



## Academic Programs Committee of Council

### University Course Challenge

**Scheduled posting: February, 2019**

The following types of curricular and program changes are approved by the University Course Challenge -- additions and deletions of courses, lower levels of study and program options; straightforward program changes; and curricular changes which affect other colleges.

**Contents include submissions for information and approval from the following colleges:**

College of Arts and Science  
College of Engineering  
College of Graduate and Postdoctoral Studies

**Approval:**      Date of circulation: February 14, 2019  
                            Date of effective approval if no challenge received: March 1, 2019

**Next scheduled posting:**

The next scheduled posting will be March 14, 2019, with a submission deadline of **March 12, 2019**. Urgent items can be posted on request.

Please direct challenges to both of the following: [seanine.warrington@usask.ca](mailto:seanine.warrington@usask.ca) in Registrarial Services and [amanda.storey@usask.ca](mailto:amanda.storey@usask.ca) in the Office of the University Secretary.

## **University Course Challenge – February 2019**

The curricular revisions listed below were approved through the Arts & Science College Course and Program Challenge, and by the relevant college-level Academic Programs Committee, and are now submitted to the University Course Challenge for approval.

Contact: Alexis Dahl ([alexis.dahl@usask.ca](mailto:alexis.dahl@usask.ca))

### **Archaeology and Anthropology**

#### **Adding a Lower-Level of Concentration**

Add B.A. Double Honours and Minor options to the replacement program approved this fall.

#### **Archaeology and Anthropology - Double Honours - Major 1**

Double Honours Programs may be taken in combinations of two subjects. In this program at least 36 credit units will normally be taken in each subject. For further details, please see the [Academic Information and Policies](#) section.

The Department requires that all Honours students consult with the Departmental Undergraduate Advisor in establishing the students' fields of specialization within Archaeology and Anthropology because this consideration is important in choosing suitable upper-level courses within the Department.

No more than 6 credit units from one subject may be used in Requirements B1 to B4.

#### **B1 Basic Social Science Requirement (12 credit units)**

- [ANTH 111.3](#)
- [ARCH 112.3](#)

Choose **6 credit units** from the following:

- [ECON 111.3](#)
  - [ECON 114.3](#)
  - [GEOG 130.3](#)
  - [GEOG 150.3](#)
  - [HLST 110.3](#)
  - [INDG 107.3](#)
  - [IS 110.3](#)
  - [LING 111.3](#)
  - [LING 112.3](#)
  - [POLS 111.3](#)
  - [POLS 112.3](#)
  - [PSY 120.3](#)
  - [PSY 121.3](#)
  - [SOC 111.3](#)
  - [SOC 112.3](#)
  - [WGST 112.3](#)
- Any senior-level social science course provided that the prerequisite is met and not more than 6 credit units in one subject are used for the Social Science Requirement.
  - Statistics courses in social sciences are not accepted for credit toward the Social Science Requirement (eg. [ECON 204.6](#), [PSY 233.3](#), [PSY 234.3](#), [SOC 225.3](#) and [SOC 325.3](#)).

- Certain WGST courses may be considered a Humanities and/or Social Science. Refer to the course descriptions.

### **B2 Humanities Requirement (6 credit units)**

Choose **6 credit units** from the following:

- Humanities course list

### **B3 Science Requirement (6 credit units)**

Choose **6 credit units** from the following:

- Science (Type A, B, & D) course list

### **B4 Language Requirement (6 credit units)**

Choose **6 credit units** from the following:

- Languages list (includes courses in ENG and LIT)

### **B5 General Requirement (6 credit units)**

Choose **6 credit units** from the areas of Humanities, Science and/or Fine Arts.

Humanities

Science

Fine Arts

Courses with No Program Type

### **B6 Major Requirement (36 credit units)**

- ANTH 400.3 (Contemporary Issues in Archaeology & Anthropology)

Choose **9 credit units** from the following:

- ANTH 231.3
- ANTH 240.3
- ARCH 250.3
- ARCH 270.3

Choose **3 - 6 credit units** from the following:

- ANTH 302.3
- ARCH 361.6

Choose **18-21 credit units** from the following:

At least 15 credit units must be at the 300- or 400-level, and 3 credit units must be at the 400-level.

- 200-Level, 300-Level or 400-Level ANTH Courses
- 200-Level, 300-Level or 400-Level ARCH Courses

### **B7 Electives Requirement (48 credit units)**

Arts and Science courses, or those from other Colleges which have been approved for Arts and Science credit, to complete the requirements for 120 credit unit Four-year program. Of the 120 credit units required at least 66 must be at the 200-level or higher and no more than 60 in one subject.

### **Archaeology and Anthropology - Double Honours - Major 2**

Double Honours Programs may be taken in combinations of two subjects. In this program at least 36 credit units will normally be taken in each subject. For further details, please see the [Academic Information and Policies](#) section.

The Department requires that all Honours students consult with the Departmental Undergraduate Advisor in establishing the students' fields of specialization within Archaeology and Anthropology because this consideration is important in choosing suitable upper-level courses within the Department.

Of the requirements listed in Major 2, some courses (usually 6 credit units) may be used to fulfill Requirements 1 to 5 of Major 1. If this happens, the result will be that the number of Open Electives in Requirement 7 will be increased accordingly to continue to require a total of 120 credit units for the Double Honours degree.

The major average for Archaeology and Anthropology as Major 2 will be calculated using the grades earned in all ANTH and all ARCH courses.

Students must complete at least two-thirds of the Major 2 program requirements (to the nearest highest multiple of 3 credit units) from the University of Saskatchewan to meet the mandatory residency requirement.

#### **Requirements (42 credit units)**

- ANTH 111.3
- ARCH 112.3
- ANTH 400.3

Choose **9 credit units** from the following:

- ANTH 231.3
- ANTH 240.3
- ARCH 250.3
- ARCH 270.3

Choose **3 - 6 credit units** from the following:

- ANTH 302.3
- ARCH 361.6

Choose **18-21 credit units** from the following:

At least 15 credit units must be at the 300- or 400-level, and 3 credit units must be at the 400-level.

- [200-Level, 300-Level or 400-Level ANTH Courses](#)
- [200-Level, 300-Level or 400-Level ARCH Courses](#)

### **Archaeology and Anthropology - Minor**

The Minor in Archaeology & Anthropology may be completed in conjunction with any degree in another discipline in the College of Arts & Science.

The Minor average in Anthropology & Archaeology will be calculated using the grades earned in all courses eligible to be included in the Minor program requirements. Students must complete at least two-

thirds of the program requirements (rounded to the nearest highest multiple of 3 credit units) using courses offered by the University of Saskatchewan to meet the Residency requirement.

### Requirements (21 credit units)

- [ANTH 111.3](#)
- [ARCH 112.3](#)

Choose **15 credit units** from the following:

- [200-Level, 300-Level or 400-Level ANTH Courses](#)
- [200-Level, 300-Level or 400-Level ARCH Courses](#)

Rationale: The Department of Archaeology and Anthropology recently proposed a new BA program that essentially merged the separate B.A. programs in these subjects (which will be deleted at the end of this year). The new program will allow the department: i) to more effectively offer our programming, ii) to further integrate teaching and research, and iii) to meet continuing budgetary constraints. In the process of submitting the new program to the College Challenge in the Fall of 2018, submitting materials for combined Minor and Double Honours programs was overlooked. This proposal corrects that oversight.

### Geology

**Minor program revisions** (Implementation in 2020-2021.)

#### **Bachelor of Science Honours and Four-year in Geology**

Separate requirements for geological mapping and field courses; add GEOL 405 to list of field courses. Add GEOE 218.3 and GEOE 377.3 to list of geoscience courses (restricted electives in C6).

#### Bachelor of Science Four-year (B.Sc. Four-year) - Geology C6 Major Requirement (54 credit units)

Note: Students must take at least one of [GEOL 324.3](#) or [GEOL 325.3](#) to satisfy Group 2B of APEGA requirements.

- [GEOL 206.3](#)
- [GEOL 224.3](#)
- [GEOL 226.3](#)
- [GEOL 229.3](#)
- [GEOL 245.3](#)
- [GEOL 247.3](#)
- [GEOL 258.3](#)
- [GEOL 282.3](#) or [GEOL 384.3](#)

Choose **at least 6 credit units** from the following:

- ~~[GEOL 308.3](#)~~
- ~~[GEOL 408.3](#)~~
- ~~[GEOL 485.6](#) or [GEOL 487.3](#)~~

~~\*If [GEOL 485.6](#) is chosen, 3 credit units of this class will count in this section, and the remaining 3 credit units will count as 3 credit units of a Geology class below.~~

Choose **3 credit units** from the following:

- o [GEOL 308.3](#)
- o [GEOL 408.3](#)

Choose **3 credit units** from the following:

- o [GEOL 308.3](#) (if not selected above)
- o [GEOL 405.3](#)
- o [GEOL 408.3](#) (if not selected above)
- o [GEOL 485.6\\*](#) or [GEOL 487.3](#)

\*If [GEOL 485.6](#) is chosen, 3 credit units of this class will count in this section, and the remaining 3 credit units will count as 3 credit units of Geology senior class in the Geology major.

### **Geosciences**

Choose **12 credit units** from the following:

- o [200-Level, 300-Level or 400-Level GEOL Courses](#)

Choose 12 additional credit units of senior level geoscience:

- o [200-Level, 300-Level or 400-Level GEOL Courses](#)
- o [EVSC 220.3](#)
- o [EVSC 420.3](#)
- o [GEOE 218.3](#)
- o [GEOE 315.3](#)
- o [GEOE 375.3](#)
- o [GEOE 377.3](#)
- o [GEOG 222.3](#)
- o [GEOG 225.3](#)
- o [GEOG 235.3](#)
- o [GEOG 322.3](#)
- o [GEOG 323.3](#)
- o [GEOG 325.3](#)
- o [GEOG 328.3](#)
- o [GEOG 335.3](#)
- o [GEOG 351.3](#)
- o [GEOG 420.3](#)
- o [GEOG 423.3](#)
- o [GEOG 427.3](#)
- o [SLSC 313.3](#)
- o [SLSC 322.3](#)
- o [SLSC 232.3](#) (formerly [SLSC 332.3](#))
- o [TOX 301.3](#)
- o [TOX 310.3](#)

### **Bachelor of Science Honours (B.Sc. Honours) - Geology** **C6 Major Requirement (57 credit units)**

Note: Students must take at least one of [GEOL 324.3](#) or [GEOL 325.3](#) to satisfy Group 2B of APEGA requirements.

- o [GEOL 206.3](#)

- [GEOL 224.3](#)
- [GEOL 226.3](#)
- [GEOL 229.3](#)
- [GEOL 245.3](#)
- [GEOL 247.3](#)
- [GEOL 258.3](#)
- [GEOL 282.3](#) or [GEOL 384.3](#)

Choose **at least 6 credit units** from the following:

- ~~[GEOL 308.3](#)~~
- ~~[GEOL 408.3](#)~~
- ~~[GEOL 485.6](#) or [GEOL 487.3](#)~~

~~\*If [GEOL 485.6](#) is chosen, 3 credit units of this class will count in this section, and the remaining 3 credit units will count as 3 credit units of a Geology class below.~~

Choose **3 credit units** from the following:

- [GEOL 308.3](#)
- [GEOL 408.3](#)

Choose **3 credit units** from the following:

- [GEOL 308.3](#) (if not selected above)
- [GEOL 405.3](#)
- [GEOL 408.3](#) (if not selected above)
- [GEOL 485.6\\*](#) or [GEOL 487.3](#)

\*If [GEOL 485.6](#) is chosen, 3 credit units of this class will count in this section, and the remaining 3 credit units will count as 3 credit units of Geology senior class in the Geology major.

Choose at least 3 credit units from the following:

- [GEOL 490.3](#)
- [GEOL 492.6](#)

\*If [GEOL 492.6](#) is chosen, 3 credit units of this class will count in this section, and the remaining 3 credit units will count as 3 credit units of a Geology class below.

## Geosciences

Choose **12 credit units** from the following:

- [200-Level, 300-Level or 400-Level GEOL Courses](#)

Choose 12 additional credit units of senior level geoscience:

- [200-Level, 300-Level or 400-Level GEOL Courses](#)
- [EVSC 220.3](#)
- [EVSC 420.3](#)

- [GEOE 218.3](#)
- [GEOE 315.3](#)
- [GEOE 375.3](#)
- [GEOE 377.3](#)
- [GEOG 222.3](#)
- [GEOG 225.3](#)
- [GEOG 235.3](#)
- [GEOG 322.3](#)
- [GEOG 323.3](#)
- [GEOG 325.3](#)
- [GEOG 328.3](#)
- [GEOG 335.3](#)
- [GEOG 351.3](#)
- [GEOG 420.3](#)
- [GEOG 423.3](#)
- [GEOG 427.3](#)
- [SLSC 313.3](#)
- [SLSC 322.3](#)
- [SLSC 232.3](#) (formerly [SLSC 332.3](#))
- [TOX 301.3](#)
- [TOX 310.3](#)

Rationale: There are two changes represented here:

1. There is a requirement of field courses for the geology degree. GEOL 308.3 and 408.3 are geological mapping courses. GEOL 405.3 is an international field studies course while GEOL 485.6 and GEOL 487.3 are geophysics field schools. The old requirement was for a total of 6 credits of field school and did not include GEOL 405.3 which is a new course. The change is made in order to allow GEOL 405.3 to satisfy 3 credits of the Geology field school requirement. However, geological mapping is an essential part of a geologist's education and so at least one of GEOL 308.3 or 408.3 are still required.
2. The second change involves adding GEOE 218.3 (Engineering Geology) and GEOE 377.3 (Fundamentals of Mining and Mineral Processing) to the list of Geoscience elective classes that can be taken to satisfy the C6 part of the degree. GEOE 218.3 introduces concepts of rock mechanics that would be useful to Geology students in environmental, mining and petroleum fields. GEOE 377.3 would provide useful background for students going into mining exploration. The addition of these two courses also gives students more flexibility in their degree path.

### **Bachelor of Science Three-year in Geology**

Change the C6 requirement of the program from an explicit list to an inclusive list of all senior GEOL courses.

### **Bachelor of Science Three-year (B.Sc. Three-year) - Geology** **C6 Major Requirement (24 credit units)**

Choose 24 credit units from the following, of which at least 3 credit units must be at the 300-level or higher.

- [200-Level, 300-Level or 400-Level GEOL Courses](#)
  - [GEOL 206.3](#)
  - [GEOL 224.3](#)
  - [GEOL 226.3](#)
  - [GEOL 229.3](#)
  - [GEOL 245.3](#)



- [GEOL 247.3](#)
- [GEOL 258.3](#)
- [GEOL 282.3](#)
- [GEOL 308.3](#)
- [GEOL 324.3](#)
- [GEOL 325.3](#)
- [GEOL 330.3](#)
- [GEOL 343.3](#)
- [GEOL 358.3](#)
- [GEOL 384.3](#)
- [GEOL 406.3](#)
- [GEOL 408.3](#)
- [GEOL 413.3](#)
- [GEOL 429.3](#)
- [GEOL 446.3](#)
- [GEOL 447.3](#)
- [GEOL 448.3](#)
- [GEOL 450.3](#)
- [GEOL 451.3](#)
- [GEOL 463.3](#)
- [GEOL 465.3](#)

~~It is strongly recommended that students consult the Head of the Department or a Department Advisory for assistance with course selection for this program.~~

Rationale: This change will remove the need to submit a program revision each time a new GEOL course is approved.

### **Interactive Systems Design**

**Minor program revisions** (Implementation in 2020-2021.)

#### **Bachelor of Arts & Science Four-year in Interactive Systems Design**

Revise requirements for introductory ART courses to be an inclusive list, numbered 111 or higher, rather than an exclusive list.

#### **J2 Arts Distribution Requirement (18 credit units)**

- [PSY 120.3](#) Biological and Cognitive Bases of Psychology and [PSY 121.3](#) Social Clinical Cultural and Developmental Bases of Psychology (formerly PSY 110)

Choose **6 credit units** from the following:

- 100-level courses in ART numbered 111 or higher
- [ART 111.6](#) Painting I Foundation
- [ART 112.6](#) Drawing I Foundation
- [ART 151.3](#) Introductory Printmaking I
- [ART 152.3](#) Introductory Printmaking II
- Two of [ART 136.3](#) Digital and Integrated Practice I Foundation, [ART 141.3](#) Sculpture I Foundation, [ART 161.3](#) Foundation in Photography I

Choose **6 credit units** from the following:

- ENG — 100-Level
- HIST — 100-Level
- [LIT 110.3](#) Journeys in Masterpieces of European Languages in English Translation
- [LIT 111.3](#) Rebellion in Masterpieces of European Languages in English Translation
- [PHIL 110.6](#) Introduction to Philosophy
- [PHIL 120.3](#) Knowledge Mind and Existence
- [PHIL 133.3](#) Introduction to Ethics and Values

Rationale: This change makes no difference to what students are required to take, but will mean that the Interactive Systems Design program need not be revised every time a change is made to the list of 100-level ART courses.

## **Mathematics**

### **Minor course revisions**

#### **MATH 100.6 Mathematics for Education Students**

New course title: **Mathematics for Elementary School Teachers**

New course description: An introductory course designed for students planning to teach at the elementary school level. Topics include basic algebra review, geometry, number theory, linear algebra, sets and counting techniques, probability and statistics.

Add 90 minute lab period, per week. (Change term hours to **3L-1.5P**)

Rationale: The changes to the title and description align with revisions that have been made to the course over some years, to make the content more consistent with the capabilities and needs of contemporary Education students.

Students in this class will benefit significantly from the addition of a supervised, collaborative-learning lab, with supplemental examples presented occasionally by the instructor or TA. The lab will provide students with an important opportunity to work together, and to improve their skills and understanding through practice.

## **Microbiology & Immunology**

**Minor program revisions** (Implementation in 2020-2021.)

**Bachelor of Science Honours, Four-year and Three-year in Microbiology & Immunology**

**Bachelor of Science Double Honours in Microbiology & Immunology and Anatomy & Cell Biology**

**Bachelor of Science Double Honours in Microbiology & Immunology and Biochemistry**

Remove MCIM 416 from requirement C6. Replace this course with 3 credit units of 300 or 400-level MCIM in the Honours, Double Honours, and Four-year programs.

[Bachelor of Science Three-year \(B.Sc. Three-year\) - Microbiology & Immunology](#)  
**C6 Major Requirement (36 credit units)**

- [PHSI 208.6](#)
- [BMSC 200.3](#)
- [BMSC 210.3](#)
- [BMSC 220.3](#)
- [BMSC 230.3](#)
- [BMSC 240.3](#)
- [MCIM 326.3](#)
- [MCIM 390.3](#)
- [MCIM 391.3](#) or [BIOC 311.3](#)

Choose **6 credit units** from the following:

- [BIOC 300.3](#)
- [FABS 325.3](#)
- [FABS 334.3](#)
- [FABS 430.3](#)
- [FABS 450.3](#)
- [MCIM 308.3](#)
- [MCIM 309.3](#)
- [MCIM 321.3](#)
- [MCIM 416.3](#)
- [MCIM 417.3](#)
- [MCIM 423.3](#)
- [MCIM 425.3](#)
- [MCIM 487.3](#)
- [PHPY 302.3](#)
- [SLSC 344.3](#)

**Bachelor of Science Four-year (B.Sc. Four-year) - Microbiology & Immunology**  
**C6 Major Requirement (54 credit units)**

- [PHSI 208.6](#)
- [BMSC 200.3](#)
- [BMSC 210.3](#)
- [BMSC 220.3](#)
- [BMSC 230.3](#)
- [BMSC 240.3](#)
- [MCIM 321.3](#)
- [MCIM 326.3](#)
- [MCIM 390.3](#)
- [MCIM 391.3](#) or [BIOC 311.3](#)
- [MCIM 416.3](#)
- [MCIM 417.3](#)
- [MCIM 423.3](#)
- [MCIM 487.3](#)

Choose **3 credit units** from the following:

- 300 or 400 level MCIM courses.

Choose **9 credit units** from the following:

- [ACB 325.3](#)
- [BIOC 300.3](#)
- [BIOC 405.3](#)
- [BIOC 412.3](#)
- [BIOC 430.3](#)
- [BIOC 435.3](#)
- [BIOC 436.3](#)
- [BINF 200.3](#)
- [BIOL 226.3](#)
- [BIOL 316.3](#)
- [BIOL 421.3](#)
- [BIOL 436.3](#)

- [FABS 325.3](#)
- [FABS 334.3](#)
- [FABS 430.3](#)
- [FABS 450.3](#)
- [MCIM 308.3](#)
- [MCIM 309.3](#)
- [MCIM 425.3](#)
- [MCIM 491.6](#)
- [PHPY 302.3](#)
- [SLSC 343.3](#)
- [SLSC 344.3](#)

**Bachelor of Science Honours (B.Sc. Honours) - Microbiology & Immunology**  
**C6 Major Requirement (63 credit units)**

- [PHSI 208.6](#)
- [BMSC 200.3](#)
- [BMSC 210.3](#)
- [BMSC 220.3](#)
- [BMSC 230.3](#)
- [BMSC 240.3](#)
- [MCIM 321.3](#)
- [MCIM 326.3](#)
- [MCIM 390.3](#)
- [MCIM 391.3](#) or [BIOC 311.3](#)
- ~~[MCIM 416.3](#)~~
- [MCIM 417.3](#)
- [MCIM 423.3](#)
- [MCIM 487.3](#)
- [MCIM 490.0](#)

Choose **3 credit units** from the following:

- 300 or 400 level MCIM courses.

Choose **18 credit units** from the following:

[MCIM 491.6](#) is an Honours level class. Minimum cumulative average of 70% is required in those courses counting towards the program requirement of an Honours Degree in Microbiology and Immunology as well as permission of the Department.

- [ACB 325.3](#)
- [BIOC 300.3](#)
- [BIOC 405.3](#)
- [BIOC 412.3](#)
- [BIOC 430.3](#)
- [BIOC 435.3](#)
- [BIOC 436.3](#)
- [BINF 200.3](#)
- [BIOL 226.3](#)
- [BIOL 316.3](#)
- [BIOL 421.3](#)
- [BIOL 436.3](#)
- [FABS 325.3](#)

- [FABS 334.3](#)
- [FABS 430.3](#)
- [FABS 450.3](#)
- [MCIM 308.3](#)
- [MCIM 309.3](#)
- [MCIM 425.3](#)
- [MCIM 491.6](#)
- [PHPY 302.3](#)
- [SLSC 343.3](#)
- [SLSC 344.3](#)

**Bachelor of Science - Double Honours - Microbiology & Immunology and Anatomy & Cell Biology  
- Majors 1 and 2**

**C6 Major Requirement (75 credit units)**

- [ACB 310.3](#)
- [ACB 325.3](#)
- [ACB 330.3](#)
- [ACB 331.3](#)
- [ACB 405.3](#)
- [PHSI 208.6](#)
- [BIOL 226.3](#)
- [BMSC 200.3](#)
- [BMSC 210.3](#)
- [BMSC 220.3](#)
- [BMSC 230.3](#)
- [BMSC 240.3](#)
- [MCIM 321.3](#)
- [MCIM 326.3](#)
- [MCIM 390.3](#)
- [MCIM 391.3](#)
- [MCIM 416.3](#)
- [MCIM 417.3](#)
- [MCIM 423.3](#)
- [MCIM 487.3](#)
- [MCIM 490.0](#)
- [CHEM 250.3](#)

Choose **3 credit units** from the following:

- 300 or 400 level MCIM courses.

Choose **3 credit units** from the following:

- [ACB 333.3](#)
- [ACB 334.3](#)
- [ACB 400.3](#)
- [ACB 406.3](#)

Choose **6 credit units** from the following:

- [ACB 401.6](#)
- [MCIM 491.6](#)

**Bachelor of Science Double Honours - Microbiology & Immunology and Biochemistry - Majors 1 and 2**

**C6 Major Requirement (75 credit units)**

- [PHSI 208.6](#)
- [BMSC 200.3](#)
- [BMSC 210.3](#)
- [BMSC 220.3](#)
- [BMSC 230.3](#)
- [BMSC 240.3](#)
- [BIOC 300.3](#)
- [BIOC 310.3](#)
- [BIOC 311.3](#) or [MCIM 391.3](#)
- [BIOC 490.0](#) (attendance in [BIOC 490.0](#) is required in both term 1 and 2)
- [CHEM 250.3](#)
- [MCIM 321.3](#)
- [MCIM 326.3](#)
- [MCIM 390.3](#)
- ~~[MCIM 416.3](#)~~
- [MCIM 417.3](#)
- [MCIM 423.3](#)
- [MCIM 487.3](#)
- [MCIM 490.0](#)

Choose **3 credit units** from the following:

- 300 or 400 level MCIM courses.

Choose **12 credit units** from the following:

- [400-Level BIOC Courses](#)

Choose **6 credit units** from the following:

- [BIOC 489.6](#)
- [MCIM 491.6](#)

Choose **3 credit units** from the following:

- [ACB 325.3](#)
- [BINF 200.3](#) or [BINF 210.3](#)
- [BIOC 405.3](#)
- [BIOC 412.3](#)
- [BIOC 430.3](#)
- [BIOC 435.3](#)
- [BIOC 436.3](#)
- [BIOL 316.3](#)
- [BIOL 436.3](#)
- [CHEM 221.3](#)
- [CHEM 242.3](#)
- [MCIM 308.3](#)
- [MCIM 309.3](#)
- [MCIM 425.3](#)

Rationale: The faculty member teaching MCIM 416.3 is retiring as of July 1, 2018. No one is able to continue the course, and therefore it is being replaced by other 300- or 400-level MCIM courses, to allow students as much flexibility as possible.

**Course deletion:**

**MCIM 416.3 Microbial Physiology**

The faculty member who developed and has taught this course from its inception is retiring as of July 1, 2019. None of remaining faculty have the specific knowledge base to continue to offer the course in its current form. See above for related program revisions.

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**Items for Information**

The curricular revisions listed below were approved through the Arts & Science College Course and Program Challenge and are now submitted to the University Course Challenge for information.

**Geology**

**Minor course revisions**

**GEOL 405.3 International Field Studies**

Prerequisite change:

Old prerequisite(s): GEOL 226, GEOL 245, GEOL 247, and GEOL 258; and permission of the instructor.

New prerequisite(s): GEOL 245, GEOL 247, GEOL 258, and GEOL 343; and permission of the instructor.

GEOL 447 and 448 are highly recommended.

Rationale: This field course is focused on depositional environments and sedimentary rocks. Accordingly GEOL 343, which covers sedimentary environments, provides the necessary background for the field class. Because GEOL 226 deals with igneous and metamorphic rocks, which are not the scope of the field course, this course has been removed as a pre-requisite.

GEOL 447 and 448 provide helpful background information as well.

**GEOL 408.3 Field School Crystalline Rocks**

Prerequisite change:

Old prerequisite(s): GEOL 226, GEOL 258, GEOL 247, and GEOL 229.

New prerequisite(s): GEOL 226, GEOL 258, GEOL 247, GEOL 229, and at least one of GEOL 324 or 325.

Rationale: Geol. 324.3 (Igneous Petrology) and 325.3 (Metamorphic Petrology) provide useful background for analyzing the rocks and geological setting seen at this field school. Adding this requirement will help students to be better prepared for GEOL 408.3.

## **College of Graduate and Postdoctoral Studies – For Information**

The following program received University Council approval in November, 2018. To clarify a slight inconsistency in the presentation of the Catalogue Entry in the proposal, the complete and final version of the program has been added here:

### **Field Epidemiology Master of Science (M.Sc.) – Project-based**

Students must maintain continuous registration in the 992 course.

- GPS 960.0
- GPS 961.0 if research involves human subjects
- GPS 962.0 if research involves animal subjects

A minimum of 30 credit units, including the following:

- 3 credit unit elective, as approved by the advisory committee
- PUBH 809.3
- VLAC 808.3
- VLAC 809.9
- VLAC 810.9
- VLAC 812.2
- VLAC 813.1
- VLAC 990.0
- VLAC 992.0

Students must also complete the following:

- Safety Orientation for Employees
- Biosafety





## University Course Challenge

February 2019

### For Approval

The following items have been approved by the Undergraduate Academic Programs Committee in the College of Engineering and are now being submitted to the University Course Challenge for further review and approval.

#### Department of Physics and Engineering Physics

- a) Motion: To remove PHYS 404.3 from the list of approved “Engineering Science or Design Electives” from the Engineering Physics Program requirements.

Rationale: This is the only non-engineering labelled course in the current list. With availability of P.Eng instructors in the department, the accreditation units will be difficult to maintain in the future. The course will remain an elective option for students to use to fulfill the requirements in Senior Science. Please see Addendum 1 for mock-up.

#### Dean’s Office

- b) Motion: To add MUS 101.3 to the approved list of complementary studies electives in the chemical, computer, electrical, environmental, and mechanical engineering as well as engineering physics undergraduate programs.

Rationale: Undergraduate students have been routinely permitted to use MUS 101.3 to satisfy their complementary studies elective requirement in the past. Adding this as an approved course improves transparency for all students. Please see Addendum 2 for mock-up.



## For Information

The following items have been approved by the Undergraduate Academic Programs Committee in the College of Engineering and are now being submitted to the University Course Challenge for information.

### Department of Chemical and Biological Engineering

Motion: to change the course description of *CHE 210: Fluid Mechanics* as presented below, effective 2019-05.

From: "Single phase fluid flow is considered for both gas and liquids. Newtonian and non-Newtonian concepts are introduced. Mass, energy and momentum balance equations, including Bernoulli equation (mechanical energy) are developed and applied to various fluid flow systems. The concepts of laminar and turbulent flow regimes are discussed and applied to flow in pipes and networks, and fluid metering. Other topics include pump and compressors and flow through consolidated and unconsolidated porous media."

To: "Single phase fluid flow is considered for both gas and liquids. Newtonian and non-Newtonian concepts are introduced. Mass, energy and momentum balance equations, including Bernoulli's equation (mechanical energy) are developed and applied to various fluid flow systems. The concepts of laminar and turbulent flow regimes are discussed and applied to flow in pipes and networks. Fluid metering is presented. Other topics include pump and compressors and flow through consolidated and unconsolidated porous media.

Rationale: minor editorial changes.

Motion: to change the course description of *CHE 364: Petrochemical Engineering* as presented below, effective 2019-05.

From: The petrochemical industry is a significant employer of chemical engineers. This course covers the fundamental chemistry, reactions and separations involved in the value-added processing of refinery products such as ethylene, sulfur, medium heating value gas, etc. An emphasis will be placed on the use of petrochemical properties in the engineering design and operation of petroleum value-added processes. The focus will be centered on chemical industries and feed stocks associated with Saskatchewan and Western Canada. The chemistry and concerns of petrochemical pollutants will also be discovered.

To: This course covers the fundamental chemistry, reactions and separations involved in the value-added processing of refinery products such as ethylene, sulfur, medium heating value gas, etc. An emphasis will be placed on the use of petrochemical properties in the engineering design and operation of petroleum value-added processes. The focus will be centered on chemical industries and feed stocks associated with Saskatchewan and Western Canada. The chemistry and concerns of petrochemical pollutants will also be discovered.

Rationale: minor editorial changes.



Motion: to change the course description of *CHE 423: Process Dynamics and Control* as presented below, effective 2019-05.

From: Instrumentation and the control systems will be discussed. The classical linear control theory and stability criteria for control system design are introduced. The development of dynamic equations for elements of control loops is emphasized. Survey and discussion of particular control schemes for chemical engineering processes.

From: Instrumentation and control systems will be discussed. Classical linear control theory and stability criteria for control system design are introduced. The development of dynamic equations for elements of control loops is emphasized. Survey and discussion of particular control schemes for chemical engineering processes.

Rationale: minor editorial changes.

Motion: to change the course description of *CHE 495.6: Process Engineering and Design II* as presented below, effective 2019-05.

From: Detailed design of an actual industrial chemical process including preparation of the engineering flow sheet, process simulation and optimization, plant energy and material balances, equipment sizing and design, plant layout, hazards, safety, environmental impacts, and economic analysis of the chemical process. Students will also employ project management skills to ensure timely completion of projects.

To: Detailed design of an actual industrial chemical process or series of units including preparation of the engineering flow sheet, process simulation and optimization, plant energy and material balances, equipment sizing and design, plant layout, hazards, safety, environmental impacts, and economic analysis of the chemical process. Students will also employ project management skills to ensure timely completion of projects.

Rationale: minor editorial changes.

### **Department of Mechanical Engineering**

Motion: to change the course description of *ME 328: Mechanical Engineering Laboratory I* as presented below, effective 2019-05.

From: A general laboratory course demonstrating and further investigating engineering principles related primarily to material treated in the third year, second-term lectures with emphasis on written reports.

To: A general laboratory course demonstrating and further investigating engineering principles related primarily to material treated in the third year lectures with emphasis on written reports.

Rationale: minor editorial changes.



### **School of Professional Development**

Motion: to change the course description of *GE 496: Technological Innovation Design Project* as presented below, effective 2019-05.

From: This course is a 4th year engineering design elective experience. What makes it distinct from other disciplinary design elective courses is that the students in GE 496.3 identify and develop their own design problems, or they help multidisciplinary design groups that are doing so. Students will identify and characterize a design problem, show that it is valid, and then proceed to design a solution to the design problem using engineering design methods or they will assist a design team of students from one or more other disciplines in the area of mechanical engineering. This course is for those that seek a more entrepreneurial design experience.

To: This course is a 4th year engineering design elective experience. What makes it distinct from other disciplinary design elective courses is that the students in GE 496.3 identify and develop their own design problems, or they help multidisciplinary design groups that are doing so. Students will identify and characterize a design problem, show that it is valid, and then proceed to design a solution to the design problem using engineering design methods or they will assist a design team of students from one or more other disciplines. This course is for those that seek a more entrepreneurial design experience as a design or technical elective.

Rationale: minor editorial changes.



## ADDENDUM 1 Engineering Physics Program

# Engineering Physics

Bachelor of Science in Engineering (B.E.) -  
Engineering Physics

Engineering Physics is a bridge between pure and applied science, utilizing fundamental concepts in today's rapidly changing and highly technical engineering environment. The program emphasizes the foundations of modern scientific principles, mathematical rigour, and engineering practice. The program is recommended for students interested in physics, specifically optics, mechanics, electronics, instrumentation, and modelling. Graduates may proceed to a postgraduate degree in Physics and Engineering Physics or in other branches of engineering. There are also double degree programs in Engineering Physics/Computer Science and Engineering Physics/Mathematics which have proven to be very effective for the high technology job market and for graduate work.

All undergraduate students admitted to the College of Engineering are required to complete a common first-year of undeclared studies (known as the first-year common core). Once the first-year common core program has been completed, undergraduate students declare their preferences and compete for admission into an upper-year program. Students who are successful in securing admission into an upper-year program are required to follow the program of study that is prescribed at the time of their admission into the upper-year program.

Recognizing that course and program changes may result in a modification to the original program of study, it is recommended that undergraduate students consult an Academic Advisor within the Engineering Student Centre on a regular basis to confirm their program of study, choose courses (including electives), and monitor their academic progress.

## Year 1 (34 credit units)

All Engineering programs have a **common** first year.

## Year 2 (37 credit units)

### Fall Term

- CMPT 116.3
- EE 221.3
- EP 202.3
- EP 253.1
- MATH 223.3
- PHYS 252.3
- RCM 300.3

### Winter Term

- EE 232.3
- EP 214.3
- EP 228.3
- MATH 224.3
- PHYS 223.3
- STAT 241.3

## Year 3 (40 credit units)

### Fall Term

- EE 321.3
- EP 353.2
- EP 370.3
- MATH 331.3
- PHYS 356.3



- PHYS 383.3
- 3 credit units of Engineering Physics Requirements

### Winter Term

- EP 317.3
- EP 320.3
- EP 325.3
- EP 354.2
- PHYS 323.3
- PHYS 371.3
- 3 credit units of Engineering Physics Requirements

## Year 4 (36 credit units)

### Fall Term

- EP 413.3
- EP 417.3
- EP 421.3
- GE 348.3
- PHYS 456.3
- 3 credit units of Engineering Physics Requirements

### Winter Term

- GE 449.3
- 9 credit units of Engineering Physics Requirements

### Fall Term and Winter Term

- EP 495.6
- PHYS 490.0

## Engineering Physics Requirements

### Engineering Science or Engineering Design List

6 credit units from the following list, at least 3 credit units must be 400 level.

- CE 317.3
- CME 331.3
- CME 341.3
- CME 342.3
- EE 241.3
- EE 322.3
- EE 341.3
- EE 342.3
- EE 343.3
- EE 442.3
- EE 471.3
- EE 472.3
- ENVE 201.3
- EP 428.3
- EP 440.3
- GE 213.3
- GEOE 377.3
- ~~PHYS 404.3~~
- or any other approved elective

### Senior Science Requirement

6 credit units from the Engineering Science or Engineering Design list, or CMPT, CHEM, GEOL courses at 200 level or higher, or PHYS, ASTR, MATH, STAT courses at 300 level or higher, or any other approved elective. At least 3 credit units must be at 400 level.



### Complementary Studies Elective (3 credit units)

- ANTH — 100-Level, 200-Level, 300-Level, 400-Level
- ARBC — 100-Level, 200-Level, 300-Level, 400-Level
- ARCH — 100-Level, 200-Level, 300-Level, 400-Level
- ARTH — 100-Level, 200-Level, 300-Level, 400-Level
- CHIN — 100-Level, 200-Level, 300-Level, 400-Level
- CLAS — 100-Level, 200-Level, 300-Level, 400-Level
- CMRS — 100-Level, 200-Level, 300-Level, 400-Level
- COMM 201.3
- COMM 203.3
- COMM 204.3
- COMM 205.3
- COMM 210.3
- COMM 211.3
- COMM 304.3
- COMM 306.3
- COMM 308.3
- COMM 321.3
- COMM 323.3
- COMM 329.3
- COMM 337.3
- COMM 340.3
- COMM 342.3
- COMM 343.3
- COMM 345.3
- COMM 346.3
- COMM 347.3
- COMM 348.3
- COMM 349.3
- COMM 352.3
- COMM 354.3
- COMM 357.3
- CREE — 100-Level, 200-Level, 300-Level, 400-Level
- ECON 111.3
- ECON 114.3
- ECON 211.3
- ECON 214.3
- ECON 221.3
- ECON 223.3
- ECON 227.3
- ECON 231.3
- ECON 234.3
- ECON 254.3
- ECON 256.3
- ECON 270.3
- ECON 272.3
- ECON 275.3
- ECON 277.3
- ECON 280.3
- ENG — 100-Level, 200-Level, 300-Level, 400-Level
- FREN — 100-Level, 200-Level, 300-Level, 400-Level
- GEOG 130.3
- GEOG 202.3
- GEOG 204.3
- GEOG 208.3
- GEOG 240.3
- GEOG 280.3
- GERM — 100-Level, 200-Level, 300-Level, 400-Level
- GRK — 100-Level, 200-Level, 300-Level, 400-Level
- HEB — 100-Level, 200-Level, 300-Level, 400-Level
- HIST — 100-Level, 200-Level, 300-Level, 400-Level
- HNDI — 100-Level, 200-Level, 300-Level, 400-Level
- INDG — 100-Level, 200-Level, 300-Level, 400-Level
- JPNS — 100-Level, 200-Level, 300-Level, 400-Level
- LATN — 100-Level, 200-Level, 300-Level, 400-Level
- LING — 100-Level, 200-Level, 300-Level, 400-Level
- LIT — 100-Level, 200-Level, 300-Level, 400-Level
- **MUS 101.3**
- PHIL 120.3
- PHIL 133.3
- PHIL 140.3
- PHIL 202.3



- PHIL 206.3
- PHIL 208.3
- PHIL 209.3
- PHIL 210.3
- PHIL 211.3
- PHIL 215.3
- PHIL 218.3
- PHIL 219.3
- PHIL 224.3
- PHIL 226.3
- PHIL 227.3
- PHIL 227.3
- PHIL 231.3
- PHIL 233.3
- PHIL 234.3
- PHIL 235.3
- PHIL 236.3
- PHIL 237.3
- PHIL 238.3
- PHIL 251.3
- PHIL 262.3
- PHIL 265.3
- PHIL 271.3
- PHIL 281.3
- PHIL 285.3
- PHIL 292.3
- PHIL 294.3
- PHIL 296.3
- POLS — 100-Level, 200-Level, 300-Level, 400-Level
- PSY — 100-Level, 200-Level, 300-Level, 400-Level
- RCM — 400-Level
- RLST — 100-Level, 200-Level, 300-Level, 400-Level
- RUSS — 100-Level, 200-Level, 300-Level, 400-Level
- SNSK — 100-Level, 200-Level, 300-Level, 400-Level
- SOC — 100-Level, 200-Level, 300-Level, 400-Level
- SPAN — 100-Level, 200-Level, 300-Level, 400-Level
- UKR — 100-Level, 200-Level, 300-Level, 400-Level
- WGST — 100-Level, 200-Level, 300-Level, 400-Level

- Exception: CLAS 104.3 cannot be used to meet the Complementary Studies Elective Requirements of the program.
- Special Topics courses cannot be used to meet a Complementary Studies Elective Requirement (any course ending in 98 or 99).

### Senior Humanities or Social Science Elective (3 credit units)

- ANTH — 200-Level, 300-Level, 400-Level
  - ARCH — 200-Level, 300-Level, 400-Level
  - CLAS — 200-Level, 300-Level, 400-Level
  - ECON — 200-Level, 300-Level, 400-Level
  - ENG — 200-Level, 300-Level, 400-Level
  - GEOG 202.3
  - GEOG 204.3
  - GEOG 208.3
  - GEOG 240.3
  - GEOG 280.3
  - HIST — 200-Level, 300-Level, 400-Level
  - INDG — 200-Level, 300-Level, 400-Level
  - PHIL — 200-Level, 300-Level, 400-Level
  - POLS — 200-Level, 300-Level, 400-Level
  - PSY — 200-Level, 300-Level, 400-Level
  - RLST — 200-Level, 300-Level, 400-Level
  - SOC — 200-Level, 300-Level, 400-Level
  - WGST — 200-Level, 300-Level, 400-Level
- Exception: ECON 204.6 cannot be used to meet the Complementary Studies, Senior Humanities or Social Science elective requirements of the program.
  - Exception: PSY 233.3 and PSY 236.3 cannot be used to meet the Complementary Studies, Senior Humanities or Social Science elective requirements of the program.
  - Exception: PHIL 241.3 cannot be used to meet the Senior Humanities or Social Science elective requirements of the program.
  - Exception: SOC 225.3 cannot be used to meet the Complementary Studies, Senior Humanities or Social Science elective requirements of the program.
  - The following Engineering courses will also satisfy the Humanities/Social Science elective requirement: RCM 400.3, RCM 401.3, RCM 402.3, RCM 403.3, RCM 404.3, RCM 405.3, RCM





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406.3, RCM 407.3, RCM 408.3, RCM 409.3, RCM  
410.3, and RCM 495.3.



## ADDENDUM 2

### Complementary Studies Elective List

Motion: To add MUS 101.3 to the approved list of complementary studies electives in the chemical, computer, electrical, environmental, and mechanical engineering as well as engineering physics undergraduate programs.

#### Complementary Studies Elective (3 credit units)

- ANTH — 100-Level, 200-Level, 300-Level, 400-Level
- ARBC — 100-Level, 200-Level, 300-Level, 400-Level
- ARCH — 100-Level, 200-Level, 300-Level, 400-Level
- ARTH — 100-Level, 200-Level, 300-Level, 400-Level
- CHIN — 100-Level, 200-Level, 300-Level, 400-Level
- CLAS — 100-Level, 200-Level, 300-Level, 400-Level
- CMRS — 100-Level, 200-Level, 300-Level, 400-Level
- COMM 201.3
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- COMM 342.3
- COMM 343.3
- COMM 345.3
- COMM 346.3
- COMM 347.3
- COMM 348.3
- COMM 349.3
- COMM 352.3
- COMM 354.3
- COMM 357.3
- CREE — 100-Level, 200-Level, 300-Level, 400-Level
- ECON 111.3
- ECON 114.3
- ECON 211.3
- ECON 214.3
- ECON 221.3
- ECON 223.3
- ECON 227.3



- ECON 231.3
- ECON 234.3
- ECON 254.3
- ECON 256.3
- ECON 270.3
- ECON 272.3
- ECON 275.3
- ECON 277.3
- ECON 280.3
- ENG — 100-Level, 200-Level, 300-Level, 400-Level
- FREN — 100-Level, 200-Level, 300-Level, 400-Level
- GEOG 130.3
- GEOG 202.3
- GEOG 204.3
- GEOG 208.3
- GEOG 240.3
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- GERM — 100-Level, 200-Level, 300-Level, 400-Level
- GRK — 100-Level, 200-Level, 300-Level, 400-Level
- HEB — 100-Level, 200-Level, 300-Level, 400-Level
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- HNDI — 100-Level, 200-Level, 300-Level, 400-Level
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- **MUS 101.3**
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- PHIL 227.3
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- PHIL 231.3
- PHIL 233.3
- PHIL 234.3
- PHIL 235.3



- PHIL 236.3
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  - PHIL 285.3
  - PHIL 292.3
  - PHIL 294.3
  - PHIL 296.3
  - POLS — 100-Level, 200-Level, 300-Level, 400-Level
  - PSY — 100-Level, 200-Level, 300-Level, 400-Level
  - RCM — 400-Level
  - RLST — 100-Level, 200-Level, 300-Level, 400-Level
  - RUSS — 100-Level, 200-Level, 300-Level, 400-Level
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  - SOC — 100-Level, 200-Level, 300-Level, 400-Level
  - SPAN — 100-Level, 200-Level, 300-Level, 400-Level
  - UKR — 100-Level, 200-Level, 300-Level, 400-Level
  - WGST — 100-Level, 200-Level, 300-Level, 400-Level
- 
- Exception: CLAS 104.3 cannot be used to meet the Complementary Studies Elective Requirements of the program.
  - Special Topics courses cannot be used to meet a Complementary Studies Elective Requirement (any course ending in 98 or 99).