether proposed coursework is currently offered or new. Note any pre-requisite details where applicable.*

There are no formal prerequisite courses other than the completion of the first-year mandatory courses.

**Students must take any five courses (equivalent to 15 credit hours) from the following list. These courses are currently offered, or are generally offered on a two-year cycle:**

- LAW 3070 Gender and the Law
- LAW 3090 Children, Youth, and the Law
- LAW 3120 Philanthropy and the Law
- LAW 3170 Dispute Resolution
- LAW 3282 Indigenous Peoples, Oral History, and the Law
- LAW 3286 Law and Religion
- LAW 3334 Global and Domestic Governance of Tainted Finance
- LAW 3336 Law and Popular Culture
- LAW 3346 Access to Justice
- LAW 3352 Sexual Expression, Conduct and Work in Canada
- LAW 3362 Animals and the Law
- LAW 3364 Law and Resistance
- LAW 3380 Issues in Law and Bioethics
- LAW 3410 Canadian Legal History

**7. Program availability:** *Will this program be offered to all students eligible to declare a minor/concentration or will it be restricted to a subset of students. If the latter, provide a brief explanation as to why the program will be restricted.*

The concentration will be offered to all students admitted to the JD program in the Faculty of Law, who will declare the fulfillment of the concentration requirements for one concentration in their final term of third year. Declaring fulfilment in their last term rather than stating intention in earlier years ensures flexibility for student career planning. Students may complete one concentration in addition to the Concentration in Access to Justice in French.

**8. Admission requirements:** *If applicable, outline any admission requirements to the program.*

There are no formal admission requirements for the Law and Society concentration, but students must have prior admission and good standing within the Juris Doctor program at the Faculty of Law.

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### Section 3: Program Demand

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**9. Strategic priorities:** *Comment on how the program fits within the university's strategic priorities.*

Our proposed concentration supports the University's commitment to inspiring students and fostering inclusion of diverse perspectives as reflected in the current strategic plan. The Faculty of Law has passed a mandatory course in Indigenous Legal Methodologies and Perspectives (LAW 3290) which, will form part of the JD curriculum effective September 2023. Although there is no mandatory Indigenous course in this proposed concentration, the focus on law and society is intended to foster an ability to think more broadly about the ways in which our profession can serve the public interests through sociolegal scholarship, whether we are specifically engaged in areas of unique concern to communities or serving their needs and promoting their interests more broadly. Several of the courses in the concentration have significant Indigenous content, including LAW 3090 Children, Youth, and the Law, LAW 3410 Canadian Legal History, and LAW 3282 Indigenous Peoples, Oral History, and the Law.

**10. Student demand:** *Provide evidence of student demand and interest in the program.*

The existence of graduate programs in law and society at other leading Canadian law schools is indicative of a general demand for educational opportunities intended to more specifically prepare students to meet the needs of clients and society. We are providing the opportunity to specialize at the JD level, again differentiating our students and signaling to employers that our students stand out.

**11. Projected enrolment:** *Based on the evidence of demand, provide projected enrolment numbers in the program.* Fifteen students a year from our cohort of approximately 100+ in upper years in each of second- and third-year Law.

**12. Effects on other programs:** *Comment on the potential effect of the program on other existing programs. Attach letters of support for any programs/units impacted by the proposed program.*



We do not anticipate that the Law and Society concentration will adversely impact any other program offering within the Faculty. The concentration requires just 5 specific courses of 13 offered.

**13. Similar programs:** *If known, describe similar programs within Manitoba, outlining any similarities or differences with the proposed program.*

As the sole accredited provider of legal education leading to the acquisition of a recognized Juris Doctor within Manitoba, we have no competitors and there are no similar programs on offer anywhere else in the Province.

**14. External consultation:** *Where appropriate, outline any consultations with industry, business and/or any third-party groups in development of the proposed program.*

See attachments from the Law Society of Manitoba, the Manitoba Law Foundation and the Manitoba Bar Association.

#### Section 4: Resource Requirements

**15. Projected costs and revenues:** *Provide a general overview of the projected costs and revenues of the program. Where applicable, comment in detail on the categories below.*

The proposed concentration is expected to be cost and revenue neutral given that it will not involve the deployment of new resources or the immediate development of new courses outside of the current JD curriculum framework.

**16. Coursework:** *Comment on whether the proposed program will require the offering of additional courses.*

New courses have been considered for the future development and improvement of the concentration. However, no additional courses are necessary for the concentration to be offered now.

**17. Staffing:** *Comment on whether the proposed program will require additional academic or administrative staff.*

Given that the courses required to complete the concentration are already offered as a part of the JD curriculum and additional courses are not being introduced to bolster the concentration at this time, we do not anticipate significant academic or administrative staffing needs to facilitate the introduction of the new concentration.

**18. Infrastructure / equipment:** *Comment on how the proposed program will impact the use of current infrastructure and equipment.*

Courses within the concentration will be open to all JD students as a part of the JD curriculum regardless of whether a student elects to pursue the proposed concentration. And as such, the utilization of infrastructure and equipment will not be changed by the introduction of the concentration.

**19. Library resources:** *If the program involves new courses, or coursework that has not been offered on a regular basis in recent years, comment on the adequacy of existing library resources.*

Our present library resources are more than adequate to handle the introduction of the new concentration, given that it will be funded from existing course offerings within the JD curriculum.

**20. Additional Funds:** *Provide information on whether new funds are required for this program. If so, provide details.*

We do not anticipate the need for additional funding in order offer the proposed new concentration.

### Section 5: Approvals

#### Faculty Approvals:

Department/Program Head: \_\_\_\_\_ Enter date.

Dean/Director: \_\_\_\_\_ Enter date.

Faculty/School Council: \_\_\_\_\_ Enter date.

#### Institutional Approvals:

Senate Committee on Curriculum and Course Changes: \_\_\_\_\_ Enter date.

Senate Planning and Priorities Committee (*if required*): \_\_\_\_\_ Enter date.

Senate Approval: \_\_\_\_\_ Enter date.

Provost Approval: \_\_\_\_\_ Enter date.



**University  
of Manitoba**

Office of the Provost and Vice-President (Academic)

## PROPOSAL FOR NEW ACADEMIC MINOR OR CONCENTRATION

Please enter the requested information below and submit both hardcopies and electronic copies to the Office of the University Secretary and the Deputy Provost (Academic Planning and Programs). If you have any questions, please contact Cassandra Davidson, Academic Program Specialist, at [cassandra.davidson@umanitoba.ca](mailto:cassandra.davidson@umanitoba.ca).

It is advised that the unit initially discuss the proposed new minor/concentration with the Deputy Provost (Academic Planning and Programs) prior to completion of and submission of this form.

**Date:** 14 March 2022

**Faculty:** Law

**Department:** Law

**Contact Details:** Associate Dean Dr. Jennifer Schulz – [jennifer.schulz@umanitoba.ca](mailto:jennifer.schulz@umanitoba.ca)

### Section 1: Program Overview

**1. Program type:** Minor:  Concentration:

**2. Proposed program name:** Criminal Law and Justice Concentration

**3. Length of program:** *Indicate the required number of credit hours including associated pre-requisite requirements.*

15 credit hours

No specific prerequisite requirements other than the completion of the first-year mandatory courses

**4. Proposed start of program:**

September, 2023

### Section 2: Program Details

**5. Description of program:** *Provide a brief outline of the program, its objectives and how it will benefit student.*

The Concentration will differentiate our graduates in the market by demonstrating a foundation of knowledge that includes critical and Indigenous perspectives and issues in Criminal Law & Justice beyond the mandatory JD curriculum. This will assist law students who intend to go on to serve as prosecutor or defense attorney with expertise and skills that are relevant to the challenges of

*Last revised December 2019*

applying criminal statutes, prosecuting or defending accused persons, all the while being apprised of the legal and EDI considerations that are relevant when the accused is an Indigenous, Black, or racialized person. We believe this will deliver significant longer-term value to the students that go on to work in the criminal law practice area through their careers in Manitoba and beyond. A concentration in Criminal Law and Justice will distinguish students as knowledgeable and interested in this area of practice and give them a marketplace advantage with potential employers through their careers.

We note that other law schools, including the Schulich School of Law at Dalhousie University, and Queen's University Faculty of Law offer "criminal law concentrations" but most do so at the LLM (Master's) level (York University's Osgoode Hall, Queen's University, University of Saskatchewan, University of British Columbia). Our intention is to focus on the foundations of criminal law at the undergraduate level, with a view to preparing students for legal practice careers (rather than academic careers) and to do so with a focus on Manitoba (where most of our graduates will build their careers) and with an emphasis on Indigenous law, peoples and perspectives in light of the fact that approximately 20% of the provincial population is Indigenous.

**6. Course requirements:** *Provide a list of courses (include course codes) and breakdown of course requirements by level (e.g. 6 hours at the 1000 level, 3 hours at the 2000 level, etc.). Indicate whether proposed coursework is currently offered or new. Note any pre-requisite details where applicable.*

**Students must take courses equivalent to a minimum of three credit hours from the list below. Courses are currently offered and include significant Indigenous content.**

- LAW 3272 Criminal Justice, Family Law and Indigeneity<sup>1</sup>
- LAW 3338 Sentencing<sup>1</sup>
- LAW 3590 Charter Issues in Criminal Law<sup>1</sup>

**Students must take additional courses equivalent to a minimum of twelve credit hours from the list below. Courses are currently offered, or generally offered on a two-year cycle.**

- LAW 3030 Independent Research Paper<sup>2</sup>
- LAW 3272 Criminal Justice, Family Law and Indigeneity<sup>1</sup>
- LAW 3284 International Criminal Justice
- LAW 3338 Sentencing<sup>1</sup>
- LAW 3352 Sexual Expression, Conduct and Work in Canada
- LAW 3532 Intensive Criminal Law
- LAW 3590 Charter Issues in Criminal Law<sup>1</sup>
- LAW 3828 Preventing Wrongful Convictions

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<sup>1</sup> This course only counts once for the purpose of fulfilling the concentration requirements.

<sup>2</sup> Students in the JD Program are allowed to do one independent research paper for credit under the supervision of a faculty member during the JD degree, and the topic must be related to the topic of the concentration. All topics must be approved in advance by the Associate Dean in charge of the JD program.

**7. Program availability:** *Will this program be offered to all students eligible to declare a minor/concentration or will it be restricted to a subset of students. If the latter, provide a brief explanation as to why the program will be restricted.*

The concentration will be offered to all students admitted to the JD program in the Faculty of Law; students will declare their intent to fulfill the concentration requirements for one concentration at the beginning of their last term in the JD program. Declaring fulfilment in their last term rather than stating intention in earlier years ensures flexibility for student career planning. Students can complete one concentration in addition to the Concentration in Access to Justice in French.

**8. Admission requirements:** *If applicable, outline any admission requirements to the program.*

There are no formal admission requirements for the Criminal Law concentration, but students must hold prior admission and good standing within the Juris Doctor program at the Faculty of Law.

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### Section 3: Program Demand

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**9. Strategic priorities:** *Comment on how the program fits within the university's strategic priorities.*

The proposed concentration in Criminal Law and Justice builds on the Faculty of Law's academic strength in this area and caters to labour market needs in the Province of Manitoba. The Faculty of Law has robust curricular offerings in Criminal Law and Justice - both academic and experiential - through its traditional course offerings, scholarly publications, externships and legal practice clinics. The proposed Criminal Law and Justice Concentration will build on these strengths, and align with the University's, and Faculty of Law's, strategic priority to incorporate Indigenous perspectives and knowledge within its program offerings. The concentration courses acknowledge the Truth and Reconciliation Commission's *Calls to Action #27 and #28*. These Calls speak to the need for lawyers and law students to develop cultural competency, as well as knowledge and training in treaty and aboriginal rights, Indigenous law and Aboriginal-Crown relations. The Faculty of Law has passed a mandatory course in Indigenous Legal Methodologies and Perspectives which will form part of the JD curriculum effective September 2023. This mandatory course builds toward the fulfilment of the Calls and will provide a foundation for further exploration of these important issues in the context of academic training in Criminal Law and Justice specifically.

**10. Student demand:** *Provide evidence of student demand and interest in the program.*

There is also keen JD student interest in Criminal Law and Justice, with roughly 25% (25 of 100 students) of graduates entering the criminal law practice area each year. The existence of concentrations in criminal law at other leading Canadian law schools at U15 universities across the country, including Dalhousie University and Queen's University, is indicative of a general demand for educational opportunities intended to more specifically prepare students to meet the needs of clients and the needs of the criminal justice system.

**11. Projected enrolment:** *Based on the evidence of demand, provide projected enrolment numbers in the program.*

Twenty students a year from our cohort of approximately 100+ in each of second- and third-year Law.

**12. Effects on other programs:** *Comment on the potential effect of the program on other existing programs. Attach letters of support for any programs/units impacted by the proposed program.*

We do not anticipate that the Criminal Law and Justice concentration will adversely impact any other program offering within the Faculty.

**13. Similar programs:** *If known, describe similar programs within Manitoba, outlining any similarities or differences with the proposed program.*

As the sole accredited provider of legal education leading to the acquisition of a recognized Juris Doctor within Manitoba, we have no competitors and there are no similar programs on offer anywhere else in the Province.

**14. External consultation:** *Where appropriate, outline any consultations with industry, business and/or any third-party groups in development of the proposed program.*

See attachments from the Law Society of Manitoba, the Manitoba Law Foundation and the Manitoba Bar Association.

We believe that the parameters we are proposing for this concentration are the best fit for the needs of our students and the external stakeholders and clients that we intend to be best served by this development.

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#### Section 4: Resource Requirements

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**15. Projected costs and revenues:** *Provide a general overview of the projected costs and revenues of the program. Where applicable, comment in detail on the categories below.*

The proposed concentration is expected to be cost and revenue neutral given that it will not involve the deployment of new resources or the immediate development of new courses outside of the current JD curriculum framework.

**16. Coursework:** *Comment on whether the proposed program will require the offering of additional courses.*

New courses have been considered for the future development and improvement of the concentration. However, no additional courses are necessary for the concentration to be offered now.

**17. Staffing:** *Comment on whether the proposed program will require additional academic or administrative staff.*

Given that the courses required to complete the concentration are already offered as a part of the JD curriculum and additional courses are not being introduced to bolster the concentration at this time, we do not anticipate significant academic or administrative staffing needs to facilitate the introduction of the new concentration.

**18. Infrastructure / equipment:** *Comment on how the proposed program will impact the use of current infrastructure and equipment.*

Courses within the concentration will be open to all JD students as a part of the JD curriculum regardless of whether a student elects to pursue the proposed concentration. And as such, the utilization of infrastructure and equipment will not be changed by the introduction of the concentration.

**19. Library resources:** *If the program involves new courses, or coursework that has not been offered on a regular basis in recent years, comment on the adequacy of existing library resources.*

Our present library resources are more than adequate to handle the introduction of the new concentration, given that it will be founded from existing course offerings within the JD curriculum.

**20. Additional Funds:** *Provide information on whether new funds are required for this program. If so, provide details.*

We do not anticipate the need for additional funding in order offer the proposed new concentration.

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## Section 5: Approvals

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### Faculty Approvals:

Department/Program Head: \_\_\_\_\_ Enter date.

Dean/Director: \_\_\_\_\_ Enter date.

Faculty/School Council: \_\_\_\_\_ Enter date.

### Institutional Approvals:

Senate Committee on Curriculum and Course Changes: \_\_\_\_\_ Enter date.

Senate Planning and Priorities Committee (*if required*): \_\_\_\_\_ Enter date.

Senate Approval: \_\_\_\_\_ Enter date.

Provost Approval: \_\_\_\_\_ Enter date.



Office of the Provost and Vice-President (Academic)

## PROPOSAL FOR NEW ACADEMIC MINOR OR CONCENTRATION

Please enter the requested information below and submit both hardcopies and electronic copies to the Office of the University Secretary and the Deputy Provost (Academic Planning and Programs). If you have any questions, please contact Cassandra Davidson, Academic Program Specialist, at [cassandra.davidson@umanitoba.ca](mailto:cassandra.davidson@umanitoba.ca).

It is advised that the unit initially discuss the proposed new minor/concentration with the Deputy Provost (Academic Planning and Programs) prior to completion of and submission of this form.

**Date:** 15 November 2021

**Faculty:** Law

**Department:** Law

**Contact Details:** Associate Dean Dr. Jennifer Schulz – [jennifer.schulz@umanitoba.ca](mailto:jennifer.schulz@umanitoba.ca)

### Section 1: Program Overview

**1. Program type:** Minor:  Concentration:

**2. Proposed program name:** Private Enterprise and the Law

**3. Length of program:** *Indicate the required number of credit hours including associated pre-requisite requirements.*

15 credit hours.

No specific prerequisite requirements other than completion of first year mandatory courses.

**4. Proposed start of program:**

September 2023

### Section 2: Program Details

**5. Description of program:** *Provide a brief outline of the program, its objectives and how it will benefit student.*

The proposed concentration in private enterprise and the law is intended to support Indigenous economic development and small and medium enterprises and family businesses and to contribute to their success provincially and regionally. It will do this by providing law students who intend to go on to serve such businesses as counsel with expertise and skills that are relevant to the

*Last revised December 2019*



challenges and opportunities such economic entities and their stakeholders either must face or of which they may take advantage. The program is also intended to support our graduates by providing them with an opportunity to differentiate themselves in the market by demonstrating a commitment to small and medium enterprise and family firm clients and to develop skills that may assist with development in Indigenous communities. We note that other law schools, including the University of Western Ontario – Faculty of Law, and the Peter A. Allard School of Law at the University of British Columbia, among others, already offer “Business Law Concentrations”. But these programs are quite apparently organized with a view to supporting the needs of large public firms with diverse ownership and professional management. Our intention is to focus on economic actors with significant community/founder stakeholder control and engagement, because of the prevalence of such entities in the economic landscape of Manitoba and the Prairie provinces as a whole. We believe this will deliver significant longer-term value to students that complete the concentration as they progress through their careers in Manitoba and beyond.

**6. Course requirements:** *Provide a list of courses (include course codes) and breakdown of course requirements by level (e.g. 6 hours at the 1000 level, 3 hours at the 2000 level, etc.). Indicate whether proposed coursework is currently offered or new. Note any pre-requisite details where applicable.*

**Students must take courses equivalent to a minimum of three credit hours from the list below. If one of the four courses listed below is taken to satisfy the Indigenous course requirement, another must be taken to satisfy the Concentration requirement.**

- LAW 3030 Independent Research Paper<sup>1</sup>
- LAW 3278 Indigenous Economic Development and the Law
- LAW 3282 Indigenous Peoples, Oral History and the Law
- LAW 3310 Aboriginal Peoples and the Law

**Students must take any four courses (equivalent to 12 credit hours) from the list below. Courses listed are generally offered on a two-year cycle.**

- LAW 2400 Wills and Succession
- LAW 2490 Trusts
- LAW 2640 Family Law
- LAW 3012 International Business Law
- LAW 3016 Corporations Law II
- LAW 3022 Insurance Law
- LAW 3050 Commercial Law
- LAW 3274 Advanced Family Law
- LAW 3330 Employment Law
- LAW 3342 Agency and Partnerships
- LAW 3348 Bankruptcy and Insolvency
- LAW 3394 Internet and E-Commerce Law
- LAW 3450 Remedies
- LAW 3510 Corporate Taxation

- LAW 3770 Labour Management Relations

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<sup>1</sup>Students in the JD Program are only allowed to do one independent research paper for credit under the supervision of a faculty member during the JD degree, and the topic must be related to the topic of the concentration. Approval of the topic must be specifically approved in writing by the Associate Dean. All topics must be approved in advance by the Associate Dean in charge of the JD program.

**7. Program availability:** *Will this program be offered to all students eligible to declare a minor/concentration or will it be restricted to a subset of students. If the latter, provide a brief explanation as to why the program will be restricted.*

The concentration will be offered to all students admitted to the JD program in the Faculty of Law. Students can complete one concentration in addition to the Concentration in Access to Justice in French.

**8. Admission requirements:** *If applicable, outline any admission requirements to the program.*

The only admission requirements for the Private Enterprise and the Law concentration will be prior admission and good standing within the Juris Doctor program at the Faculty of Law.

### Section 3: Program Demand

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**9. Strategic priorities:** *Comment on how the program fits within the university's strategic priorities.*

Our proposed concentration supports the University's commitment to inspiring students and fostering inclusion of Indigenous perspectives, as reflected in the current strategic plan. Including Indigenous perspectives as a mandatory component of a concentration focused on private enterprise is intended to foster an ability to think more broadly about the ways in which our profession can serve the public interest, whether we are specifically engaged in areas of unique concern to aboriginal communities or serving their needs and promoting their interests more broadly.

**10. Student demand:** *Provide evidence of student demand and interest in the program.*

The existence of concentrations in business law at other leading Canadian law schools across the country, including Western and UBC, is indicative of a general demand for educational opportunities intended to more specifically prepare students to meet the commercial needs of clients. Our proposed concentration also responds to the call from students and the Truth and Reconciliation Commission to Indigenize our curriculum offerings by not only incorporating Indigenous content but also promoting Aboriginal and Indigenous development and economic empowerment as outcomes we specifically expect our graduates to work towards.

**11. Projected enrolment:** *Based on the evidence of demand, provide projected enrolment numbers in the program.*

Fifteen students a year from our cohort of approximately 100

**12. Effects on other programs:** *Comment on the potential effect of the program on other existing programs. Attach letters of support for any programs/units impacted by the proposed program.*

The Private Enterprise and the Law concentration has no overlap with our existing concentration in “Access to Justice in French”, and we do not anticipate that it will adversely impact any other program offering within the Faculty.

**13. Similar programs:** *If known, describe similar programs within Manitoba, outlining any similarities or differences with the proposed program.*

As the sole accredited provider of legal education leading to the acquisition of a recognized Juris Doctor within Manitoba, we have no competitors and there are no similar programs on offer anywhere else in the Province.

**14. External consultation:** *Where appropriate, outline any consultations with industry, business and/or any third-party groups in development of the proposed program.*

See attachments from the Law Society of Manitoba, the Manitoba Law Foundation and the Manitoba Bar Association.

#### Section 4: Resource Requirements

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**15. Projected costs and revenues:** *Provide a general overview of the projected costs and revenues of the program. Where applicable, comment in detail on the categories below.*

The proposed concentration is expected to be cost and revenue neutral given that it will not involve the deployment of new resources or the immediate development of new courses outside of the current JD curriculum framework.

**16. Coursework:** *Comment on whether the proposed program will require the offering of additional courses.*

New courses have been considered for the future development and improvement of the concentration. However, no additional courses are necessary in order for the concentration to be offered now.

**17. Staffing:** *Comment on whether the proposed program will require additional academic or administrative staff.*

Given that the courses required to complete the concentration are already offered as a part of the JD curriculum and additional courses are not being introduced to bolster the concentration at this time, we do not anticipate significant academic or administrative staffing needs in order to facilitate the introduction of the new concentration.

**18. Infrastructure / equipment:** *Comment on how the proposed program will impact the use of current infrastructure and equipment.*

Courses within the concentration will be open to all JD students as a part of the JD curriculum regardless of whether or not a student elects to pursue the proposed concentration. And as such, the utilization of infrastructure and equipment will not be changed by the introduction of the concentration.

**19. Library resources:** *If the program involves new courses, or coursework that has not been offered on a regular basis in recent years, comment on the adequacy of existing library resources.*

Our present library resources are more than adequate to handle the introduction of the new concentration, given that it will be founded from existing course offerings within the JD curriculum.

**20. Additional Funds:** *Provide information on whether new funds are required for this program. If so, provide details.*

We do not anticipate the need for additional funding in order offer the proposed new concentration.

## Section 5: Approvals

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### Faculty Approvals:

Department/Program Head: \_\_\_\_\_ Enter date.

Dean/Director: \_\_\_\_\_ Enter date.

Faculty/School Council: \_\_\_\_\_ Enter date.

### Institutional Approvals:

Senate Committee on Curriculum and Course Changes: \_\_\_\_\_ Enter date.

Senate Planning and Priorities Committee (*if required*): \_\_\_\_\_ Enter date.

Senate Approval: \_\_\_\_\_ Enter date.

Provost Approval: \_\_\_\_\_ Enter date.

## Academic Concentrations in the Faculty of Law

During their final term of law school, students in the Faculty of Law may choose to declare the completion of the requirements for one concentration, plus the Access to Justice in French Concentration, as part of their Juris Doctor (JD) program. That is, students may declare the fulfilment of the requirements for one of three concentrations, in addition to the Access to Justice in French Concentration. All four concentrations are outlined in this section. Successful completion of a concentration will be noted on a student's transcript.

- Access to Justice in French
- Criminal Law and Justice
- Law and Society
- Private Enterprise and the Law

### Access to Justice in French Concentration

This section describes the requirements to complete the Access to Justice in French Concentration as part of the JD program. The Access to Justice in French Concentration provides JD students with the basic skills required to provide legal services to clients in both official languages, with a view to increasing the access to justice of French-language communities in Manitoba and other majority English-speaking Canadian provinces and territories.

As part of the courses required to earn their JD, the following courses are prescribed for students seeking to earn the Access to Justice in French Concentration:

- LAW 1542 Méthodes juridiques,
- LAW 2682 Négociation juridique, and
- LAW 2652 Introduction à la plaidoirie

The above-mentioned courses are bilingual equivalents of and taken instead of LAW 1540 Legal Methods, LAW 2680 Legal Negotiation, and LAW 2650 Introduction to Advocacy, respectively.

Students must take a total of 26 credits from among the possible 38 credits of concentration courses below:

#### Year 1

LAW 1378	Passeport du droit en Français 1
LAW 1542	Méthodes juridiques

#### Year 2

LAW 2378	Passeport du droit en Français 2
LAW 2652	Introduction à la plaidoirie
LAW 2682	Négociation juridique

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## Years 2-3

### Group 1 - Legal Terminology

Select one of the following:

LAW 3372 Français juridique - droit public

LAW 3374 Français juridique - droit privé

### Group 2 - Electives

Select three of the following:

LAW 2642 Droit de la famille

LAW 3030 Research Paper B <sup>1</sup>

LAW 3220 Competitions B (Laskin Moot) <sup>2</sup>

LAW 3220 Competitions B (Bastarache Moot)

LAW 3344 Internships

LAW 3372 Français juridique - droit public <sup>3</sup>

LAW 3374 Français juridique - droit privé <sup>3</sup>

LAW 3376 Droits linguistiques

#### Hours

### Year 3

LAW 3378 Passeport du droit en Français 3

#### Hours

#### Total Hours

<sup>1</sup> Students must write their research paper in French under the supervision of a bilingual faculty member.

<sup>2</sup> This course counts towards the concentration only for students mooting in French or otherwise completing a sufficient proportion of their research or written and oral advocacy work in French.

<sup>3</sup> This course may not be taken as a Group 2 Elective if taken as a Group 1 Legal Terminology course.

## Criminal Law and Justice Concentration

This section describes the requirements to declare completion of the Criminal Law and Justice Concentration. Completing this concentration will distinguish our JD students in the market by demonstrating a foundation of knowledge that includes critical and Indigenous perspectives and issues in Criminal Law and Justice beyond the mandatory JD curriculum. This will assist law students who intend to serve prosecutor or defense attorney roles with expertise and skills that are relevant to the challenges of applying criminal statutes and prosecuting or defending accused persons, while being apprised of the legal and Equity, Diversity and Inclusion considerations relevant to accused persons.

Students who complete 15 credit hours from the following courses (3. credit hours from List A plus 12 credit hours from List B) as part of their JD program may declare a Concentration in Criminal Law and Justice.

## List A

Choose one of 3 credit hours from:

- LAW 3272 Criminal Justice, Family Law and Indigeneity<sup>1</sup>
- LAW 3338 Sentencing<sup>1</sup>
- LAW 3590 Charter Issues in Criminal Law<sup>1</sup>

## List B

Choose a minimum of 12 credit hours from:

- LAW 3030 Independent Research Paper<sup>2</sup>
- LAW 3272 Criminal Justice, Family Law and Indigeneity<sup>1</sup>
- LAW 3284 International Criminal Justice
- LAW 3338 Sentencing<sup>1</sup>
- LAW 3352 Sexual Expression, Conduct and Work in Canada
- LAW 3532 Intensive Criminal Law
- LAW 3590 Charter Issues in Criminal Law<sup>1</sup>
- LAW 3828 Preventing Wrongful Convictions

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<sup>1</sup>This course only counts once for the purpose of fulfilling the concentration requirements.

<sup>2</sup>Students in the JD Program are allowed to do one independent research paper for credit under the supervision of a faculty member during the JD degree, and the topic must be related to the topic of the concentration. All topics must be approved in advance by the Associate Dean in charge of the JD program.

## Law and Society Concentration

The Concentration in Law and Society explores how legal and social systems are interconnected, how people live with the law and how law is woven into communities. The objective of this concentration is for students to better understand how law both impacts and reflects culture through its social and historical construction. The Law and Society Concentration will deliver significant long-term value to students and differentiate graduates in the market by demonstrating an understanding of what happens when legal innovations and institutions succeed, and what the outcomes are when they fail. This concentration will support law students in their commitment to the comprehensive practice of law within the context of sociological scholarship and access to justice, as they practice law in public defender offices, legal aid, lower courts, administrative agencies, work with juries or police, as prosecutors, or in academia.

Students who complete any 15 credit hours from the following courses may declare a Concentration in Law and Society:



- LAW 3070 Gender and the Law
- LAW 3090 Children, Youth, and the Law
- LAW 3120 Philanthropy and the Law
- LAW 3170 Dispute Resolution
- LAW 3286 Law and Religion
- LAW 3282 Indigenous Peoples, Oral History, and the Law
- LAW 3334 Global and Domestic Governance of Tainted Finance
- LAW 3336 Law and Popular Culture
- LAW 3346 Access to Justice
- LAW 3352 Sexual Expression, Conduct and Work in Canada
- LAW 3362 Animals and the Law
- LAW 3364 Law and Resistance
- LAW 3380 Issues in Law and Bioethics
- LAW 3410 Canadian Legal History

## **Private Enterprise and the Law Concentration**

The Concentration in Private Enterprise and the Law is intended to support Indigenous economic development, small and medium enterprises, and family businesses, and to contribute to their success provincially and regionally. Graduates with a Concentration in Private Enterprise and the Law who wish to serve as counsel for businesses will develop skills that may assist with economic development in Indigenous communities, small and medium enterprises, and family firms.

Students who complete 15 credit hours from the following courses (three credit hours from List A plus 12 credit hours from List B as below) as part of their JD program may declare a Concentration in Private Enterprise and the Law.

### List A

Choose one of:

- LAW 3030 Independent Research Paper<sup>1</sup>
- LAW 3278 Indigenous Economic Development and the Law
- LAW 3282 Indigenous Peoples, Oral History and the Law
- LAW 3310 Aboriginal Peoples and the Law

### List B

Choose a minimum of 12 credit hours from:

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<sup>1</sup> Students in the JD Program are only allowed to do one independent research paper for credit under the supervision of a faculty member during the JD degree, and the topic must be related to the topic of the concentration. Approval of the topic must be specifically approved in writing by the Associate Dean. All topics must be approved in advance by the Associate Dean in charge of the JD program.

- LAW 2400 Wills and Succession
- LAW 2490 Trusts
- LAW 2640 Family Law
- LAW 3012 International Business Law
- LAW 3016 Corporations Law II
- LAW 3022 Insurance Law
- LAW 3050 Commercial Law
- LAW 3274 Advanced Family Law
- LAW 3330 Employment Law
- LAW 3342 Agency and Partnerships
- LAW 3348 Bankruptcy and Insolvency
- LAW 3394 Internet and E-Commerce Law
- LAW 3450 Remedies
- LAW 3510 Corporate Taxation
- LAW 3770 Labour Management Relations

## **Report of the Senate Committee on Curriculum and Course Changes RE: Major Program Modification, Diploma in Art, School of Art**

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### **Preamble:**

1. The [terms of reference](#) for the Senate Committee on Curriculum and Course Changes (SCCCC) are available on the University Governance website. The SCCC is “to recommend to Senate on the introduction, modification or abolition of undergraduate programs, curricula or courses.”
2. At its meetings on October 11 and November 1, 2022, the SCCC considered major modifications to the four-year Diploma in Art that is currently offered by the School of Art.

### **Observations**

1. The School of Art is proposing significant modifications to the Diploma in Art, including to reduce the number of credit hours required from 93 credit hours to 48 credit hours.
2. The modified Diploma in Art would be a two-year program, which is more in keeping with the level of the Diploma credential. It would continue to be studio-based program that would provide the same foundational training in key disciplines of artistic practice in Year 1. In Year 2, students would either focus on a specific area of practice, including drawing, painting, sculpture, printmaking, video, graphic design, photography, ceramics, or performance art, or explore interdisciplinary practice across these areas. The revised structure and shorter program length would better serve students interested in a career in visual arts who want to complete a program that will provide the technical skills they will need.
3. The structure of the modified, two-year Diploma in Art would align with similar programs offered at other institutions. It would also differentiate it from the three-year Bachelor of Fine Arts (General) and the four-year Bachelor of Fine Arts (Honours) studio degrees offered by the School.
4. The School anticipates a two-year Diploma will increase enrolment by attracting new constituencies of students who do not want to commit to a four-year program. One potential constituency might be teachers who might be required to teach art in their school. It is also anticipated that the shorter program will increase completion rates. At the meeting, representatives of the School of Art reported that there has been only one graduate from the Diploma in the last ten years, as most students transfer to one of the B.F.A. degrees.
5. Students currently enrolled in the four-year Diploma in Art would be given the option to complete their program following the modified requirements of the two-year Diploma.
6. The School has indicated that it will develop a degree completion plan for graduates of the Diploma in Art offered at the University who wish to pursue a B.F.A. degree at the University. The Diploma and degree programs have a common first-year curriculum and share some elective courses.

**Recommendation**

The Senate Committee on Curriculum and Course Changes recommends:

**THAT Senate approve curriculum changes to the Diploma in Art, School of Art.**

Respectfully submitted,  
Professor Dean McNeill, Chair  
Senate Committee on Curriculum and Course Changes

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the  
Report to Senate.

**SIGNIFICANT MODIFICATION TO A PROGRAM OF STUDY**

Under The Advanced Education Administration Act

Universities and colleges requesting approval for a **significant modification** to a program of study from Education and Training must apply using this application form. This form reflects the requirements set out in the Programs of Study Regulation (MR 134/2015) under The Advanced Education Administration Act.

**UM INTERNAL REQUIREMENTS**

**University  
of Manitoba**

1. Please complete the application below and submit one (1) electronic copy (.pdf format) each to the Deputy Provost (Academic Planning and Programs) and the Office of the University Secretary, (where indicated) along with the following supplemental documentation:
  - a. A cover letter justifying and summarizing the rationale behind the request for a significant modification.
  - b. Letters of support from internal and/or external stakeholders that were consulted as part of this proposal, if applicable.
2. Note that internal approval of the proposed modification will vary depending on the type of modification (see SECTION C). Please work with the Provost's Office and the Office of the University Secretary in advance, in identifying the appropriate procedures and approval processes. In general, please note the following for each type of modification:
  - a. **CHANGE OF SITE** – may require Senate approval if the site requires modifications to admission and/or program requirements (e.g. new admission category).
  - b. **CHANGE TO SEAT CAPACITY** – please refer to the Admission Targets Policy and Procedures (<https://umanitoba.ca/governance/governing-documents-academic-admission-targets>). Changes may also require Senate approval if there are modifications to admission and/or program requirements.
  - c. **CHANGE TO TIME-TO-COMPLETION** – any addition to or reduction of hours to program requirements, requires Senate approval. For undergraduate programs, please refer to SCCC Guidelines found at - <https://umanitoba.ca/governance/forms>. For graduate programs, please contact FGS for approval process.
  - d. **CHANGE TO APPROVED DELIVERY MODEL** – please notify the Provost's Office of any significant changes to course or program delivery method.
  - e. **CHANGE TO STATUS OF JOINT PROGRAM** – depending on the significance of the changes resulting from the proposal, this will either require Senate approval as a program modification or will require the introduction of a new program. Please contact the Provost's Office with more details on how becoming a joint program or ceasing a joint program will impact the program.
  - f. **CHANGE TO CREDENTIAL** – requires Senate approval.
  - g. **CHANGES TO CAPITAL OR OPERATING RESOURCES REQUIRED** – please notify the Provost's Office of any significant changes to course or program delivery method.
3. Please direct questions to Cassandra Davidson, Academic Programs Specialist, Office of the Provost and Vice-President (Academic) at [Cassandra.Davidson@umanitoba.ca](mailto:Cassandra.Davidson@umanitoba.ca) or 204.474.7847.

**SECTION A – PROPOSAL DETAILS**

Institution: **University of Manitoba**

Applicable faculties/department with responsibility for the program: School of Art

If program is a joint program, list all participating institutions and the roles of each in delivering the proposed program:

N/A

Program name: Diploma in Art

Credential awarded: Diploma in Art

Funding request: None

*Office Use Only*

One-time funding: \_\_\_\_\_

On-going funding: \_\_\_\_\_

Proposed start date: Fall 2023

List any critical issues that may impact the start date of the program: None

Institutional Program Code(s) (PSIS reporting number):

## SECTION B – PROGRAM DESCRIPTION AND DELIVERY

**B-1 Provide a general description of the significantly modified program and its objectives:** *(Include intended purpose, curriculum design, and highlight distinctive attributes)*

The current Diploma in Art program is a four-year studio-based program, primarily technical in nature, which prepares students for careers as practising artists in fine arts fields. The current Diploma program provides foundational training in key artistic practices in the first year, including life-drawing, essential digital software and techniques, practical and conceptual understandings of visual language, and exposure to a range of artistic materials. Through years two to four, the current Diploma program allows students to further develop their skills by focusing on two or three areas from courses in drawing, painting, sculpture, photography, ceramics, and/or printmaking.

The proposed modified Diploma in Art is a two-year studio-based program, which prepares students for careers as practising artists in fine arts fields. The modified program provides the same foundational training in key disciplines of artistic practice in the first year, while in the second year students can focus on a specific area (including drawing, painting, sculpture, printmaking, video, graphic design, photography, ceramics, and performance art) or explore interdisciplinary practice across these areas. This modified Diploma program will grant students greater flexibility in the courses they can choose, and reducing the length of the program to that more suitable for a Diploma.

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**B-2 Describe how this program serves and advances the academic, cultural, social and economic needs and interests of students and the province:**

This program aims to provide students with studio-based technical training in artistic disciplines, including drawing, painting, sculpture, ceramics, photography, printmaking, graphic design, and other traditional and digital media. The program provides students with the technical foundations and immersive experiential learning necessary to develop an independent artistic practice. The two-year Diploma in Art would provide a credential that could be completed in a shorter time than the current four-year program. It would better serve students who are interested in exploring a career in visual art and are looking for a more strictly technical-skills focus than the degree programs. Students graduating from this program will contribute to the community's cultural expression, as alumni of the School of Art have exhibited in, worked for, or helped establish local institutions such as Urban Shaman Contemporary Aboriginal Art, Platform Centre for Photographic and Digital Arts, aceartinc, Mentoring Artists for Women's Art, Graffiti Gallery, and Blinkers Art and Project Space.

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**B-3 Describe the existing and anticipated post-secondary learning needs of students in Manitoba that this program addresses and responds to:**

Many students choose the existing diploma program as they are interested in the fine arts and pursuing creative practice, but are not suited to the academic requirements of the Bachelor of Fine Arts (BFA) degree programs. The diploma also serves as a bridge for students interested in post-secondary education who need time to adapt to the demands of University. As such, the diploma program become a bridge for students to move from high school to the BFA degree programs. Still others are seeking out experiential learning, sometimes returning to University after time away or following a career in another field, and the diploma provides this experience. We anticipate that these constituencies of potential students will continue, and that the modified diploma will also attract established artists and creative

practitioners looking to expand their skills, elementary and secondary teachers looking to expand their teaching practices, and others looking for opportunities for education in the visual arts.

See Appendix D for a letter of Support from Charlotte Enns, Acting Dean of the Faculty of Education.

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**B-4 Will the program be available for part-time study?**

Yes.

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**B-5 Is there a cooperative education, work placement, internship or practicum component?**

No.



## SECTION C – MODIFICATION TYP

Complete the appropriate section(s) as indicated below depending on the approved characteristic(s) being modified.

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### C-3 Change to program which would alter the time reasonably necessary for students to complete the program

C-3.1 - Describe the time to completion of the originally approved or currently offered program and highlight the difference with regard to the time to completion of the significantly modified program.

The current Diploma in Art is a four-year, 93 credit hour program. This modification would reduce the Diploma requirements to a two-year, 48 credit hour program. Students currently enrolled in the four-year Diploma program would have the option to complete their program following the modified requirements of the two-year Diploma.

C-3.2 - Provide an overview of the suggested progression of courses on a year-by-year basis for the program from start to maturity. *(Course-level detail is not necessary; however, include the proportion of upper level courses where applicable (3-4000 level or equivalent), number of introductory (1000 level or equivalent), completion of a clinical placement or practicum component.)*

UM Internal Note: please provide an overview below and attach the following:

- SCCC Program Modification Form
- Current and revised program charts.
- List of course details for required coursework, including title, course number, credit hours and calendar description. Highlight any proposed new courses.
- Course change forms, if applicable.
- Transition plan for current students, if applicable.

Year 1 21 credit hours of 1000-level Studio courses in which students receive hand-on, experiential learning in artistic practices and media; 3 credit hours Art History courses; First-year Field Trip (0 credit hours).

Year 2 12 credit hours 2000-level Studio courses; 3 credit hours Art History courses; 3 credit hours 3000-level courses in Indigenous or BIPOC Artistic Practice; 6 credit hours academic elective courses.

C-3.2(a) Provide a rationale for this change:

The current four-year Diploma is a long-standing credential in the School of Art, going back to the School's founding in 1913. However, it no longer serves the purposes it once had; most students who enter the School via the Diploma program switch to the General or Honours Bachelor of Fine Arts Degree programs or leave before completing the Diploma. As such, a two-year Diploma will better serve a wider student population. Students who enter the Diploma program may still move on to the Bachelor of Fine Arts programs, but some only want the Diploma itself and the foundation in a range of artistic practices it provides. Still other potential students may be practicing artists looking to upgrade their practice or explore new media. Finally, the current program is the only remaining four-year diploma in visual art in Canada, and as such the School intends to bring its program in line with the standard two-year diploma common across the country.

**SECTION D – MODIFICATION INFORMATION**

**D-1 Describe how this significant modification aligns with the strategic plans of your institution:**

This program modification aims to create greater access to the School of Art and its educational opportunities by offering a credential that will attract a wider population than students who typically participate in our degree programs, and for whom a three or four year program is unattractive or unfeasible. We hope to create new pathways for post-secondary education, particularly for Indigenous students and students interested in beginning University later in life. We also anticipate that the diploma program may be of interest to students looking undertake creative practices following a degree program in another discipline.

**D-2 Outline the internal approval process (i.e. committees, governing bodies) for approving this significant modification within your institution and indicate any dates of decision.** *(Governing Council, Board of Governors, Board of Regents, Senate, other)*

*(Governing Council, Board of Governors, Board of Regents, Senate, other)*

School level Approvals: School of Art BFA Studio Curriculum Committee (February 2022); School of Art Undergraduate Program Committee (March 2022); School of Art Council (May 2022)

**UM INTERNAL REQUIREMENTS:** Please note date(s) of Faculty/College/School Approval. Approval dates through the governing bodies will be inserted by the Provost’s Office prior to submission to government.

<u>Decision-Making Body</u>	<u>Date of Approval</u>
Faculty/College/School	<u>  _May 2022_  </u>
SCCC	_____
SPPC <i>(if applicable)</i>	_____
SCADM <i>(if applicable)</i>	_____
SCIE <i>(if applicable)</i>	_____
Senate Executive	_____
Senate	_____

**D-3 Responsibility to consult**

D-3.1 If this program subject to mandatory review or approval by organizations external to the institution *(such as regulatory bodies, Apprenticeship Manitoba, etc.)*, please describe any consultation processes and provide copies of reports or letter from these organizations providing support:

N/A

D-3.2 What agencies, groups, or institutions have been consulted regarding the significant modification of this program?

*UM Internal Note:* the unit is required to consult with other academic units offering courses used in the current and/or modified program to identify how the proposed changes might affect quality of, access to, and resources associated with the courses and programs offered by those units, or any impact on faculties/schools providing service teaching. Outline the consultation process with other units and append letters of support, as appropriate.

The courses of the current diploma program and the modified diploma program are all offered by the School of Art. Thus, this program modification does not affect other units.

D-3.3 How have students and faculty been informed of the intent to modify this program?

The modifications to this program have been extensively discussed and explored in both the School of Art's BFA Studio Curriculum Committee and Undergraduate Program Committee, with faculty and student representation and involvement, notably through members of the School of Fine Arts Student Association. Once these changes come into place, further consultation of current Diploma students will take place.

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**D-4 List any similar programs offered in Manitoba:** *(Provide such information as institution, programs, and credentials offered in addition to any impacts on these programs, explain rationale for duplication.)*

There are no equivalent programs in Manitoba. Red River College offers two-year diploma programs in graphic design, digital media design and professional photography, however, these are more technical and industry-focused programs.

D-4.1 Describe any specific laddering, articulation and/or credit transfer options for Manitoban students that are anticipated to change as a result of the significant modification of this program:

Students who complete the Diploma in Art at the University of Manitoba will be able to ladder their courses into the Bachelor of Fine Arts General at the School of Art, as they share a common first-year and many other elective courses. The School of Art will develop a degree completion plan for these students. Students who wish to move from the Diploma to the Bachelor of Fine Arts General will have to make up the university required Mathematics and Writing requirements, as well as required Art History courses and Academic Electives totaling 12 credit hours.

Transfer credit options will be available for students who have completed courses in the Bachelor of Arts in Creative Arts with a focus on Indigenous Art or Visual Art at Brandon University or who have completed courses in Red River College's Diploma programs in Digital Media Design, Graphic Design, and Professional Photography.

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**D-5 List any similar programs offered in Canada:** *(Provide such information as institution, programs, and credentials offered in addition to any impacts on these programs, explain rationale for duplication.)*

There are a number of similar programs across Canada, but notably there are no equivalent Diploma programs in across the Prairie provinces:

- University of Regina – Certificate in Visual Art (60 credit hours)
- Thompson Rivers University – Visual Arts Diploma (60 credit hours)
- Vancouver Island University – Visual Arts Diploma (60 credit hours)
- University of the Fraser Valley – Visual Arts Diploma (2 years)
- Emily Car University – Certificate in Fine Arts (360 class hours)
- NSCAD University – Certificate in Studio Art (30 credit hours; Post-baccalaureate)
- University of New Brunswick – Foundations in Visual Art Certificate (1 year)

D-5.1 Describe any specific laddering, articulation and/or credit transfer options for Manitoban students that are anticipated to change as a result of the significant modification of this program.

Students who complete the Diploma in Art will be able to ladder their courses into the Bachelor of Fine Arts General at the School of Art, as they share a common first-year and many other elective courses. The School will develop a degree completion plan for these students. Students who wish to move from the Diploma to the Bachelor of Fine Arts General will have to make up the Mathematics and Written English requirements, as well as required Art History courses and Academic Electives totaling 12 credit hours.

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**D-6 Describe any changes in labour market demands in Manitoba for graduates of this Program as a result of this significant modification:**

*(Provide such information as probable employment destinations or further educational opportunities available to graduates of this new program of study. Attach any formal reports such as those from Associations, Statistics Canada, Sector Councils, Industry or Regulators.)*

We expect no significant changes for Diploma students.

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**D-7 If copies of any internal or peer evaluations with respect to the significant modification of this program of study are being provided with this proposal, please indicated how any issues identified by these evaluations have been addressed and attach any relevant documents as available:**

N/A

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**D-8 Does this significant modification entail an increase to tuition, or the establishment of or increase to fees that apply to students in this program of study?**

There is no change to per-credit hour tuition fees for Diploma students.

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**SECTION E – REQUIRED RESOURCES AND FINANCIAL IMPLICATIONS**

**E-1 If one-time or pilot funding is being requested to support the significant modification of this program of study, please identify the amount of funding being requested:**

No additional funding required.

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**E-2 If ongoing funding is being requested to support the significant modification of this program of study, please identify the amount of funding being requested:**

No additional funding required.

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**E-3 If new funding is not being requested, how will the significant modifications to the program be funded?** *(Include such information as: where reallocated funding will come from, and the implications of reallocating that funding on other programs/activities of the institution.)*

The courses of the modified Diploma program are those already offered in the Bachelor of Fine Arts General and Honours programs.

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**E-4 What are the resource implications to the institution in delivering the significantly modified program of study?**

*(Include such information as; budget, IT, library, laboratory, computer, space, practicum liability insurance, student services, etc)*

Changes to the Diploma will not require additional resources. The reduced credit hours will have no impact as the courses will still be offered to students in the Bachelor of Fine Arts programs.

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**E-5 Please describe new and existing staffing resources needed to provide this significantly modified program of**

**stud:.***(Include reallocation of existing faculty, hiring of new faculty, administrative and support services and any other considerations.)*

There is no requirement for new faculty or staff, or the reallocation of faculty or staff. The new Diploma program fits alongside the existing Bachelor of Fine Arts programs and makes use of the same resources. The reduced credit hours will have no impact as the courses will still be offered to students in the Bachelor of Fine Arts programs.

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**E-6 Please describe the effect of the significant modification of this program on existing capital infrastructure and equipment:**

This modification will not have any effect on capital infrastructure or equipment. The proposed Diploma program will make use of existing infrastructure and equipment in the School of Art.

**SECTION F – SIGNATURES**

*(A second signature section is provided for joint programs only)*

**SUBMITTED BY:**

**President:**

Name:

Signature:

Date:

**Vice-President/Academic:**

Name:

Signature:

Date:

*For use by joint programs only:*

**President:**

Name:

Signature:

Date:

**Vice-President/Academic:**

Name:

Signature:

Date:

**SUBMIT COMPLETED FORM**

Once completed and signed, please submit this application form to Post-Secondary Education and Labour Market Outcomes at [PSE-LMO@gov.mb.ca](mailto:PSE-LMO@gov.mb.ca) with the following attachments *(double-click to engage check box)*:

- |                          |   |
|--------------------------|---|
| <input type="checkbox"/> | Cover letter  |
| <input type="checkbox"/> | Program of Study Financial Form   |
| <input type="checkbox"/> | Any supporting documentation <i>(reviews, letters of support, etc.)</i> |

**If you have any questions or require further information, please contact:**

Post-Secondary Education and Labour Market Outcomes  
Manitoba Education and Training  
400-800 Portage Avenue Winnipeg MB R3C 0C4  
(204) 945-1833  
[PSE-LMO@gov.mb.ca](mailto:PSE-LMO@gov.mb.ca)

## **Appendix A: Courses and Calendar Descriptions**

### **Changes to the Diploma in Art (Dip.Art)**

#### **School of Art**

##### **Fine Arts, General Courses**

###### **FA 1990 First Year Field Trip 0 cr**

A field trip conducted by members of faculty. When the field trips are destined for the United States, students requiring a visa should make arrangements to obtain the visa at least 90 days before field trip departure date. A field trip exemption is not grantable except under extreme/extraordinary/visa issues circumstances. The field trip is required for a BFA General Degree and the Diploma program. Students unable to obtain a visa should contact their student advisor.

##### **Fine Arts, Art History Courses**

###### **FAAH 1030 Introduction to Art 1A 3 cr**

A basic study/survey of world art history and theory to the early Renaissance. This course is a prerequisite to further study in art history and theory of art. May not be held with the former FAAH 1050 or EVDS 1660.

**Equiv To:** FAAH 1050

**Mutually Exclusive:** EVDS 1660

**Attributes:** Recommended Intro Courses

###### **FAAH 1040 Introduction to Art 2A 3 cr**

A basic study/survey of world art history and theory from the Renaissance to the present. May not be held with the former FAAH 1060 or EVDS 1670.

**Equiv To:** FAAH 1060

**Mutually Exclusive:** EVDS 1670

**Attributes:** Recommended Intro Courses

##### **Fine Arts, Studio Courses**

###### **STDO 1210 Drawing: Studio 1 3 cr**

Students are introduced to key concepts and competencies used in contemporary drawing practice. Prerequisite for further study in fine arts studio courses. May not be held with STDO 1200.

**Mutually Exclusive:** STDO 1200

**Attributes:** Recommended Intro Courses

**STDO 1240 Figure Study 1 3 cr**

Traditional and experimental approaches to rendering the figure, culminating in the production of a portfolio of drawings. Prerequisite to further study in the Fine Arts Studio courses. May not be held with STDO 1200 or STDO 1230.

**Mutually Exclusive:** STDO 1200, STDO 1230

**Attributes:** Recommended Intro Courses

**STDO 1250 Drawing: Studio 2 3 cr**

Building on competencies developed in STDO 1210 Drawing: Studio 1, students integrate individual research with methods and materials of contemporary drawing. Prerequisite for further study in fine arts studio courses. May not be held with STDO 1200.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: STDO 1210.

**Mutually Exclusive:** STDO 1200

**Attributes:** Recommended Intro Courses

**STDO 1410 Visual Language 3 cr**

An introduction to communication in contemporary visual art through traditional and experimental 2D and 3D modes. Prerequisite for further study in fine arts studio courses. May not be held with the former STDO 1220.

**Mutually Exclusive:** STDO 1220

**Attributes:** Recommended Intro Courses

**STDO 1450 Open Studio 1 3 cr**

Expanding concepts and ideas developed in Visual Language, students investigate the nature of contemporary art and design. Prerequisite for further study in fine arts studio courses. May not hold with the former STDO 1220.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: STDO 1410.

**Mutually Exclusive:** STDO 1220

**Attributes:** Recommended Intro Courses

**STDO 1470 Materials Studio 3 cr**

Students choose among individual studio area modules to learn material technologies used in art, facilitating students' ability to work in School of Art workshops. Prerequisite for further study in fine arts studio courses. May not be held with STDO 1220.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: STDO 1410.

**Mutually Exclusive:** STDO 1220

**Attributes:** Recommended Intro Courses



**STDO 1480 Digital Essentials 3 cr**

An introduction to the core software skills and digital methods that may be applied to art, design and research practices. Topics will provide students a basic understanding of digital platforms within a creative environment.

**STDO 1510 Art Now 3 cr**

Introduction to current activities in art practices through gallery talks/visits, journal writing, formal critique methods and research methodology. It supports FA 1990 (Field Trip) which all first year BFA students must take. Pre-requisite to further study in Fine Arts Studio courses. May not be held with STDO 1200, STDO 1220 or STDO 1430.

**Mutually Exclusive:** STDO 1200, STDO 1220, STDO 1430

**Attributes:** Recommended Intro Courses

**STDO 2210 Introduction to Sculpture 6 cr**

This course introduces materials, processes and ideas informing the making of contemporary sculptural practices.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisites: Successful completion of 21 credit hours of 1000-level STDO courses.

**STDO 2212 Intermediate Sculpture 3 cr**

The course explores sculptural practices at an intermediate level, developing skills in a variety of materials and media. The course will provide the opportunity for independent thought, conceptual growth and project planning and implementation.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisites: (STDO 2210 and STDO 2214) or STDO 2690 when titled Mould Making.

**STDO 2214 Mould Making 3 cr**

This course focuses on plaster as the primary mould making material. Students will have the opportunity to use other media in the projects they make from their moulds so long as it is something that can be released from the surface of the plaster. May not be held with STDO 2690 when titled Mould Making.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: successful completion of 21 credit hours of 1000-level STDO courses.

**Mutually Exclusive:** STDO 2690

**STDO 2220 Introduction to Painting 6 cr**

Basic instruction in oil painting and pictorial composition.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: Successful completion of 21 credit hours at 1000-level STDO courses.

**STDO 2222 Intermediate Painting 3 cr**

A continuation of STDO 2220 Introduction to Painting this course provides focused technical instruction and opportunities to develop an individual painting practice. May not be held with STDO 3680 when titled Intermediate Painting.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: STDO 2220.

**Mutually Exclusive:** STDO 3680

**STDO 2250 Drawing 1 6 cr**

Creative use of drawing with emphasis on the human figure. May not be held with STDO 2240.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisites: Successful completion of 21 credit hours at 1000- level STDO courses.

**Equiv To:** STDO 2240

**STDO 2310 Introduction to Wheel - Throwing 3 cr**

This course will cover the basics of wheel throwing and gas kiln firing. Technical and conceptual content will be provided through a series of assigned projects. May not be held with STDO 2230.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: Successful completion of 21 credit hours of 1000 level studio courses.

**Mutually Exclusive:** STDO 2230

**STDO 2320 Introduction to Handbuilding 3 cr**

This course will cover the basics of hand building with clay and electric kiln firing. Technical and conceptual content will be provided through a series of assigned projects. May not be held with STDO 2230.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: Successful completion of 21 credit hours of 1000 level studio courses.

**Mutually Exclusive:** STDO 2230

**STDO 2380 Intermediate Wheel-Throwing 3 cr**

The course builds on elements learned in STDO 2310 Beginning Wheel Throwing. Students will be taught the correct procedures for the further manipulation of wheel thrown cylinders. Emphasis will be on creating objects with spouts, lids, as well as multiples.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: STDO 2310 or STDO 2690 when titled Beginning Wheel Throwing.

**Mutually Exclusive:** STDO 2690

**STDO 2400 Introduction to Photography 6 cr**

Introduction to the camera and photographic techniques with problems in creative visual expression.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: Successful completion of 21 credit hours at 1000-level STDO courses.

**STDO 2420 Intermediate Film Photography 3 cr**

Students will explore aspects of analogue photography at the intermediate level, including photographing on medium-format film, printing on fibre paper, darkroom experimentation, and historical processes such as cyanotype printing. May not be held

with STDO 2690 when titled Intermediate Film Photography or STDO 3680 when titled Intermediate Photo.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: STDO 2400.

**Mutually Exclusive:** STDO 2690, STDO 3680

**STDO 2430 Intermediate Digital Photography 3 cr**

This course will provide students with the ability to further advance their technical and conceptual abilities in digital photography.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: STDO 2400.

**STDO 2500 Printmaking Intaglio A 3 cr**

An introduction to the basic techniques in Intaglio.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisites: Successful completion of 21 credit hours at 1000-level STDO courses.

**Equiv To:** STDO 2550

**STDO 2510 Printmaking Silkscreen A 3 cr**

An introduction to the basic techniques in Silkscreen.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisites: Successful completion of 21 credit hours at 1000-level STDO courses.

**Equiv To:** STDO 2550

**STDO 2520 Printmaking Lithography A 3 cr**

An introduction to the basic techniques in Lithography.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisites: Successful completion of 21 credit hours at 1000-level STDO courses.

**Equiv To:** STDO 2550

**STDO 2530 Relief and Monoprints 3 cr**

This course introduces the student to working in a printshop environment, using various mediums and methods of creating works on paper. Projects are structured to explore traditional and experimental approaches to monoprinting and relief printmaking. Technical proficiency and skill will require practice and attention to detail.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisites: Successful completion of 21 credit hours at 1000-level STDO courses.

**STDO 2610 Video 1 6 cr**

The creative use of video as an art medium.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: Successful completion of 21 credit hours at 1000-level STDO courses.

**STDO 2630 Introduction to Design 3 cr**

An introduction to the creative use of design elements and principles applied to problems in Graphic Design.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: Successful completion of 21 credit hours at 1000-level STDO course.

**STDO 2640 Intermediate Design 3 cr**

A continuation of the investigation of the creative use of advanced design elements and principles applied to problems in Graphic Design. The course provides a grounding in the concepts, techniques and skills required to solve specific problems, develop a personal design process and acquire a deeper understanding of visual media.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: STDO 2630.

**STDO 2662 Typography Studio 3 cr**

Students will explore both form and functional typography in studio practice.

Consideration of how shifts in the appearance of language can change the way it signifies. A review of how typography has developed historically and the context that it exists in today, where the interrelated systems of reading, technology, culture and language meet, asking us to understand typography as a relational practice. This course is a prerequisite for students wishing to pursue higher level course work in graphic design.

**STDO 2680 Special Topics 3 cr**

Selected projects in Fine Art Studio of current interest.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: Successful completion of 21 credit hours at 1000 level STDO courses.

**STDO 2712 Interdisciplinary Studio 1 3 cr**

Complementary to 2000-level Studio practice courses. Students will engage in discussion, readings and practical studio work. May not hold with the former STDO 2710.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Pre-requisites: Twenty-one credit hours at 1000- level Studio courses.

**Equiv To:** STDO 2710

**STDO 2740 Open Media 6 cr**

This interdisciplinary studio course encourages the research, creation, and presentation of works of a diverse nature.

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisites: Successful completion of 21 credit hours at 1000 level STDO courses.

**STDO 2810 Introduction to Performance Art 3 cr**

An introduction to the language and form of performance art, including live performance, performance based installation, and interactive and relational performances. May not be held with STDO 3680 when titled " Introduction to Performance Art".

**PR/CR: A minimum grade of C is required unless otherwise indicated.**

Prerequisite: Successful completion of 21 credit hours of 1000- level STDO courses.

**Mutually Exclusive:** STDO 3680

## Appendix B: Academic Calendar Modifications

### Changes to the Diploma in Art (Dip.Art)

#### School of Art

<b>Year 1</b>		<b>Hours</b>
<u>STDO 1210</u>	Drawing: Studio 1	3
<u>STDO 1240</u>	Figure Study 1	3
<u>STDO 1410</u>	Visual Language	3
<u>STDO 1510</u>	Art Now	3
<u>FA 1990</u>	First Year Field Trip	0
<u>FAAH 1030</u>	Introduction to Art 1A	3
<u>STDO 1250</u>	Drawing: Studio 2	3
<u>STDO 1480</u>	Digital Essentials	3
<u>STDO 1470</u>	Materials Studio	3
<u>FAAH 1040</u>	Introduction to Art 2A	3
<b>Hours</b>		<b>24 27</b>
<b>Year 2</b>		
Select 24 credit hours from the following:		24
<u>STDO 2210</u>	Introduction to Sculpture	-
<u>STDO 2220</u>	Introduction to Painting	-
<u>STDO 2230</u>	Ceramics 1	-
<u>STDO 2250</u>	Drawing 1	-
<u>STDO 2400</u>	Introduction to Photography	-
<u>STDO 2500</u>	Printmaking Intaglio A	-
<u>STDO 2502</u>	Printmaking Intaglio B	-
<u>STDO 2510</u>	Printmaking Silkscreen A	-
<u>STDO 2512</u>	Printmaking Silkscreen B	-
<u>STDO 2520</u>	Printmaking Lithography A	-
<u>STDO 2522</u>	Printmaking Lithography B	-
<u>STDO 2610</u>	Video 1	-
<u>STDO 2630</u>	Introduction to Design	-
<u>STDO 2640</u>	Intermediate Design	-
Select 3 credit hours in Fine Arts Studio Electives		3
<b>Hours</b>		<b>27</b>
<b>Year 3</b>		
Select 24 credit hours from the following:		24
<u>STDO 3330</u>	Advanced Drawing 2	-
<u>STDO 3370</u>	Advanced Ceramics	-
<u>STDO 3420</u>	Advanced Painting	-
<u>STDO 3460</u>	Advanced Sculpture	-
<u>STDO 3480</u>	Advanced Photography 1	-
<u>STDO 3830</u>	Advanced Printmaking A	-
<u>STDO 3840</u>	Advanced Printmaking B	-
Select 3 credit hours in Fine Arts Studio Electives		3
<b>Hours</b>		<b>27</b>

**Year 4**

Select 12 credit hours from the following:		12
<del>STDO 4450</del>	<del>Advanced Drawing 3</del>	<del>-</del>
<del>STDO 4520</del>	<del>Advanced Ceramics 2</del>	<del>-</del>
<del>STDO 4530</del>	<del>Advanced Painting 2</del>	<del>-</del>
<del>STDO 4550</del>	<del>Advanced Sculpture 2</del>	<del>-</del>
<del>STDO 4700</del>	<del>Advanced Photography 2</del>	<del>-</del>
-	<b>Hours</b>	<b>12</b>
-	<b>Total Hours</b>	<b>93</b>

**Year 2**

Select 6 credit hours of 2000-level Studio courses from List A		6
Select 6 credit hours of 2000-level Studio courses from List A and/or List B		6
FAAH 1040	Introduction to Art 2A	3
STDO 3710 or STDO 3720	Special Topics in Indigenous Contemporary Art Practices or Special Topics in BIPOC Contemporary Art Practices	3
6 credit hours of Academic Electives <sup>1</sup>		6
	<b>Hours</b>	<b>24</b>
	<b>Total Hours</b>	<b>48</b>

**List A**

Course	Title	Hours
STDO 2210	Introduction to Sculpture	6
STDO 2214	Mould Making	3
STDO 2220	Introduction to Painting	6
STDO 2250	Drawing 1	6
STDO 2310	Introduction to Wheel-Throwing	3
STDO 2320	Introduction to Handbuilding	3
STDO 2400	Introduction to Photography	6
STDO 2500	Printmaking Intaglio A	3
STDO 2510	Printmaking Silkscreen A	3
STDO 2520	Printmaking Lithography A	3
STDO 2530	Relief and Monoprints	3
STDO 2610	Video 1	6
STDO 2630	Introduction to Design	3
STDO 2662	Typography Studio	3
STDO 2680	Special Topics	3
STDO 2712	Interdisciplinary Studio 1	3
STDO 2740	Open Media	6

**STDO 2810 Introduction to Performance Art 3**  
**List B**

<b>Course</b>	<b>Title</b>	<b>Hours</b>
STDO 2212	Intermediate Sculpture	3
STDO 2222	Intermediate Painting	3
STDO 2380	Intermediate Wheel-Throwing	3
STDO 2420	Intermediate Film Photography	3
STDO 2430	Intermediate Digital Photography	3
STDO 2640	Intermediate Design	3

<sup>1</sup> Students are permitted to take any course to fulfill the Academic Elective requirement. This includes courses taught by the School of Art such as Studio courses or Art History courses, or courses taught by other faculties. The School of Art recommends that students considering pursuing the BFA General or Honours Degree after the Diploma take courses that satisfy the Mathematics Requirement (M) and/or the Written English Requirement (W). The School of Art offers FA 1020 to fulfill the M requirement and FAAH 2930 to fulfill the W requirement.

**Appendix C: Transition Plan**  
**Changes to the Diploma in Art (Dip.Art)**  
**School of Art**

The new diploma program will be introduced in Fall 2023 with the first intake of students occurring in that term. Students admitted to the diploma program prior to Fall 2023 will have the option of completing either the four-year program to which they were admitted or to complete the new two-year diploma. Since the first year two years of the current diploma program are closely comparable with the proposed new program, students admitted to the program prior to Fall 2023 could choose to graduate with the diploma if they have met the requirements of the diploma with addition of STDO 3710 or STDO 3720. The courses required for the new diploma program are already offered, and current and prospective diploma students will be informed of the change by the Academic Advisor directly and via info-sessions through Fall 2023/Winter 2024. Additionally, a degree completion plan will be developed to allow students who graduate from the diploma program to transition to the BFA General program.

**Course Map/Curriculum Crosswalk**

Year one current	Year one proposed
STDO 1210 (3 cr hrs)	STDO 1210 (3 cr hrs)
STDO 1240 (3 cr hrs)	STDO 1240 (3 cr hrs)
STDO 1410 (3 cr hrs)	STDO 1410 (3 cr hrs)
STDO 1510 (3 cr hrs)	STDO 1510 (3 cr hrs)
STDO 1250 (3 cr hrs)	STDO 1250 (3 cr hrs)
STDO 1470 (3 cr hrs)	STDO 1470 (3 cr hrs)
STDO 1480 (3 cr hrs)	STDO 1480 (3 cr hrs)
FAAH 1030 (3 cr hrs)	FAAH 1030 (3 cr hrs)
FAAH 1040 (3 cr hrs)	FA 1990 (0 cr hrs)
FA 1990 (0 cr hrs)	
Total 27 credit hours	Total 24 credit hours

Year two current	Year two proposed
24 cr hrs Studio electives (STDO 2210; STDO 2220; STDO 2230; STDO 2250; STDO 2400; STDO 2460; STDO 2610; STDO 2500; STDO 2510; STDO 2520; 2502; STDO 2512; STDO 2522; STDO 2630; STDO 2640)	12 cr hrs Studio electives (STDO 2210; <b>STDO 2214</b> ; STDO 2220; STDO 2250; <b>STDO 2310</b> ; <b>STDO 2320</b> ; STDO 2400; STDO 2500; STDO 2510; STDO 2520; <b>STDO 2530</b> ; STDO 2610; STDO 2630; <b>STDO 2680</b> ; <b>STDO 2712</b> ; <b>STDO 2740</b> ; <b>STDO 2810</b> ; <b>STDO 2212</b> ; <b>STDO 2222</b> ; <b>STDO 2380</b> ; <b>STDO 2420</b> ; <b>STDO 2430</b> ; STDO 2640)
3 cr hrs Academic electives	<b>3 cr hrs STDO 3710 or STDO 3720</b>
	FAAH 1040 (3 cr hrs)
	6 cr hrs Academic electives
Total 27 credit hours	Total 24 credit hours





Edward Jurkowski, Ph.D.  
Dean and Professor, Desautels Faculty of Music  
Acting Director, School of Art  
University of Manitoba  
150 Dafoe Road West  
Winnipeg, Manitoba  
Canada R3T 2N2

November 14, 2022

Dear Dr. Jurkowski,

I am writing in support of your proposal to modify the current four-year School of Art diploma to a two-year diploma program. I agree that this change will bring your diploma program in line with others across Canada and will be of interest to a new group of students.

One potential source of new enrollment might be teachers who want to obtain an additional credential because they are either required to or want to teach art in their school/program. We have many teachers who return to university to complete additional coursework for professional development purposes. Usually, this is done through our Post Baccalaureate Diploma in Education, however, having a two-year School of Art diploma available to them would open another possibility for professional development specifically related to art. The focus in our program is on art education, whereas the focus in your diploma is on studio components and developing art technique and skills, which provides a good complement rather than any overlap.

Thank you for the opportunity to comment on your proposed curriculum proposal for the two-year School of Art diploma. You have my full support in making this change and I wish you success in the approval process.

Sincerely,

Charlotte Enns, Ph.D.  
Acting Dean  
Faculty of Education

## Report of the Senate Committee on Academic Dress

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### Preamble

The terms of reference for the Senate Committee on Academic Dress can be found on the University Governance website at:

[https://umanitoba.ca/governance/sites/governance/files/2021-09/Senate\\_Committee\\_on\\_Academic\\_Dress\\_Terms\\_of\\_Reference.pdf](https://umanitoba.ca/governance/sites/governance/files/2021-09/Senate_Committee_on_Academic_Dress_Terms_of_Reference.pdf)

wherein the Committee is charged with the responsibility to recommend to Senate on the colours of the linings of hoods for new degrees, and to approve each type of dress supplied to graduands with respect to quality of materials and colours.

The Committee met on November 25, 2022 to consider Indigenous-designed academic robes for the Chancellor and the President and Vice-Chancellor, to be crafted in advance of the Spring 2023 session of Convocation.

### Observations

1. The redesigning of academic robes for the Chancellor and the President and Vice-Chancellor are being proposed by the Office of the Vice-President (External) following consultation with members of the Indigenous community at the University of Manitoba including faculty members, academic leaders, and students.
2. The practice of Indigenous-designed academic robes for Chancellors and Presidents has already been taken at other Canadian post-secondary institutions, including Simon-Fraser University and McMaster University.
3. The academic robes are a visible step towards the University of Manitoba's commitment to Reconciliation and contain symbolism referencing the Four Nations, Indigenous Women and Children, and Manitoba and have been designed by local Indigenous artist and University of Manitoba alum Jackie Traverse.

### Recommendations

The Senate Committee on Academic Dress recommends:

**THAT Senate approve the new Indigenous-designed academic robes for the Chancellor and for the President and Vice Chancellor.**

Respectfully submitted,

Dean Edward Jurkowski, Chair  
Senate Committee on Academic Dress

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.

encl.

CHANCELLOR'S REGALIA



FRONT



BACK

PRESIDENT'S REGALIA



FRONT



BACK

The artist has provided a description of the design:

*The crocuses represent Manitoba and give us our sense of place. The use of the white, yellow, black and red represent the four nations. The use of red and orange represent the missing Indigenous women and children. The roots symbolize our connections to this institution and to one another.*

The robes would be constructed in a black silk and employ gold piping as a nod to the design of the traditional academic robes the President and Chancellor have worn to date. The existing hats would also be considered part of this redesigned robe. The motifs would be applied through a combination of embroidery and traditional beading using gold accents.

With the approval of the SCADR, it is our intention to announce these new robes at Spring Convocation 2023.

**Report of the Senate Committee on Admissions concerning a proposal from the Faculty of Education to modify the admission requirements for the Bachelor of Education degree program (2022.10.25)**

**Preamble:**

1. The terms of reference for this committee can be found at: [http://umanitoba.ca/admin/governance/governing\\_documents/governance/sen\\_committees/490.htm](http://umanitoba.ca/admin/governance/governing_documents/governance/sen_committees/490.htm).
2. The Faculty of Education is proposing to amend the list of acceptable courses that can be used to meet the music teachable major and minor requirements for admission into the program.
3. The proposal was approved by the Faculty of Education Council on June 13, 2022 and was endorsed by SCADM on October 25<sup>th</sup>, 2022.

**Observations:**

1. As a result of some course numbering changes in the Desautels Faculty of Music, the Faculty of Education is modifying their list of acceptable courses to ensure alignment with the new course numbers.
2. The proposed changes impact those applicants who are presenting courses to meet the Music teachable major and minor requirements.

**Recommendation:**

The Senate Committee on Admissions recommends that the proposal to modify the admission requirements for the Bachelor of Education degree program be approved effective for the fall 2024 intake.

Respectfully submitted  
Laurie Schnarr, Chair, Senate Committee on Admissions

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.



**DATE:** September 27, 2022

**TO:** Ms. Laurie Schnarr, Committee Chair, SCADM  
Mr. Jeff Adams, Executive Director, Enrolment Services

**FROM:** Dr. Charlotte Enns, Chair, Faculty of Education Council

**RE:** Bachelor of Education Music Teachable Major Admission Requirements

**CC:** Ms. Olga Kuznetsova, Assistant to the Executive Director, Enrolment Services  
Dr. Amy Farrell-Morneau, Senator  
Dr. Sandra Kouritzin, Senator  
Dr. Martha Koch, Chair, Undergraduate Programs Committee (UPC)  
Ms. Tara Baxter, Committee Secretary, Faculty Council  
Ms. Desiree Kennedy, Coordinator of Undergraduate Programs  
Ms. Nicole Jensen, Committee Secretary, UPC

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The following motion was passed by the Faculty of Education Undergraduate Programs Committee (UPC) [on April 4, 2022] and subsequently by Faculty of Education Council [on June 13, 2022]. Please forward this motion for consideration at the next SCADM meeting, and if approved forward to the appropriate Senate for consideration.

**MOTION:** THAT effective September 2024, the admissions requirements for all Music Teachable Majors/ Minors be modified to include MUSC 3200 Orff-Schulwerk 1 (formerly MUSC 3106 Orff-Schulwerk 1), MUSC 3220 Kodaly Music Education 1 (formerly MUSC 3108 Kodaly Music Education 1), and MUSC 4452 Jazz Pedagogy (formerly MUSC 3442 Jazz Pedagogy), in the list of acceptable courses toward admission requirements.

# PROPOSAL

## Section I- Description of the change

Change Being Proposed:

The Faculty of Education proposes to amend the admission requirements for Music Teachable Majors/Minors to include MUSC 3200, MUSC 3220, and MUSC 4452 in the list of acceptable courses to meet the requirements for Early, Middle and Senior Years Teachable Major/Minor.

Current Regulation, Background Information and Rationale:

All applicants must present specific requirements for admission to the *After-Degree Bachelor of Education Program*, as outlined in the Applicant Bulletin.

Currently MUSC 3106, MUSC 3108 and MUSC 3442 are courses that Early, Middle and Senior Years Music Teachable Major applicants can use toward admission requirements.

The Faculty of Education has recently been informed that Desautels Faculty of Music has renumbered MUSC 3106, MUSC 3108 and MUSC 3442. Therefore, we must update our admission requirements to reflect these changes.

This proposal and accompanying chart reflect these changes in the requirements for all Music Teachable Major and Music Teachable Minor applicants.

## Section II - Consultation with other Faculties

We have not consulted with Desautels Faculty of Music. This proposal is being made on the recommendation of Associate Director of Undergraduate Admissions.

## Section III - Recommendation

The Faculty of Education recommends that SCADM approve the revision of the admission requirements for Music Teachable Majors/Minors as described in Section I of this proposal, and that these changes be effective September 2024.

Proposed admission requirements for a Music teachable major and minor: Early Middle and Senior Years. Effective: 2024 Intake.

CURRENT ADMISSION REQUIREMENTS	
MAJOR (30 CREDIT HOURS)	
Senior Years	<p><b>BMus (Music Education) or Equivalent*</b></p> <p>*Applicants presenting a BMus (Music Education) to meet teachable subject requirements must present grades of C or better in music education course work. In cases where a BMus (Music Education) applicant presents one or more D grades in music education coursework, this course must be repeated to obtain the minimum grade of C for admissions.</p> <p>Applicants not presenting a BMus (Music Ed) degree or equivalent (Performance, Jazz Studies, BA with minor in Music, etc) must present MUSC coursework comprised of the following (or equivalents) with a grade of C or better (with a minimum grade of C):</p>
	<p><b>MAJOR Instrumental (30 credit hours):</b></p> <ul style="list-style-type: none"> <li>• MUSC 2460 <i>Conducting</i> (3)</li> <li>• MUSC 1930 <i>Rudiments of Music</i> or MUSC 1110 <i>Theory 1</i> or <del>MUSC 1384 <i>Musicianship 1</i></del> (3)</li> <li>• GROUP B (choose 9 cr) (9)</li> <li>• GROUP E and F (9)</li> <li>• GROUP B and/or C (6)</li> </ul>
	<p><b>MINOR Instrumental (18 credit hours):</b></p> <ul style="list-style-type: none"> <li>• MUSC 2460 <i>Conducting</i> (3)</li> <li>• GROUP F (3)</li> <li>• GROUP B, C and/or E (12)</li> </ul>
	<p><b>MAJOR Choral (30 credit hours):</b></p> <ul style="list-style-type: none"> <li>• MUSC 2460 <i>Conducting</i> (3)</li> <li>• MUSC 1930 <i>Rudiments of Music</i> or MUSC 1110 <i>Theory 1</i> or <del>MUSC 1384 <i>Musicianship 1</i></del> (3)</li> <li>• GROUP D and F (9)</li> <li>• GROUP A (choose 9 cr) (9)</li> <li>• GROUP A and/or C (6)</li> </ul>

GROUPS <sup>1</sup>	
<b>Group A</b>	
<p>MUSC 3102 <i>Composition, Technology and Improvisation for Music Educators</i></p> <p>MUSC <del>3106</del> 3200 <i>Orff-Schulwerk 1</i> (or the former MUSC 3106, or the former MUSC 3130 <i>Music for Children 1</i>) or</p> <p>MUSC <del>3108</del> 3220 <i>Kodaly Music Education 1</i> (or the former MUSC 3108)</p> <p>MUSC <del>3442</del> 4452 <i>Jazz Pedagogy</i> (or the former MUSC 3442)</p> <p>MUSC 3730 <i>Early Music Development</i></p> <p>MUSC 3772 <i>Vocal Pedagogy for Choirs</i> ** (or the former MUSC 3770 <i>Vocal Techniques</i>)</p> <p>MUSC 3884 <i>Introduction to Jazz for Music Educators</i></p> <p>MUSC 4156 <i>Choral Music Literature and Programming</i> ** (or the former MUSC 4154 <i>Choral Repertoire</i>)</p> <p>** Recommended for Choral majors and minors</p>	
<b>Group B</b>	
<p>MUSC 3102 <i>Composition, Technology and Improvisation for Music Educators</i></p> <p>MUSC <del>3442</del> 4452 <i>Jazz Pedagogy</i> (or the former MUSC 3442)</p> <p>MUSC 3690 <i>Percussion Techniques</i> **</p> <p>MUSC 3780 <i>Woodwind Techniques</i> **</p> <p>MUSC 3790 <i>Brass Techniques</i> **</p> <p>MUSC 3884 <i>Introduction to Jazz for Music Educators</i></p> <p>** recommended for Instrumental majors and minors</p>	
<b>Group C</b>	
<p>MUSC 3894 <i>Guitar Techniques</i> or MUSC 3800 <i>String Techniques</i></p> <p>MUSC 4894 <i>Advanced Guitar Techniques</i></p>	
<b>Group D</b>	
<p>MUSC 4752 <i>Methods in Elementary and Middle Years Choral Music</i> (or the former MUSC 4750 <i>Choral Techniques 1</i>)</p> <p>MUSC 4762 <i>Methods in Senior Years and Community Choral Music</i> (or the former MUSC 4760 <i>Choral Techniques 2</i>)</p>	
<b>Group E</b>	
<p>MUSC 4772 <i>Instrumental Music Methods 1</i> (or the former MUSC 4770 <i>Band and Orchestral Techniques 1</i>)</p> <p>MUSC 4782 <i>Instrumental Music Methods 2</i> (or the former MUSC 4780 <i>Band and Orchestral Techniques 2</i>)</p>	
<b>Group F</b>	576



	<p><b>MINOR Choral (18 credit hours):</b></p> <ul style="list-style-type: none"> <li>• MUSC 2460 <i>Conducting</i> (3)</li> <li>• GROUP F (3)</li> <li>• GROUP A and/or D (12)</li> </ul> <p><b>NEW SPECIALIZATION</b></p> <p><b>MAJOR Guitar/Strings (30 credit hours):</b></p> <ul style="list-style-type: none"> <li>• MUSC 2460 <i>Conducting</i> (3)</li> <li>• MUSC 1930 <i>Rudiments of Music</i>  <u>or</u> MUSC 1110 <i>Theory 1</i>  <del>or</del> MUSC 1384 <i>Musicianship 1</i> (3)</li> <li>• GROUP F (3)</li> <li>• GROUP C (choose 3 cr) (3)</li> <li>• GROUP A, B, C, D and/or E (18)</li> </ul> <p><b>MINOR Guitar/Strings (18 credit hours):</b></p> <ul style="list-style-type: none"> <li>• MUSC 2460 <i>Conducting</i> (3)</li> <li>• MUSC 3894 <i>Guitar Techniques 1</i>  <u>or</u> MUSC 3800 <i>String Techniques</i> (3)</li> <li>• GROUP F (3)</li> <li>• GROUP A, B, C, D and/or E (9)</li> </ul>
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**MUSC 4896** *Cultural Perspectives for Music Educators* or any World Music Pedagogy or equivalent

Equivalencies for admission purposes determined by the Faculty of Education

<sup>1</sup>Other Music Education (Pedagogy)/Music courses may be approved upon assessment by Faculty of Education. Course outlines provided by institution will be required.

<sup>1</sup>any combination of courses from Groups stipulated

**CURRENT ADMISSION REQUIREMENTS**

**(18 CREDIT HOURS)**

**Middle  
Years  
and  
Early Years**

**BMus (Music Education) or Equivalent\*.**

\*Applicants presenting a BMus (Music Education) to meet teachable subject requirements must present grades of C or better in music education course work. In cases where a BMus (Music Education) applicant presents one or more D grades in music education coursework, this course must be repeated to obtain the minimum grade of C for admissions.

Applicants not presenting a BMus (Music Ed) degree or equivalent (Performance, Jazz Studies, BA with minor in Music, etc) must present MUSC coursework comprised of the following (or equivalents) with a grade of C or better (with a minimum grade of C):

**(No specializations for Early or Middle Years)**

**MAJOR Music (18 credit hours):**

- MUSC 2460 *Conducting* (3)
- GROUP F (3)
- any course combination from GROUP A, B, C, D, and/or E (12)

**MINOR Music (12 credit hours):**

- GROUP F (3)
- any course combination from GROUP A, B, C, D, and/or E (9)

**GROUPS <sup>1</sup>**

**Group A**

- MUSC 3102 *Composition, Technology and Improvisation for Music Educators*
- MUSC ~~3106~~ 3200 *Orff-Schulwerk 1 (or the former MUSC 3106, or the former MUSC 3130 Music for Children 1)* or
- MUSC ~~3108~~ 3220 *Kodaly Music Education 1 (or the former MUSC 3108)*
- MUSC ~~3442~~ 4452 *Jazz Pedagogy (or the former MUSC 3442)*
- MUSC 3730 *Early Music Development*
- MUSC 3772 *Vocal Pedagogy for Choirs* \*\*  
(or the former MUSC 3770 *Vocal Techniques*)
- MUSC 3884 *Introduction to Jazz for Music Educators*
- MUSC 4156 *Choral Music Literature and Programming* \*\*  
(or the former MUSC 4154 *Choral Repertoire*)

\*\* Recommended for Choral majors and minors

**Group B**

- MUSC 3102 *Composition, Technology and Improvisation for Music Educators*
- MUSC ~~3442~~ 4452 *Jazz Pedagogy (or the former MUSC 3442)*
- MUSC 3690 *Percussion Techniques* \*\*
- MUSC 3780 *Woodwind Techniques* \*\*
- MUSC 3790 *Brass Techniques* \*\*
- MUSC 3884 *Introduction to Jazz for Music Educators*

\*\* recommended for Instrumental majors and minors

**Group C**

- MUSC 3894 *Guitar Techniques* or MUSC 3800 *String Techniques*
- MUSC 4894 *Advanced Guitar Techniques*

**Group D**

- MUSC 4752 *Methods in Elementary and Middle Years Choral Music*  
(or the former MUSC 4750 *Choral Techniques 1*)
- MUSC 4762 *Methods in Senior Years and Community Choral Music*  
(or the former MUSC 4760 *Choral Techniques 2*)

**Group E**

- MUSC 4772 *Instrumental Music Methods 1* (or the former MUSC 4770 *Band and Orchestral Techniques 1*)
- MUSC 4782 *Instrumental Music Methods 2* (or the former MUSC 4780 *Band and Orchestral Techniques 2*)

**Group F**

- MUSC 4896 *Cultural Perspectives for Music Educators* or any World Music Pedagogy or equivalent

Equivalencies for admission purposes determined by the Faculty of Education

<sup>1</sup> Other Music Education (Pedagogy)/Music courses may be approved upon assessment by Faculty of Education. Course outlines provided by institution will be required.

<sup>1</sup> any combination of courses from Groups

**Report of the Senate Committee on Admissions concerning a proposal from the Université de Saint-Boniface to modify the admission requirements for the Baccalauréat en éducation program (2022.10.25)**

**Preamble:**

1. The terms of reference for this committee can be found at: [http://umanitoba.ca/admin/governance/governing\\_documents/governance/sen\\_committees/490.htm](http://umanitoba.ca/admin/governance/governing_documents/governance/sen_committees/490.htm).
2. The proposed changes will require applicants who have completed some or all of their previous post-secondary studies outside of Canada or the United States to obtain an ICAP evaluation from the World Education Services.
3. The proposal was approved by the Faculté d'éducation et des études professionnelles on May 2<sup>nd</sup>, 2022 and was endorsed by SCADM on October 25<sup>th</sup>, 2022.

**Observations:**

1. This is a requirement of the Manitoba Department of Education's Professional Certification unit; therefore, this change will ensure that all students who are admitted to the program will be eligible to be certified by the province upon graduation.
2. All other admission requirements remain unchanged.

**Recommendation:**

The Senate Committee on Admissions recommends that the proposal to modify the admission requirements for the Baccalauréat en éducation program be approved effective for the fall 2024 intake.

Respectfully submitted  
Laurie Schnarr, Chair, Senate Committee on Admissions

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.

## Submission: Senate Committee on Admissions, University of Manitoba

All submissions should contain a covering memo from the faculty, college, or school submitting the proposal. Please include the date the proposal was approved by faculty council and the desired effective date of the regulation.

*Une proposition soumise par l'Université de Saint-Boniface. La proposition en français est suivie d'une traduction officielle.*

*A proposal submitted by Université de Saint-Boniface. The proposal in French is followed by an unofficial translation.*

### Section I – Description of the change

#### Proposition d'ajout à l'Annuaire

Afin de se conformer aux exigences de la section des brevets du ministère de l'Éducation du Manitoba, la Faculté d'éducation propose l'ajout suivant à la sous-section 2.1 Profil académique de la section 2 Admissions des pages de l'Annuaire où l'on présente les exigences du *Baccalauréat en éducation*. Cet ajout serait fait pour la voie primaire et intermédiaire ainsi que pour la voie secondaire.

Voici l'extrait du site Web de la section des brevets

(<https://www.edu.gov.mb.ca/m12/perfprof/brevet/>) :

#### **NOUVEAU!**

À partir d'octobre 2021, il faut obtenir une évaluation **ICAP cours par cours** de vos études postsecondaires suivies à l'extérieur du Canada ou des États-Unis par World Education Services (WES). Cette évaluation doit être envoyée par la poste **directement** à la Section des brevets par WES. Veuillez consulter la section Études postsecondaires suivies à l'extérieur du Canada ou des États-Unis pour d'autres renseignements.

Ajout proposé à la section *Autres exigences académiques* de la section 2.1 Profil académique :

#### **AUTRES EXIGENCES ACADÉMIQUES**

- Avoir obtenu la note minimale de C dans tous les cours des deux matières enseignables. Les cours dont la note ne rencontre pas ce seuil ne seront pas pris en compte dans les crédits de matières enseignables. Les étudiantes et étudiants qui auraient obtenu un D ou moins dans l'un ou l'autre des cours faisant partie de leurs matières enseignables devront reprendre ou remplacer ces cours avant leur admission, en s'assurant que la note minimale et la moyenne cumulative soient respectées.
- Il faut aussi avoir obtenu son premier baccalauréat avec des cours de matières enseignables au niveau 1000 ou plus.

- **Si un candidat ou une candidate a suivi certaines ou toutes ses études postsecondaires à l'extérieur du Canada ou des États-Unis, il ou elle doit obtenir une évaluation ICAP (cours par cours) de la World Education Services (WES). Cette évaluation doit être envoyée directement au Registrariat de l'USB au plus tard le 1<sup>er</sup> mars (si le 1<sup>er</sup> mars survient en fin de semaine, l'évaluation sera acceptée jusqu'au prochain jour ouvrable).**
- Les mêmes cours ne peuvent pas être crédités afin de satisfaire à la fois aux exigences des deux matières enseignables.
- Il faut avoir obtenu une moyenne cumulative d'au moins 2,5 dans les 60 derniers crédits des études universitaires du profil académique.

Cette modification à l'annuaire a été approuvée par la Faculté d'éducation et des études professionnelles lors de la réunion du conseil pédagogique de la FÉÉP le lundi 2 mai 2022.

Cette nouvelle exigence entrera en vigueur à l'automne 2022.

#### **Section II - Consultation with other faculties**

Cette nouvelle exigence n'affecte pas d'autres facultés

#### **Section III – Recommendation**

Que l'ajout proposé soit incorporé à l'Annuaire dès septembre 2023.

Submission: Senate Committee on Admissions, University of Manitoba

All submissions should contain a covering memo from the faculty, college, or school submitting the proposal. Please include the date the proposal was approved by faculty council and the desired effective date of the regulation.

## Section I - Description of the change

### Proposed addition to the Calendar

In order to comply with the requirements of the Manitoba Department of Education's Professional Certification Unit, the *Faculté d'éducation* proposes the following addition to subsection 2.1 *Academic Profile* of Section 2 *Admissions* of the Calendar pages outlining the requirements for the *Baccalauréat en éducation*. This addition would be made for the elementary and middle school streams, as well as the secondary stream.

The following is the excerpt from the Professional Certification Unit (<https://www.edu.gov.mb.ca/k12/profcert/index.html>) :

#### **NEW!**

**Effective October, 2021**, Post-Secondary education completed outside of Canada or the United States of America requires a **course-by-course (ICAP)** evaluation by the World Education Services (WES). This course-by-course evaluation must be mailed **directly** to the Professional Certification Unit (PCU) from WES. Please refer to [Post-Secondary Education Completed Outside of Canada or the United States of America](#) for more information.

Proposed addition to the *Other Academic Requirements* section of Section 2.1 *Academic Profile*:

#### **OTHER ACADEMIC REQUIREMENTS**

- Have earned a minimum grade of C in all courses in both teachable subjects. Courses that do not meet this threshold will not be counted for credit in teachable subjects. Students who would have received a D or lower in any of their teachable subject courses will be required to retake or substitute those courses prior to admission, ensuring that the minimum grade and cumulative average are met.
- They must also have completed their first bachelor's degree with teachable subject courses at the 1000 level or above.
- **If applicants have completed some or all of their post-secondary education outside of Canada or the United States, they must obtain an ICAP (course-by-course) evaluation from World Education Services (WES). This evaluation must be sent directly to the USB Registrar's Office by March 1 (if March 1 falls on a weekend, the evaluation will be accepted until the next business day).**
- The same courses may not be credited to satisfy requirements for both teachable subjects.
- A cumulative grade point average of at least 2.5 must be achieved in the last 60 university credits of the academic profile.

This change to the Calendar was approved by the *Faculté d'éducation et des études professionnelles* at the FEEP Academic Council meeting on Monday, May 2, 2022.

This new requirement will go into effect in the fall of 2023.

**Section II - Consultation with other faculties**

This new requirement does not affect other faculties.

**Section III - Recommendation**

That the proposed addition be incorporated into the Calendar beginning in September 2023.

**Report of the Senate Committee on Admissions concerning a proposal from the Clayton H. Riddell Faculty of Environment, Earth, and Resources to modify the admission requirements for the Bachelor of Environmental Studies Major degree program (2022.10.25)**

**Preamble:**

1. The terms of reference for this committee can be found at: [http://umanitoba.ca/admin/governance/governing\\_documents/governance/sen\\_committees/490.htm](http://umanitoba.ca/admin/governance/governing_documents/governance/sen_committees/490.htm).
2. The Clayton H. Riddell Faculty of Environment, Earth, and Resources is proposing to modify the subject code for one of the courses that is required for admission to the program.
3. The proposal was endorsed by SCADM on October 25<sup>th</sup>, 2022.

**Observations:**

1. The Department of Indigenous Studies changed its subject code from NATV to INDG.
2. INDG 1220 Indigenous Peoples in Canada is a required course to be eligible for admission and the faculty would like to update the requirements so that the new INDG code appears in place of the NATV code as part of the admission requirements.
3. In addition to INDG1220 three other courses, INDG 1240, INDG 2020, INDG 2080, will all be acceptable courses to satisfy the requirement.
4. INDG 2020 and HIST 2020 are equivalent courses and either one would be acceptable in meeting the requirement.

**Recommendation:**

The Senate Committee on Admissions recommends that the proposal to modify the admission requirements for the Bachelor of Environmental Studies Major degree program be approved effective for the fall 2024 intake.

Respectfully submitted  
Laurie Schnarr, Chair, Senate Committee on Admissions

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.



# Environmental Studies, B.Env.St. Major

## BACHELOR OF ENVIRONMENTAL STUDIES ADVANCED ENTRY ENTRANCE REQUIREMENTS

**Degree: Major**

**Minimum Number of Credit Hours: 24**

**Minimum Degree Grade Point Average: 2.00**

**Additional Advanced Entry Entrance Requirements:** 12 credit hours taken from the following with a grade of 'C+' or better in six of the 12 credit hours, and a grade of 'C' or better in the remaining six credit hours:

Course	Title	Hours
ENVR 1000	Environmental Science 1 - Concepts	3
ENVR 2000	Environmental Science 2 - Issues	3
GEOG 1280	Introduction to Human Geography <sup>3</sup>	3
GEOG 1290	Introduction to Physical Geography <sup>3</sup>	3
BIOL 1010 or BIOL 1030	Biology: Biological Diversity and Interaction <sup>3</sup> Biology 2: Biological Diversity, Function and Interactions	3
STAT 1000	Basic Statistical Analysis 1 <sup>3</sup>	3
<a href="#">NATV-INDG 1220</a> <a href="#">or INDG 1240</a> <a href="#">or INDG/HIST 2020</a> <a href="#">or INDG 2080</a>	Indigenous Peoples in Canada, Part 1 <a href="#">Indigenous Peoples in Canada, Part 2</a> <a href="#">The Métis in Canada</a> <a href="#">Inuit Society and Culture</a>	3

<sup>1</sup> Students may be permitted to enter the program without satisfying all requirements listed. Students should consult with a Student Advisor for further information.

<sup>2</sup> Students may be permitted to enter the program without satisfying all requirements listed. Students should consult with the Cooperative Education Coordinator for further information.

<sup>3</sup> Equivalent courses offered through Université de Saint-Boniface may be used in lieu of the specified courses identified in the entrance requirements chart. Université de Saint-Boniface courses end in the number "1" (e.g. GEOG 1281)

October 13, 2022

**Report of the Senate Committee on Instruction and Evaluation RE: Revised Regulation Concerning Repeating a Course, Bachelor of Education, Faculty of Education**

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**Preamble:**

1. The terms of reference for the Senate Committee on Instruction and Evaluation (SCIE) can be found at:  
[https://www.umanitoba.ca/governance/sites/governance/files/2021-09/Senate\\_Committee\\_on\\_Instruction\\_and\\_Evaluation\\_Terms\\_of\\_Reference.pdf](https://www.umanitoba.ca/governance/sites/governance/files/2021-09/Senate_Committee_on_Instruction_and_Evaluation_Terms_of_Reference.pdf)
2. At its meeting on October 13, 2022 SCIE considered a proposal from the Faculty of Education to revise the regulation concerning Repeating a Course.

**Observations:**

1. Currently students admitted to the Bachelor of Education program are required to withdraw from the program upon failure of any three of the four required practicum courses. The Faculty is proposing to reduce this to failure of any two of four required practicum courses.
2. The Faculty provides supports to students during their practicum courses, with additional supports available to those students at risk of failure.
3. The reduction in the number of failed practicum courses permitted would better reflect the Faculty's commitment to high standards, result in less strain of relationships with practicum partners and align with the regulations of other Bachelor of Education programs at other Canadian institutions.

**Recommendation**

The Senate Committee on Instruction and Evaluation recommends:

**THAT Senate approve the revised regulation concerning Repeating a Course, Bachelor of Education, Faculty of Education, effective September 1, 2023.**

Respectfully submitted,

Dr. Mark Torchia, Chair  
Senate Committee on Instruction and Evaluation

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.



**DATE:** September 27, 2022

**TO:** Dr. Mark Torchia, Committee Chair, SCIE

**FROM:** Dr. Charlotte Enns, Chair, Faculty of Education Council

**RE:** Motions for Senate

**CC:** Ms. Marcia Yoshida, Student Appeals and Academic Governance Officer  
Dr. Amy Farrell-Morneau, Senator  
Dr. Sandra Kouritzin, Senator  
Dr. Martha Koch, Chair, Undergraduate Programs Committee (UPC)  
Ms. Desiree Kennedy, Coordinator of Undergraduate Programs  
Ms. Nicole Jensen, Committee Secretary, UPC  
Ms. Tara Baxter, Committee Secretary, Faculty Council

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The following motion was passed by the Faculty of Education Undergraduate Programs Committee (UPC) [on May 16, 2022] and subsequently by Faculty of Education Council [on June 13, 2022]. Please consider this motion at the next SCIE meeting.

**MOTION: THAT,** the academic regulations for the B.Ed program be revised to indicate that students will be required to withdraw on academic grounds upon failure of any 2 of the 4 required practicum courses. The change would take effect in keeping with timelines and procedures permitted by the University.

**Rationale:**

This motion to revise B.Ed academic regulations reduces by one course the number of failed practicum courses that are permitted before a student is required to withdraw from the program. The revision would better reflect the Faculty's commitment to high standards in the teaching profession and result in less strain on relationships with practicum partners. It will also reduce expectations students may develop about their ability to complete the B.Ed program before they reach the maximum permitted time to completion and align our regulations more closely with B.Ed programs in other Canadian faculties of education. All students are provided with many forms of support during their practicum courses. Those at risk of failure receive additional supports, written documentation of the areas where improvement is needed and timelines for improvement through our Notification of Concern (NOC) process. Thus, the motion to reduce the number of permitted failed courses is not overly restrictive for students.

## ADDITIONAL SUPPORTING INFORMATION

### **Background:**

A small number of B.Ed students experience significant difficulty with meeting the expectations of practicum courses even after multiple forms of support are provided such as:

- steps outlined in the B.Ed Students Experiencing Difficulty Procedure;
- the Notification of Concern (NOC) process used in all practicum courses and detailed in the Practicum Guide which is required reading for all students taking practicum courses;
- detailed and frequent formative feedback in both oral and written format;
- resources related to a student's area(s) of difficulty in meeting course expectations that are provided by their Mentor Teacher, Practicum Advisor and/or the Director of Practicum; and/or
- additional observation visits to their practicum school by the Director of Practicum or their designate.

In addition to these forms of support, all students are advised to voluntarily withdraw (VW) prior to the deadline for doing so if they feel the conditions for attempting a practicum course are less than ideal for them (e.g. when an unexpected additional personal or professional difficulty arises). Students are also supported in obtaining an authorized withdrawal (AW) where appropriate (e.g. in the case of illness or bereavement) if they are unable to complete a practicum course. Neither VW nor AW practicum courses are counted as a failed course.

### **Rationale:**

This motion has been carefully considered by the Academic Standings Committee, the Director of Practicum, and the Undergraduate Programs Committee (UPC) who have determined the need to revise our academic regulations to reduce the number of failed practicum courses that a student is permitted by one course. This revision will:

- better reflect the Faculty's commitment to high standards in the teaching profession;
- result in less strain on relationships with practicum partners;
- reduce unrealistic expectations students may develop about completing the B.Ed program within the maximum permitted time to completion if they have failed one or more practicum courses; and
- align our regulations more closely with B.Ed program requirements in other Canadian Faculties of Education.

### **Current academic regulations:**

- Our current academic regulations for the B.Ed program specify that:
- a course can be repeated one time only
- students are "required to withdraw from the B.Ed. program on academic grounds upon failure (receipt of a grade of "F") of any 3 (of the 4) required practicum courses."
- "Each student in the Faculty of Education is presumed to be generally suited to a teaching program. Should this prove not to be the case, the Faculty reserves the right, at any time, to require a student to withdraw from the B.Ed. program. Unsatisfactory performance in Practicum courses may be considered reason to require a B.Ed. student to withdraw from the faculty. Please refer to Professional Unsuitability By-Law (p. 408)."
- students can have one voluntary withdrawal (VW) from each of the practicum courses and may also be granted an authorized withdrawal (AW) from a practicum course for illness or compassionate reasons.

**Sample scenario to illustrate need for a revised regulation:**

Given the current regulations, a student can have many attempts to complete their four mandatory practicum courses. For example, a student might:

- register for Practicum 1 (P1) course in first term of program, decide to VW from the course, then take P1 again in their 2nd term, achieve an F grade; then take P1 again in their third term and pass
- that student might then attempt their P2 in the first term of their second year, apply for an AW, try it again in the 2nd term of that year, achieve an F grade and try it again in the fall term of their third year in the program and pass
- the student would then need to register for their P3 course in 2nd term of their third year, could VW from that attempt, try the course again in the 1st term of their fourth year and then obtain a pass
- the student would then need to register for their P4 course in the 2nd term of their fourth year, could choose to VW from that course, try it again in the 1st term of their fifth year, obtain an F grade and then be required to withdraw from the program as this would be their third failed grade.
- This example is not the most lengthy possible path, and yet we see that the student would have been placed a total of 12 times as they attempted to complete their four practicum courses. In addition, the student would have devoted five years to completion of the program before being required to withdraw. Time to completion permitted in the program is 6 years. A few students who have struggled significantly with the practicum aspect of the program have been required to withdraw from the program because they have reached time to completion before successfully completing the four practicum courses.

**Examples from other Canadian B.Ed programs:**

Other Canadian B.Ed programs do not permit as many attempts at practicum. For instance,

- UBC Okanagan specifies students will be required to “discontinue or withdraw from the program” after they obtain one grade of Fail for a practicum course. Students who have been required to discontinue the program may request to be reinstated but only after conditions are met. Any student terminated from a practicum cannot continue in non-practicum courses. (see: <https://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,284,1074,1324>)
- Western University (UWO) specifies that students may fail and then repeat one practicum course but a second failed practicum course “constitutes failure of the B.Ed program”. (see: <https://www.edu.uwo.ca/teacher-education/docs/policies/Incomplete%20or%20Unsatisfactory%20Practicum.pdf>)

## PROPOSED CALENDAR REVISIONS – Clean copy

### Bachelor of Education Program- Academic Regulations

#### Repeating a Course

Limited Access (see University Policy and Procedures-Limited Access section 2.5) will not affect registration for the 2021-2022 Academic Year (including Summer Term 2022).

Required courses which receive a grade of "F" or "D" must be repeated. Education elective courses which receive a grade of "F" or "D" must be repeated or replaced with other Education elective courses. Courses which receive a "C" grade or higher may be repeated; but only with the consent of the Associate Dean, Undergraduate Program.

Education courses may only be repeated once. When a course is repeated, the last grade achieved will be used in calculating the DGPA.

Students admitted to the After-Degree B.Ed. program will be required to withdraw from the B.Ed. program on academic grounds upon failure (receipt of a grade of "F") of any 2 (of the 4) required practicum courses.

## PROPOSED CALENDAR REVISIONS - Current Academic Calendar content with changes

### Bachelor of Education Program- Academic Regulations

#### Repeating a Course

Limited Access (see University Policy and Procedures-Limited Access section 2.5) will not affect registration for the 2021-2022 Academic Year (including Summer Term 2022).

Required courses which receive a grade of "F" or "D" must be repeated. Education elective courses which receive a grade of "F" or "D" must be repeated or replaced with other Education elective courses. Courses which receive a "C" grade or higher may be repeated; but only with the consent of the Associate Dean, Undergraduate Program.

Education courses may only be repeated once. When a course is repeated, the last grade achieved will be used in calculating the DGPA.

Students admitted to the After-Degree B.Ed. program will be required to withdraw from the B.Ed. program on academic grounds upon failure (receipt of a grade of "F") of any ~~2~~ **3** (of the 4) required practicum courses.

**Report of the Senate Committee on Instruction and Evaluation RE: Regulation for New Academic Concentrations, Juris Doctor, Faculty of Law**

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**Preamble:**

1. The terms of reference for the Senate Committee on Instruction and Evaluation (SCIE) can be found at:  
[https://www.umanitoba.ca/governance/sites/governance/files/2021-09/Senate\\_Committee\\_on\\_Instruction\\_and\\_Evaluation\\_Terms\\_of\\_Reference.pdf](https://www.umanitoba.ca/governance/sites/governance/files/2021-09/Senate_Committee_on_Instruction_and_Evaluation_Terms_of_Reference.pdf)
2. At its meetings on September 15 and October 13, 2022 SCIE considered a proposal from the Faculty of Law to establish a regulation concerning new academic Concentrations for the Juris Doctor program.

**Observations:**

1. The Faculty of Law is proposing to establish three new academic Concentrations for the Juris Doctor program. These Concentrations are:
  - a) Law and Society
  - b) Criminal Law and Justice
  - c) Private Enterprise and Law
2. Students who have declared the Access to Justice in French concentration, which has already been established, would be permitted to select one of the new concentrations in addition.
3. Students who have not declared the Access to Justice in French concentration would only be permitted to declare one concentration.
4. The committee initially had reservations regarding restricting the number of concentrations a student could hold and were concerned that it would be possible for a student to earn the credits required for more than one of the non-French concentrations but would not be permitted to declare more than one non-French concentration. The Faculty provided several rationales for the regulation, including their limited resources, and that they would not be able to guarantee that the courses required to complete more than one non-French concentration would be available. The Faculty also wishes to encourage more students to pursue the Access to Justice in French concentration in order to meet the demand for lawyers who can practice in French, and the ability to hold more than one of the non-French concentrations could impact the level of interest in the Access to Justice in French concentration. The majority of the committee was satisfied with the justifications provided by the Faculty, although some committee members continued to have concerns.

**Recommendation**

The Senate Committee on Instruction and Evaluation recommends:

**THAT Senate approve the regulation concerning the proposed concentrations for the Juris Doctor program, Faculty of Law, pending Senate approval of the three concentrations.**

Respectfully submitted,

Dr. Mark Torchia, Chair  
Senate Committee on Instruction and Evaluation

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.



September 26, 2022

**Attention: Senate Committee on Instruction and Evaluation (SCIE)**

**RE: Follow-up from SCIE regarding the Proposed Academic Regulation for New Academic Concentrations, Juris Doctor Degree, Faculty of Law**

As you are aware, the Faculty of Law has submitted to the Senate Committee on Curriculum and Course Changes proposals for three new academic concentrations for consideration and review. Included in that proposal is a new Faculty regulation governing the taking of these concentrations, submitted to your committee, and discussed in person on September 15, 2022.

As background, the Faculty of Law offered its first academic concentration in September 2022: Access to Justice in French. Building on this development, the Faculty of Law proposes to offer three further concentrations for Juris Doctor students: Private Enterprise and Law, Law and Society, and Criminal Law and Justice. The addition of these three further concentrations will broaden the Faculty's offerings across the spectrum of private and public law in the Juris Doctor curriculum. It will also give students interested in a range of areas the opportunity to distinguish themselves and their degree. The University Registrar has informed us that that they can enter two concentrations on the transcript (not the parchment) in accordance with our proposed regulation.

We understand that the committee "wishes to further discuss the number of concentrations a student would be permitted to hold, as it was not clear why a student would only be permitted to declare two concentrations if one was the Access to Justice in French concentration, when it could be possible for a student to meet the requirements for more than one of the new concentrations."

It is not possible for a student to meet the requirement for more than one of the new proposed concentrations at this time, with the exception of the Access to Justice in French concentration. The regulation is necessary to facilitate scheduling of Juris Doctor courses such that it is feasible – from a timetabling perspective – for a student wishing to complete a concentration to complete their concentration(s) without encountering conflicts in their course schedule.

For example, with this regulation, the scheduling of a course required for the Law and Society concentration can be scheduled for the same day and time as a course required for the Private Enterprise and Law concentration, to ensure students can meet the requirements for one new proposed concentration. Unfortunately, scheduling limitations

mean that the requirements for more than one concentration cannot be guaranteed. As a small Faculty, it is essential to have a regulation such as the one we have proposed to ensure fairness for students, and to be confident that the concentrations on offer are available to all interested Juris Doctor students.

Scheduling courses for the Access to Justice in French concentration does not pose the same challenges as the courses for the other three concentrations. As you may be aware, Access to Justice in French is a full certification program in legal education, funded through the federal Access to Justice in Both Official Languages Support Fund. This means that, unlike the other concentrations, the full Access to Justice course list is guaranteed every year. This is why students may select one of the three proposed concentrations, plus Access to Justice in French.

We seek and embrace opportunities to enhance the legal education of our students. This is part of the way we meet the University of Manitoba's goal of providing an excellent student experience. We note that there are no new net increases of course credit hours and this proposal utilizes current resources. There are no new course proposals required to support the proposed academic concentrations.

The proposed regulation was amended at the September 15, 2022 meeting of the Senate Committee on Instruction and Evaluation as follows (amendments are bolded):

### **Concentrations**

A concentration provides law students an opportunity to distinguish themselves while contributing to the credit hours required to earn their **Juris Doctor** (JD) degree. The Faculty of Law offers four (4) concentrations as part of the **JD** degree. Students may complete up to two concentrations as part of their **JD** studies, with one being Access to Justice in French and the other selected from the following list:

1. Law and Society
2. Criminal Law and Justice
3. Private Enterprise and Law

Students declaring a concentration from the above list shall do so upon completion of the requirements for that concentration, at the end of their final term of studies prior to graduation. This declaration shall be made **in writing** to the Associate Dean (Academic), Faculty of Law.

At this time, the restriction to one of three concentrations, plus Access to Justice in French, is embedded in course offerings and scheduling in our small Faculty.

Thank you for your review and consideration.

Dr. Richard Jochelson and Dr. Jennifer Schulz  
Dean of Law and Associate Dean (Academic)

## Faculty of Law

### Concentrations Regulation

#### Concentrations

A concentration provides law students an opportunity to distinguish themselves while contributing to the credit hours required to earn their **Juris Doctor** (JD) degree. The Faculty of Law offers four (4) concentrations as part of the **JD** degree. Students may complete up to two concentrations as part of their **JD** studies, with one being Access to Justice in French and the other selected from the following list:

1. Law and Society
2. Criminal Law and Justice
3. Private Enterprise and Law

Students declaring a concentration from the above list shall do so upon completion of the requirements for that concentration, at the end of their final term of studies prior to graduation. This declaration shall be made **in writing** to the Associate Dean (Academic), Faculty of Law.

At this time, the restriction to one of three concentrations, plus Access to Justice in French, is embedded in course offerings and scheduling in our small Faculty.

**Report of the Senate Committee on Instruction and Evaluation RE: Modified Academic Regulations, Faculty of Science**

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**Preamble:**

1. The terms of reference for the Senate Committee on Instruction and Evaluation (SCIE) can be found at:  
[https://www.umanitoba.ca/governance/sites/governance/files/2021-09/Senate\\_Committee\\_on\\_Instruction\\_and\\_Evaluation\\_Terms\\_of\\_Reference.pdf](https://www.umanitoba.ca/governance/sites/governance/files/2021-09/Senate_Committee_on_Instruction_and_Evaluation_Terms_of_Reference.pdf)
2. At its meeting on October 13, 2022 SCIE considered a proposal from the Faculty of Science to modify the following academic regulations:
  - a) Computer Science Honours Entrance, Continuation, and Graduation Requirements
  - b) Computer Science Major Entrance, Continuation, and Graduation Requirements
  - c) Computer Science-Physics & Astronomy Joint Honours Entrance, Continuation, and Graduation Requirements
  - d) Microbiology Major Entrance, Continuation, and Graduation Requirements

**Observations:**

1. The proposed modification of academic regulations below results from a larger curriculum revision.

**Computer Science Honours Entrance, Continuation, and Graduation Requirements**

1. The entrance requirements of the Honours program in Computer Science would be modified to require MATH 1240 with a grade of B. This would help to ensure students have the foundational knowledge required to progress in the program and would formalize the advising that students currently receive. A minimum grade of B in MATH 1240 is required due to the level of mathematical rigor required to be successful in COMP 3030. The Faculty indicated that over the last 10 years students with a C/C+ in MATH 1240 were not able to successfully pass COMP 3030.
2. In addition to completing all the first- and second-year courses in the program grid, students in the Honours Co-operative Option would be required to complete COMP 3380 before their first co-op work term. This would formalize the advising that students currently receive.

**Computer Science Major Entrance, Continuation, and Graduation Requirements**

1. The entrance requirements for the Major program in Computer Science would be modified to require MATH 1240 with a minimum grade of C+. This would help to ensure students have the foundational knowledge required to progress in the program. A

minimum grade of C+ is required for MATH 1240 to ensure that students can succeed in the COMP courses required for the program.

2. The minimum Degree Grade Point Average for entrance, continuation and graduation would increase from 2.00 to 2.50. The Faculty indicated that over the last 10 years very few students with a DGPA of less than 2.5 complete a Computer Science degree.
3. Currently, students are required to obtain a minimum grade of C+ in MATH 1500 to graduate. The minimum grade requirement for MATH 1500 would be reduced to a grade of C.
4. The Degree Grade Point Average requirement for entry, continuation and graduation in the Co-operative Option would be the same as the Bachelor of Science Major in Computer Science.
5. In addition to completing all the first- and second-year courses in the program grid, students in the Major Co-operative Option would be required to complete COMP 3380 before their first co-op work term.

#### Computer Science-Physics & Astronomy Joint Honours Entrance, Continuation, and Graduation Requirements

1. The entrance requirements for the Joint Honours Computer Science-Physics & Astronomy program would be modified to require MATH 1300 with a minimum grade of C+ and MATH 1700 with a minimum grade of C.

#### Microbiology Major Entrance, Continuation, and Graduation Requirements

1. Several statements would be moved from the regulations to footnotes.
2. The graduation requirements would be modified by the addition of obtaining a passing grade on all courses, a minimum Degree Grade Point Average of 2.00, and a minimum grade of C in all required and optional courses that contribute to the Major.
3. The proposed modifications would align the Microbiology Major with other Major programs in the Faculty of Science.

#### **Recommendation**

The Senate Committee on Instruction and Evaluation recommends:

**THAT Senate approve the modification of the academic regulations noted below, Faculty of Science, effective September 1, 2023:**

- **Computer Science Honours Entrance, Continuation, and Graduation Requirements**

- **Computer Science Major Entrance, Continuation, and Graduation Requirements**
- **Computer Science-Physics & Astronomy Joint Honours Entrance, Continuation, and Graduation Requirements**
- **Microbiology Major Entrance, Continuation, and Graduation Requirements**

Respectfully submitted,

Dr. Mark Torchia, Chair  
Senate Committee on Instruction and Evaluation

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the  
Report to Senate.

## Computer Science, B.C.Sc., Honours

### Computer Science Honours Entrance, Continuation, and Graduation Requirements

The Honours program in Computer Science at the University of Manitoba was the first Honours program in Canada to be given professional accreditation by the Canadian Information Processing Society. The program provides an opportunity to study the subject in greater depth than the other programs in Computer Science and leads to an Honours Bachelor of Computer Science degree (B.C.Sc.). In addition, this program gives professional preparation for careers in areas such as software engineering, system design or project management.

**To enter** the Honours program in Computer Science, a student must have completed at least 24 credit hours with a minimum DGPA of 3.00, and also obtained a minimum grade of "B" in COMP 1020, "C+" in both MATH 1220<sup>1</sup> (or MATH 1300) and MATH 1230 (or MATH 1500) (or their equivalents), **"B" in MATH 1240**, and "C" in MATH 1700<sup>1</sup> (or equivalents).

**To continue** in the Computer Science Honours program, students must maintain a minimum DGPA of 3.00 and complete a minimum of 9 credit hours during each Fall and Winter Term.

**To graduate** from the Computer Science Honours program students must achieve a minimum DGPA of 3.00 and obtain a minimum grade of "C" on the courses that make up the 120 credit hours of the degree.

#### <sup>1</sup>The following substitutions are allowed:

- **MATH 1300 (C+) or MATH 1210 (B) may be taken in place of MATH 1220;**
- **MATH 1232 or MATH 1710 may be taken in place of MATH 1700.**

Outside of computer science and mathematics courses, students are encouraged to select courses such that their programs include at least 15 credit hours of study in science, engineering, or business, and at least 9 credit hours of study in the humanities or social sciences.

### Honours Co-operative Option

A co-operative education option is available for Honours students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course, grade requirements and minimum DGPA requirement for entry and continuation in the Co-operative Option are the same as that for regular Honours program.

Students are required to complete all the first and second year courses in the program grid **and COMP 3380** before their first co-op work term.

## Computer Science, B.Sc. Major

### Computer Science Major Entrance, Continuation, and Graduation Requirements

**To enter** the Major Degree program in Computer Science, a student must have completed at least 24 credit hours with a minimum DGPA of ~~2.00~~**2.50**, and also obtained a minimum grade of "C+" in COMP 1020, "C+" in both MATH 1300<sup>1</sup> and MATH ~~1240~~**1500** (or their equivalents) and "C" in MATH 1700<sup>1</sup> (or equivalents).

**To continue** in the Major program a student must maintain a minimum DGPA of ~~2.00~~**2.50**.

**To graduate** with the Computer Science Major degree, a student must present a minimum grade of "C+" in: **MATH 1240**, MATH 1300<sup>1</sup> (or equivalent), ~~MATH 1500<sup>1</sup>~~ (or equivalent), and a minimum grade of "C" in **MATH 1500<sup>1</sup>**, ~~MATH 1240~~, MATH 1700<sup>1</sup> (or equivalent), **STAT 1150<sup>1</sup>**, (~~STAT 1000 or STAT 1150~~), COMP 2080, COMP 2140, COMP 2150, COMP 2160, COMP 2280, COMP 3350, (COMP 3010 or COMP 3430), COMP 4620 and in each of the 18 credit hours of 3000 and 4000 level Computer Science courses that apply to the Computer Science component of their degree program. Additionally, students must achieve a minimum DGPA of ~~2.00~~**2.50**.

#### <sup>1</sup>The following substitutions are allowed:

- **STAT 1000 and STAT 2000 (B) may be taken in place of STAT 1150;**
- **MATH 1230 or MATH 1510 may be taken in place of MATH 1500;**
- **MATH 1220 or MATH 1210 (B) may be taken in place of MATH 1300;**
- **MATH 1232 or MATH 1710 may be taken in place of MATH 1700.**

This program is suitable for those students interested in combining a fairly extensive program in Computer Science with broad coverage of another subject or subjects of their choice (Science or non-Science). The program offers greater scheduling flexibility, more relaxed entrance requirements, and a wider range for the inclusion of electives from other disciplines than the Honours program, but it is not considered to offer the same professional training as the Honours program. Admission to graduate programs may be conditional upon completion of additional courses. Students intending to proceed to a master's degree from the four year Major program should consult with the department at the beginning of their second year of undergraduate study and in each subsequent year.

The student will be able to transfer to the Honours program, provided that departmental and faculty requirements for the Honours program are satisfied.

Outside of computer science and mathematics courses, students are encouraged to select courses such that their programs include at least 15 credit hours of study in science, engineering, or business, and at least nine (9) credit hours of study in the humanities or social sciences. In addition to the faculty maximum, students may be allowed to take up to an additional 12 credit hours of courses outside of the Faculty of Science, with departmental permission. The permission would typically be granted if a student is completing a minor outside of Science and may have completed a variety of electives outside the Faculty prior to declaring a minor in one department.

### Major Co-operative Option



A co-operative education option is available for Major students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course, ~~and~~ minimum grade requirements, **and DGPA requirement** for entry, ~~and~~ continuation, **and graduation** in the Co-operative Option are the same as those required for the regular **B.Sc. Major in Computer Science** program. ~~However, the entry and continuation DGPA requirement is set at a minimum of 2.5.~~

Students are required to complete all the first and second year courses in the program grid and **COMP 3380** before their first co-op work term.

## Computer Science - Physics & Astronomy Joint, B.Sc. Honours

### Computer Science - Physics & Astronomy Joint Honours Entrance, Continuation and Graduation Requirements

The departments of Computer Science and Physics & Astronomy offer a joint Honours program for in-depth study in both Computer Science and Physics & Astronomy.

**To enter** the Joint Honours Computer Science - Physics and Astronomy program, the student must have a minimum grade of "B" in each of both ~~PHYS 1050 (or "B+" in PHYS 1020), PHYS 1070<sup>1</sup> (or B+ in PHYS 1030), MATH 1300, MATH 1500, MATH 1700 (or any equivalent), COMP 1010 (or COMP 1012)~~ and COMP 1020, "C+" in MATH 1300<sup>1</sup>, and "C" in MATH 1700<sup>1</sup> and a minimum DGPA of 3.00. Students must complete a minimum of 9 credit hours per term in each Fall and Winter term.

#### <sup>1</sup>The following substitutions are allowed:

- PHYS 1030 (B+) may be taken in place of PHYS 1070;
- MATH 1220 (C+) or MATH 1210 (B) may be taken in place of MATH 1300;
- MATH 1232 or MATH 1710 may be taken in place of MATH 1700.

**To continue** in the Honours program, students must maintain a minimum DGPA of 3.00, complete a minimum of 9 credit hours during each Fall and Winter term (or equivalent for students in the Co-operative option).

**To graduate** with the Honours degree, a student must obtain a minimum DGPA of 3.00 and present a minimum grade of "C" in each course that contributes to the degree.

### Honours Co-operative Option

A co-operative education option is available for Honours students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course, grade requirements and minimum DGPA requirement for entry and continuation in the Co-operative Option are the same as that for regular Honours program.

Students are required to complete all the first and second year courses in the program grid before their first co-op work term.

# Microbiology, B.Sc. Major

## Microbiology Major Entrance, Continuation, and Graduation Requirements

**To enter** the Major Degree program in Microbiology, a student must have completed at least 24 credit hours with a minimum DGPA of 2.00, and also obtained a minimum grade of “C+” in MBIO 1010 and in CHEM 1110. **CHEM 1120**, BIOL 1020, BIOL 1030, STAT 1150 (or STAT 1000) and the 3 credit hours of specified Mathematics or Physics are program requirements and students are strongly urged to complete these courses in first year.

\* Students interested in studying Microbiology should note that Grade 12 mathematics and chemistry are prerequisite to CHEM 1100. Students will also require Biology 40S (or equivalent) and any Grade 12 mathematics course (or equivalent) for entry to BIOL 1020 (the prerequisite for BIOL 1030 and MBIO 1010).

**To continue** in the Microbiology Major Degree, students must maintain a minimum DGPA of 2.00.

**To graduate** from the 4-year Major degree program in Microbiology, students are required to obtain a minimum DGPA of 2.00. with the Bachelor of Science (Major) in Microbiology, a student must obtain passing grades on all courses, obtain a minimum DGPA of 2.00, and a minimum grade of C in all required and optional courses that contribute to the Major.

Potential entrants to this program should also note the following:

- Students who wish to elect CHEM 2600, CHEM 3600 or CHEM 2510 as options should note the prerequisites in making a choice of mathematics courses.
- CHEM 2100 must be taken before MBIO 2710 (CHEM 2710). Courses (MBIO 2700 and CHEM 2700) and (MBIO 2710 and CHEM 2710) are the same and credit cannot be held for both. Microbiology students will normally register in MBIO 2700 and MBIO 2710, but CHEM 2700 and CHEM 2710 will be regarded as equivalents in the four-year Major program.
- Students must note course and grade prerequisites when selecting 3000 and 4000 level Microbiology courses.
- Microbiology MBIO 4530 is not available in this program without special permission.

By careful choice of electives, programs may be selected giving emphasis to various areas of Microbiology, e.g., Biochemistry and Molecular Biology or Environmental and Ecological Microbiology. In choosing optional courses, students should be aware of any prerequisite requirements.

The listed requirements are minimum requirements. Students are reminded that should they wish to take further courses in Microbiology, they are at liberty to do so within the degree regulations.

## Major Co-operative Option

A co-operative education option is available for Major students. Students should refer to the Co-operative Education for further information on the Co-op programs.

The course and minimum grade requirements for entry and continuation in the Co-operative Option are the same as those required for the regular Major program. However, the entry and continuation DGPA requirement is set at a minimum of 2.5.

Before beginning their first co-op work term, students are required to complete the first and second year requirements of the program, in addition to MBIO 2710 (CHEM 2710) and CHEM 2720, MBIO 3010 and MBIO 3410.

November 9, 2022

## Report of the Senate Committee on Nominations

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### Preamble

The terms of reference for the Senate Committee on Nominations may be found on the University Governance website at: <https://umanitoba.ca/governance/senate/committees#standing-committees-of-senate>

The Committee met via Zoom videoconference on Tuesday, November 8, 2022 to consider nominations to fill vacancies on the standing committees of Senate.

### Observation

Listed below are Senate committees with vacancies to be filled, along with the names of the nominees being proposed, their faculty/school, and the expiry date of their terms. All terms will commence on January 1, 2023 and conclude June 30, 2023.

Following the list is the membership list for each of those committees, including the names of the nominees, which have been highlighted.

### Recommendations

The Committee recommends to Senate the following list of faculty nominees:

COMMITTEE	NOMINEE(S)	FACULTY/ SCHOOL	TERM END DATE
<b>Senate Committee on Admission Appeals</b>	Trina Arnold	Health Sciences	2023.06.30
<b>Senate Committee on the Calendar</b>	John Sorensen	Science	2023.06.30
<b>Senate Committee on Curriculum and Course Changes</b>	Randy Jamieson	Arts	2023.06.30

Respectfully submitted,

Professor J. Paliwal, Chair  
Senate Committee on Nominations

Comments of the Senate Executive Committee:  
The Senate Executive Committee Endorses the Report to Senate.

## SENATE COMMITTEE ON ADMISSION APPEALS

last updated July 4, 2022

Composition	Incumbents	Faculty/School	Term
One member holding academic appointment in the University appointed as Chair of the Committee for a three year term by the Senate Executive Committee*	Derek Oliver	Engineering	2024.05.31
One member holding academic appointment in the University appointed as Vice-Chair of the Committee for a three year term by the Senate Executive Committee.* The Vice-Chair shall not be from the same Faculty/School/College as the Chair	Vacant		
Eight members with broad representation across Faculties/Schools/Colleges holding academic appointments in the University	Jitendra Paliwal (S)	Agricultural & Food Sciences	2023.05.31
	Subbu Sivaramakrishnan	Management	2023.05.31
	Nicole Harder	Health Sciences	2023.05.31
	Ryan Cardwell	Agricultural & Food Sciences	2024.05.31
	Leisha Strachan	Kinesiology & Recreation Management	2024.05.31
	Lucas Tromly	Arts	2024.05.31
	<i>Melanie Glenwright /r for James Young</i>	<i>Arts Science</i>	<i>2022.12.31 2025.05.31</i>
	<i>Trina Arnold /r for Patricia Thille</i>	<i>Health Sciences Health Sciences</i>	<i>2023.01.01- 2023.06.30 2025.05.31</i>
Two students	Sharmin Akhtar	Graduate Studies	2023.05.31
	Caitlyn Carkener (S)	Agricultural & Food Sciences	2023.05.31
President of UMSU (or designate)	Victoria Romero, designate		<i>Ex-officio</i>
Deputy Registrar and Director of Admissions (non-voting)	Erin Stone		<i>Ex-officio</i>
Resource: Marcia Yoshida 474-6166 Terms of Office: three-year terms; students = one-year terms			

\* the Chair and Vice-Chair shall not be members of a Faculty/School/College admission selection committee

## SENATE COMMITTEE ON THE CALENDAR

last updated September 22, 2022

Composition	Incumbents	Faculty/School	Term
University Registrar and Executive Director of Enrolment Services	Jeff Adams		<i>Ex-officio</i>
Dean, Faculty of Graduate Studies (or designate)	Kelley Main, designate Dawn Sutherland		<i>Ex-officio</i>
Chair of the Senate Committee on Rules and Procedures (or designate)	Jeff Taylor		<i>Ex-officio</i>
Two members of the academic staff elected by and from Senate	<i>John Sorensen (S)</i> <i>/r for Grace Nickel (S)</i>	<i>Science</i> <i>School of Art</i>	<i>2023.01.01-</i> <i>2023.06.30</i> <i>2024.05.31</i>
	Yuvraj Gajpal (S)	Management	2024.05.31
Student Senator	Vacant		2023.05.31
<i>Calendar</i> editor	Haviva Polevoi	Registrar's Office	<i>Ex-officio</i> <i>(non-voting)</i>
University Secretary, Chair	Jeff Leclerc	University Secretary	<i>Ex-officio</i>
Resource:                Marcia Yoshida        474-6166 Terms of Office:        three-year terms; students = one-year terms			

**SENATE COMMITTEE ON CURRICULUM AND COURSE CHANGES**

last updated August 22, 2022

Composition	Incumbents	Faculty/School	Term
Seven members of the academic staff	Judith Hughes	Social Work	2023.05.31
	Sean McKenna	Science	2023.05.31
	Dean McNeill, Chair	Engineering	2024.05.31
	Dawn Sutherland	Education	2024.05.31
	<i>Randy Jamieson /r for Heidi Marx</i>	<i>Arts Arts</i>	<i>2023.01.01- 2023.06.30 2025.05.31</i>
	Sarah Teetzel (S), Vice-Chair	Kinesiology & Rec Mgmt.	2025.05.31
	Joanne Hamilton	Health Sciences	2025.05.31
Three students	Vacant		2023.05.31
	Vacant		2023.05.31
	Uche Nwankwo	Graduate Studies	2023.05.31
One representative from the Université de Saint-Boniface named by the Recteur	Peter Dorrington		<i>Ex-officio</i>
One librarian named by the University Librarian	Kristen Kruse		<i>Ex-officio</i>
Vice-Provost (Academic Planning and Programs) (and/or delegate)	Greg Smith Cassandra Davidson (delegate)		<i>Ex-officio (non-voting)</i>
Vice-President (Indigenous) (or delegate)	Catherine Cook, designate Cary Miller		<i>Ex-officio (non-voting)</i>
University Registrar and Executive Director of Enrolment Services (or delegate)	Sharon Bannatyne, designate		<i>Ex-officio (non-voting)</i>
Resource: Shannon Coyston 474-6892 Terms of Office: three-year terms; students = one-year terms			