



## GUIDELINES FOR COMPLETION OF UNDERGRADUATE / CERTIFICATE COURSE AND CURRICULUM CHANGES\*

**\*Course and curriculum changes refers to all course introductions, modifications, and deletions, and program modifications.**

Course/curriculum change forms are available at: [Forms | Governance | University of Manitoba \(umanitoba.ca\)](https://umanitoba.ca/forms/governance). Please ensure that you are using the most current version of Adobe Reader or Adobe Acrobat Pro when completing the forms (<https://get.adobe.com/reader/>).

### Deadlines for submission

Please refer to the SCCCC Timetable for Submissions for specific dates ([Governance | University of Manitoba \(umanitoba.ca\)](https://umanitoba.ca/governance)).

#### Fall deadlines:

- **mid-September** - for proposals involving a net increase of 9 or fewer credit hours for consideration by the Senate Committee on Curriculum and Course Changes (SCCCC) only.
- **mid-August** - for proposals involving a net increase of greater than 9 credit hours, for consideration by the Senate Planning and Priorities Committee (SPPC) and SCCCC (see Section III).

#### Spring Deadline:

- **mid-February** - for proposals involving a net increase of 9 or fewer credit hours, for consideration by the SCCCC only.

Please organize your submission as outlined below. Submit an electronic copy to the Office of the University Secretary. Provide the electronic copy as a **single** PDF file including: a covering memo from the Dean/Director, summary sheet, course/curriculum change forms, and supporting documentation. PDF portfolios will not be accepted.

### I. SUMMARY OF COURSE CHANGES AND ROUTINE PROGRAM MODIFICATIONS

A **summary sheet** is required. [See Appendix I](#) for examples of the summary sheet. Organize the summary sheet by department and include the following information, **for each department**<sup>1</sup>, in the following order:

- A list of the courses to be deleted, introduced, or modified, including the subject code, course number, course title, and credit hours for each course. List the courses in alphabetical and ascending numerical order using the subject codes and course numbers.
- A statement of the net change in credit hours (i.e., total credit hours deleted + total credit hours introduced = net change in credit hours). Course changes resulting in a net increase of more than 9 credit hours will be considered by both the SCCCC and the SPPC. [See Section III](#).
- A list of the programs to be modified, including, for each program modification, a brief description of the proposed changes.
- An executive summary is not required, with the exception that the Université de Saint-Boniface will provide an executive summary in English.

---

<sup>1</sup> Where a faculty, college, or school is not departmentalized, the summary sheet should include the same types of information, but for the faculty, college, or school.

## II. PROPOSALS FOR SUBSTANTIAL PROGRAM MODIFICATIONS

Proposals to substantially modify existing curricula are sometimes made following a major curriculum review. Different from routine program modifications, they involve numerous course changes and/or significant restructuring of the curriculum. Proposals for substantial program modifications must include:

- (a) **A summary sheet** as described in Section I above.
  - (b) **An executive summary** highlights the most significant changes, provides a brief rationale for those, and clearly states when the changes are to take effect. To ensure program changes are reflected in the Academic Calendar, program modifications will be implemented for the next ensuing Fall Term unless a subsequent Fall Term is indicated. Program changes cannot be implemented in the Winter Term.
  - (c) **Current and revised program charts and program descriptions** as these would appear in the Academic Calendar, including modifications to any lists of required or elective courses.
  - (d) **A detailed transition plan** that:
    - includes a timeline for introducing the revised curriculum and phasing out the existing curriculum, including a timeline for deleting any existing courses not to be used in the modified curriculum;
    - includes a course map (or curriculum crosswalk);
    - describes a pathway(s) for continuing/existing students to either complete the existing curriculum or transition to the modified curriculum;
    - outlines future steps associated with the transition to, or the implementation of, the modified curriculum, including a plan to communicate curriculum changes and a timeline for implementation to students, Academic Advisors, and academic units (including other faculties/colleges/schools/departments), as appropriate.
- Contact the Office of the Registrar and Enrolment Services ([Sharon.Bannatyne@umanitoba.ca](mailto:Sharon.Bannatyne@umanitoba.ca)) for advice or assistance.
- (e) **Confirmation of consultation** with other units that might be affected by the proposed course and curriculum changes. (See Section VIII – Completing the Form – Consultation: Request for Dialogue / Response).
  - (f) **A description of the resource implications**, including either any anticipated costs (including transitional and/or ongoing costs) that would arise from the introduction of a revised curriculum or a clear demonstration that the proposal is resource neutral.
  - (g) **A statement on the resource implications** (see SPPC Statement on Resource Implications: <http://www.umanitoba.ca/governance/sites/governance/files/2021-10/SPPC%20Statement%20of%20Resource%20Implications.docx>) of the proposal if there is a net increase of more than 9 credit hours. (See Section III).

Units are strongly encouraged to consult with the Vice-Provost (Academic Planning and Programs), the Academic Programs Specialist (Office of the Provost and Vice-President (Academic)), the Associate University Secretary (Senate) (Office of the University Secretary), the Associate Registrar and Director of Technology and Academic Support (Office of the Registrar and Enrolment Services), and/or the University Budget Officer (Financial Planning Office), as appropriate, at the outset of planning for substantial revisions to an existing program.

Information on the approval process for major amendments to, or a major expansion of, an existing program is available on the webpage of the Provost and Vice-President (Academic) at <https://umanitoba.ca/about-um/provost-vice-president-academic/deputy-provost-planning-programs/academic-planning>.

### III. COURSE CHANGES BEYOND NINE CREDIT HOURS

Course changes resulting in a net increase of more than 9 credit hours in a department will be considered by both the Senate Committee on Curriculum and Course Changes (SCCCC) and the Senate Planning and Priorities Committee (SPPC). Where a faculty, college, or school is not departmentalized, the net change in credit hours is calculated for the faculty, college, or school.

The net change in credit hours that is of interest to the SPPC relates to the overall number of credit hours of courses offered by an academic unit (i.e., all the unit's courses in the Academic Calendar). It is not related to the number of credit hours required in any given degree, diploma, or certificate program.

To calculate the net change in credit hours, add the sum of credit hours for all proposed course deletions and the sum of credit hours for all proposed course introductions:

$$\text{total credit hours deleted} + \text{total credit hours introduced} = \text{net change in credit hours}$$

For example, if your unit is proposing to delete 8 x 3-credit hour courses (totalling -24 credit hours) and to introduce 10 x 3-credit hour courses (totalling +30 credit hours), the net change in credit hours would be +6 credit hours.

**Proposals involving a net increase of more than 9 credit hours** must be submitted to the Office of the University Secretary by the mid-August deadline (see SCCCC Timetable for Submissions) and must include:

- **a covering memo to the SPPC**, from the Dean/Director, indicating the date on which the course and curriculum changes have been approved by the faculty/college/school council, as appropriate;
- **a statement on the resource implications** of the proposal (see SPPC Statement on Resource Implications: <http://www.umanitoba.ca/governance/sites/governance/files/2021-10/SPPC%20Statement%20of%20Resource%20Implications.docx>);
- **a summary sheet** as described above in Section I;

*The same information and documentation, with the exception of the covering memo to the SPPC, is also to be included in the unit's submission to the SCCCC. The SCCCC will consider the academic merits of the course and curriculum changes and the SPPC will consider the resource implications of the proposed changes.*

#### **IV. COMPLETING THE UNDERGRADUATE COURSE DELETION FORM**

- Complete the course deletion form to delete courses that will no longer be offered.
- Complete a course deletion form and a [course introduction form](#) (i.e., to re-introduce the course) in the following situations:
  - to change the course number for an existing course
  - to change the subject code for an existing course
  - to change the number of credit hours for an existing course
  - where a change to the long course title requires a to change the short course title
- Two (2) course deletions can be proposed on a single form. Complete additional forms, as required. Organize course deletions in alphabetical and numerical order, by subject code and course number.

#### **SECTION A**

- Use the drop-down lists to indicate the faculty/college/school and department proposing the course deletion. Indicate the program where there is no department (e.g., Canadian Studies, Environmental Design). The Université de Saint-Boniface is considered a faculty.

#### **SECTIONS B-1 and B-2 – COURSES TO BE DELETED**

- Provide the **subject code**, **course number**, and **number of credit hours** in the spaces provided.
- **Last term offered** – Use the drop-down list to select the current Winter Term and Year (normally) or to request a different term. Indicate a different term in the first line of the next form field. Courses offered for the last time in a Winter Term would not be available beginning with the next ensuing Summer Term.
- Use the check boxes to indicate if the course is on the **Written English (W)**, **Mathematics (M)**, or **RIC List**. Check all boxes that apply.
- Indicate the reason for the course deletion. Use the check box to indicate where the deletion responds to a recommendation in an [external undergraduate program review](#). Elaborate on the recommendation and how the deletion addresses that, if appropriate.
- Indicate if the course deletion leads to changes to (i) other **courses/programs in your unit** and/or (ii) **courses/programs in other units**. This could be another department, faculty, college, or school.
- In the space provided, **list other courses/programs affected**, separated by semicolons. For example, other courses that use the deleted course as a prerequisite or corequisite or programs that use the course as a required or elective course.  
  
Be as specific as possible. If another program is affected, identify the program and academic unit. If another course is affected, identify the course by its subject code and course number. (See page 6 for information on how to identify courses/programs that would be impacted.)
- If the course deletion leads to a program modification in your unit, include a Program Modification Form with your faculty/college/school submission to SCCCC. See [Section VII](#) Completing the Undergraduate Program Modification Form.
- If the course deletion leads to a course modification in your unit, include a Course Modification Form with your units' submission to SCCCC. See [Section VI](#) Completing the Undergraduate Course Modification Form.

- If the course deletion leads to a course/program modification in other units, attach the form Consultation: Request for Dialogue / Response (Part A) and any responses received (Part B) to the relevant course deletion form. [See Section VIII](#) Completing the Form - Consultation: Request for Dialogue / Response.

### **SECTION C – SUPPORTING DOCUMENTATION ATTACHED**

- Use the check boxes to indicate the supporting documents attached to the course deletion form or included with the unit's submission to SCCC as part of a Program Modification.

### **SECTION D - SIGNATURES**

- Print or type names and sign in the spaces provided. The Head should sign for the department and the Dean/Director for the faculty/college/school. Where more than one faculty/school is involved, the form should be co-signed by the Deans/Directors of the faculties/schools involved, or a statement of support should be provided.

### **Identifying other courses/programs impacted by a course deletion**

- Use the current undergraduate Academic Calendar to identify other courses and programs across the University impacted by a course deletion:
  - Use the search function in the online Academic Calendar (CourseLeaf)
  - Complete a keyword search (Control + F on a PC; Command + F on a Mac) of the current [PDF version](https://umanitoba.ca/academics) of the Calendar (<https://umanitoba.ca/academics>).
- Courses impacted include those that use the deleted course as a prerequisite or corequisite or are cross-listed with the deleted course. The unit offering the affected course would submit a proposal to modify their course, to reflect that the prerequisite/corequisite/cross-listed course was no longer offered.
- Programs impacted include those that use the deleted course as a required or elective course or as an admission requirement. Units offering an impacted program would submit a program modification and/or a proposal to modify the admission requirements. The Senate Committee on Admissions (SCADM) would consider the revised admission requirements.
- For example, a search of the 2020 – 2021 Academic Calendar shows that, outside of other courses and programs in the Department of Psychology, PSYC 1200 is also:
  - required or optional course for advanced entry admission to: School of Dental Hygiene, B.H.Ecol. in Family Social Sciences (Department of Community Health Sciences);
  - a required or optional course in: Diploma in First Nations Community Wellness, Extended Education Division, B.H.Ecol. in Family Social Sciences (Department of Community Health Sciences), B.H.Sc. and B.H.St. (Faculty of Health Sciences), B.Sc. in Human Nutritional Sciences (Faculty of Agricultural and Food Sciences), B.Kin., B.Kin. – A.T., B.R.M.C.D., (Faculty of Kinesiology and Recreation Management, B.R.T. (College of Rehabilitation Sciences), B.Sc.(Maj.) and B.Sc.(Hons.) in Psychology (Faculty of Science);
  - a prerequisite for: PSYC courses offered by USB, EDUA 5760, FMLY 2800, FMLY 3220, FMLY 3240, HEAL 2600, HEAL 4500, HNSC 3320, HNSC 3350, NURS 2100, REC 3180
  - on the RIC list.
- The Office of the Registrar and Enrolment Services (ORES) (Calendar Coordinator) can assist units to identify courses and programs affected by a course deletion. Please make an initial effort to identify impacted courses and programs through a search of the Academic Calendar before requesting the Calendar Coordinator's assistance.
- Course deletions that impact courses/programs in other units should be brought forward for the Fall deadline for SCCCC and/or SPPC, as appropriate. Units initiating changes that impact other units are **required** to advise those units of the proposed changes and indicate the term the changes would take effect. This will give other units an opportunity to submit corresponding changes to the SCCCC **for the same Fall deadline** (ideally) or the next ensuing Spring deadline.
- Use the form Consultation: Request for Dialogue / Response (Part A) to advise other units of changes that will affect their courses/programs. [See Section VIII](#) Completing the Form - Consultation: Request for Dialogue / Response.

## V. COMPLETING THE UNDERGRADUATE COURSE INTRODUCTION FORM

- Use the course introduction form to introduce a new course.
- Complete a course introduction form and a course deletion form to re-introduce a course with a different:
  - course number
  - subject code
  - number of credit hours
  - long title and short title (i.e., where both the long title and the short title will change)
- See [Section IV](#) Completing the Undergraduate Course Deletion Form.

### SECTION A – COURSE DETAILS

- Use the drop-down lists to indicate the faculty/college/school and department proposing the course introduction. Indicate the program where there is no department (e.g., Canadian Studies, Environmental Design). The Université de Saint-Boniface is considered a faculty.
- The **subject code** (e.g., ECON, CHEM, NURS, etc.) and **course number** must be confirmed with the Office of the Registrar and Enrolment Services (ORES) (Calendar Coordinator) before submitting the proposal for the SCCCC's review. NB: Course numbers from courses that were previously deleted cannot be re-used.
- **Long title** (maximum 90 characters; e.g., History of Opera I: From Monteverdi to Mozart)
- **SHORT TITLE** (maximum 30 characters, IN ALL CAPS: e.g., HISTORY OF OPERA I) If the long title is 30 or fewer characters, it can also be used as the short title.
- **Credit hours** – indicate the number of credit hours in Section A and in the course description.
- **Grading mode** – use the drop-down list to indicate either “letter grade” or “pass/fail”. *The course description must indicate where the grading mode is “pass/fail”.*
- **First term offered** – use the drop-down list to select the next ensuing Fall Term and Year (normally) or to request a different term. Exceptions may apply for courses to take effect in the next ensuing Summer Term. Requests for a different term may be noted manually on the form or in the first line of the next form field in Section B.

### SECTION B – COURSE DESCRIPTION FOR ACADEMIC CALENDAR

Provide the course description exactly as it would appear in the Academic Calendar. Forms will be returned to the academic unit for amendment where course descriptions are incomplete.

- In the first line of the course description, indicate the **subject code**, **course number**, **long title**, number of **credit hours** (e.g., MUSC 3230 Acoustics of Music 3 cr).
- In the body of the course description, provide the following information **in the order listed**:
  - Indicate where a **laboratory**, **tutorial**, or **other activity** is required in a time slot separate from the lecture section, at the beginning of the course description [e.g., (Lab required)].
  - Provide a brief description of the **course content** (ideally not more than 4 – 5 lines). Indicate if there is a **field trip**.
  - List **mutually exclusive** and **equivalent courses** prefaced by “**May not be held with...**” and indicated by the subject code and course number and including all applicable previous course numbers but not including IMS course numbers. Be sure to include Université de Saint Boniface course numbers where equivalency exists.
  - Indicate any **registration restrictions** ([See Section V D](#)).

- Indicate where the course can be completed as a **topics course** multiple times under different titles.
- Indicate where the grading mode is **pass/fail**.
- Indicate any **prerequisite, corequisite, pre- or corequisite courses** by the subject code and course number (but not the course title). Include all applicable previous course numbers **but not** including IMS course numbers from the legacy system (e.g., 017.336). Be sure to include equivalent Université de Saint Boniface course numbers.

In cases where a prerequisite course is no longer offered, use the phrase "or the former" in the prerequisite list (e.g., ECON 1010 and ECON 1020 or the former ECON 1200).

Indicate where a minimum letter grade (other than a "C" grade) is required for a prerequisite course, examination, or equivalency test [e.g., BIOL 1030 (B)].

- [See Appendix II for examples](#) of course descriptions.
- [See page 10 for definitions](#) of prerequisite, corequisite, pre- or corequisite, and equivalent and mutually exclusive courses.

### **SECTION C – RATIONALE FOR NEW COURSE**

- Use the check box to indicate where a course introduction responds to a recommendation in an external undergraduate program review.
- Provide a brief rationale for the course introduction and explain how it would contribute to the curriculum. Reasons for course introductions might include but are not limited to, introducing new material in keeping with advances and/or changes in the foci of a particular discipline or department; responding to a recommendation in an academic program review; accommodating the expertise of a new faculty member; division of a spanned course into two single term courses.
- Indicate if the course introduction replaces a current course or is a new required or elective course that will lead to program changes in your unit. [See Section V F](#) Resulting Changes to Programs.

### **SECTION D – REGISTRATION RESTRICTIONS**

- Indicate where a restriction is to be added, to restrict registration to students in a particular academic unit and/or program(s), including level or year of study. List the academic unit and/or programs(s) in the spaces provided. *Indicate registration restrictions in the course description.* Contact the Office of the Registrar and Enrolment Services (ORES) to discuss options for restricting registration.

### **SECTION E – ADDITIONAL COURSE DETAILS**

#### **Laboratory / Tutorial / Field Trip / Other Required Activity**

- Use the check boxes to indicate where there will be a laboratory, tutorial, or other activity, that will be scheduled separate from the lecture section, and/or where a field trip(s) is required. Check all boxes that apply.
- NB: *Laboratory, tutorial, and other activities must be indicated at the beginning of the course description (Lab required) and the field trip(s), within the course description. [See Section V B](#) above and examples of course descriptions in [Appendix II](#).*



### Topics courses

- Use the check boxes to indicate (i) if the proposed course is a topics course and (ii) if the topics course can be held multiple times under different titles. Check both boxes where both apply. *If a topics course can be held multiple times under different titles, indicate this in the course description. See Section V B above and examples of course descriptions in Appendix II.*

### Written English and Mathematics Requirements, Recommended Introductory Course List

- Use the check boxes to indicate where the course is intended to satisfy the Written English (W) or the Mathematics (M) requirement or is to be included on the Recommended Introductory Course List (RIC List). Check all boxes that apply.
- Attach the form Consultation: Request for Dialogue / Response (Part A) and responses received (Part B) to the relevant course introduction form.
- See Section VIII Completing the Form Consultation: Request for Dialogue / Response.

## **SECTION F – RESULTING CHANGES TO COURSES / PROGRAMS**

- Use the check boxes (check all boxes that apply) to indicate whether the course introduction leads to changes to:
  - other courses in your unit
  - programs in your unit
  - courses in other academic units
  - program changes in other academic units
- In the space provided, list all courses/programs affected, separated by semicolons. Be as specific as possible, identifying courses by subject code and course number (e.g., SOC 1000) and programs by the credential and academic unit.
- If the course introduction leads to program modifications in your unit, include a Program Modification Form with your unit's submission to SCCC. See Section VII Completing the Program Modification Form.
- If the course introduction leads to program changes in other academic units, attach the form Consultation: Request for Dialogue / Response (Part A) and any responses received (Part B). See Section VIII Completing the Form Consultation: Request for Dialogue / Response.
- Course introductions that impact programs in other units should be brought forward for the Fall deadline for SCCC or SPPC, as appropriate. Units initiating changes that impact other units are **required** to advise those units of the proposed changes and indicate the term the changes would take effect. This will give other units an opportunity to submit corresponding changes to the SCCC **for the same Fall deadline** (ideally) or the next ensuing Spring deadline.
- Refer to Section IV above (page 6) for instructions on identifying impacted courses and programs.

## **SECTION G – STATEMENT OF CHANGES TO COSTS, WORKLOAD, AND/OR SUPPLIES**

- Provide a statement of changes to costs if there is a change in any of the following:
  - workload of academic or support staff or reassignment of workload from one faculty/school to another;
  - requirements for additional space, renovations to existing space or changes in the usage of space;
  - costs of supplies and expenses including any specific media/technology requirements associated with the teaching of the course.

## **SECTION H – PREREQUISITES, COREQUISITES, AND EQUIVALENCY/MUTUAL EXCLUSIVITY**

- In the spaces provided, list all prerequisite, corequisite, pre- or corequisite, and mutually exclusive courses, including all applicable previous courses numbers (including previous Aurora and IMS course numbers). Be sure to include equivalent Université de Saint Boniface course numbers.
- Where it is necessary to list several courses, use “and” or “or” statements and make use of [square brackets] to separate lists where these would provide clarity. See examples provided in [Appendix II](#).
- Indicate where a minimum letter grade, other than a “C” grade, is required for a prerequisite course, examination, or equivalency test. Indicate where concurrency is allowed.

### **Use of terms:**

- **Prerequisite course** – a course that must be taken before the proposed course. A minimum grade of “C” is assumed. A different minimum letter grade or “Pass” grade must be stated.
- **Pre- or Corequisite course** – where concurrency in the prerequisite course is allowed
- **Corequisite course** – a course that must be taken at the same time as the proposed course (cannot be a spanned course).
- **Equivalent course** – any existing or former course, with the same number of credit hours and at the same level, that could be used in place of the proposed course to meet program requirements based on equivalent course content. Equivalent courses cannot be held together for credit.
- **Mutually exclusive course** – any existing or former course, with significant content overlap, but cannot be used in place of the proposed course because it is at a different level or has a different number of credit hours. Courses once offered as topics courses are also mutually exclusive to newly introduced courses with the same topic. Mutually exclusive courses cannot be held together for credit.

Course equivalency/mutual exclusivity is set up in the system to prevent students from registering in and holding credit for two courses with the same or similar content.

- **Spanned course** – a course that spans the Fall and Winter Terms.

## **SECTION I – SUPPORTING DOCUMENTATION ATTACHED**

- Use the check boxes to indicate the **supporting documents** attached to the course introduction form or included with the faculty/college/school submission to SCCCC as part of a proposed Program Modification. Check all boxes that apply.
- A **course outline** is required for all course introductions. Exceptions are sometimes allowed where an existing course is being re-introduced, for example, with a different course number or course title.
- Course outlines are provided to SCCCC for information on the manner in which the course content set out in the course description will be delivered and evaluated. The SCCC recognizes that course outlines may be subject to future changes by the instructor.
- [See Section IX Other Supporting Documentation](#) for information on content to be provided in the course outline for the SCCCC.
- A **Library statement** is normally required for a course introduction, including topics courses. A library statement may not be required for the following types of courses: studio, ensemble, clinical and other practicums, co-operative, field work, and work terms.
- [See Section IX Other Supporting Documentation](#) for additional information on Library statements.
- Attach supporting documentation in the order listed in Section I of the form.

## **SECTION J - SIGNATURES**

- Print or type names and sign in the spaces provided. The Head should sign for the department and the Dean/Director for the faculty/college/school. In cases where there is more than one faculty/college/school involved, the form should be co-signed by the Deans/Directors of the faculties/colleges/schools involved, or a supporting statement should be provided.

## **VI. COMPLETING THE UNDERGRADUATE COURSE MODIFICATION FORM**

- Use the course modification form to change the:
  - long course title without changing the short course title
  - course description (minor changes and excluding changes to course content, which would require a course deletion and introduction)
  - prerequisite, corequisite, pre- or corequisite, and or mutually exclusive courses
  - grading mode
  - registration restrictions
  - suitability for the Written English (W) or Mathematics (M) requirement or the Recommended Introductory Course List (RIC List)
- If the short course title, the course number, the subject code, or the number of credit hours is to be changed **do not use this form**. The current course MUST be deleted and introduced under the new title and/or number.

### **SECTION A – COURSE DETAILS**

- Use the drop-down lists to indicate the faculty/college/school and department proposing the course deletion. Indicate the program where there is no department (e.g., Canadian Studies, Environmental Design). The Université de Saint-Boniface is considered a faculty.
- Indicate the **subject code** (e.g., ECON, CHEM, NURS, etc.) and **course number**.
- Provide the **current long title** (maximum 90 characters; e.g., *History of Opera I: From Monteverdi to Mozart*).
- Indicate the **revised long title** (maximum 90 characters), if the long title is to be modified.
- Indicate the **current credit hours**.
- **Revised grading mode** – Use the drop-down list to indicate if the grading mode for the course will be changed from a standard letter grade to pass/fail or vice versa. *The course description must indicate where the grading mode is “pass fail”.*
- **Changes Take Effect** – Use the drop-down list to select the next ensuing Fall Term and Year (normally) or to request a different term. Exceptions may apply for courses to take effect in the next ensuing Summer Term. Requests for exceptions may be noted manually on the form or in the first line of the next form field.

### **SECTION B – MODIFIED COURSE DESCRIPTION**

- Provide a modified course description exactly as it would appear in the Academic Calendar. Forms will be returned to the unit for amendment where course descriptions are incomplete.
- [See Section V B](#) above (pages 7–8) for information on the format of, and information to be included in, the course description.
- [See Appendix II](#) for examples of course descriptions.

### **SECTION C – CURRENT COURSE DESCRIPTION**

- Provide the current course description exactly as it appears in the current Academic Calendar.

## **SECTION D – RATIONALE**

- Use the check box to indicate where a course modification responds to a recommendation in an external undergraduate program review.
- Provide a brief description of the modification and the rationale for the change, including an explanation of how it might enhance or otherwise impact the curriculum. Reasons for modifying a course might include but are not limited to, updating material in keeping with advances and/or changes in the foci of a particular discipline or department; responding to a recommendation in an academic program review; responding to program modifications.

## **SECTION E – DETAILS OF PROPOSED MODIFICATIONS**

(Complete this section only where changes to any of the following things are proposed.)

### **Adding/Revising Registration Restriction**

- Indicate where a restriction, to restrict registration to students in a particular academic unit and/or program(s), including level or year of study, is to be added or revised. List the academic unit and/or programs(s) in the spaces provided. *Indicate registration restrictions in the modified course description.* Contact the Office of the Registrar and Enrolment Services (ORES) to discuss options for restricting registration.

### **Adding /Removing Required Laboratory / Tutorial / Field Trip / Other Activity**

- Use the check boxes to indicate whether the course is being modified to add/remove: a laboratory requirement, a tutorial, a field trip, or other activity. Check all boxes that apply.
- Describe the Other Activity in the space provided or use the space to seek the SCCC's advice on whether to note a particular activity in a course description.
- *NB: Where a requirement(s) is being added, it must be indicated in the modified course description.* Laboratory, tutorial, and other activities, to be scheduled separate from the lecture section, requirements must be indicated at the beginning of the course description (Lab required) and the field trip(s), within the course description. (See Section V B above and examples of course descriptions in [Appendix II.](#))

### **Written English and Mathematics Requirements, Recommended Introductory Course List**

- Use the check boxes to indicate where a modified course now satisfies / no longer satisfies: the Written English (W) or the Mathematics (M) requirement or criteria for the Recommended Introductory Course List (RIC List). Check all boxes that apply.
- Attach the completed form Consultation: Request for Dialogue / Response (Part A) and responses received (Part B) to the relevant course modification form. [See Section VIII](#) Completing the Form Consultation: Request for Dialogue / Response.

## **SECTION F – RESULTING CHANGES TO COURSES / PROGRAMS**

- Use the check boxes (check all boxes that apply) to indicate whether the course modification leads to changes to:
  - other courses in your unit
  - programs in your unit
  - courses in other academic units
  - program changes in other academic units

- In the space provided, list all the courses/ programs affected, separated by a semicolon. Be as specific as possible, identifying the courses by subject code and course number (e.g., SOC 1000) and programs by the credential and academic unit.
- If the course modification leads to other course modifications in your unit, include a Course Modification Form with your unit's submission to SCCCC. [See Section VI](#) Completing the Undergraduate Course Modification Form.
- If the course modification leads to program modifications in your unit, include a Program Modification Form with your unit's submission to SCCCC. [See Section VII](#) Completing the Program Modification Form.
- If the course modification leads to program changes in other academic units, attach a completed form Consultation: Request for Dialogue / Response (Part A) and any responses received (Part B). [See Section VIII](#) Completing the Form Consultation: Request for Dialogue / Response.
- Course modifications that impact courses and programs in other units should be brought forward for the Fall deadline for SCCCC or SPPC, as appropriate. Units initiating such changes are **required** to advise other units of the proposed changes and indicate the term the change would take effect. This will give other units an opportunity to submit corresponding changes to the SCCCC **for the same Fall deadline** (ideally) or the next ensuing Spring deadline.
- [Refer to Section IV](#) above for instructions on identifying impacted courses and programs.

#### **SECTION G – STATEMENT OF CHANGES TO COSTS, WORKLOAD, AND/OR SUPPLIES**

- Provide a statement of changes to costs if there is a change in any of the following:
  - Workload of academic or support staff or reassignment of workload from one faculty/school to another.
  - Requirements for additional space, renovations to existing space or changes in the usage of space.
  - Costs of supplies and expenses including any specific media/technology requirements associated with the teaching of the course.

#### **SECTION H – CHANGES TO PREREQUISITES, COREQUISITES, & EQUIVALENCY/MUTUAL EXCLUSIVITY**

- [See page 10 for definitions](#) of prerequisite, corequisite, equivalent, and mutually exclusive courses.
  - In the spaces provided, list ONLY prerequisite, corequisite, pre- or corequisite, and mutually exclusive courses being ADDED/MODIFIED (e.g., to indicate "the former SUBJ XXXX or to change minimum grade) or REMOVED. Include any applicable previous course numbers (including previous Aurora and IMS course numbers). Be sure to include equivalent Université de Saint Boniface course numbers, where applicable.
- Indicate where a minimum letter grade (other than a "C" grade) or a "Pass" grade is required for a prerequisite course, examination, or equivalency test. Indicate where concurrency is allowed.
- Where it is necessary to list several courses, be explicit by using "and" and "or" statements and make use of [square brackets] to separate lists where these would provide clarity. See examples provided in [Appendix II](#).

### **SECTION I – SUPPORTING DOCUMENTATION ATTACHED**

- Use the check boxes to indicate which supporting documents are attached to the course modification form or included with the unit's submission to SCCC as part of a proposed Program Modification. Check all boxes that apply. [See Section IX](#) Other Supporting Documentation.
- Attach supporting documentation in the order listed in Section I of the form.

### **SECTION J - SIGNATURES**

- Print or type names in the spaces provided and sign. The Head should sign for the department and the Dean/Director for the faculty/college/school. In cases where there is more than one faculty/school involved, the form should be co-signed by the Deans/Directors of the faculties/colleges/schools involved, or a supporting statement should be provided.

## **VII. COMPLETING THE UNDERGRADUATE PROGRAM MODIFICATION FORM**

- Complete a program modification form where:
  - course or curriculum changes proposed by your unit or by another faculty/college/school lead to program modifications in your unit, including but not limited to, changes to required or elective courses in a program;
  - a program is restructured or the credit hour system is revised, resulting in changes to credit hours for a large number of courses;
  - the unit is proposing a change to the name of a program.
- **Units are strongly encouraged to contact the Associate Registrar and Director of Academic Support, Office of the Registrar and Enrolment Services (ORES), regarding proposed program modifications, prior to submitting these to the SCCCC, to test the technical requirements of the modified program.**
- Information on the approval process for **major amendments** to, or **major expansion** of, an existing program is available on the webpage of the Provost and Vice-President (Academic) <https://umanitoba.ca/about-um/provost-vice-president-academic/deputy-provost-planning-programs/academic-planning>.
- Information on additional documentation required for proposals for substantial amendments to, or major expansion of, an existing program can be found on [page 2](#) of these Guidelines.
- Units are strongly encouraged to consult with the Vice-Provost (Academic Planning and Programs), the Academic Programs Specialist (Office of the Provost and Vice-President (Academic)), the Associate University Secretary (Senate) (Office of the University Secretary), and/or the University Budget Officer, as appropriate, at the outset of planning for substantial revisions to an existing program.

### **SECTION A – FACULTY/COLLEGE/SCHOOL AND DEPARTMENT**

- Use the drop-down lists to indicate the faculty/college/school and department proposing the course deletion. Indicate the program where there is no department (e.g., Canadian Studies, Environmental Design). The Université de Saint-Boniface is considered a faculty.
- **Provide the name of the program** in the space provided, including the credential and discipline (e.g., B.Sc. in Agriculture; B.Sc. in Engineering (Civil); B.Sc. (Hons.) in Physics and Astronomy – Astronomy (Option A)).
- **Changes Take Effect** – Use the drop-down list to select the next ensuing Fall Term and Year (normally) or to request a different term. Requests for exceptions may be noted manually on the form, in the first line of the next form field, in Section B.

### **SECTION B – DESCRIPTION OF PROGRAM MODIFICATION**

- Provide a brief description of the proposed program modification. Include the same description on the summary sheet to be included at the beginning of the submission to SCCCC. (Limit – 200 words)
- For substantial program modifications, [see Section II](#) – Proposals for Substantial Program Modifications, on page 2.

### **SECTION C – RATIONALE**

- Use the check box to indicate where a program modification responds to a recommendation in an external undergraduate program review.
- Provide a brief rationale for the proposed program modification. (Limit- 150 words)



## **SECTION D – ACADEMIC CALENDAR CONTENT**

**Attach** a revised program description, including program charts and any other Academic Calendar content that would require updates to reflect course and curriculum changes. Beginning with the program description as it appears in the current Academic Calendar, clearly indicate proposed changes using strikethrough font (e.g., ~~strikethrough~~) to indicate content that is to be deleted and **bold font** to indicate content that is to be added. [See Appendix III for an example and for instructions on copying and editing program charts from the online CourseLeaf calendar.](#)

## **SECTION E – STATEMENT OF CHANGES TO COSTS, WORKLOAD, AND/OR SUPPLIES**

- Provide a statement of changes to costs if there is a change in any of the following:
  - Workload of academic or support staff or reassignment of workload from one faculty/school to another.
  - Requirements for additional space, renovations to existing space or changes in the usage of space.
  - Costs of supplies and expenses including any specific media/technology requirements associated with the teaching of the course.

## **SECTION F – CONSULTATION WITH OTHER UNITS THAT MIGHT BE AFFECTED BY CHANGES**

- Indicate whether the proposed program modification leads to program modifications in other academic units. In the space provided, list all of the programs affected, separated by a semicolon. Be as specific as possible, identifying the programs by the credential and academic unit.
- If the course modification leads to program changes in other academic units, attach the form Consultation: Request for Dialogue / Response (Part A) and any responses received (Part B). See Section VIII Completing the Form Consultation: Request for Dialogue / Response.
- Proposals for program modifications that would have impacts in other units, should be brought forward for the Fall deadline for SCCC or SPPC, as appropriate. Academic units initiating such changes are **required** to advise other affected units of the proposed changes, including an indication of the term the change would take effect, so other units have an opportunity to submit corresponding changes to the SCCC **for the same Fall deadline**, *ideally*, or the next ensuing Spring deadline.
- See Section IV above ([page 6](#)) for instructions on identifying impacted courses and programs.

## **SECTION G – SUPPORTING DOCUMENTATION ATTACHED**

- Use the check boxes to indicate the supporting documents attached to the program modification form. Check all boxes that apply. [See Section IX](#) Other Supporting Documentation.

## **SECTION H – SIGNATURES**

- Print or type names and sign in the spaces provided. The Head should sign for the department and the Dean/Director for the faculty/college/school. In cases where there is more than one faculty/college/school involved, the form should be co-signed by the Deans/Directors of the faculties/colleges/schools involved, or a supporting statement should be provided.

## **VIII. COMPLETING THE FORM – CONSULTATION: REQUEST FOR DIALOGUE / RESPONSE**

- Consultation with other departments/faculties/colleges/schools is required for curriculum or course changes (including program proposals) where:
  - there is possible curricular overlap
  - there is possible infringement on jurisdiction
  - courses/curriculum/admission requirements for programs in other units would be affected by a proposed curriculum or course change in your unit
  - there is a request for assessment of a course that is intended to satisfy either the Written English (W) or Mathematics (M) requirement ([See Section IX Other Supporting Documentation](#))
  - there is a request for a new or modified course to be assessed for inclusion on the Recommended Introductory Course List (RIC List). ([See Section IX Other Supporting Documentation](#))
- Part A (Sections A through D) and Part B (Section F) of the form are to be completed by the unit initiating the consultation. A copy of the form, with these sections completed, is to be provided to each unit to be consulted along with any supporting documentation that might be required; for example, course descriptions and course outlines, as appropriate, for new or modified courses.
- One copy of the completed form (Part A – Sections A through D) plus any responses received from the other units (Part B – Sections F through J) are to be submitted with your faculty/college/school's submission to SCCCC.

### **SECTION A**

- Use the drop-down lists to indicate the faculty/college/school and department initiating the consultation. Indicate the program where there is no department (e.g., Canadian Studies, Environmental Design). The Université de Saint-Boniface is considered a faculty.

### **SECTION B – REASON FOR CONSULTATION**

- Use the check boxes (check all boxes that apply) to indicate the reason the consultation:
  - possible curricular overlap
  - possible infringement on jurisdiction
  - possible impact on demand (increased or decreased) for courses or programs in other units
  - the course change requires another unit(s) to submit a proposal to modify its course(s), curriculum, or admission requirements
  - request for assessment of a course intended to satisfy the Written English (W) requirement, the Mathematics (M) requirement, inclusion on the RIC List (see below).
- Indicate the SCCCC deadline that your unit will meet. Check the relevant check box to select either the Fall or the Spring deadline.
- Indicate the date on which the request for dialogue / response – Part A was sent to the unit(s) receiving the form in the space provided.
- Specify the date by which your unit requires a response from the other units. Units initiating a consultation should allow a minimum of four (4) weeks for the other unit(s) to respond. If a response is not received, follow-up with an email reminder or with a phone call.

**Written English (W) and mathematics (M) requirements:** Proposals for new and modified courses intended to satisfy the Written English (W) or the Mathematics (M) requirement must be reviewed and accepted by the review committee within the Department of English, Theatre, Film & Media or the Department of Mathematics, as appropriate. The review must be completed prior to submitting the course introduction/modification to the SCCCC. Submissions to the appropriate departmental review committee must include the course introduction/modification form and a two-page course outline and should be sent to the attention of the appropriate Department Head.

The criteria for identification of courses as satisfying the University Written English (W) and Mathematics (M) requirements are available at

[http://umanitoba.ca/faculties/arts/media/Criteria for English-Math.pdf](http://umanitoba.ca/faculties/arts/media/Criteria%20for%20English-Math.pdf).

**Recommended Introductory Course List (RIC List):** New and modified 1000- and 2000- level courses without prerequisites that are to be included on the RIC List must be reviewed and accepted for inclusion on the list by the Executive Director, Student Engagement and Success. The review must be completed prior to submitting the course introduction/modification to the SCCCC. Submissions must include the course introduction/modification form and two-page (maximum) course outline and should be sent to the Executive Director, Student Academic Success, who will review requests on an ongoing basis.

Faculties/colleges/schools are also required to notify the Executive Director, Student Engagement and Success and the SCCCC when a course is to be removed from the RIC List. Such notification can be provided on the course modification/deletion form, as appropriate.

### **SECTION C – DESCRIPTION OF PROPOSED CURRICULUM/COURSE CHANGE**

Briefly describe the proposed curriculum or course change in your unit and outline the reasons for your request for support in the space provided. Be as specific as possible, including with respect to the potential impact on courses/curricula in other units. For example, SUBJ 1XXX, which is to be deleted, is used as a prerequisite in your course SUBJ 2XXX or is required/used as an elective in your degree program (indicate credential and discipline).

Attach any supporting documentation that might be required to describe the proposed course/program change proposed by your unit.

### **SECTION D – UNIT(S) CONSULTED**

List all the faculties/colleges/schools/departments solicited for a statement of support in the space provided.

### **SECTION E – RESPONSES RECEIVED**

One copy of the Consultation: Request for Dialogue / Response (Part A) form is to be included in your unit's submission to SCCCC, together with all responses received from other units (Consultation: Response and Next Steps (Part B)).

### **SECTION F – UNIT INITIATING CONSULTATION**

- To be completed by the unit initiating the consultation.
- Use the drop-down lists to indicate the faculty/college/school and department initiating the consultation. Indicate the program where there is no department (e.g., Canadian Studies, Environmental Design). The Université de Saint-Boniface is considered a faculty.

- Use the drop-down lists to indicate the faculty/college/school/University 1 and department (or program – e.g., Canadian Studies Program, Labour Studies Program) requesting the statement of support.

### **SECTION G – UNIT RESPONDING**

- To be completed by the unit responding to a request for consultation / dialogue.
- Use the drop-down lists to indicate the faculty/college/school/University 1 and department (or program – e.g., Canadian Studies Program, Labour Studies Program) responding to the request. The Université de Saint-Boniface is considered a faculty.

### **SECTION H – RESPONSE TO REQUEST**

- To be completed by the unit responding to a request for consultation / dialogue.
- In the space provided, identify any impacts on courses or programs offered by your unit. Impacts on programs might involve courses used as required courses for admission, graduation, as electives, or referenced in academic regulations.
- Indicate whether your unit has any specific concerns with the proposed course or curriculum change that the proposing unit and SCCCC should be aware of. There is an expectation that the units involved will discuss the identified concern and, ideally, arrive at a resolution that it suitable for both units.
- If a concern identified in Section H remains unresolved following consultation between the two units, the units will jointly prepare and attach a brief description of their consultations, including possible solutions that were considered.

### **SECTION I – NEXT STEPS: IMPACTS AND SENATE COMMITTEE SUBMISSIONS REQUIRED**

- To be completed by the unit responding to a request for consultation / dialogue.
- List the courses/programs in your unit that would be impacted by the curriculum/course change being proposed.
- Indicate the course/curriculum changes that your unit would be required to make, as a result.
- Indicate when your unit will submit related course or curriculum change proposals to the SCCCC for Senate approval (e.g., Fall 2022 or Spring 2023) or changes to admission requirements to SCADM.
- Normally, this would be the next Fall or Spring submission deadline, as specified in the SCCCC Timetable for Submissions (<http://umanitoba.ca/governance/#meeting-schedules>) and, ideally, it would be submitted for the same SCCCC deadline that the unit prompting the change will meet.

### **SECTION J – SIGNATURES**

- Print or type names and sign in the spaces provided. The Head should sign for the department and the Dean/Director for the faculty/college/school. In cases where there is more than one faculty/college/school involved, the form should be co-signed by the Deans/Directors of the faculties/colleges/schools involved, or a joint statement should be provided.

## **IX. OTHER SUPPORTING DOCUMENTATION**

### **1. Course outline** – required for all course introductions

A two (2) page (*maximum*) outline including:

- the course name, subject code, and course number
- a statement of course objectives
- a statement of course format, including lecture, laboratory, and tutorial hours per week
- a list of topics to be covered in lectures
- a statement on grading and evaluation, including information on the grading scheme, and a brief description of laboratories, tutorials, and assignments, including the weightings of the various types of assessments
- required textbook(s)/readings, if applicable

Course outlines are provided to SCCCC for information, to provide additional information on the manner in which the course content set out in the course description will be delivered and evaluated. The committee recognizes that course outlines will be subject to future changes by the instructor and the department/faculty/school.

### **2. Library statement:** A statement from the subject librarian must accompany all proposals for new courses. The Library must be provided with a course outline as described above. As well, the proposing unit and the subject librarian should discuss and agree upon the bibliography to be used in assessing the strength of the Library's collection in the field. In the case of topics courses, departments are not required to provide the Library with a detailed bibliography but must provide a summary of the topics that might be covered in the course. The Library will need at least one month's notice of course proposals in order to prepare the statement. Additional time will be required for program proposals or for significant program modifications involving multiple course changes.

A library statement may not be required for the following types of courses: studio, ensemble, practicums, co-operative, field work, and work terms. A library statement is required for topics courses. Please consult with the Library to confirm whether or not a library statement is required.

**X. Contacts for Questions re SCCCC Forms / Curriculum and Course Change Processes**

**Shannon Coyston**, Associate University Secretary (Senate), Office of the University Secretary ([shannon.coyston@umanitoba.ca](mailto:shannon.coyston@umanitoba.ca); 204-474-6892 or Teams)

- Contact for questions about how to complete the forms, prepare faculty/college/school submissions to SCCCC, or governance process (i.e., approvals required), including the curriculum and course change process.
- Contact with requests to discuss/review proposed program changes, including major program changes and the documentation required.
- Please contact prior to submitting the proposals to your department/faculty/college council.

**Sharon Bannatyne**, Associate Registrar and Director of Technology and Academic Support, Office of the Registrar and Enrolment Services (ORES) ([sharon.bannatyne@umanitoba.ca](mailto:sharon.bannatyne@umanitoba.ca); 204-480-1476 or Teams)

- Contact for questions and advice on how program introductions and modifications can be supported in Aurora and our degree audit system (UM Achieve).

**Haviva Polevoi**, Calendar Coordinator, ORES ([Haviva.Polevoi@umanitoba.ca](mailto:Haviva.Polevoi@umanitoba.ca); Teams)

- Contact to confirm subject codes and course numbers for introductions; for assistance with restrictions, prerequisites/corequisites, or other matters related to how courses are entered in Banner and the Academic Calendar; and to identify impacts of course and curriculum changes on other courses and programs.

**Cassie Davidson**, Academic Program Specialist, Office of the Provost and Vice-President (Academic) ([Cassandra.davidson@umanitoba.ca](mailto:Cassandra.davidson@umanitoba.ca); 204-474-7847 or Teams)

- Contact to request program proposal forms; to discuss or review plans/draft proposals for new programs, including new credentials/degrees, majors in existing degrees, and concentrations, and timelines for obtaining required approvals and implementation; for information on major amendments to, or expansion of, existing programs.
- Please also contact for other program related matters, such as suspension of admissions to a program, closure of programs, or the development of articulation agreements or other types of agreements with partner institutions that directly involve academic programs.
- If you would like Cassie to review draft proposals, please contact prior to submitting the proposals to your department/faculty/college council.

**SUMMARY SHEET: EXAMPLES****Faculty of Agricultural and Food Sciences** (Example of departmentalized unit)**Agriculture, General**

## Deletions:

AGEC 3510 Agroecology 3 cr	-3.0
AGEC 4550 Project in Agroecology 6 cr	-6.0
AGRI 1500 Natural Resources and Primary Agricultural Production 3 cr	-3.0
AGRI 1510 Production, Distribution and Utilization of Agricultural Products 3 cr	-3.0
AGRI 2190 Toxicology Principles 1.5 cr	-1.5

## Introductions:

AGRI 1600 Introduction to Agrifood Systems 3 cr	+3.0
AGRI 2400 Experimental Methods in Agricultural and Food Sciences 3 cr	+3.0
AGRI 2500 Managing Farm Safety 3 cr	+3.0
AGRI 4100 Current Issues in Agricultural Systems 3 cr	+3.0

**NET CHANGE IN CREDIT HOURS: -4.5**

## Modification:

AGEC 2370 Principles of Ecology 3 cr	0.0
--------------------------------------	-----

## Program modifications:

The Faculty is proposing a program modification to the following degree programs, to eliminate the Faculty Core: Bachelor of Science in Agribusiness, Bachelor of Science in Agriculture, Bachelor of Science in Agroecology, Bachelor of Science in Food Sciences. The faculty is also proposing the deletion of a list of Biosystems Engineering (BIOE) courses open to students registered in various degree programs offered by the Faculty of Agricultural and Food Sciences and to non-Agriculture students.

**Animal Science**

## Deletions:

ANSC 2530 Nutritional Toxicology 1.5 cr	-1.5
ANSC 4540 Monogastric Production Systems 3 cr	-3.0
ANSC 4560 Issues in Animal Agriculture 3 cr	-3.0

## Introduction:

ANSC 4640 Swine Production Systems 3 cr	+3.0
---	------

**NET CHANGE IN CREDIT HOURS: +4.5**

## Modifications:

ANSC 2500 Animal Production 3 cr	0.0
ANSC 2540 Companion Animal Nutrition and Management 3 cr	0.0
ANSC 3530 The Animal and Its Environment 3 cr	0.0
ANSC 4550 Avian Production Systems 3 cr	0.0

**Food and Human Nutritional Sciences**

## Deletions:

FOOD 4120 Food Science Seminar 3 cr	-3.0
HNSC 4160 Seminar in Foods and Nutrition 3 cr	-3.0

*Continued on next page...*

## Introductions:

FOOD 4100 Current Issues in Food and Human Nutrition 3 cr	+3.0
HNSC 4100 Current Issues in Food and Human Nutrition 3 cr	+3.0

**NET CHANGE IN CREDIT HOURS: -0**

## Modifications:

FOOD 4510 Food Product Development 3 cr	0.0
HNSC 1210 Nutrition for Health and Changing Lifestyles 3 cr	0.0
HNSC 2000 Research Methods and Presentation 3 cr	0.0
HNSC 3260 Food Quality Evaluation 3 cr	0.0
HNSC 4280 Food Product Development 3 cr	0.0

## Program modifications:

The Faculty is proposing program modifications to the following degree programs, to eliminate the Faculty Core: Bachelor of Science in Food Science, including with the Co-operative Education Option, Bachelor of Science in Food Science – Food Science Option, Bachelor of Science in Food Science – Business Option.

**Faculty of Music** (Example of departmentalized unit, which would also require SPPC review.)

## Deletions:

MUSC 1182 Jazz Ensemble 1 2 cr	-2.0
MUSC 1192 Jazz Rhythm Performance Techniques 2 cr	-2.0
MUSC 3182 Jazz Ensemble 3 2 cr	-2.0
MUSC 3442 Jazz Pedagogy 1 2 cr	-3.0
MUSC 4112 Jazz Composition and Arranging 2 3 cr	-3.0

## Introductions:

MUSC 1386 Jazz Musicianship 1 2 cr	+2.0
MUSC 1388 Jazz Musicianship 2 2 cr	+2.0
MUSC 1184 Jazz Ensemble 2 cr	+2.0
MUSC 2194 Jazz Improvisation 2 3 cr	+3.0
MUSC 3126 Jazz Composition and Arranging 2 3 cr	+3.0
MUSC 3194 Jazz Improvisation 3 3 cr	+3.0
MUSC 4184 Jazz Ensemble 2 cr	+2.0
MUSC 4194 Jazz Improvisation 4 3 cr	+3.0
MUSC 4564 Jazz Recital 2 3 cr	+3.0

**NET CHANGE IN CREDIT HOURS: +11.0**

## Modifications:

MUSC 1190 Ensemble 2 cr	0.0
MUSC 2384 Musicianship 3 2 cr	0.0
MUSC 4190 Ensemble 2 cr	0.0

## Program modifications:

The faculty is proposing program modifications to the Bachelor of Music, including the General, Performance, Composition, and History concentrations, the Bachelor of Music / Bachelor of Education (Integrated Music Education Program), and the Bachelor of Jazz Studies program in order to: establish a common first year for all students; introduce greater flexibility; clarify curricular structures; eliminate redundancies and gaps; improve balance between academic and performance-based student activities.



**FORMAT FOR COURSE DESCRIPTIONS:****Examples of laboratory requirement:**

MATH 2130 Engineering Mathematical Analysis 1 3 cr

(Lab required) Multivariable differential and integral calculus up to and including multiple integrals in cylindrical and spherical coordinates. For Engineering and Geophysics students only. May not be held with MATH 2720, MATH 2750, or the former MATH 2110.

Prerequisites: MATH 1210 or MATH 1211 and MATH 1710.

SPAN 1272 Intermediate Spanish Grammar and Conversation 2 3 cr

(Lab required) This course is the second of the intermediate Spanish language sequence. Focus is on continued development of intermediate skills in reading, writing, speaking and listening. The primary goals are to further enhance communicative competence and social and cultural awareness of the Spanish-speaking world. Not open to students with native oral fluency. Students may not hold credit for SPAN 1272 and any of: SPAN 1273 or SPAN 1280 or SPAN 1290 or the former SPAN 1270 or the former SPAN 1271 or the former TRAD 1271.

Prerequisite: [SPAN 1262 or SPAN 1263 or the former SPAN 1260 or the former SPAN 1261 or the former TRAD 1261] or written consent of instructor or department head.

**Examples of field trip requirement:**

AGRI 1600 Introduction to Agrifood Systems 3 cr

(Lab required) This course explores agricultural production systems with special focus on the Canadian Prairies. Students will develop scholarly, social, communication and professional skills that will enable them to be successful in the application of technical knowledge to food production challenges. [This course will include a field trip component.](#) May not be held with the former AGRI 1500.

DAGR 0490 Applied Farm Management 3 cr

An introduction to an objectives-driven plan that deals with production and financial management. Students will generate and analyze enterprise budgets and financial statements. Students will be required to attend interview sessions outside of scheduled classes with an assigned Farm Management Advisor. The Advisor will support students as they apply their management skills and knowledge to a real farm business or a case farm. [There will be three full day field trips.](#) May not be held with the former DAGR 0680.

Prerequisites: DAGR 0480 and ABIZ 0460. Pre- or Corequisite: ABIZ 0470.

NATV 2220 Indigenous Societies and the Political Process 3 cr

An analysis of contemporary Canadian (and U.S.) political and administrative processes as they affect Indigenous people. [Depending on instructor, this course may have a weekend field trip.](#) Contact the Department of Native Studies for details.

**Examples of prerequisites and pre-or corequisites, including minimum grade requirement, use of brackets:**

BIOL 4100 Honours Thesis 6 cr

The student will conduct a research project, chosen in consultation with a Biological Sciences faculty member acting as an advisor, and produce a thesis in which the project, the results and conclusions are presented. The student will defend the thesis at an oral examination held on completion of the thesis. This course is restricted to 3rd and 4th year Honours Biological Science students.

[Prerequisite: BIOL 3100 or consent of department.](#)

CHEM 2360 Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy 3 cr

(Lab required) An introductory course dealing with kinds of molecules encountered in biochemistry, and the concept of metabolic energy as a product of catabolism and a requirement for biosynthesis. This course is also given in Microbiology as MBIO 2360. May not be held with CHEM 2361, CHEM 2770, MBIO 2360, MBIO 2361, or MBIO 2770.

[Prerequisites: CHEM 1310 or CHEM 1311 \(C+\); and one of BIOL 1030, BIOL 1031.](#)

EDUB 4322 Middle Years: Practicum 4 3 cr

Practical teaching experience for Middle Years in a Manitoba school with the guidance and under the supervision of a faculty advisor and cooperating teacher(s). This is a pass/fail course. May not be held with EDUB 2970.

[Prerequisite: EDUB 4320 \(Pass\). Pre- or corequisite: EDUA 4000.](#)

GEOL 4380 Mineral Resource Development 3 cr  
Examination of economic, political, social, and environmental considerations that affect exploration and mining activity.

Prerequisite: GEOL 3130 (C+). Pre- or co-requisite: GEOL 4300.

MATH 2130 Engineering Mathematical Analysis 1 3 cr  
(Lab required) Multivariable differential and integral calculus up to and including multiple integrals in cylindrical and spherical coordinates. For Engineering and Geophysics students only. May not be held with MATH 2720, MATH 2750, or the former MATH 2110.

Prerequisites: MATH 1210 or MATH 1211 and MATH 1710.

MATH 3490 Optimization 3 cr

(Lab required) 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.

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].

MIS 4250 Advanced Topics in Management Information Systems 3 cr

A study of current issues in MIS. The topics for this course will vary over time, depending on student interests, faculty interests, and student demand. Not offered every year.

Prerequisite: consent of instructor.

#### Examples of equivalent and mutually exclusive courses:

CHEM 2360 Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy 3 cr

(Lab required) An introductory course dealing with kinds of molecules encountered in biochemistry, and the concept of metabolic energy as a product of catabolism and a requirement for biosynthesis. This course is also given in Microbiology as MBIO 2360. May not be held with CHEM 2361, CHEM 2770, MBIO 2360, MBIO 2361, or MBIO 2770.

Prerequisites: CHEM 1310 or CHEM 1311 (C+); and one of BIOL 1030, BIOL 1031.

GEOG 2900 Geography of Canadian Prairie Landscapes (A) 3 cr

This course introduces students to the various geographical themes, concepts and processes within the context of the natural and anthropogenic development of the Canadian prairie region. It traces the evolution of the prairie landscape. It will focus on academic writing in the discipline. May not be held with GEOG 2450.

Prerequisite: a grade of C or better in a minimum of three credit hours from Geography courses numbered at the 1000 level, or permission of department head.

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."

Prerequisite: Successful completion of 21 credit hours of 1000-level STDO courses.

#### Examples of topics courses:

ENG 4100 Contemporary Topics in Engineering Practice 3 cr

This course will cover contemporary topics relating to the practice of professional engineering. The specific topics and a detailed outline will be available prior to the start of the registration period for the session in which the course will be offered. As the course content will vary from year to year, students may take this course more than once for credit.

Prerequisite: Permission of the Centre for Engineering Professional Practice and Engineering Education.

LAW 3980 Current Legal Problems B 3 cr

Critical and constructive study, at an advanced level, of a significant major subject or set of topics.

**MIS 4250 Advanced Topics in Management Information Systems 3 cr**

A study of current issues in MIS. The topics for this course will vary over time, depending on student interests, faculty interests, and student demand. Not offered every year.

Prerequisite: consent of instructor.

**SOC 4530 Readings in Sociology 3 cr**

A reading course for undergraduates and pre-Master's in sociology. [The course content may vary. Students can earn multiple credits for this course only when the topic subtitle is different.](#)

Prerequisite: written consent of department head.

**Example of pass/fail grading mode:****KIN 4910 Athletic Therapy Practicum 6 cr**

To provide clinical and on-field internship experiences on campus and in the community for prospective Athletic Therapy candidates. May not be held with PHED 4910. [Evaluated pass/fail.](#)

Prerequisites: KIN 3914 (KIN 3910, PHED 3910) and KIN 3400 and KIN 3320.

**LAW 2650 Introduction to Advocacy 3 cr**

A detailed study of the conduct of a case from its inception through to trial. The course requires that students prepare and conduct a trial. Grading: Pass/Fail.

**NURS 3542 Nursing Practice 4 4 cr**

This course enables students to demonstrate clinical competence by applying the theoretical knowledge and simulation skills covered in Year 3 Term 2 courses in the practice setting. May not be held with the former NURS 3300, the former NURS 3310, or the former NURS 4270. Registration is normally restricted to students in Year 3 of the program. [This course is graded on a pass/fail basis.](#)

Pre- or corequisites: NURS 3514, NURS 3550, NURS 3560 and NURS 3532.

**Example of registration restrictions:****BIOL 4100 Honours Thesis 6 cr**

The student will conduct a research project, chosen in consultation with a Biological Sciences faculty member acting as an advisor, and produce a thesis in which the project, the results and conclusions are presented. The student will defend the thesis at an oral examination held on completion of the thesis. [This course is restricted to 3rd and 4th year Honours Biological Science students.](#)

Prerequisite: BIOL 3100 or consent of department.

**HEAL 3000 Introduction to Social Epidemiology 3 cr**

This course provides an overview of the basic concepts, principles and methods of social epidemiology and their applications for research and practice from a human ecology perspective. Applications to social determinants of health across the life course may include but are not limited to income and food security, early child development and others. May not be held with the former HMEC 3000. [Restricted to students registered in the Rady Faculty of Health Sciences, Max Rady College of Medicine, or Faculty of Agricultural and Food Sciences.](#)

Prerequisites: HNSC 2000 (or PSYC 2250 or the former HMEC 2000 or the former HMEC 2050) and HEAL 2600 (or the former HMEC 2030).

**MECH 4162 Thesis 6 cr**

The course will give students the opportunity to gain a research or design experience in their area of interest. Thesis topics must be approved by the head of the department or designate. [This course is restricted to students in Year 4 Mechanical Engineering.](#) Not to be held for credit with MECH 4160.

Prerequisites: ENG 2010 and eligible to graduate.

**NURS 2510 Client and Context 1: Human Growth and Development 2 cr**

This course provides students with knowledge of normal human growth and development across the lifespan. May not be held with NURS 1260. [Registration is normally restricted to students in Year 2 of the program.](#)


RESP 2250 Ventilator Instrumentation 3 cr

This is a comprehensive course in the function, operation, and application of specified neonatal, pediatric and adult ventilators. Illustration of the necessary skills to setup, monitor and troubleshoot the ventilator will be examined in the classroom as well as in simulated patient case scenarios. [This course is restricted to students registered in year two of the Bachelor of Respiratory Therapy program who have completed all the required courses for year one of the program.](#)

## INSTRUCTIONS FOR PREPARING AND FORMATTING PROGRAM CHARTS TO SHOW PROGRAM MODIFICATIONS FOR SUBMISSIONS TO SCCCC (for PC users)

### Step 1: Copy

In the online version of the Academic Calendar, highlight and copy the program chart and/or list of elective courses to be modified and paste into a Word document. Be sure to copy and include any Notes and/or lists of courses approved for the program.



Search... Q

**Academic Calendar**

[HOME](#)
[CALENDAR CONTENTS](#)
[A-Z INDEX](#)
[COURSE DESCRIPTIONS](#)

**2021-2022 EDITION**

COVID-19 Crisis 2021-2022

COVID-19 Crisis 2020-2021

Welcome

**Undergraduate Studies** ▾

- Important Notice
- About the University
- Organizational Structure
- Academic Programs
- Academic Schedule
- University Policies and Procedures >
- General Academic Regulations
- Areas of Study
- Admissions
- University 1
- Faculty of Agricultural and Food Sciences/ School of Agriculture >
- Faculty of Architecture >
- School of Art >
- Faculty of Arts >
- Faculty of Education >
- Price Faculty of Engineering >
- Clayton H. Riddell Faculty of Environment, Earth, and Resources >
- Extended Education >
- Rady Faculty of Health Sciences >
- Faculty of Kinesiology and Recreation Management >
- Faculty of Law >
- Faculty of Management/I.H. Asper School of Business >
- Marcel A. Desautels Faculty of Music >
- Faculty of Science** ▾
  - Actuarial Mathematics >
  - Biochemistry >
  - Biological Sciences >

Home > Undergraduate Studies > Faculty of Science > Physics and Astronomy > Physics, B.Sc. Honours

## Physics and Astronomy, B.Sc. Honours

OVERVIEW
DEGREE REQUIREMENTS
COURSES
FACULTY REQUIREMENTS
MORE ▾

### Degree Requirements

**On This Page**

Honours: Astronomy and Astrophysics (Including Co-operative Option if Selected)  
 Honours: Physics (Including Co-operative Option if Selected)  
 Honours: Medical and Biological (Including Co-operative Option if Selected)

### Honours: Astronomy and Astrophysics (Including Co-operative Option if Selected)

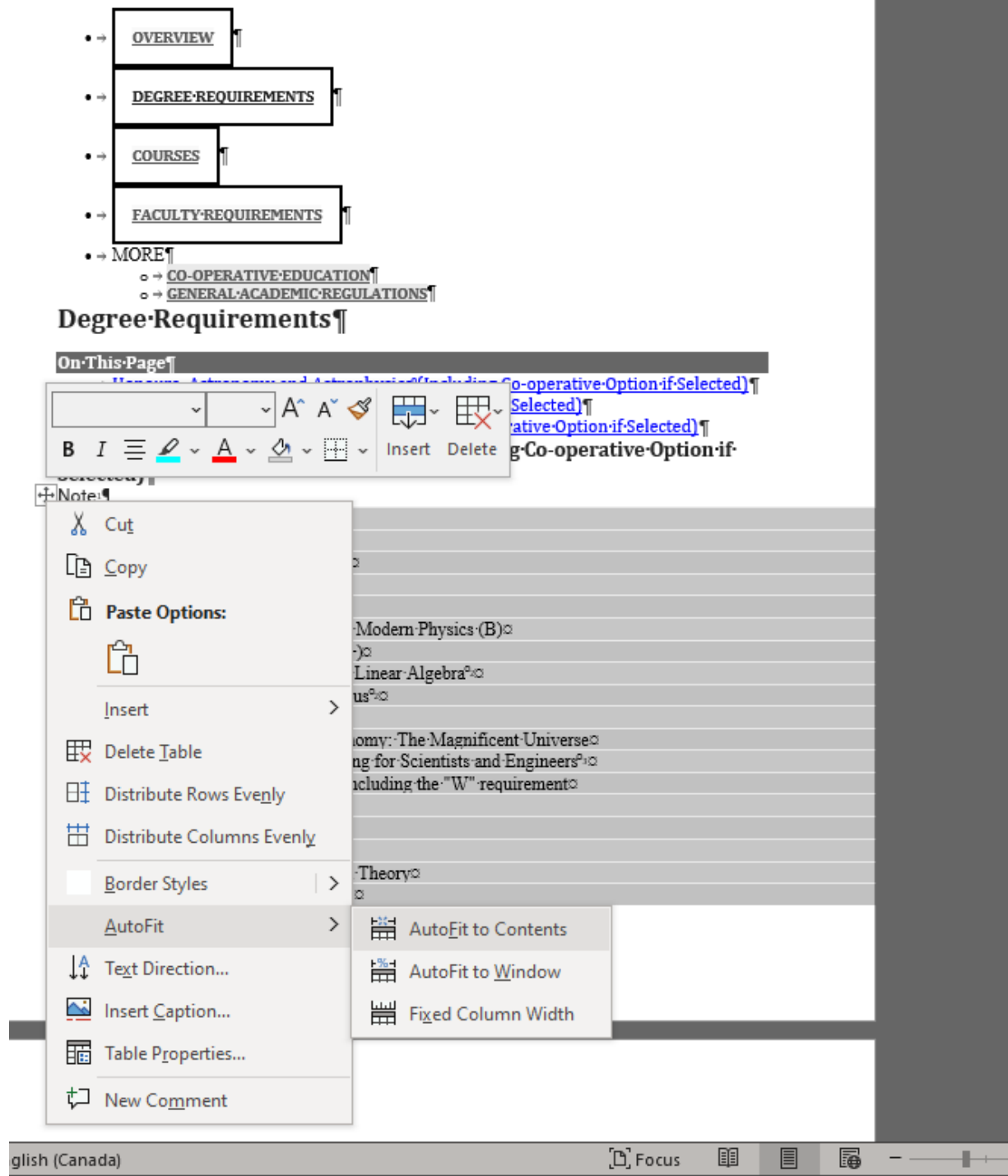
Note<sup>1</sup>

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>	3
MATH 1500    Introduction to Calculus <sup>2</sup>	3
MATH 1700    Calculus 2 <sup>2</sup>	3
ASTR 1810    Introduction to Astronomy: The Magnificent Universe	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
3 credit hours of open electives <sup>4</sup>	3
<b>Hours</b>	<b>30</b>
<b>Year 2</b>	
PHYS 2600    Electromagnetic Field Theory	3
PHYS 2650    Classical Mechanics 1	3

## Step 2: Paste and Fit to Page, Clean up Font

- Paste the program chart (table) and /or elective or course lists into a Word document. Delete: the tabs Overview, Degree Requirements, Courses, Faculty Requirements, More; the heading “Degree Requirements,” and the box “On This Page,” if you have copied them over.
- If the program chart (table) exceeds the right page margin, find the “+” icon in the top-left corner of table, right-click, select “Auto Fit” and choose “Auto Fit to Contents” from the menu.
- Select the chart (table) and adjust the row height to exactly 0.20”.
- Select all (CTRL + A) and change the font to Arial, font size 11.

## Physics and Astronomy, B.Sc. Honours



### Step 3: Re-formatting Charts with “One of” / “OR” Statements

- For tables with “One of”/”OR” statements, formatting that appears in the Academic Calendar is lost in the cut-and-paste process. So, start by indenting the courses from which students are to choose before making any other changes. **Follow the steps in Option 1.** If Option 1 does not work, try Option 2.

#### Option 1:

- Highlight the rows that will be modified

#### Honours: Astronomy and Astrophysics (Including Co-operative Option if Selected)

Note:

##### Year 1

One of: <sup>2</sup>

PHYS 1050 Physics 1: Mechanics

PHYS 1020 General Physics 1

One of: <sup>2</sup>

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>

MATH 1500 Introduction to Calculus <sup>2</sup>

MATH 1700 Calculus 2 <sup>2</sup>

ASTR 1810 Introduction to Astronomy: The Magnificent Universe

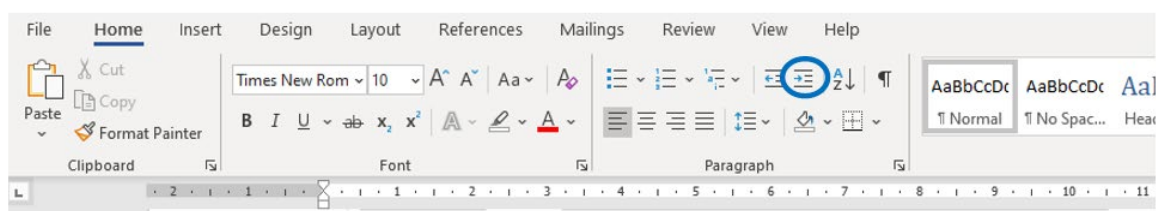
COMP 1012 Computer Programming for Scientists and Engineers <sup>3</sup>

6 credit hours from the Faculty of Arts including the "W" requirement

3 credit hours of open electives <sup>4</sup>

**Hours**

- \*Right-click on the toolbar icon indicated in the screenshot below called “Increase Indent.”



This is the result:

#### Honours: Astronomy and Astrophysics (Including Co-operative Option if Selected)

Note:

##### 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>

3

MATH 1500 Introduction to Calculus <sup>2</sup>

3

MATH 1700 Calculus 2 <sup>2</sup>

3

ASTR 1810 Introduction to Astronomy: The Magnificent Universe

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

3 credit hours of open electives <sup>4</sup>

3

**Hours**

**30**

**Option 2:**

- Insert a row beneath the courses from which students are to choose. For example:

**Honours: Astronomy and Astrophysics (Including Co-operative Option if Selected)**

Note<sup>1</sup>

<b>Year 1</b>		<b>Hours</b>
One of: <sup>2</sup>		3
<u>PHYS 1050</u>	Physics 1: Mechanics	
<u>PHYS 1020</u>	General Physics 1	
One of: <sup>2</sup>		3
<u>PHYS 1070</u>	Physics 2: Waves and Modern Physics (B)	
<u>PHYS 1030</u>	General Physics 2 (B+)	
<u>MATH 1300</u>	Vector Geometry and Linear Algebra <sup>2</sup>	3
<u>MATH 1500</u>	Introduction to Calculus <sup>2</sup>	3
<u>MATH 1700</u>	Calculus 2 <sup>2</sup>	3
<u>ASTR 1810</u>	Introduction to Astronomy: The Magnificent Universe	3
<u>COMP 1012</u>	Computer Programming for Scientists and Engineers <sup>3</sup>	3
6 credit hours from the Faculty of Arts including the "W" requirement		6
3 credit hours of open electives <sup>4</sup>		3
<b>Hours</b>		<b>30</b>

**Step 4: Show Proposed Changes**

- Show content to be removed using ~~strike through~~.
- Show content to be added in **bold**. Do not use only a different coloured font, as the change will not be evident in printed materials provided to SCCCC.
- See the next 3 pages for an example.



### Physics and Astronomy, B.Sc. Honours

#### Honours: Astronomy and Astrophysics (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>	3
MATH 1500 Introduction to Calculus <sup>2</sup>	3
MATH 1700 Calculus 2 <sup>2</sup>	3
ASTR 1810 Introduction to Astronomy: The Magnificent Universe	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
3 credit hours of open electives <sup>4, 5</sup>	3
<b>Hours</b>	<b>30</b>
<b>Year 2</b>	
PHYS 2070 Observational Astronomy	6
PHYS 2260 Optics	3
PHYS 2380 Quantum Physics 1	3
PHYS 2390 Theoretical Physics 1	3
PHYS 2490 Theoretical Physics 2	3
PHYS 2600 Electromagnetic Field Theory	3
PHYS 2610 Circuit Theory and Introductory Electronics	3
PHYS 2650 Classical Mechanics 1	3
PHYS 2386 Introduction to Quantum Mechanics and Special Relativity	3
PHYS 2496 Mathematical Physics 1	3
PHYS 2260 Optics	3
or PHYS 2610 or Circuit Theory and Introductory Electronics	
ASTR 2000 Foundations of Astrophysics	3
ASTR 2070 Observational Astronomy Techniques	3
MATH 2090 Linear Algebra 2	3
MATH 2720 Multivariable Calculus	3
3 credit hours of open 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 open 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>	
<u>SCI 3980</u> Co-operative Education Work Term 1	0
<u>SCI 3990</u> Co-operative Education Work Term 2	0
<u>SCI 4980</u> Co-operative Education Work Term 3	0
<u>SCI 4990</u> Co-operative Education Work Term 4 (if a 4th work term is selected)	0
<b>Hours</b>	<b>0</b>
<b>Year 4</b>	
<u>PHYS 4386</u> Quantum Mechanics 3	3
<u>PHYS 4646</u> Electro - and Magnetodynamics and Special Relativity	3
<u>PHYS 4676</u> Honours Thesis - Proposal and Preparation	3
<u>PHYS 4678</u> Honours Thesis - Dissertation	3
<u>PHYS 4680</u> Statistical Mechanics	3
One of:	3
<u>PHYS 4010</u> General Relativity and Gravitation	
<u>PHYS 4250</u> Computational Physics	
<u>PHYS 4516</u> Introduction to Nuclear and Particle Physics	
Two of:	6
<u>ASTR 4020</u> Cosmology and Black Holes	
<u>ASTR 4100</u> High-Energy Astrophysics	
<u>ASTR 4200</u> Radio Astronomy	
<u>ASTR 4400</u> Magnetohydrodynamics, Astrophysical Plasmas, and the Interstellar Medium	
6 credit hours of open electives <sup>5, 6</sup>	6
<b>Hours</b>	<b>30</b>
<b>Total Hours</b>	<b>120</b>

## Plan of Study Grid

<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 1220 may be taken in place of MATH 1300;
  - MATH 1230 or 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;
  - 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>56</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.

 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.)