The following Motions and Documents were considered by the GFCPrograms Committee at its Thursday, May 16, 2024 meeting:

Agenda Title: **Course, Minor Program, and Minor Regulation Changes**
- Arts
- Augustana
- Business
- Campus Saint-Jean
- Education
- Engineering
- Kinesiology, Sport and Recreation
- Medicine and Dentistry
- Nursing

CARRIED MOTION:
THAT the GFC Programs Committee approve, with delegated authority from General Faculties Council, the attached submissions from the Faculties of Arts, Augustana, Business, Campus Saint-Jean, Education, Engineering, Kinesiology, Sport and Recreation, Medicine and Dentistry, and Nursing.

Final Item: 4.

Agenda Title: **Proposed Name Change and Load Change for the MSc in Integrated Petroleum Geosciences (Amendments)**

CARRIED MOTION:
Be it resolved that the GFC Programs Committee approve the name change for the MSc in Integrated Petroleum Geosciences to the MSc in Integrated Energy Geosciences, and the corresponding load and program changes, for implementation upon final approval.

Final Item: 5

Agenda Title: **Senate Observers Principles Document**

CARRIED MOTION:
THAT GFC Programs Committee adopt the Senate Lay Admissions Observers Principles and Guidelines, as circulated.

Final Item: 6.

**FINAL ITEM NO. 4**

**Decision ☒ Discussion ☐ Information ☐**

**ITEM OBJECTIVE:** To approve course, minor program, and minor regulations changes for the Faculties of Arts, Augustana, Campus Saint-Jean, Education, Engineering, Kinesiology, Sport and Recreation, Medicine and Dentistry, and Nursing.

| | |
|---|---|
| **DATE** | May 16, 2024 |
| **TO** | GFC Programs Committee |
| **RESPONSIBLE PORTFOLIO** | Provost and Vice-President (Academic) |

**MOTION: THAT the GFC Programs Committee approve, with delegated authority from General Faculties Council, the attached submissions from the Faculties of Arts, Augustana, Business, Campus Saint-Jean, Education, Engineering, Kinesiology, Sport and Recreation, Medicine and Dentistry, Nursing.**

**EXECUTIVE SUMMARY:**

All routine course, minor program, and minor regulation changes that do not involve or affect other Faculties or units, and do not form part of a proposal for a new program or a substantive program change, are approved regularly by the GFC Programs Committee in an omnibus motion.

See individual item for Faculty Council approval information.

**Supporting Materials:**

Attachments:

1. Arts;
2. Augustana;
3. Campus Saint-Jean;
4. Education;
5. Engineering;
6. Kinesiology, Sport and Recreation;
7. Medicine and Dentistry; and
8. Nursing

**GOVERNANCE OUTLINE**

UNIVERSITY OF ALBERTA
FACULTY OF ARTS

**Package Code: AR – GC 03.26.24**

**This package contains: Graduate - Courses**

Faculty approval date:

AAC Date: March 26. 2024

| Page | Department or Unit | What is Changing |
|---|---|---|
| 2 | East Asian Studies | EASIA 550 |
| 4 | Media and Technology Studies | New - MST 597 |
| 5 | Media and Technology Studies | New - STS 599 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form - **Course Changes**

See the Calendar Guide for tips on how to complete this form

| **Faculty of Arts** | **East Asian Studies** |
|---|---|
| Level of change (choose one only) | ☐ Undergraduate ☒ Graduate |
| Contact Person: | Daniel Fried |
| Department/Unit Approval Date: | February 2, 2024 |

## Rationale for change (Indicate other consultation groups, departments, units or faculties)

This new course aims to provide better methodological training to our graduate students through online asynchronous modules tailored to the various specializations offered in the department.

Because we are an interdisciplinary unit working in different languages and different disciplines, there is no one course that would teach research methodologies appropriate to the entirety of a graduate student cohort. (For example, a graduate level research methods seminar on Japanese linguistics would not be of any use to MA students in Korean literature or Chinese art history.) Because of the breadth of our cohorts, we can't ever meet the enrollment minimum of five for a real disciplinary methods course. Instead, we have sent students out to other Arts departments when they had appropriate methods courses, and when they have not we have had to ask faculty to do time-consuming directed readings courses in order to get students the methodological training they need.

This course aims to solve this problem by creating a large bank of distinct online asynchronous research methods modules, in the different languages and fields covered by our department. This way, we will be able to meet the enrollment minimum of five students, while only asking students to do methodological training relevant to their own planned research tracks. Instructors for the course will spend some time supervising the students, but a large portion of the instructors' time will be spent updating old modules and developing new ones.

A pilot version of this course, with two fully-developed modules, has already been run successfully under a directed-reading course number, EASIA 599. Based on this success, we would like to create a new course number under which additional content could be developed to meet our goals for coverage of various fields and disciplinary specializations.

## Calendar Copy

| **Current:** ~~Removed language~~ (Include all parts of course) | **Proposed:** New language |
|---|---|
| | Requesting **Early Implementation** – please contact Daniel Fried once the course can be scheduled.<br><br>EASIA 550<br><br>East Asia Research Methods<br><br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0 |

| | |
|---|---|
| | **Fee index** 6<br>**Faculty** Arts<br>**Department** East Asian Studies<br>**Typically Offered** either term<br><br>**Description**<br>Online asynchronous graduate-level research methods course consisting of multiple modules covering the different languages, regions, and disciplines addressed in our graduate program. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form - **Course Changes**

See the Calendar Guide for tips on how to complete this form

| **Faculty of Arts** | **Media and Technology Studies** |
|---|---|
| Level of change (choose one only) | ☐ Undergraduate ☒ Graduate |
| Contact Person: | Amanda Khamvongsa, mtsug@ualberta.ca |
| Department/Unit Approval Date: | February 9, 2024 |

## Rationale for change (Indicate other consultation groups, departments, units or faculties)

At the moment, Media and Technology Studies does not have a catalog number for a graduate level course. The creation of MST 599 would allow us to offer graduate level courses in our Media Studies program that could be taught concurrently with a 400-level undergraduate course.

## Calendar Copy

| **Current:** ~~Removed language~~ (Include all parts of course) | **Proposed:** New language |
|---|---|
| Subject & Number | MST 597 |
| Title | Directed Reading in Media Studies |
| Course Career<br>Units<br>Approved Hours<br>Fee index<br>Faculty<br>Department<br>Typically Offered | Course Career: Graduate<br>Units: 3<br>Approved Hours: 0-3S-0<br>Fee index: 6<br>Faculty: Arts<br>Department/Unit: Media and Technology Studies<br>Typically Offered: either term |
| Description | Description: |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form - **Course Changes**

See the Calendar Guide for tips on how to complete this form

| **Faculty of Arts** | **Media and Technology Studies** |
|---|---|
| Level of change (choose one only) | ☐ Undergraduate ☒ Graduate |
| Contact Person: | Amanda Khamvongsa, mtsug@ualberta.ca |
| Department/Unit Approval Date: | February 10, 2024 |

## Rationale for change (Indicate other consultation groups, departments, units or faculties)

At the moment, Media and Technology Studies does not have a catalog number for a graduate level course. The creation of STS 599 would allow us to offer graduate level courses in our Science, Technology and Society program that could be taught concurrently with a 400-level undergraduate course.

## Calendar Copy

| **Current:** ~~Removed language~~ (Include all parts of course) | **Proposed:** New language |
|---|---|
| Subject & Number | STS 599 |
| Title | Directed Reading in Science, Technology and Society |
| Course Career | Course Career: Graduate |
| Units | Units: 3 |
| Approved Hours | Approved Hours: 0-3S-0 |
| Fee index | Fee index: 6 |
| Faculty | Faculty: Arts |
| Department | Department/Unit: Media and Technology Studies |
| Typically Offered | Typically Offered: either term |
| Description | Description: |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Augustana - Department of Fine Arts and Humanities |
| Contact Person: | Brandon Alakas |
| Level of change: (choose one only) [?] | ☑ Undergraduate |
| | ☐ Graduate |
| For which term will this change take effect? | Fall 2024 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

The following course changes represent minor changes in course hours, descriptions and prerequisites for AUBIO 411, AUPSY 342, AUPSY 346 and AUSTA 153, as well as the introduction of AUPSY 343, a science-credit version of Augustana's Health Psychology course, and the deletion of three AUMUS courses that are no longer used for Augustana Music programs - AUMUS 227, AUMUS 336, and AUMUS 498.

## Course Template

| **Current:** ~~Removed language~~ | **Proposed:** New language |
|---|---|
| **Subject & Number** AUBIO 411<br><br>**Title** History and Theory of Biology<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Augustana Faculty<br>**Department** AU Science<br>**Typically Offered** either term<br><br>**Description**<br>This is the capstone course for the Augustana Biology degree program and as such is designed to foster students' reflection on their biology degree program. An overview of historical progression in the biological sciences and their associated development in relation to prevailing philosophical, social, and cultural contexts act as the prompt for student reflection. Prerequisites: AUBIO 338, one of AUBIO 323, 374, 394, 395; fourth-year standing. | **Subject & Number** AUBIO 411<br><br>**Title** History and Theory of Biology<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Augustana Faculty<br>**Department** AU Science<br>**Typically Offered** either term<br><br>**Description**<br>This is the capstone course for the Augustana Biology degree program and as such is designed to foster students' reflection on their biology degree program. An overview of historical progression in the biological sciences and their associated development in relation to prevailing philosophical, social, and cultural contexts act as the prompt for student reflection. Prerequisites: AUBIO 338, one of AUBIO 274, 323, 374 (2023), 394, 395; fourth-year standing. |

| | |
|---|---|
| **Subject & Number** AUMUS 227<br><br>**Title** History of Vocal Literature<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Augustana Faculty<br>**Department** AU Fine Arts<br>**Typically Offered** either term<br><br>**Description**<br>Survey of vocal literature from the seventeenth century to the present. | **To be deleted** |
| **Subject & Number** AUMUS 336<br><br>**Title** Advanced Conducting<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Augustana Faculty<br>**Department** AU Fine Arts<br>**Typically Offered** either term<br><br>**Description**<br>Continued development of conducting techniques as applied to choral music. Prerequisite: AUMUS 235. | **To be deleted** |
| **Subject & Number** AUMUS 498<br><br>**Title** Fundamental Keyboard Skills<br><br>**Course Career** Undergraduate<br>**Units** 1<br>**Approved Hours** 0-0.5L-0<br>**Fee index** 5<br>**Faculty** Augustana Faculty<br>**Department** AU Fine Arts<br>**Typically Offered** either term<br><br>**Description**<br>Private piano lessons; a half-hour weekly lesson over one term. Prerequisite: Consent of the Department. Notes: Restricted to students who want to develop specific skills required to pass the Keyboard Skills Proficiency Examination (KSPE), and to International Program students. A student should consult the Department before registering. | **To be deleted** |

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|---|---|
| **Subject & Number** AUPSY 342<br><br>**Title** Health Psychology<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Augustana Faculty<br>**Department** AU Social Sciences<br>**Typically Offered** either term<br><br>**Description**<br>An overview of theory, research and practice of health psychology and behavioural medicine. Prerequisite: AUPSY 220 or 240. | **Subject & Number** AUPSY 342<br><br>**Title** Health Psychology: Social Foundations<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Augustana Faculty<br>**Department** AU Social Sciences<br>**Typically Offered** either term<br><br>**Description**<br>An overview of theory, research and practice of health psychology and behavioural medicine, with a focus on the interplay between social and psychological factors. Prerequisite: AUPSY 220 or 240. Note: Credit may be only obtained for only one of AUPSY 342 or 343. |
| **Subject & Number: NEW**<br><br>**Title:**<br><br>**Course Career**<br>**Units**<br>**Approved Hours**<br>**Fee index**<br>**Faculty**<br>**Department**<br>**Typically Offered**<br><br>**Description**: | **Subject & Number** AUPSY 343<br><br>**Title** Health Psychology: Biological Foundations<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Augustana Faculty<br>**Department** AU Social Sciences<br>**Typically Offered** either term<br><br>**Description**<br>An overview of theory, research and practice of health psychology and behavioural medicine, with a focus on the interplay between biological and psychological factors. Prerequisites: AUPSY 269 or 275. Credit may be only obtained for only one of AUPSY 342 or 343. |
| **Subject & Number** AUPSY 346<br><br>**Title** Community Psychology<br><br>**Course** Career Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee** index 6<br>**Faculty** Augustana Faculty<br>**Department** AU Social Sciences<br>**Typically Offered** either term<br><br>**Description** | **Subject & Number** AUPSY 346<br><br>**Title** Community Psychology<br><br>**Course** Career Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee** index 6<br>**Faculty** Augustana Faculty<br>**Department** AU Social Sciences<br>**Typically Offered** either term<br><br>**Description** |

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|---|---|
| Examination of the theories, approaches, and values behind social intervention intended to ameliorate, or prevent, psychological difficulty. Examples of community change are drawn from a Canadian context whenever possible. Prerequisites: AUPSY 103 and ~~AUPSY 213~~. | Examination of the theories, approaches, and values behind social intervention intended to ameliorate, or prevent, psychological difficulty. Examples of community change are drawn from a Canadian context whenever possible. Prerequisites: AUPSY 103 and AUSTA 153. |
| **Subject & Number** AUSTA 153<br><br>**Title** Introductory Applied Statistics<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** ~~3-0-1~~<br>**Fee index** 6<br>**Faculty** Augustana Faculty<br>**Department** AU Social Sciences<br>**Typically Offered** either term<br><br>**Description**<br>Introduction to elementary statistical concepts designed to provide an understanding of how statistics can be used to analyze real world phenomena. ~~Emphasis is on applications in the field of business and economics.~~ The student is required to use spreadsheet and other statistical software to analyze and examine statistical data. Prerequisite: Mathematics 30-1 or 30-2. Notes: ~~The course does not count toward the major in Mathematics and Physics or the minor in Mathematics.~~ Credit may be obtained for only one of AUSTA 153, ~~213,~~ 215 ~~or AUPSY 213 (2020)~~. | **Subject & Number** AUSTA 153<br><br>**Title** Introductory Applied Statistics<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Augustana Faculty<br>**Department** AU Social Sciences<br>**Typically Offered** either term<br><br>**Description**<br>Introduction to elementary statistical concepts designed to provide an understanding of how statistics can be used to analyze real world phenomena. The student is required to use spreadsheet and other statistical software to analyze and examine statistical data. Prerequisite: Mathematics 30-1 or 30-2. Notes: Credit may be obtained for only one of AUSTA 153 or 215. A functional laptop is required for this course. See computing requirements for the Augustana Campus. |

## Reviewed/Approved by:

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|---|
| REQUIRED: Augustana Faculty Council - April 5, 2024. |
| OPTIONAL: Augustana Curriculum Committee - March 12, 2024. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Augustana - Department of Social Sciences |
| Contact Person: | Brandon Alakas |
| Level of change: (choose one only) | ☑ Undergraduate |
| | ☐ Graduate |
| Type of change request: (check all that apply) | ☑ Program |
| | ☐ Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

The following changes to the Major in Physical Education (BSc) add new course options to the "Broader scientific Perspective" category from Augustana's Psychology and Mental Health courses.

## Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55069

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| **Major in Physical Education (BSc) [Augustana]**<br><br>**Requirements**<br>**27-unit Core:**<br>• AUPED 112 - Structural Human Anatomy<br>• AUPED 160 - Sociocultural Aspects of Sport and Physical Activity<br>• AUPED 215 - Introduction to Human Physiology I<br>• AUPED 293 - Introduction to Research in Physical Education<br>• AUPED 314 - Exercise Physiology<br>• AUPED 393 - Tests and Measurements in Physical Education | **Major in Physical Education (BSc) [Augustana]**<br><br>**Requirements**<br>**27-unit Core:**<br>• AUPED 112 - Structural Human Anatomy<br>• AUPED 160 - Sociocultural Aspects of Sport and Physical Activity<br>• AUPED 215 - Introduction to Human Physiology I<br>• AUPED 293 - Introduction to Research in Physical Education<br>• AUPED 314 - Exercise Physiology<br>• AUPED 393 - Tests and Measurements in Physical Education |

| | |
|---|---|
| • AUPED 462 - Issues in Physical Education<br>• AUPSY 103 - Introduction to Psychology<br>• AUSTA 153 - Introductory Applied Statistics<br>**3 units in**<br>• AUPED 216 - Introduction to Human Physiology II<br>**3 units in**<br>• 3 units in AUPAC (Physical Activity Courses)<br>**or any 1 of**<br>• AUPED 184 - Introduction to Outdoor Education - Snowshoeing<br>• AUPED 281 - Explorations of the Canadian North<br>• AUPED 283 - Introduction to Outdoor Education - Backpacking<br>• AUPED 284 - Introduction to Outdoor Education - Canoeing<br>• AUPED 286 - Outdoor Education and Leadership<br>• AUPED 387 - Arctic Expedition Planning<br>• AUPED 388 - Arctic Canoe Expedition<br>**6 units in Historical and Cultural Perspectives from:**<br>• AUHIS 212 - Sport, Physical Activity, and the Body: Historical Perspectives<br>• AUHIS 312 - The Modern Olympic Games<br>• AUHIS 368 - History of Sport in Canada<br>• AUIDS 302 - Exploring Body Issues<br>• AUMGT 360 - Hockey: Culture and Commerce<br>• AUPED 266 - Gender in Sport and Physical Activity<br>• AUPED 469 - Sport and Canadian Popular Culture<br>**12 units in Scientific Perspectives from:**<br>• AUPED 232 - Introduction to Biomechanics<br>• AUPED 251 - Prevention and Care of Athletic Injuries<br>• AUPED 317 - Exercise in Special Populations<br>• AUPED 343 - Training Methodologies and Athletic Performance<br>• AUPED 344 - Introduction to Human Nutrition | • AUPED 462 - Issues in Physical Education<br>• AUPSY 103 - Introduction to Psychology<br>• AUSTA 153 - Introductory Applied Statistics<br>**3 units in**<br>• AUPED 216 - Introduction to Human Physiology II<br>**3 units in**<br>• 3 units in AUPAC (Physical Activity Courses)<br>**or any 1 of**<br>• AUPED 184 - Introduction to Outdoor Education - Snowshoeing<br>• AUPED 281 - Explorations of the Canadian North<br>• AUPED 283 - Introduction to Outdoor Education - Backpacking<br>• AUPED 284 - Introduction to Outdoor Education - Canoeing<br>• AUPED 286 - Outdoor Education and Leadership<br>• AUPED 387 - Arctic Expedition Planning<br>• AUPED 388 - Arctic Canoe Expedition<br>**6 units in Historical and Cultural Perspectives from:**<br>• AUHIS 212 - Sport, Physical Activity, and the Body: Historical Perspectives<br>• AUHIS 312 - The Modern Olympic Games<br>• AUHIS 368 - History of Sport in Canada<br>• AUIDS 302 - Exploring Body Issues<br>• AUMGT 360 - Hockey: Culture and Commerce<br>• AUPED 266 - Gender in Sport and Physical Activity<br>• AUPED 469 - Sport and Canadian Popular Culture<br>**12 units in Scientific Perspectives from:**<br>• AUPED 232 - Introduction to Biomechanics<br>• AUPED 251 - Prevention and Care of Athletic Injuries<br>• AUPED 317 - Exercise in Special Populations<br>• AUPED 343 - Training Methodologies and Athletic Performance<br>• AUPED 344 - Introduction to Human Nutrition |

| | |
|---|---|
| • AUPED 375 - Selected Topics in Physical Education and Sport<br>• AUPED 414 - Advanced Exercise and Occupational Physiology<br>**15 units in Broader Scientific Perspectives from:**<br>• AUBIO 111 - Functional Biology<br>**12 units from:**<br>• AUBIO 112 - Evolution and Biodiversity<br>• AUBIO 230 - Molecular Cell Biology<br>• AUBIO 260 - Principles of Genetics<br>• AUCHE 110 - General Chemistry I<br>• AUCHE 112 - General Chemistry II<br>• AUENV 120 - Human Activities and the Natural Environment<br>• AUMAT 116 - Calculus Concepts and Modelling<br>• AUMAT 120 - Linear Algebra I<br>• AUPHY 110 - Mechanics<br>• AUPHY 120 - Waves, Thermodynamics and Optics<br>• AUPSY 263 - Memory and Cognition<br>• AUPSY 269 - Principles of Learning<br>• AUPSY 275 - An Introduction to the Brain and Nervous System<br>• AUPSY 375 - Neuroplasticity<br>• AUPSY 475 - Brain Injury<br>**3 units in Ethics and Philosophy from:**<br>• AUREL 257 - Modern Ethics<br>• AUREL 259 - Bioethics, Suffering and the Soul<br>• AUPHI 260 - Ethics<br>• AUPHI 350 - Philosophy of Science<br>**3 units in Fine Arts**<br>• Any Fine Arts course<br>**3 units in Humanities**<br>• Any Humanities course | • AUPED 375 - Selected Topics in Physical Education and Sport<br>• AUPED 414 - Advanced Exercise and Occupational Physiology<br>**15 units in Broader Scientific Perspectives from:**<br>• AUBIO 111 - Functional Biology<br>**12 units from:**<br>• AUBIO 112 - Evolution and Biodiversity<br>• AUBIO 230 - Molecular Cell Biology<br>• AUBIO 260 - Principles of Genetics<br>• AUCHE 110 - General Chemistry I<br>• AUCHE 112 - General Chemistry II<br>• AUENV 120 - Human Activities and the Natural Environment<br>• AUMAT 116 - Calculus Concepts and Modelling<br>• AUMAT 120 - Linear Algebra I<br>• AUPHY 110 - Mechanics<br>• AUPHY 120 - Waves, Thermodynamics and Optics<br>• AUPSY 263 - Memory and Cognition<br>• AUPSY 269 - Principles of Learning<br>• AUPSY 275 - An Introduction to the Brain and Nervous System<br>• AUPSY 343 - Health Psychology: Biological Foundations<br>• AUPSY 375 - Neuroplasticity<br>• AUPSY 377 - Human Neuropsychology<br>• AUPSY 475 - Brain Injury<br>**3 units in Ethics and Philosophy from:**<br>• AUREL 257 - Modern Ethics<br>• AUREL 259 - Bioethics, Suffering and the Soul<br>• AUPHI 260 - Ethics<br>• AUPHI 350 - Philosophy of Science<br>**3 units in Fine Arts**<br>• Any Fine Arts course<br>**3 units in Humanities**<br>• Any Humanities course |

## Reviewed/Approved by:

| |
|---|
| Augustana Faculty Council, April 5, 2024 |
| Augustana Curriculum Committee, March 12, 2024 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Augustana - Department of Science |
| Contact Person: | Brandon Alakas |
| Level of change: (choose one only) | ☑ Undergraduate |
| | ☐ Graduate |
| Type of change request: (check all that apply) | ☑ Program |
| | ☐ Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

A new math course AUMAT 316 Mathematical Methods in Physics has been added to support Augustana's Chemical and Physical Sciences program, and this proposal adds the new course as an option in the Computational and Applied Mathematics stream of the Computing Science and Mathematics program.

## Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55069

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| **Major in Computing Science and Mathematics [Augustana]**<br>**Requirements**<br>● AUCSC 111 - Introduction to Computational Thinking and Problem Solving<br>● AUCSC 112 - Data Structures and Algorithms<br>● AUCSC 250 - Computer Organization and Architecture I<br>● AUCSC 310 - Algorithm Design and Analysis<br>● AUMAT 116 - Calculus Concepts and Modelling<br>● AUMAT 120 - Linear Algebra I<br>● AUMAT 216 - Intermediate Calculus<br>● AUMAT 240 - Introduction to Computational Methods | **Major in Computing Science and Mathematics [Augustana]**<br>**Requirements**<br>● AUCSC 111 - Introduction to Computational Thinking and Problem Solving<br>● AUCSC 112 - Data Structures and Algorithms<br>● AUCSC 250 - Computer Organization and Architecture I<br>● AUCSC 310 - Algorithm Design and Analysis<br>● AUMAT 116 - Calculus Concepts and Modelling<br>● AUMAT 120 - Linear Algebra I<br>● AUMAT 216 - Intermediate Calculus<br>● AUMAT 240 - Introduction to Computational Methods |

| | |
|---|---|
| ● AUMAT 250 - Discrete Mathematics<br>● AUSCI 330 - History and Theory of Computing<br>● AUSCI 430 - Ethical Issues in Computing and Mathematics<br>● AUSTA 215 - Statistical Methods for the Natural Sciences<br>**Additional Requirements**<br>● 3 units in AUBIO, AUCHE, AUENV, or AUPHY at the 100-level.<br>● 9 units in Fine Arts and Humanities, with at least 3 credits in each.<br>● 6 units in Social Sciences. | ● AUMAT 250 - Discrete Mathematics<br>● AUSCI 330 - History and Theory of Computing<br>● AUSCI 430 - Ethical Issues in Computing and Mathematics<br>● AUSTA 215 - Statistical Methods for the Natural Sciences<br>**Additional Requirements**<br>● 3 units in AUBIO, AUCHE, AUENV, or AUPHY at the 100-level.<br>● 9 units in Fine Arts and Humanities, with at least 3 credits in each.<br>● 6 units in Social Sciences. |
| **Computing Science Stream**<br>Students in the Computing Science stream must also complete the following:<br>● AUCSC 220 - Software Engineering I<br>● AUCSC 370 - Programming Languages<br><br>**18 units from**<br>● AUCSC 204 - Computing Technology in Modern Society<br>● AUCSC 218 - Web Design, Development and Scripting<br>● AUCSC 320 - Software Engineering II<br>● AUCSC 325 - Software Testing and Quality Assurance<br>● AUCSC 330 - Database Management Systems I<br>● AUCSC 395 - Directed Study I<br>● AUCSC 401 - Professional Practicum I<br>● AUCSC 402 - Professional Practicum II<br>● AUCSC 450 - Parallel and Distributed Computing<br>● AUCSC 455 - Networks and Security<br>● AUCSC 460 - Artificial Intelligence<br>● AUCSC 480 - Operating Systems Concepts<br>● AUCSC 495 - Directed Study II | **Computing Science Stream**<br>Students in the Computing Science stream must also complete the following:<br>● AUCSC 220 - Software Engineering I<br>● AUCSC 370 - Programming Languages<br><br>**18 units from**<br>● AUCSC 204 - Computing Technology in Modern Society<br>● AUCSC 218 - Web Design, Development and Scripting<br>● AUCSC 320 - Software Engineering II<br>● AUCSC 325 - Software Testing and Quality Assurance<br>● AUCSC 330 - Database Management Systems I<br>● AUCSC 395 - Directed Study I<br>● AUCSC 401 - Professional Practicum I<br>● AUCSC 402 - Professional Practicum II<br>● AUCSC 450 - Parallel and Distributed Computing<br>● AUCSC 455 - Networks and Security<br>● AUCSC 460 - Artificial Intelligence<br>● AUCSC 480 - Operating Systems Concepts<br>● AUCSC 495 - Directed Study II |
| **Computational and Applied Mathematics stream**<br>Students in the Computational and Applied Mathematics stream must also complete the following:<br><br>● AUMAT 332 - Dynamical Systems<br><br>**9 units from** | **Computational and Applied Mathematics stream**<br>Students in the Computational and Applied Mathematics stream must also complete the following:<br><br>● AUMAT 332 - Dynamical Systems<br><br>**9 units from** |

| | |
|---|---|
| ● AUMAT 320 - Numerical Linear Algebra<br>● AUMAT 328 - Cryptography<br>● AUMAT 350 - Optimization<br>● AUMAT 353 - Applied Probability | ● AUMAT 316 - Mathematical Methods in Physics<br>● AUMAT 320 - Numerical Linear Algebra<br>● AUMAT 328 - Cryptography<br>● AUMAT 350 - Optimization<br>● AUMAT 353 - Applied Probability |

## Reviewed/Approved by:

| |
|---|
| Augustana Faculty Council, |
| Augustana Curriculum Committee, March 12, 2024 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Augustana - Department of Fine Arts and Humanities |
| Contact Person: | Brandon Alakas |
| Level of change: (choose one only) [?] | ☑ Undergraduate |
| | ☐ Graduate |
| For which term will this change take effect? | Fall 2024 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

The following represents a minor change in the course description and prerequisite.

## Course Template

| **Current:** ~~Removed language~~ | **Proposed:** New language |
|---|---|
| **Subject & Number: AUENG 240**<br><br>**Title: Sex, Scandal, and Society in the Eighteenth Century**<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Augustana Faculty<br>**Department** AU Fine Arts<br>**Typically Offered** variable<br><br>**Description**:<br>The eighteenth century saw the world change forever through the Industrial Revolution, the transatlantic slave trade, Europe's colonization of North and South America, the rise of women's rights, and more. ~~This course considers the literature of the century and how authors grappled with the above cultural and political shifts. Additionally, this course considers contemporary responses to eighteenth-century culture and society, including Shondaland's hit Netflix series *Bridgerton*. Prerequisites: 3 units in English at the 100-level.~~ | **Subject & Number: AUENG 240**<br><br>**Title: Sex, Scandal, and Society in the Eighteenth Century**<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Augustana Faculty<br>**Department** AU Fine Arts<br>**Typically Offered** variable<br><br>**Description**:<br>The eighteenth century saw the world change forever through the Industrial Revolution, the transatlantic slave trade, Europe's colonization of North and South America, the rise of women's rights, and more. This course explores the exciting, often scandalous, literature of the period between 1660-1800. Additionally, the course will consider contemporary film and television representations of the era. Prerequisites: AUENG 102 or second-year standing. |

## Reviewed/Approved by:

| |
|---|
| REQUIRED: Augustana Faculty Council - March 1, 2024. |
| OPTIONAL: Augustana Curriculum Committee - February 13, 2024. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Augustana - Department of Social Sciences |
| Contact Person: | Brandon Alakas |
| Level of change: (choose one only) | ☑ Undergraduate |
| | ☐ Graduate |
| Type of change request: (check all that apply) | ☑ Program |
| | ☐ Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

The following changes to the Major in Psychology and Mental Health (BA) reflect the addition of AUPSY 343- Health Psychology: Biological foundations as an alternative to AUPSY 342- Health psychology – Social Foundations.

## Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55067&returnto=13668

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| **Major in Psychology and Mental Health (BA) [Augustana]**<br><br>**Requirements**<br>• AUPSY 103 - Introduction to Psychology<br>• AUPSY 408 - History and Systems of Psychology<br>• AUPSY 483 - Psychological Disorders<br>• AUIND 300 - Selected Topics in Indigenous Studies<br>• AUSTA 153 - Introductory Applied Statistics<br>• AUSTA 217 - Applied Statistics: Quantitative<br>Analysis in the Social Sciences<br>• AUSTA 313 - Advanced Research Design<br>**6 units in Ethics and Philosophy from:** | **Major in Psychology and Mental Health (BA) [Augustana]**<br><br>**Requirements**<br>• AUPSY 103 - Introduction to Psychology<br>• AUPSY 408 - History and Systems of Psychology<br>• AUPSY 483 - Psychological Disorders<br>• AUIND 300 - Selected Topics in Indigenous Studies<br>• AUSTA 153 - Introductory Applied Statistics<br>• AUSTA 217 - Applied Statistics: Quantitative<br>Analysis in the Social Sciences<br>• AUSTA 313 - Advanced Research Design<br>**6 units in Ethics and Philosophy from:** |

| | |
|---|---|
| • AUART 260 - Selected Topics in Art History<br>• AUENG 299 - Selected Topics in English Studies<br>• AUPHI 210 - Epistemology: Theories of Knowledge<br>• AUPHI 260 - Ethics<br>• AUREL 250 - Theories of Religion<br>• AUREL 257 - Modern Ethics<br>• AUREL 259 - Bioethics, Suffering and the Soul | • AUART 260 - Selected Topics in Art History<br>• AUENG 299 - Selected Topics in English Studies<br>• AUPHI 210 - Epistemology: Theories of Knowledge<br>• AUPHI 260 - Ethics<br>• AUREL 250 - Theories of Religion<br>• AUREL 257 - Modern Ethics<br>• AUREL 259 - Bioethics, Suffering and the Soul |
| **3 units in Embodied Expressions from:**<br>• AUART 231 - Drawing I: A Basic Toolkit<br>• AUART 271 - Painting I: A Basic Toolkit (Oil)<br>• AUDRA 144 - Introduction to the Dramatic Process<br>• AUDRA 250 - Applied Improvisation<br>• AUENG 215 - Creative Writing<br>• AUMUS 246 - Choral Ensemble<br>• AUMUS 250 - Introduction to Music Education<br>• AUMUS 356 - Music and Wellness<br>• AUREL 291 - Selected Topics in Religion | **3 units in Embodied Expressions from:**<br>• AUART 231 - Drawing I: A Basic Toolkit<br>• AUART 271 - Painting I: A Basic Toolkit (Oil)<br>• AUDRA 144 - Introduction to the Dramatic Process<br>• AUDRA 250 - Applied Improvisation<br>• AUENG 215 - Creative Writing<br>• AUMUS 246 - Choral Ensemble<br>• AUMUS 250 - Introduction to Music Education<br>• AUMUS 356 - Music and Wellness<br>• AUREL 291 - Selected Topics in Religion |
| **Co-curricular Certification (choose at least 1)**<br>• CESL certificate<br>• Mental Health First Aid course<br>• Brain Story certification (required for Brain and Behaviour Stream) (Alberta Family Wellness Initiative) | **Co-curricular Certification (choose at least 1)**<br>• CESL certificate<br>• Mental Health First Aid course<br>• Brain Story certification (required for Brain and Behaviour Stream) (Alberta Family Wellness Initiative) |
| **39 units in one of the following Streams:** | **39 units in one of the following Streams:** |
| **Mental Health and Well-Being Stream**<br>**12 units from:**<br>• AUSOC 101 - Introducing Sociology: Principles and Practice<br>• AUSOC 105 - Social Anthropology<br>• AUSSC 300 - Selected Topics in Social Sciences<br>• AUPSY 342 - Health Psychology<br>**6 units from:**<br>• AUPSY 220 - Personality<br>• AUPSY 240 - Social Psychology<br>• AUPSY 256 - Developmental Psychology<br>**6 units from:**<br>• AUPSY 263 - Memory and Cognition<br>• AUPSY 269 - Principles of Learning | **Mental Health and Well-Being Stream**<br>**12 units from:**<br>• AUSOC 101 - Introducing Sociology: Principles and Practice<br>• AUSOC 105 - Social Anthropology<br>• AUSSC 300 - Selected Topics in Social Sciences<br>• AUPSY 342 - Health Psychology: Social Foundations **or**<br>• AUPSY 343 - Health Psychology: Biological Foundations<br>**6 units from:**<br>• AUPSY 220 - Personality<br>• AUPSY 240 - Social Psychology<br>• AUPSY 256 - Developmental Psychology |

| | |
|---|---|
| • AUPSY 275 - An Introduction to the Brain and Nervous System<br>**6 units at:**<br>• a 300-level or 400-level in Psychology<br>**6 units additional at:**<br>• a 400-level in Psychology<br>**3 units in Youth, Diversity, and Society from:**<br>• AUART 281 - Sex, Gender and Art<br>• AUART 382 - Selected Topics in Art History<br>• AUCRI 200 - Young Offenders and the Law<br>• AUCRI 224 - Studies in Deviant Behaviour<br>• AUENG 205 - Children's Literature<br>• AUENG 206 - Native Children's Literature<br>• AUSOC 275 - Sex, Gender, and Society<br>• AUPOL 355 - Gender, Law, and Politics<br>**Brain and Behaviour Stream**<br>**12 units from:**<br>• AUPSY 256 - Developmental Psychology<br>• AUPSY 263 - Memory and Cognition<br>• AUPSY 269 - Principles of Learning<br>• AUPSY 275 - An Introduction to the Brain and Nervous System<br>**3 units from:**<br>• AUPSY 220 - Personality<br>• AUPSY 240 - Social Psychology<br>**3 units from AUPSY arts:**<br>• AUPSY 338 - Intimate Relationships and Human Sexuality<br>• AUPSY 342 - Health Psychology<br>• AUPSY 344 - Environmental Psychology<br>• AUPSY 346 - Community Psychology<br>• AUPSY 414 - Program Evaluation in Psychology<br>• AUPSY 442 - Psychology in a Cultural Context | **6 units from:**<br>• AUPSY 263 - Memory and Cognition<br>• AUPSY 269 - Principles of Learning<br>• AUPSY 275 - An Introduction to the Brain and Nervous System<br>**6 units at:**<br>• a 300-level or 400-level in Psychology<br>**6 units additional at:**<br>• a 400-level in Psychology<br>**3 units in Youth, Diversity, and Society from:**<br>• AUART 281 - Sex, Gender and Art<br>• AUART 382 - Selected Topics in Art History<br>• AUCRI 200 - Young Offenders and the Law<br>• AUCRI 224 - Studies in Deviant Behaviour<br>• AUENG 205 - Children's Literature<br>• AUENG 206 - Native Children's Literature<br>• AUSOC 275 - Sex, Gender, and Society<br>• AUPOL 355 - Gender, Law, and Politics<br>**Brain and Behaviour Stream**<br>**12 units from:**<br>• AUPSY 256 - Developmental Psychology<br>• AUPSY 263 - Memory and Cognition<br>• AUPSY 269 - Principles of Learning<br>• AUPSY 275 - An Introduction to the Brain and Nervous System<br>**3 units from:**<br>• AUPSY 220 - Personality<br>• AUPSY 240 - Social Psychology<br>**3 units from AUPSY arts:**<br>• AUPSY 338 - Intimate Relationships and Human Sexuality<br>• AUPSY 342 - Health Psychology: Social Foundations<br>• AUPSY 344 - Environmental Psychology<br>• AUPSY 346 - Community Psychology |

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|---|---|
| • AUPSY 486 - Clinical and Counselling Psychology<br>• AUPSY 488 - Forensic Psychology<br>**9 units from AUPSY science:**<br>• AUPSY 305 - Selected Topics in Psychology<br>• AUPSY 361 - Cognitive Development<br>• AUPSY 373 - Psychology of Language<br>• AUPSY 375 - Neuroplasticity<br>• AUPSY 377 - Human Neuropsychology<br>• AUPSY 407 - Selected Topics in Psychology<br>• AUPSY 441 - Emotion<br>• AUPSY 471 - Language Acquisition<br>• AUPSY 475 - Brain Injury<br>**3 units in Science and Society:**<br>• AUART 381 - Selected Topics in Art History<br>• AUPHI 210 - Epistemology: Theories of Knowledge<br>• AUPHI 350 - Philosophy of Science<br>• AUPHI 351 - Thinking About Sex: Philosophy, Science, and the Construction of Sex<br>**9 units in Science from:**<br>• AUBIO 111 - Functional Biology<br>• AUBIO 260 - Principles of Genetics<br>• AUBIO 380 - Biochemistry: Proteins, Enzymes and Energy<br>• AUBIO 390 - Animal Behaviour<br>• AUCSC 111- Introduction to Computational Thinking and Problem Solving<br>• AUCSC 204 - Computing Technology in<br>Modern Society<br>• AUCSC 460 - Artificial Intelligence<br><br>Note for students in the Brain and Behaviour stream:<br>The following courses would be advantageous<br>for students taking this stream:<br>• AUCHE 110 - General Chemistry I<br>• AUCHE 112 - General Chemistry II<br>• AUCHE 250 - Organic Chemistry I<br>• AUPED 112 - Structural Human Anatomy | • AUPSY 414 - Program Evaluation in Psychology<br>• AUPSY 442 - Psychology in a Cultural Context<br>• AUPSY 486 - Clinical and Counselling Psychology<br>• AUPSY 488 - Forensic Psychology<br>**9 units from AUPSY science:**<br>• AUPSY 305 - Selected Topics in Psychology<br>• AUPSY 343 - Health Psychology: Biological Foundations<br>• AUPSY 361 - Cognitive Development<br>• AUPSY 373 - Psychology of Language<br>• AUPSY 375 - Neuroplasticity<br>• AUPSY 377 - Human Neuropsychology<br>• AUPSY 407 - Selected Topics in Psychology<br>• AUPSY 441 - Emotion<br>• AUPSY 471 - Language Acquisition<br>• AUPSY 475 - Brain Injury<br>**3 units in Science and Society:**<br>• AUART 381 - Selected Topics in Art History<br>• AUPHI 210 - Epistemology: Theories of Knowledge<br>• AUPHI 350 - Philosophy of Science<br>• AUPHI 351 - Thinking About Sex: Philosophy, Science, and the Construction of Sex<br>**9 units in Science from:**<br>• AUBIO 111 - Functional Biology<br>• AUBIO 260 - Principles of Genetics<br>• AUBIO 380 - Biochemistry: Proteins, Enzymes and Energy<br>• AUBIO 390 - Animal Behaviour<br>• AUCSC 111- Introduction to Computational Thinking and Problem Solving<br>• AUCSC 204 - Computing Technology in<br>Modern Society<br>• AUCSC 460 - Artificial Intelligence<br><br>Note for students in the Brain and Behaviour stream:<br>The following courses would be advantageous |

| | |
|---|---|
| • AUPED 215 - Introduction to Human Physiology I<br>• AUPED 216 - Introduction to Human Physiology II | for students taking this stream:<br>• AUCHE 110 - General Chemistry I<br>• AUCHE 112 - General Chemistry II<br>• AUCHE 250 - Organic Chemistry I<br>• AUPED 112 - Structural Human Anatomy<br>• AUPED 215 - Introduction to Human Physiology I<br>• AUPED 216 - Introduction to Human Physiology II |

## Reviewed/Approved by:

| |
|---|
| Augustana Faculty Council, April 5, 2024 |
| Augustana Curriculum Committee, March 12, 2024 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Business - MBA |
| Contact Person: | Michael Maier (msmaier@ualberta.ca) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2024 (Early) |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

This course has been taught as a special topics course. We would like to make this a permanent course with its own course number.

## Course Template

| Current: | Proposed: |
|---|---|
| | **Subject & Number**<br><br>**OM 621**<br><br>**Title** Data Visualization<br><br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Business<br>**Department** Accounting and Business Analytics<br>**Typically Offered** Either Term<br><br>Visual displays of quantitative information include charts, tables, maps, dashboards, animations, and more. Such displays can be used to understand, to inform, and to convince. This course will focus on strategies for carefully and clearly communicating analytical findings to the people who need to take action based on them. We will learn to use both basic tools (such as MS Excel) and advanced tools (such as Tableau and R) to create visual displays. Evaluation components will include assignments, presentations, and exams.<br><br>Prerequisites: MGTSC 501. |

## Reviewed/Approved by:

| |
|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Business Council - November 27, 2023 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.<br><br>Department of Accounting and Business Analytics - July 17, 2023<br>Business Graduate Student Policy Committee - November 16, 2023 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Business - MBA |
| Contact Person: | Michael Maier (msmaier@ualberta.ca) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • **Graduate** |
| For which term will this change take effect? | Fall 2024 (Early) |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

This course has been taught as a special topics course. We would like to make this a permanent course with its own course number.

## Course Template

| **Current:** | **Proposed:** |
|---|---|
| | **Subject & Number**<br><br>**OM 623**<br><br>**Title** Prescriptive Analytics<br><br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Business<br>**Department** Accounting and Business Analytics<br>**Typically Offered** Either Term<br><br>Prescriptive analytics involves the use of data, mathematical models, and algorithms to identify optimal solutions for achieving organizational goals. This process builds on descriptive and predictive analytics, going beyond the interpretation of past events and the forecasting of future scenarios to also provide advice on the most effective actions to meet business objectives. Students acquire the skills to convert complex business problems into mathematical models, and employ Python programming and commercial solvers to derive optimal decisions. Evaluation components will consist of assignments, case studies, group projects, and two midterm exams.<br><br>Prerequisites: OM 502 |

## Reviewed/Approved by:

| |
|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Business Council - November 27, 2023 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.<br><br>Department of Accounting and Business Analytics - July 17, 2023<br>Business Graduate Student Policy Committee - November 16, 2023 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Business - MBA |
| Contact Person: | Michael Maier (msmaier@ualberta.ca) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2023 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

This course will be a dedicated individual research project course for Master's students.

## Course Template

| Current: | Proposed: |
|---|---|
| **Subject & Number** | **Subject & Number BUS 695** |
| **Title** | **Title** Individual Research Project |
| **Course Career** | **Course Career** Graduate |
| **Units** | **Units** 3 |
| **Approved Hours** | **Approved Hours** 3-0-0 |
| **Fee index** | **Fee index** 6 |
| **Faculty** | **Faculty** Business |
| **Department** | **Department** Business |
| **Typically Offered** | **Typically Offered** Either Term |
| **Description** | BUS 695 Individual Research Project<br>*3 (fi 6) (either term, 3-0-0). Special study for graduate students. Prerequisites: consent of the Instructor and Associate Dean, Master's and Professional Programs |

## Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.

Business Council – December 19, 2022

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

Business Graduate Student Policy Committee – December 9, 2022

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Business - MBA |
| Contact Person: | Michael Maier (msmaier@ualberta.ca) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2023 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Adding FIN 654 as a prerequisite.

## Course Template

| Current: Prerequisites: ~~Removed language~~ | **Proposed:** New language |
|---|---|
| **Subject & Number:** FIN 640<br><br>**Title:** Commodities Analytics and Trading<br><br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Business<br>**Department** ~~Marketing~~<br>**Typically Offered** Either Term<br><br>**Description**<br><br>This course reflects the aspects of a trader development program in industry with a strong trading analytics base consistent with today's marketplace requirements. You are expected to learn analytical concepts using the R language and become proficient in your ability to implement them with real world data. The skill set is transferable to any analytically based job, such as risk management, trading analytics, and/or quantitative trading including fundamentals. Prerequisites: FIN 501. Corequisite: FIN 654. | **Subject & Number:** FIN 640<br><br>**Title:** Commodities Analytics and Trading<br><br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty:** Business<br>**Department:** Finance<br>**Typically Offered:** Either Term<br><br>**Description**<br><br>This course reflects the aspects of a trader development program in an industry with a strong trading analytics base consistent with today's marketplace requirements. You are expected to learn analytical concepts using the R language and become proficient in your ability to implement them with real-world data. The skill set is transferable to any analytically based job, such as risk management, trading analytics, and/or quantitative trading including fundamentals. Prerequisites: FIN 654 |

## Reviewed/Approved by:

| |
|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Business Council – November 27, 2023 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Business - MBA |
| Contact Person: | Michael Maier (msmaier@ualberta.ca) |
| Level of change: (choose one only) [?] | • Undergraduate<br>• Graduate |
| For which term will this change take effect? | Fall 2023 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

This course has been successfully piloted for several years and is consistent with the school's vision of developing an entrepreneurial mindset within students.MARK 620 no longer exists.

## Course Template

| **Current:** ~~Removed language~~ | **Proposed:** New language |
|---|---|
| **Subject & Number** MARK 612<br><br>**Title** Marketing ~~Research~~<br><br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Business<br>**Department** Marketing<br>**Typically Offered** Either Term<br><br>**Description**<br><br>~~Provides an examination of marketing research methodologies emphasizing the translation of marketing problems into researchable form, research design, data gathering, data analysis, and implementation of research results.~~ Prerequisite: MARK 502. ~~Credit will not be given for both MARK 612 and 620.~~ | **Subject & Number** MARK 612<br><br>**Title** Marketing Analytics<br><br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Business<br>**Department** Marketing<br>**Typically Offered** Either Term<br><br>Students are introduced to the scientific process of transforming data into insight for making better marketing decisions. Topics include: data-driven problem solving; design of surveys, focus groups, and experiments; analytical techniques for primary, secondary, and qualitative data; and machine learning basics. The course is taught as an end-to-end process, starting from problem framing, data collection, method selection, model building, and deployment. Applies Excel and open-source data analysis software. Advanced students can build on this course to prepare for taking the INFORMS CAP (Certified Analytics Professional) Exam.<br><br>Prerequisite: MARK 502 |

## Reviewed/Approved by:

| |
|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Business Council - December 19, 2022 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.<br><br>Business Graduate Student Policy Committee – December 9, 2022 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Business - MBA |
| Contact Person: | Michael Maier (msmaier@ualberta.ca) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2023 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

The Marketing group completed an evaluation of classes last year and executed course name and description changes for a few undergraduate marketing classes. For consistency purposes, this request to change the course name will align the MBA and undergrad offering.

## Course Template

| **Current:** ~~Removed language~~ | **Proposed:** New language |
|---|---|
| **Subject & Number** MARK 630<br><br>**Title** Marketing ~~Communications and Branding~~<br><br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Business<br>**Department** Marketing<br>**Typically Offered** Either Term<br><br>**Description**<br><br>This course introduces the student to the management of marketing communication~~s~~ with an emphasis on the evolving nature of marketing communication tools. It ~~also introduces~~ the techniques used ~~in the creation, nurturing and leveraging of brand assets~~ in an environment where consumer and cultural influences strongly interact with strategic marketing decisions to impact ~~brand meaning and value. Prerequisite: MARK 502.~~ | **Subject & Number** MARK 630<br><br>**Title** Digital Marketing<br><br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Business<br>**Department** Marketing<br>**Typically Offered** Either Term<br><br>This course introduces the student to the management of the marketing communication mix with an emphasis on the evolving nature of digital marketing communication tools. It focuses on the techniques used for marketing communications in an environment where consumer and cultural influences strongly interact with strategic marketing decisions to impact outcomes. The role of measurement analytics in the implementation of communications strategy is also examined. |

## Reviewed/Approved by:

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|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Business Council - December 19, 2022 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.<br><br>Business Graduate Student Policy Committee – December 9, 2022 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Business - MBA |
| Contact Person: | Michael Maier (msmaier@ualberta.ca) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2023 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

This course has been successfully piloted for several years and is consistent with the school's vision of developing an entrepreneurial mindset within students.

## Course Template

| **Current:** ~~Removed language~~ | **Proposed:** New language |
|---|---|
| **Subject & Number** MARK 664<br><br>**Title** ~~Product Management and Pricing~~<br><br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Business<br>**Department** Marketing<br>**Typically Offered** Either Term<br><br>**Description**<br><br>~~Development, management and pricing of interrelated goods and services. New product development, pricing strategies for new products, managing a product portfolio, bundling of goods and services and pricing the bundles, and tailoring price and product to different segments.~~<br>Prerequisites: MARK 502, and BUEC 502 or 503. | **Subject & Number** MARK 664<br><br>**Title** Branding and Marketing Strategy<br><br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Business<br>**Department** Marketing<br>**Typically Offered** Either Term<br><br>This course examines the analysis, planning and implementation of marketing strategies, with a special emphasis on the role of brands in that process. Important elements of the course include the concept of brand equity (what it is, why it is important, how to develop and manage it, how to measure it), and the applied implementation of marketing strategies.<br><br>Prerequisites: MARK 502, and BUEC 502 or 503. |

## Reviewed/Approved by:

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|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Business Council - December 19, 2022 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.<br><br>Business Graduate Student Policy Committee – December 9, 2022 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Business - MBA |
| Contact Person: | Michael Maier (msmaier@ualberta.ca) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2023 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

This course has been successfully piloted for several years and is consistent with the school's vision of developing leaders who enact strong "people management" skills.

## Course Template

| Current: | Proposed: |
|---|---|
| **Subject & Number** | **Subject & Number** SEM 611 |
| **Title** | **Title** Alternative Dispute Resolution |
| **Course Career** | **Course Career** Graduate |
| **Units** | **Units** 3 |
| **Approved Hours** | **Approved Hours** 3-0-0 |
| **Fee index** | **Fee index** 6 |
| **Faculty** | **Faculty** Business |
| **Department** | **Department** Strategy, Entrepreneurship & Management |
| **Typically Offered** | **Typically Offered** Either Term |
| **Description** | Conflict is a necessary part of the human experience. It's an expression of our diversity. It reflects our dynamism as a species. Conflict can be enriching or it can be destructive. This course will focus on ways to learn from conflict. Through conflict we have the opportunity to learn, to strengthen relationships, to solve problems, to make decisions or to set organizations on pathways to success. This course provides detailed, hands-on practical experience with various methods of managing and resolving conflict, including essential communication, mediation and negotiation skills. The course concentrates as well on assertive expression and anger management. This course will include presentations by the instructor/coaches, large-group discussions, and small groups, each with a coach, in which various skills are |

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| | practiced. There will be an opportunity to practice skills, share approaches and challenges, and to practice mediation and negotiation. |

## Reviewed/Approved by:

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|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Business Council - December 19, 2022 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.<br><br>Business Graduate Student Policy Committee – December 9, 2022 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Business - MBA |
| Contact Person: | Michael Maier (msmaier@ualberta.ca) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2023 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

This course has been successfully piloted for several years and is consistent with the school's vision of developing strong leaders.

## Course Template

| Current: | Proposed: |
|---|---|
| **Subject & Number** | **Subject & Number** SEM 653 |
| **Title** | **Title** Women in Leadership |
| **Course Career** | **Course Career** Graduate |
| **Units** | **Units** 3 |
| **Approved Hours** | **Approved Hours** 3-0-0 |
| **Fee index** | **Fee index** 6 |
| **Faculty** | **Faculty** Business |
| **Department** | **Department** Strategy, Entrepreneurship & Management |
| **Typically Offered** | **Typically Offered** Either Term |
| **Description** | The purpose of this course will be to explore past and current trends in women's leadership. Drawing on historical developments, academic research and actual leadership practice, we will examine women's leadership in the context of barriers and facilitators to women's development as leaders. An examination of the historical developments in women's leadership will provide a useful basis for understanding not only how the relevance of gender has changed leadership opportunities over the last century, but also how vestiges still impact today's challenges for women leaders. An emphasis will be placed on helping students hone, increase and develop leadership skills. Through readings, analyzing case studies, teamwork and sharing students' own stories and experiences, we will collectively learn and indeed |

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| | illuminate how organizations, their senior leaders and indeed each of us can support and encourage gender diversity and inclusion. |

## Reviewed/Approved by:

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|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Business Council - December 19, 2022 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.<br><br>Business Graduate Student Policy Committee – December 9, 2022 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Business - MBA |
| Contact Person: | Michael Maier (msmaier@ualberta.ca) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2023 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

This course has been successfully piloted for several years and is consistent with the school's vision of developing students who have a broader appreciation for leadership and entrepreneurship in different contexts.

## Course Template

| Current: | Proposed: |
|---|---|
| **Subject & Number** | **Subject & Number** SEM 680 |
| **Title** | **Title** Introduction to Indigenous Business |
| **Course Career** | **Course Career** Graduate |
| **Units** | **Units** 3 |
| **Approved Hours** | **Approved Hours** 3-0-0 |
| **Fee index** | **Fee index** 6 |
| **Faculty** | **Faculty** Business |
| **Department** | **Department** Strategy, Entrepreneurship & Management |
| **Typically Offered** | **Typically Offered** Either Term |
| **Description** | This course offers unique opportunities to examine the relationship between Indigenous peoples and business in the local and Canadian contexts. Students will be invited to engage with Indigenous perspectives rooted in Indigenous traditional knowledge and the experience of colonialism in Canada. Good business is rooted in *miyo wahkotowin* (good relations). Students will be encouraged to develop an understanding of good relations through circle discussions and through exploration of their relationships to themselves, their community, and the Indigenous peoples of this land. Drawing on examples from current events, the class will look at contemporary issues in Indigenous business, including self-determination, community entrepreneurship, natural resource management, and more. |

## Reviewed/Approved by:

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|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Business Council - December 19, 2022 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.<br><br>Business Graduate Student Policy Committee – December 9, 2022 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

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| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Business - MBA |
| Contact Person: | Michael Maier (msmaier@ualberta.ca) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2023 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

This course has been successfully piloted for several years and is consistent with the school's vision of developing an entrepreneurial mindset within students.

## Course Template

| Current: | Proposed: |
|---|---|
| **Subject & Number** | **Subject & Number** SEM 690 |
| **Title** | **Title** Entrepreneurial Strategizing |
| **Course Career** | **Course Career** Graduate |
| **Units** | **Units** 3 |
| **Approved Hours** | **Approved Hours** 3-0-0 |
| **Fee index** | **Fee index** 6 |
| **Faculty** | **Faculty** Business |
| **Department** | **Department** Strategy, Entrepreneurship & Management |
| **Typically Offered** | **Typically Offered** Either Term |
| **Description** | Entrepreneurial skills are increasingly needed across all domains of the economy and society. While conventional entrepreneurial imagery invokes a Silicon Valley high-technology start-up, entrepreneurs and entrepreneurial behavior are prevalent in many large corporations, government agencies, non-profits, and community settings. This includes varied forms of cultural and social entrepreneurship. This course aims to provide a broad overview of general entrepreneurial skills that are vital for any successful career and organizational situation. Our focus will be on providing students with the strategic tools needed to think and act entrepreneurially and innovatively. Entrepreneurial strategizing emphases include framing, resource assembling, opportunity sensing and developing, value-creating, designing, |

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| | networking, effectual reasoning, and iterative validating and learning. |

## Reviewed/Approved by:

| |
|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Business Council - December 19, 2022 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.<br><br>Business Graduate Student Policy Committee – December 9, 2022 |

UNIVERSITY OF ALBERTA

**ITEM NO.**

**Decision** ☒ **Discussion** ☐ **Information** ☐

**ITEM OBJECTIVE**: The proposal is before the committee to introduce a new course designator, MMA, as an identifier for courses related to the master's in management Analytics program.

| | |
|---|---|
| **DATE** | April 29, 2024 |
| **TO** | Provost and VP (Academic) |
| **RESPONSIBLE PORTFOLIO** | Michael Maier, Associate Dean, Masters' Programs,<br>Borzou Rostami, Assistant Professor, Department of Accounting and Business Analytics |

**MOTION**:
Be it resolved that the GFC Programs Committee approve, with delegated authority from General Faculties Council, a new course designator of MMA for the School of Business Master's in Management Analytics (MMA) graduate program, as submitted.

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**EXECUTIVE SUMMARY**:

Background

The Alberta School of Business has proposed a new Master's in Management Analytics (MMA) graduate program which was recently approved by the Board of Governors on March 22nd, 2024, due to be submitted to the Ministry of Advanced Education. At the time of the initial proposal being reviewed and approved at the Faculty and Governance levels, a course designator for the proposed program courses had not yet been confirmed. This proposal seeks approval for the new course designator of MMA, to identify courses related to the Master's in Management Analytics program as per supporting materials.

**Supporting Materials**:

Calendar Change Request Form for New Courses

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**GOVERNANCE OUTLINE**

UNIVERSITY OF ALBERTA

**ITEM NO.**

**SCHEDULE A:**

**Engagement and Routing**

Consultation and Stakeholder Participation / Approval Route (parties who have seen the proposal and in what capacity) <*Governance Resources Section Student Participation Protocol*>

*Those who are actively **participating**:*

- Dr. Vikas Mehrotra, Dean, Alberta School of Business
- Dr. Trish Reay, Vice-Dean, Alberta School of Business
- Dr. Michael Maier, Associate Dean, Masters programs and executive education, Alberta School of Business
- Dr. Borzou Rostami, Assistant Professor and Academic Director for MMA, Department of Accounting and Business Analytics, Alberta School of Business
- Roveena Mecwan, Program Coordinator, Masters programs office, Alberta School of Business

*Those who have been **consulted**:*

- Members of the Office of the Provost and VP Academic (Janice Causgrove-Dunn, Carley Roth and Suzanne French)
- Dr. Tracy Raivio, GPS Dean
- Department of Accounting and Business Analytics faculty members
- Business community (Appendix 4A, B and C)
- Dr. Ali Shiri, Vice Dean, GPS
- Faculty of Business Department Chairs
- Students (Survey sent out to BCom and Masters' Students). Student representatives on the school's GSPC (Graduate Students Policy Committee).
- Carrie Smith, Vice-Provost (Equity, Diversity & Inclusion)
- Florence Glanfield, Vice-Provost (Indigenous Programming & Research)
- Edith Finczak, Director Academic Budget and Planning, Office of Provost and VP Academic
- Andrea Menard, Lead Educational Developer, Provost & Vice-President Academic, Centre for Teaching and Learning
- Lori Ireland, Educational Developer, Provost & Vice-President Academic - Centre for Teaching and Learning
- School of Business-Careers and Work Integrated Learning Team- Amber Nicholson, Paul Taylor and Melanie Tymofichuk
- Dr. Leo Wong, Associate Dean- Education, School of Business
- Heather Braid and Sara Rashidian, Office of Education, School of Business
- Yuliia Malanych, Finance Partner, School of Business
- Xiao Cheng, Director, Analysis and Admissions, MBA office
- Celine Gareau-Brennan, Business Librarian
- Initial Consultation with Dr. Mike Palvin (MMA director- Wilfrid Laurier University)
- Graduate Student Policy Committee Members- School of Business
- Rebecca Liaw, Calendar Editor, Office of the Registrar

- Jesse Luyendyk, Assistant Registrar

*Those who have been **informed**:*

- Business Council Members
- School of Business Faculty and Staff via town hall conducted.
- Andrea Riewe, Executive Coordinator, GPS
- Masters' Program Office Staff
- Department of Accounting and Business Analytics

***Approval Route:***

Business Council- April 24, 2024

Graduate Program Support Team- April 29, 2024

**Supplementary Notes / Context**:

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Business (Department of Accounting and Business Analytics) |
| Contact Person: | Michael Maier (Associate Dean, Masters programs), Borzou Rostami (Academic director-MMA and Assistant Professor) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2024 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

The MMA program for the Alberta School of Business was recently approved by the Board of Governors. The below mentioned courses are all new courses and designed specifically for the MMA program carrying 39 credits.

## Course Template

| **Current:** ~~Removed language~~ | **Proposed:** New language |
|---|---|
| **NA** | **Subject & Number- MMA 600**<br><br>**Title- Coding Bootcamp (No Credit)**<br><br>**Course Career-Graduate**<br>**Units-0**<br>**Approved Hours- 18 hours over two weeks**<br>**Fee index - 3**<br>**Faculty- Business**<br>**Department-Accounting and Business Analytics**<br>**Typically Offered-August (Summer)**<br><br>**Description-**Two-Week Kick Start Bootcamp: Embark on a seamless learning journey as students engage in a well-rounded experience to master two essential programming languages—Python and R.<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.<br><br>**Subject & Number- MMA 601**<br><br>**Title- Business Foundations and Strategic Decision Making** |

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| | **Course Career-Graduate**<br>**Units-3**<br>**Approved Hours- 3-0-0**<br>**Fee index-6**<br>**Faculty- Business**<br>**Department- Accounting and Business Analytics**<br>**Typically Offered- August (Summer)**<br><br>**Description-**<br>Students are introduced to business fundamentals in the first session followed by second session that delves deep into the dynamic world of data-driven strategy, cultivating invaluable skills in utilizing data to frame decisions effectively.<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.<br><br>**Subject & Number- MMA 602**<br>**Title- Machine Learning For Business I**<br><br>**Course Career-Graduate**<br>**Units-3**<br>**Approved Hours- 3-0-0**<br>**Fee index-6**<br>**Faculty-Business**<br>**Department-Accounting and Business Analytics**<br>**Typically Offered-Fall Term**<br><br>**Description**<br>The goal of the Machine Learning for Business course is to utilize machine learning techniques to transform raw data into valuable insights that can inform business strategies. This course demands a solid grasp of technical data handling methods as well as business goals. It involves an overview of various machine learning approaches, such as supervised and unsupervised learning, and their practical uses in business scenarios.<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.<br><br>**Subject & Number- MMA 603**<br><br>**Title- Data Visualization and Business Communications**<br><br>**Course Career-Graduate**<br>**Units-3**<br>**Approved Hours- 3-0-0**<br>**Fee index-6**<br>**Faculty-Business** |

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|---|---|
| | **Department- Accounting and Business Analytics**<br>**Typically Offered-Fall Term**<br><br>**Description**<br>This course equips students with the ability to turn raw data into meaningful visualizations and communicate these insights in a business context. It covers the essentials of effective data visualization, visual design principles, and storytelling with data. Through hands-on practice with tools like Tableau and Excel, students will learn to create and interpret various visualizations, focusing on selecting the most appropriate visual forms to accurately reflect data and address business queries<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.<br><br>**Subject & Number- MMA 604**<br><br>**Title- MMA 604 - Database Fundamentals for Business Analytics**<br><br>**Course Career-Graduate**<br>**Units-3**<br>**Approved Hours- 3-0-0**<br>**Fee index-6**<br>**Faculty-Business**<br>**Department-Accounting and Business Analytics**<br>**Typically Offered-Fall Term**<br><br>**Description**<br>Provides students with an understanding of the critical role of databases in business analytics, focusing on the principles of database systems, design, implementation, and utilization in a business context. students are introduced to fundamental concepts of data and information management.<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.<br><br>**Subject & Number- MMA 605**<br><br>**Title- Statistics Analytics and Causal Inference**<br><br>**Course Career-Graduate**<br>**Units-3**<br>**Approved Hours- 3-0-0** |

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| | **Fee index-6**<br>**Faculty-Business**<br>**Department-Accounting and Business Analytics**<br>**Typically Offered-Fall Term**<br><br>**Description**<br>This course provides students with a robust foundation in statistical principles and techniques, alongside essential skills in descriptive analytics and causal inference. Students will develop strong analytical skills and gain hands-on experience with statistical software. Further delving into time series analysis, multivariate analysis and enhanced predictive modeling. Students will also gain proficiency in experimental design including ANOVA and A/B testing.<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.<br><br>**Subject & Number- MMA 606**<br><br>**Title- Machine Learning for Business II**<br><br>**Course Career-Graduate**<br>**Units-3**<br>**Approved Hours- 3-0-0**<br>**Fee index-6**<br>**Faculty-Business**<br>**Department-Accounting and Business Analytics**<br>**Typically Offered-Winter Term**<br><br>**Description**<br>Builds upon the foundational knowledge students acquired in “Machine Learning for Business I”, diving deeper into the specialized applications of machine learning techniques to unstructured data. By exploring areas such as text analytics, network analytics, recommender systems, and deep learning applications, students will gain a robust understanding of how to handle and analyze unstructured data such as text and images, which constitute a significant proportion of the data businesses encounter<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.<br><br>**Subject & Number- MMA 607** |

**Title- Prescriptive Analytics**

**Course Career-Graduate**
**Units-3**
**Approved Hours- 3-0-0**
**Fee index-6**
**Faculty-Business**
**Department-Accounting and Business Analytics**
**Typically Offered-Winter Term**

**Description**

This course is designed to provide a foundation of prescriptive analytics based on mathematical modeling and optimization for managerial decision-making. Topics covered in the course include decision analysis; simulation modeling; constraint programming and constraint-based optimization; network optimization and graph algorithms; optimization under uncertainty; application of prescriptive analytics techniques in various industries; integration of predictive and prescriptive analytics; and practical implementation of prescriptive analytics techniques to solve real-world problems. By the end of the course, students will have a solid understanding of prescriptive analytics techniques and their practical applications.
Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.

**Subject & Number- MMA 608**

**Title- Business Applications of Artificial Intelligenc**

**Course Career-Graduate**
**Units-3**
**Approved Hours- 3-0-0**
**Fee index-6**
**Faculty-Business**
**Department-Accounting and Business Analytics**
**Typically Offered-Winter Term**

**Description**

This comprehensive course, co-taught by a panel of expert instructors, aims to provide students with an in-depth understanding of how artificial intelligence (AI) technologies are applied in real-world business settings. It introduces students to a range of AI applications across different industries and functional areas, highlighting the

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| | transformative potential of AI in driving innovation, improving operational efficiency, and creating competitive advantages.<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.<br><br>**Subject & Number- MMA 609**<br><br>**Title- Responsible AI & Ethical Issues in Data Analytics**<br><br>**Course Career-Graduate**<br>**Units-3**<br>**Approved Hours- 3-0-0**<br>**Fee index-6**<br>**Faculty-Business**<br>**Department-Accounting and Business Analytics**<br>**Typically Offered-Winter Term**<br><br>**Description**<br>This course focuses on the ethical and legal considerations in artificial intelligence (AI) and data analytics, fields that are evolving rapidly and prompting novel ethical and regulatory concerns. It will cover subjects such as data privacy, fairness in algorithms, interpretability, and accountability. Participants will be educated on the responsible and ethical application of AI and data analytics technologies.<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.<br><br>**Subject & Number- MMA 610**<br><br>**Title- Analytics Capstone Project**<br><br>**Course Career-Graduate**<br>**Units-6**<br>**Approved Hours- 3-0-0**<br>**Fee index-12**<br>**Faculty-Business**<br>**Department-Accounting and Business Analytics**<br>**Typically Offered-Spring/Summer Term**<br><br>**Description**<br>This course represents the apex of the MMA program, |

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| | extending over two semesters, and offers students an immersive, real-world experience in analytics. The "Analytics Capstone Project" serves as a significant demonstration of the students' analytical skills and their capacity to make data-informed decisions in intricate business environments.<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.<br><br>**Subject & Number- MMA 611**<br><br>**Title-** Accounting Analytics<br><br>**Course Career-Graduate**<br>**Units-3**<br>**Approved Hours- 3-0-0**<br>**Fee index-6**<br>**Faculty-Business**<br>**Department-Accounting and Business Analytics**<br>**Typically Offered-Spring/Summer Term**<br><br>**Description**<br>This course combines advanced data analytics and technology, essential for modern accounting, as part of the Master of Management Analytics program. It is structured into two main parts: Data Analytics and Technology Integration in Accounting, with a strong emphasis on practical learning. Students will use data analytics tools like OLS, logistic and probit regressions, and optimization analysis to address various accounting challenges. The curriculum covers financial and managerial accounting, auditing, and taxation, focusing on problem-solving and decision-making. This prepares students for roles in audit risk assessment, audit procedures, and strategic tax planning and compliance.<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.<br><br>**Subject & Number- MMA 612**<br><br>**Title-** Financial Analytics<br><br>**Units-3**<br>**Approved Hours- 3-0-0**<br>**Fee index-6**<br>**Faculty-Business** |

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| | **Department-Accounting and Business Analytics**<br>**Typically Offered-Spring/Summer Term**<br><br>**Description**<br>This course integrates financial skills with data science for enterprise decision-making, structured into four key sections. It covers core financial modeling skills, including interest rate discounting and uncertainty modeling, and explores Real Optionality to understand how management decisions and uncertainties affect valuation, focusing on NPV@Risk. The section on Decision Quality (DQ) delves into its relevance in business, biases, risk definition differences in finance and enterprise, and practical implementation strategies. Lastly, the course emphasizes creating interactive Data Science applications, teaching students to develop apps for engaging senior management, with all content exclusively using R programming.<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.<br><br>**Subject & Number- MMA 613**<br><br>**Title- Operations and Supply Chain Analytics**<br><br>**Units-3**<br>**Approved Hours- 3-0-0**<br>**Fee index-6**<br>**Faculty-Business**<br>**Department-Accounting and Business Analytics**<br>**Typically Offered-Spring/Summer Term**<br><br>**Description**<br>This course prepares students to tackle complex business logistics challenges using advanced analytics techniques such as regression, optimization, and simulation. It focuses on key areas like inventory management, site selection, revenue optimization, and transportation logistics, emphasizing data-driven approaches for cost minimization, operational efficiency, and market responsiveness. Students will apply real-world data to enhance supply chain operations, including developing effective pricing strategies and optimizing delivery routes. The course offers hands-on experience with extensive supply chain datasets, equipping students with the skills to turn data into actionable insights for innovative and efficient supply chain management.<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office. |

**Subject & Number- MMA 614**

**Title- Marketing Analytics**

**Units-3**
**Approved Hours- 3-0-0**
**Fee index-6**
**Faculty-Business**
**Department-Accounting and Business Analytics**
**Typically Offered-Spring/Summer Term**

**Description**
This marketing course equips students with tools to generate actionable insights by understanding consumers and market trends. It focuses on designing analytical plans to tackle marketing problems, covering aspects from data collection to communicating findings. Key skills include measuring variables, choosing appropriate analytical methods, interpreting data analysis techniques, and effective storytelling. The course prepares students for roles in marketing analytics across various sectors and emphasizes a hands-on approach, with project design and data analysis in class. Upon completion, students will be proficient in areas like marketing research, experimental design (e.g., A/B testing), data collection, regression analysis, segmentation, machine learning applications in marketing, and results communication.
Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.

**Subject & Number- MMA 615**

**Title- Healthcare Analytics**

**Units-3**
**Approved Hours- 3-0-0**
**Fee index-6**
**Faculty-Business**
**Department-Accounting and Business Analytics**
**Typically Offered-Spring/Summer Term**

**Description**
This course is a gateway to healthcare analytics, teaching students how data reshapes healthcare strategy and improves patient care quality. It covers extracting and processing data from various sources like electronic health records and wearable devices, and advanced analytics techniques such as predictive modeling and machine learning for patient outcomes and diagnostics. Students will understand the ethical and legal aspects of handling

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| | sensitive patient data and learn to optimize healthcare operations like patient flow and resource allocation. The course emphasizes data-driven decision-making, with practical applications through case studies, projects, and guest lectures from industry experts, fostering interdisciplinary expertise to tackle healthcare challenges.<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office.<br><br>**Subject & Number- MMA 616**<br><br>**Title-Strategy Analytics**<br><br>**Units-3**<br>**Approved Hours- 3-0-0**<br>**Fee index-6**<br>**Faculty-Business**<br>**Department-Accounting and Business Analytics**<br>**Typically Offered-Spring/Summer Term**<br><br>**Description**<br>This course is designed to prepare future managers to effectively integrate data science and business analytics into strategic decision-making. It provides an overview of how these functions can harmonize to create effective strategies while highlighting the pitfalls of poor integration. Students will learn about strategic vision, data-driven decision frameworks, competitive intelligence, risk assessment, and the use of performance metrics for continuous improvement. The course includes real-world case studies to apply theory to practice and emphasizes ethical considerations in data strategy, focusing on responsible data use, transparency, and privacy. By the end, students will understand the interplay between data science and business analytics and be able to develop strategies aligned with organizational goals.<br>Restricted to students registered in the MMA Program. Non-MMA students require consent of home dept and the Masters Programs Office. |

## Reviewed/Approved by:

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| REQUIRED: Faculty Council (or delegate) and approval date.- Business Council, April 24, 2024 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

**ITEM NO.**

**Decision** ☑ **Discussion** ☐ **Information** ☐

**ITEM OBJECTIVE**: The proposal is before the committee to introduce a new course designator, DET (Doctorat en Études Transdisciplinaires), as an identifier for courses related to the new Doctorat en études transdisciplinaires

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| **DATE** | May 16, 2024 |
| **TO** | GFC Programs Committee |
| **RESPONSIBLE PORTFOLIO** | Provost and Vice-President (Academic) |

**MOTION**:THAT the GFC Programs Committee approve, with delegated authority from General Faculties Council, a new course designator DET (Doctorat en Études Transdisciplinaires), as an identifier for courses related to the new Doctorat en études transdisciplinaires as set forth in attachment 1, as submitted by the Faculté Saint-Jean.

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**EXECUTIVE SUMMARY**:

The GFC Programs Committee's approval of the *Doctorat en études transdisciplinaires* programs on March 16, 2023, marked a significant milestone for the Faculté Saint-Jean. This approval was also confirmed by the Ministry of Advanced Education.

The original proposals inadvertently omitted the inclusion of a proposal (GO) for a course designator DET (Doctorat en Études Transdisciplinaires), intended for courses within these programs. This current proposal aims to rectify this by seeking approval for DET to categorize relevant courses.

**Supporting Materials**:
Attachments

1. Calendar Change Request Form for Course Changes ( Faculté Saint-Jean)
2. Calendar change Request Form for Program and Regulation Changes (Faculté Saint-Jean)

**SCHEDULE A:**

**Engagement and Routing**

Consultation and Stakeholder Participation / Approval Route (parties who have seen the proposal and in what capacity) <*Governance Resources Section Student Participation Protocol*>

*Those who are actively **participating**:*

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**GOVERNANCE OUTLINE**

UNIVERSITY OF ALBERTA

**ITEM NO.**

*Those who have been **consulted**:*

- FSJ Executive Committee on behalf of FSJ Council - March 14, 2024
- Conseil de la Faculté Saint-Jean (online voting, February 21, 2024)
- FSJ Executive Committee - February 15, 2024
- FSJ Academic Planning - February 8, 2024
- Office of the Registrar (Jesse Luyendyk) - January 29, 2024
- Calendar Editor (Rebecca Liaw)

*Those who have been **informed**:*

- FSJ Arts/Sciences group, Feb 2, 2024 (for information)

***Approval Route:***

GFC Programs Committee - Graduate Program Support Team

GFC Program Committee

**Supplementary Notes / Context**:

# Calendar Change Request Form
## for Course Changes

UNIVERSITY OF ALBERTA

See the Calendar Guide for tips on how to complete this form.

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| Faculty (& Department or Academic Unit): | Faculté Saint-Jean |
| Contact Person: | Sadok El Ghoul ( elghoul@ualberta.ca ) |
| Level of change: (choose one only) [?] | ☐ Undergraduate |
| | ☑ Graduate |
| For which term will this change take effect? | Fall 2024 (Early implementation) |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

The *Doctorat en Études Transdisciplinaires* program was approved on March 16, 2023, by the GFC Program Committee. The Ministry of Education has formally validated their launch for the fall of 2024. We must now create a new course designator DET (Doctorate in Transdisciplinary Studies), and the corresponding courses: DET 600, DET 605, DET 609.

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Le programme de Doctorat en Études Transdisciplinaires a été approuvé le 16 mars 2023 par GFC Program Committee. Le Ministère de l'Éducation a formellement validé leur lancement pour l'automne 2024. Nous devons à présent créer un nouveau sigle de cour DET ( Doctorat en Études Transdisciplinaires), et les cours correspondants : DET 600, DET 605, DET 609.

## Course Template

| **CURRENT**<br>**Current:** ~~Removed language~~ | **PROPOSED**<br>**Proposed:** New language |
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| **New** | **DET 600: Séminaire de recherche transdisciplinaire**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** Variable<br><br>**Description**<br>Aperçu des différentes approches, considérations et défis dans la recherche. Les étudiants exploreront les outils et développeront les compétences nécessaires pour |

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| | comprendre le jargon de la recherche, évaluer les recherches publiées, identifier les types de méthodes les mieux adaptées pour étudier différents types de problèmes et de questions, développer des questions de recherche basées sur une évaluation critique de la recherche existante, et concevoir une proposition de recherche et commencer les préparatifs initiaux d'un projet de recherche. |
| **New** | **DET 605: Sujets avancés en études transdisciplinaires**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** Variable<br><br>**Description**<br>Études approfondies sur les différentes approches méthodologiques en recherche empirique dans les sciences fondamentales, humaines et sociales. Les étudiants seront exposés aux fondements théoriques de l'interdisciplinarité et de la transdisciplinarité comme méthodes d'analyse et de recherche. Les grands thèmes et concepts théoriques abordés seront l'occasion d'approfondir les discussions et de préparer les étudiants à définir leur propre problématique de recherche. Les étudiants seront invités à définir dans ce séminaire leur problématique de recherche et à illustrer leur choix par des exemples tirés de la société en fonction d'une approche inter ou transdisciplinaire. |
| **New** | **DET 609: recherche guidée/ étude guidée-dirigée**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** Variable<br><br>**Description**<br>Études dirigées se terminant avec un examen de synthèse écrit et une proposition de projet. |

## Reviewed/Approved by:

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| REQUIRED: Faculty Council (or delegate) and approval date. |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

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| Faculty (& Department or Academic Unit): | Faculté Saint-Jean |
| Contact Person: | Sadok El Ghoul ( elghoul@ualberta.ca ) |
| Level of change: (choose one only) | ☐ Undergraduate |
| | ☑ Graduate |
| Type of change request: (check all that apply) | ☑ Program |
| | ☐ Regulation |
| For which term is this intended to take effect? | Fall 2024 (Early implementation) |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | yes |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

The following proposed changes aim to improve the clarity and coherence of the new *Doctorat en études transdisciplinaires* program:

- Some editorial adjustments are suggested aimed at enhancing clarity, coherence, and accuracy
- Reformulate the section outlining the program's requirements to enhance clarity. The current wording has the potential to cause confusion or be misunderstood by students. Hence, it is crucial to define these criteria clearly to ensure they are instantly and unmistakably understood by everyone involved in the program.
- Change the initially proposed designator from ESFSJ (Études Supérieures FSJ) to DET (Doctorate in Transdisciplinary Studies).

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Par les changements proposés suivants, nous visons à améliorer la clarté et la cohérence du nouveau programme de doctorat :

- Quelques ajustements éditoriaux sont suggérés dans le but d'améliorer la clarté, la cohérence et la précision
- Reformuler la section décrivant les exigences du programme afin d'améliorer sa clarté. Les formulations actuelles risquent de semer la confusion ou d'être mal interprétées par les étudiants. Ainsi, il est important de préciser ces critères de manière à garantir leur compréhension immédiate et univoque par toutes les parties impliquées dans le programme.
- changer le désignateur initialement proposé ESFSJ (Études Supérieures FSJ) en DET (Doctorat en Études Transdisciplinaires)

## Calendar Copy

URL in current Calendar (or “New page”)

https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=75120

| Current Copy | Proposed Copy |
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| **Doctorat en études transdisciplinaires (Faculté Saint-Jean)**<br>~~Le programme de doctorat au Campus Saint-Jean offre, en français, une éducation universitaire au troisième cycle de haut niveau dans plusieurs domaines des sciences, santé, sciences sociales et humaines, organisés sous ces trois grands axes de recherche. Établi pour répondre aux besoins professionnels du 21eme siècle, dans un monde de contact linguistique étroit et en situation linguistique (francophonie) minoritaire, ce programme constitue un milieu incontournable pour la recherche transdisciplinaire qui offre une occasion unique aux étudiants d'approfondir leurs connaissances et compétences dans la recherche au sein de la dualité linguistique du Canada.~~ | **Doctorat en études transdisciplinaires (Faculté Saint-Jean)** |
| **Conditions d'admission**<br>Les conditions minimales d'admission au programme du doctorat ~~inter~~disciplinaire sont les suivantes:<br>● Diplôme de maîtrise ou l'équivalent reconnu par l'Université de l'Alberta ;<br>● Moyenne d'admission minimale de 3,0 sur l'échelle de 4 points de l'Université de l'Alberta, ou l'équivalent, dans les 60 ~~crédits~~ derniers crédits des cours universitaires, ou sur l'équivalent des deux dernières années de cours à temps plein ;<br>● Les candidats doivent posséder une compétence langagière adéquate en français; démontrée par :<br>○ un diplôme universitaire ou équivalent d'un établissement reconnu par l'Université de l'Alberta, ~~et où la~~ langue d'enseignement ~~est le français~~. La preuve que l'instruction pour le diplôme était en français est requise,<br>OU<br>○ un résultat satisfaisant à un test de compétence en français approuvé (la liste des tests de compétence linguistique approuvés par la Faculté Saint-Jean est disponible | **Conditions d'admission**<br>Les conditions minimales d'admission au programme du doctorat transdisciplinaire sont les suivantes:<br>● Diplôme de maîtrise ou l'équivalent reconnu par l'Université de l'Alberta ;<br>● Moyenne d'admission minimale de 3,0 sur l'échelle de 4 points de l'Université de l'Alberta, ou l'équivalent, dans les 60 derniers crédits des cours universitaires, ou sur l'équivalent des deux dernières années de cours à temps plein ;<br>● Les candidats doivent posséder une compétence langagière adéquate en français; démontrée par :<br>○ un diplôme universitaire ou équivalent d'un établissement reconnu par l'Université de l'Alberta, ayant le français comme langue d'enseignement. La preuve que l'instruction pour le diplôme était en français est requise,<br>OU<br>○ un résultat satisfaisant à un test de compétence en français approuvé (la liste des tests de compétence linguistique approuvés par la Faculté Saint-Jean est disponible |

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| au bureau des études supérieures de la Faculté Saint-Jean).<br>Note : s'il y a lieu, satisfaire aux exigences minimales en matière de langue anglaise. Voir English Language Requirement.<br><br>Les candidats doivent également soumettre les documents suivants :<br><br>● Un curriculum ~~V~~vitae ;<br>● Lettre d'intention (deux pages maximum) faisant état des objectifs de recherche du candidat ;<br>● Un échantillon de travail écrit (entre 5 et 15 pages) ;<br>● Deux lettres de recommandation adressées directement à la Faculté Saint-Jean ;<br>● Une lettre d'appui ~~d'au moins un professeur dont le domaine de recherche/spécialisation correspond au projet soumis.~~<br>Note : Tous les documents doivent être soumis en français.<br><br>**Exigences du programme**<br>Les étudiants doivent compléter un minimum ~~de 18 crédits, dont un minimum de 6 crédits dans les cours de niveau supérieur, et la soutenance d'une thèse.~~<br><br>Cours<br>● ~~ESFSJ~~ 600 : Séminaire de recherche ~~inter~~disciplinaire<br>● ~~ESFSJ~~ 605 : ~~recherche approfondie (Research Design)~~<br>● ~~Six cours optionnel~~ de niveau supérieur de trois crédits<br>Le programme est structuré autour d'études auto dirigées et dirigées par un superviseur. Le comité de supervision, en consultation avec l'étudiant, peut décider de cours ~~formels~~ supplémentaires à suivre dans le cadre du programme, si nécessaire.<br><br>**Thèse**<br>Inscription au cours THES de niveau 900. Les étudiants doivent soutenir avec succès leur thèse.<br><br>**Examen compréhensif**<br>Les étudiants doivent passer avec succès un examen compréhensif dans la discipline ciblée généralement en début de la deuxième année du programme de doctorat. | au bureau des études supérieures de la Faculté Saint-Jean).<br>Note : s'il y a lieu, satisfaire aux exigences minimales en matière de langue anglaise. Voir English Language Requirement.<br><br>Les candidats doivent également soumettre les documents suivants :<br><br>● Un curriculum vitae ;<br>● Lettre d'intention (deux pages maximum) faisant état des objectifs de recherche du candidat ;<br>● Un échantillon de travail écrit (entre 5 et 15 pages) ;<br>● Deux lettres de recommandation adressées directement à la Faculté Saint-Jean ;<br>● Une lettre d'appui d'un superviseur potentiel.<br>Note : Tous les documents doivent être soumis en français.<br><br>**Exigences du programme**<br>Les étudiants doivent compléter 2 cours obligatoires et rédiger une thèse. En plus, ils peuvent choisir jusqu'à 4 cours d'option qui seront décidés par le comité et le superviseur, selon leur parcours et leur thématique de recherche.<br><br>Cours<br>● DET 600 : Séminaire de recherche transdisciplinaire<br>● DET 605 : Sujets avancés en études transdisciplinaires<br>● Cours optionnels : Jusqu'à quatre cours d'option de niveau supérieur de trois crédits<br>Le programme est structuré autour d'études auto dirigées et dirigées par un superviseur. Le comité de supervision, en consultation avec l'étudiant, peut décider de cours supplémentaires à suivre dans le cadre du programme, si nécessaire.<br><br>**Thèse**<br>Inscription au cours THES de niveau 900. Les étudiants doivent soutenir avec succès leur thèse.<br><br>**Examen compréhensif**<br>Les étudiants doivent passer avec succès un examen compréhensif dans la discipline ciblée généralement en début de la deuxième année du programme de doctorat. |

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| **Examen de candidature**<br>A la fin de la deuxième année~~s~~, les étudiants doivent présenter une proposition de recherche suivie d'un examen de candidature/de synthèse orale.<br><br>En raison de la nature ~~inter~~disciplinaire du programme, le processus de synthèse peut prendre différentes formes. ~~Il peut comprendre, par exemple, des examens écrits sur différents aspects de la discipline, une série de prises de position ou une longue proposition de thèse.~~ | **Examen de candidature**<br>A la fin de la deuxième année, les étudiants doivent présenter une proposition de recherche suivie d'un examen de candidature/de synthèse orale.<br><br>En raison de la nature trans~~~~disciplinaire du programme, le processus de synthèse peut prendre différentes formes. |
| **Exigences ~~du~~ développement professionnel et la formation dans l'éthique de la recherche**<br>Les étudiants doivent aussi ~~répondre~~ aux exigences du développement professionnel~~,~~ et ~~la~~ formation ~~dans l~~'éthique de la recherche.<br><br>Pour plus d'information, veuillez consulter le site web de La Faculty of Graduate & Postdoctoral Studies : GPS Academic Integrity and Ethics Training Requirement and the GPS Professional Development Requirement. | **Exigences de développement professionnel et la formation dans l'éthique de la recherche**<br>Les étudiants doivent aussi satisfaire aux exigences du développement professionnel et suivre une formation en éthique de la recherche.<br><br>Pour plus d'information, veuillez consulter le site web de La Faculty of Graduate & Postdoctoral Studies : GPS Academic Integrity and Ethics Training Requirement and the GPS Professional Development Requirement. |
| **Niveau académique**<br>Les étudiants du programme de doctorat sont tenus de maintenir une moyenne cumulative minimale de 3,0 tout au long du programme. | **Niveau académique**<br>Les étudiants du programme de doctorat sont tenus de maintenir une moyenne cumulative minimale de 3,0 tout au long du programme. |
| **Résidence**<br>La résidence n'est pas requise dans ce programme. Cependant, les étudiants sont encouragés à assister à ~~cette première~~ réunion. Les professeurs qui financent les étudiants par le biais de leurs propres subventions de recherche peuvent exiger que l'étudiant soit présent. | **Résidence**<br>La résidence n'est pas requise dans ce programme. Cependant, les étudiants sont encouragés à assister à la réunion d'orientation au début du programme. Les professeurs qui financent les étudiants par le biais de leurs propres subventions de recherche peuvent exiger que l'étudiant soit présent. |
| **Durée limite du programme**<br>La durée maximale du programme de doctorat, telle que fixée par la Faculty of Graduate & Postdoctoral Studies et de la recherche, est de six ans. | **Durée limite du programme**<br>La durée maximale du programme de doctorat, telle que fixée par la Faculty of Graduate & Postdoctoral Studies et de la recherche, est de six ans. |

URL in current Calendar (or “New page”)

https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=75121

| Current Copy [English] | Proposed Copy [English] |
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| **Doctorate in Transdisciplinary Studies (Faculty Saint-Jean)**<br>~~The *Doctorat transdisciplinaire* program at Campus Saint-Jean offers, in French, a high level, post-graduate education in several fields organized under the major axes of science, health, social sciences, and humanities. Established to meet the professional needs of the 21st century, in a world of close linguistic contact, and in a bilingual minority (Francophone) situation, this program constitutes a unique environment for interdisciplinary scientific research that provides an important opportunity for students to deepen their knowledge and skills in research within Canada's linguistic duality.~~<br><br>**Entrance Requirements**<br>The minimum requirements for admission to the *Doctorat* program are as follows:<br>● Master's degree or equivalent recognized by the University of Alberta<br>● An admission GPA of at least 3.0 on the 4-point scale from the University of Alberta, or an equivalent qualification and standing from a recognized institution The admission GPA will be calculated on the last 60 units of graded coursework completed, or on the equivalent of the last two years of full-time graded coursework<br>● Applicants must have adequate French language proficiency, as demonstrated by:<br>○ a degree or its university-level equivalent from an institution recognized by the University of Alberta, ~~and where the language of instruction is French~~. Proof that instruction for the degree was in French is required;<br>OR<br>○ a satisfactory score on an approved French proficiency test (the list of language proficiency tests approved by the Faculté Saint-Jean is available at the Faculté Saint-Jean Graduate Studies Office).<br>**Note:** Where applicable, applicants must meet the minimum English Language Requirement.<br><br>Applicants are also required to submit the following:<br>● A curriculum vitae | **Doctorate in Transdisciplinary Studies (Faculty Saint-Jean)**<br><br>**Entrance Requirements**<br>The minimum requirements for admission to the *Doctorat transdisciplinaire* program are as follows:<br>● Master's degree or equivalent recognized by the University of Alberta<br>● An admission GPA of at least 3.0 on the 4-point scale from the University of Alberta, or an equivalent qualification and standing from a recognized institution The admission GPA will be calculated on the last 60 units of graded coursework completed, or on the equivalent of the last two years of full-time graded coursework<br>● Applicants must have adequate French language proficiency, as demonstrated by:<br>○ a degree or its university-level equivalent from an institution recognized by the University of Alberta, with French as the language of instruction. Proof that instruction for the degree was in French is required;<br>OR<br>○ a satisfactory score on an approved French proficiency test (the list of language proficiency tests approved by the Faculté Saint-Jean is available at the Faculté Saint-Jean Graduate Studies Office).<br>**Note:** Where applicable, applicants must meet the minimum English Language Requirement.<br><br>Applicants are also required to submit the following:<br>● A curriculum vitae<br>● A letter of intent (maximum two pages) outlining the applicant's research objectives |

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| • A letter of intent (maximum two pages) outlining the applicant's research objectives<br>• One sample of written work (between 5 and 15 pages)<br>• Two letters of reference addressed directly to the Faculté Saint-Jean<br>• A letter of support from ~~at least one professor whose area of research/specialization corresponds to the pre-project submitted~~<br><br>Note: all documentation must be submitted in French.<br><br>**Program Requirements**<br>~~Students must complete a minimum of 18 units, including a minimum of 6 units in graduate level courses, and write a thesis.~~<br><br>**Coursework**<br>• ~~ESFSJ~~ 600 : Séminaire de recherche ~~inter~~disciplinaire<br>• ~~ESFSJ~~ 605 : ~~recherche approfondie (Research Design)~~<br>• ~~Six 3-unit graduate-level courses -optional~~<br>The program is based on self- and supervisor-directed studies. The supervisory committee, in consultation with the student, can decide on additional ~~formal~~ courses to be taken in the program if necessary.<br><br>**Thesis**<br>Registration in 900-level THES. Students are required to successfully defend a thesis.<br><br>**Comprehensive Exam**<br>Students must successfully complete a comprehensive exam in the targeted discipline, usually at the beginning of the second year of the doctoral program.<br><br>**Candidacy Exam**<br>At the end of the second year, students are required to submit a research proposal, which is followed by an oral candidacy/synthesis exam.<br><br>Due to the ~~inter~~disciplinary nature of the program, the path to candidacy may take different forms. ~~It may include, for example, written examinations on different aspects of the discipline, a series of position papers, or a long thesis proposal.~~<br><br>**Ethics and Professional Development Requirements**<br>Students are required to meet the GPS Academic Integrity and Ethics Training and the GPS Professional Development Requirement. | • One sample of written work (between 5 and 15 pages)<br>• Two letters of reference addressed directly to the Faculté Saint-Jean<br>• A letter of support from a potential supervisor<br><br>Note: all documentation must be submitted in French.<br><br>**Program Requirements**<br>Students are required to complete 2 mandatory courses and write a thesis. Additionally, they can choose up to 4 elective courses, which will be decided by the committee and the supervisor, based on their pathway and research theme.<br><br>**Coursework**<br>• DET 600 : Séminaire de recherche transdisciplinaire<br>• DET 605 : Sujets avancés en études transdisciplinaires<br>• Elective Courses: Up to four graduate-level elective courses of three credits each<br>The program is based on self- and supervisor-directed studies. The supervisory committee, in consultation with the student, can decide on additional courses to be taken in the program if necessary.<br><br>**Thesis**<br>Registration in 900-level THES. Students are required to successfully defend a thesis.<br><br>**Comprehensive Exam**<br>Students must successfully complete a comprehensive exam in the targeted discipline, usually at the beginning of the second year of the doctoral program.<br><br>**Candidacy Exam**<br>At the end of the second year, students are required to submit a research proposal, which is followed by an oral candidacy/synthesis exam.<br><br>Due to the transdisciplinary nature of the program, the path to candidacy may take different forms.<br><br>**Ethics and Professional Development Requirements**<br>Students are required to meet the GPS Academic Integrity and Ethics Training and the GPS Professional Development Requirement. |

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| **Academic Standing Requirement**<br>Students in the PhD program are required to maintain a minimum cumulative grade point average of 3.0 in their courses for the program.<br><br>**Residence Requirement**<br>Residency is not required in this program. However, we encourage students to attend their ~~first~~ meeting with their supervisors. University professors who fund students through their own research grants may require the student to attend.<br><br>**Length of Program**<br>The maximum time to complete the PhD program is six years, as set by the Faculty of Graduate & Postdoctoral Studies. | **Academic Standing Requirement**<br>Students in the PhD program are required to maintain a minimum cumulative grade point average of 3.0 in their courses for the program.<br><br>**Residence Requirement**<br>Residency is not required in this program. However, we encourage students to attend their orientation meeting at the beginning of the program. University professors who fund students through their own research grants may require the student to attend.<br><br>**Length of Program**<br>The maximum time to complete the PhD program is six years, as set by the Faculty of Graduate & Postdoctoral Studies. |

## Reviewed/Approved by:

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| REQUIRED: Faculty Council (or delegate) and approval date.<br>FSJ Executive committee on behalf of FSJ council: March 14, 2024<br>Faculty Council (Evote): February 21, 2024<br>FSJ Executive committee : February 15 2024 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

**ITEM NO.**

**Decision** ☑ **Discussion** ☐ **Information** ☐

**ITEM OBJECTIVE**: The proposal is before the committee to introduce a new course designator, CSSE (Certificat Supérieur en Sciences de l'Éducation), as an identifier for courses related to the Certificat Supérieur en Sciences de l'Éducation

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| **DATE** | May 16, 2024 |
| **TO** | GFC Programs Committee |
| **RESPONSIBLE PORTFOLIO** | Provost and Vice-President (Academic) |

**MOTION**:THAT the GFC Programs Committee approve, with delegated authority from General Faculties Council, a new course designator CSSE (Certificat Supérieur en Sciences de l'Éducation), as an identifier for courses related to the new Certificat en sciences de l'éducation as set forth in attachment 1, as submitted by the Faculté Saint-Jean.

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**EXECUTIVE SUMMARY**:

The GFC Programs Committee's approval of the *Certificat supérieur en sciences de l'éducation* on March 16, 2023, marked a significant milestone for the Faculté Saint-Jean.This approval was also confirmed by the Ministry of Advanced Education.

The original proposals inadvertently omitted the inclusion of a proposal (GO) for a course designator CSSE (Certificat Supérieur en Sciences de l'Éducation), intended for courses within these programs. This current proposal aims to rectify this by seeking approval for a new course designator CSSE to categorize relevant courses.

**Supporting Materials**:
Attachments

1. Calendar Change Request Form for Course Changes ( Faculté Saint-Jean)

**SCHEDULE A:**

**Engagement and Routing**

Consultation and Stakeholder Participation / Approval Route (parties who have seen the proposal and in what capacity) <*Governance Resources Section Student Participation Protocol*>

*Those who are actively **participating**:*

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**GOVERNANCE OUTLINE**

UNIVERSITY OF ALBERTA

**ITEM NO.**

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| *Those who have been **consulted**:*<br>● Conseil de la Faculté Saint-Jean (online voting, February 21, 2024)<br>● FSJ Executive Committee - February 15, 2024<br>● FSJ Academic Planning - February 8, 2024<br>● Office of the Registrar (Jesse Luyendyk) - January 29, 2024<br>● Calendar Editor (Rebecca Liaw) |
| *Those who have been **informed**:*<br>● FSJ Arts/Sciences group, Feb 2, 2024 (for information) |
| ***Approval Route:***<br>GFC Programs Committee - Graduate Program Support Team<br>GFC Program Committee |

**Supplementary Notes / Context**:

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UNIVERSITY OF ALBERTA

# Calendar Change Request Form
## for Course Changes

See the Calendar Guide for tips on how to complete this form.

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| Faculty (& Department or Academic Unit): | Faculté Saint-Jean |
| Contact Person: | Sadok El Ghoul ( elghoul@ualberta.ca ) |
| Level of change: (choose one only) [?] | ☐ Undergraduate |
| | ☑ Graduate |
| For which term will this change take effect? | Fall 2024 (Early implementation) |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

The Certificat en Sciences de l'Éducation (CSSE) programs were approved on March 16, 2023, by the GFC Program Committee. The Ministry of Education has formally validated their launch for the fall of 2024. We must now create a course designator, CSSE (Certificat Supérieur en Sciences de l'Éducation), and the corresponding courses.
The program consists of four courses (12 units) selected from a list of approved courses which are clustered into areas of focus within the field of education, as follows:
- Diversity and Equity;OR
- Indigenous Education;OR
- Language, Literacy and Curriculum; OR
- Inclusive Pedagogy; OR
- Science, Technology, Engineering and Mathematics (STEM)

All CSSE courses will be cross-listed with the MEDU courses.

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Le Certificat en Sciences de l'Éducation (CSSE) a été approuvé le 16 mars 2023 par GFC Program Committee. Le Ministère de l'Éducation a formellement validé leur lancement pour l'automne 2024. Nous devons à présent créer un sigle de cours, CSSE (Certifcat Supérieur en Sciences de l'Éducation), et les cours correspondants.
Le programme CSSE comprend quatre cours (12 crédits) choisis parmi une liste de cours approuvés. Ces cours sont regroupés sous divers domaines d'intérêt en éducation , comme suit:
- Diversité et équité, OU
- Éducation autochtone, OU
- Langue, littératie et curriculum, OU
- Pédagogie inclusive , OU
- Sciences, technologies ingénierie et mathématiques (STIM).

Tous les cours CSSE seront des cours cosiglés avec les cours de M EDU.

## Course Template

| CURRENT<br>Current: ~~Removed language~~ | PROPOSED<br>Proposed: New language |
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| ***NEW*** | **CSSE 500 - Langue, culture et éducation**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Étude interdisciplinaire (anthropologie, sociologie, psychologie sociale) des théories scientifiques contemporaines sur la nature de la culture, ses rapports avec la langue et ses mécanismes de transmission et de modification. La problématique locale sera examinée dans le contexte de la communauté scientifique internationale. L'histoire de la science de l'éducation bilingue sera aussi abordée.Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 500. |
| ***NEW*** | **CSSE 513 - Apprendre à lire et à écrire différents genres de textes**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Durant ce cours, les étudiants réfléchiront à la notion de texte de qualité en lien avec différents genres de texte. Ils approfondiront leurs connaissances de la démarche rédactionnelle qui sous-tend la création d'un texte de qualité chez les lecteurs et les scripteurs habiles. Ils exploreront le lien entre la lecture et l'écriture. Ils se familiariseront avec des principes d'apprentissage pouvant guider la conception d'une intervention orientée vers l'enseignement explicite de stratégies de lecture et d'écriture. Ils appliqueront ces connaissances dans le cadre de l'élaboration d'une séquence didactique visant le développement de la compétence à produire un genre de texte de leur choix. Peut comprendre des sections en ligne. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 513. |

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| ***NEW*** | **CSSE 515 - L'oral au service de l'apprentissage et de l'évaluation**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Durant ce cours les étudiants se familiariseront avec le concept de l'oral au service de l'apprentissage et de l'évaluation à l'ère numérique. Ils approfondiront de manière théorique et pratique, le rôle de l'oral comme compétence essentielle ; les notions de discours dialogique et exploratoire dans la construction des savoirs et la discussion philosophique. L'oral et l'utilisation des technologies numériques seront aussi abordés dans le cadre de ce cours. Peut comprendre des sections en ligne. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 515. |
| ***NEW*** | **CSSE 519 - Didactique du plurilinguisme et du pluriculturalisme**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Le cours vise à familiariser les étudiants avec les approches plurielles de l'enseignement des langues et des cultures. Il aborde les notions et recherches sur lesquelles repose le développement d'activités d'enseignement-apprentissage valorisant la diversité des langues et des cultures en contexte plurilingue et multiculturel. Peut comprendre des sections en ligne. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 519. |
| ***NEW*** | **CSSE 523 - Intégration du contenu, de la langue et de la littératie**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Durant le cours les étudiants se familiariseront avec la recherche dans le domaine de l'intégration de la langue, du contenu et des habiletés liées à littératie disciplinaire en immersion et milieu francophone minoritaire. Ils analyseront les programmes d'enseignement actuels avec un regard critique afin d'identifier les lacunes de ceux-ci. Ils utiliseront une approche intégrée permettant un rééquilibrage de l'instruction afin que les sens et la forme soient conjointement ciblés. Enfin, Ils |

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| | développeront un micro programme mettant en application les théories et pédagogies étudiées. Peut comprendre des sections en ligne. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 523. |
| ***NEW*** | **CSSE 525 - Numératie dans l'ensemble du curriculum**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Ce cours vise à mieux comprendre l'importance de la numératie dans les différentes matières et vise aussi au développement de la compétence qui implique la réflexion, l'évaluation de façon critique, la formulation d'un jugement, la prise de décision, l'action et la communication de la solution. Peut comprendre des sections en ligne. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 525. |
| ***NEW*** | **CSSE 526- Culture scientifique, environnement et société**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Ce cours vise à susciter une réflexion critique sur le rôle des activités scientifiques et technologiques et leurs impacts sur l'environnement et la société. L'étudiant est amené à développer ses connaissances sur la nature et l'épistémologie des sciences et des technologies. Il permet aux étudiants d'investiguer, de dialoguer et d'échanger sur les divers enjeux sociopolitiques et environnementaux contemporains qui peuvent alimenter les apprentissages chez les élèves et développer diverses compétences telles que la pensée critique et créative, la résolution de problèmes, la collaboration, et la communication. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 526. |
| ***NEW*** | **CSSE 528 - Séminaire d'intégration STIM et pratiques enseignantes**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description** |

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| | Ce séminaire met l'accent sur les fondements théoriques et pratiques par rapport à l'intégration des sciences, technologies, ingénierie et mathématiques (STIM). Les étudiants seront en mesure d'explorer et d'analyser de façon critique divers modèles d'intégration disciplinaires, de créer et mettre en place des conditions favorables à l'apprentissage et d'analyser leurs pratiques enseignantes. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 528. |
| ***NEW*** | **CSSE 530 - La problématique de l'enseignement des langues**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Étude de la langue et de son impact sur le développement de la personne. Nouvelles orientations centrées sur les réalités de l'enseignement des langues telles que l'intégration des matières, l'individualisation, l'enseignement par atelier, etc. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 530. |
| ***NEW*** | **CSSE 533 - Évaluation en milieu scolaire**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br>**Description**<br>Étude des différents types d'évaluation utilisés dans le milieu scolaire selon les objectifs poursuivis et les innovations récentes en évaluation. Ce cours vise à initier l'étudiant à l'usage et à l'interprétation des tests éducatifs et psycho-pédagogiques, y compris des tests sur les capacités cognitives, des tests de rendements scolaires et des outils de mesure du comportement. Le cours comprendra également des exercices pratiques sur le développement d'instruments de mesure qui peuvent contribuer à un processus d'évaluation diagnostique et formative. Peut comprendre des sections en ligne. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 533. |

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| ***NEW*** | **CSSE 534 - Technologie d'aide auprès des élèves présentant des besoins particuliers sévères**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Ce cours permettra à l'étudiant d'approfondir et d'appliquer ses connaissances concernant l'usage de la technologie d'aide auprès de la clientèle d'élèves présentant des besoins particuliers sévères, particulièrement, ceux dont la capacité d'expression est limitée (communication augmentative et alternative). La conception universelle de l'apprentissage (CUA) sera privilégiée dans ce cours.<br>Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 534. |
| ***NEW*** | **CSSE 536 - Psychologie de l'éducation et milieu scolaire**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br>**Description**<br>Ce cours vise à examiner les facteurs biopsychosociaux et développementaux qui influencent le rendement et l'adaptation de l'élève à l'école. Ces facteurs, d'origine biologique, psychologique, sociale ou environnementale, interagissent tout au long du développement de l'élève et sont impliqués dans son adaptation au système scolaire. Une attention particulière sera accordée à la résilience et à la prévention des problèmes de santé mentale en milieu éducatif. Peut comprendre des sections en ligne. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 536. |
| ***NEW*** | **CSSE 537 - Difficultés comportementales en contexte scolaire**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br>**Description**<br>Ce cours vise à initier l'étudiant aux difficultés comportementales extériorisées et intériorisées des élèves. L'étudiant se familiarisera aux courants théoriques contemporains et à l'approche développementale des difficultés comportementales externalisées (p. ex : agressivité, trouble oppositionnel avec provocation, troubles de la conduite, etc.) et intériorisées (p. ex : anxiété, dépression, etc.). La question des facteurs de risque et de protection ainsi que des retombées de ces facteurs sur |

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| | la gestion et la dynamique de la classe inclusive sera également abordée dans ce cours. Peut comprendre des sections en ligne. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 537. |
| ***NEW*** | **CSSE 538 - Les troubles neuro-développementaux en contexte scolaire**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br>**Description**<br>Ce cours vise à initier l'étudiant à deux troubles neurodéveloppementaux souvent rencontrés chez les élèves soit, le trouble du déficit de l'attention/hyperactivité (TDAH) et le trouble du spectre de l'autisme (TSA). L'étudiant se familiarisera avec l'approche neuro-développementale et multimodale en lien avec le TDAH et le TSA. La question des facteurs de risque et de protection ainsi que des retombées de ces facteurs sur la gestion et la dynamique de la classe inclusive sera également abordée dans ce cours. Peut comprendre des sections en ligne. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 538. |
| ***NEW*** | **CSSE 539 - Stage pratique d'inclusion**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br>**Description**<br>Ce cours vise à développer des habiletés en observations, en entrevues, en soutien, et en évaluation d'élèves à risques et en réflexion en groupes lors des visites dans des écoles et en travaillant avec les enseignants, la direction, et l'équipe de soutien des écoles. Peut comprendre des sections en ligne.<br>Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 539. |
| ***NEW*** | **CSSE 540- Dimensions politiques et administratives de l'éducation bilingue**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Étude des structures de l'éducation française et bilingue dans les diverses provinces canadiennes et du rapport existant entre ces structures et le contexte sociopolitique. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 540. |

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| ***NEW*** | **CSSE 545 - Technologies, enseignement et apprentissage**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Ce cours vise à familiariser les étudiants avec l'intégration des technologies émergentes en contexte éducatif. Ce cours vise les thématiques suivantes : l'enseignement et l'apprentissage médiatisés par les technologies ; les différentes modalités de formation et de l'apprentissage à distance ; les environnements mobiles et numériques d'apprentissage ; les outils de communication et de partage tels que les réseaux sociaux ; les technologies au service de l'inclusion scolaire et sociale. Ce cours présente une composante à la fois théorique et pratique avec des projets pour la salle de classe. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 545. |
| ***NEW*** | **CSSE 550 - Diversité en milieu éducatif : contexte, enjeux et stratégies**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Le cours aborde la question des diversités (socioculturelle, linguistique, sociale, religieuse, sexuelle, etc.) en contexte scolaire et éducatif. Il aborde les politiques d'inclusion, les réalités vécues par les élèves et leur famille et différentes options de gestion de la diversité. Peut comprendre des sections en ligne. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 550. |
| ***NEW*** | **CSSE 552 - Réconciliation et éducation autochtone**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Dans ce cours, les étudiants se familiariseront avec les perspectives autochtones et les politiques et pratiques éducatives en lien avec l'éducation autochtone et la réconciliation avec les peuples Premières Nations, Métis et Inuit**.** Peut comprendre des sections en ligne. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 552. |

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| ***NEW*** | **CSSE 553 - Communautés autochtones locales : engagement et connexions**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Dans le cadre de ce cours, les étudiants seront amenés à développer leurs connexions auprès des communautés autochtones locales et à s'engager de manière à développer leurs relations et posture alliée. Ce cours donnera aux étudiants l'opportunité de vivre des rencontres et expériences auprès de divers gardiens du savoir, Ainés, éducateurs, organismes et membres des communautés autochtones. Ce cours comporte une dimension « apprentissage par le service à la communauté ». Ce cours peut occasionner des frais divers supplémentaires. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 553. |
| ***NEW*** | **CSSE 554 - Savoirs et perspectives autochtones dans la pratique enseignante**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Ce cours est axé sur l'intégration dans la pratique des savoirs, perspectives et principes d'éducation des Premiers Peuples. Une analyse du curriculum et un inventaire des ressources disponibles permettront de repérer les occasions de les mettre en œuvre d'une manière authentique dans un contexte de classe. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 554. |
| ***NEW*** | **CSSE 555 - Éthique professionnelle, valeurs et gestion de conflits**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Ce cours traite de la « gestion » des conflits de valeurs et de normes dans les institutions éducatives multiethniques et multiconfessionnelles, en regard du développement de l'éthique professionnelle. Reposant sur des études de cas, issus |

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| | de leur pratique ou fournis par l'enseignante, ce séminaire examine les dilemmes éthiques complexes auxquels les enseignants sont confrontés dans leur pratique quotidienne et propose des stratégies d'analyse et de résolution à la lumière de différents cadres (éducatif, pédagogique, légal, déontologique) qui balisent l'exercice de l'enseignement en Alberta et du « vivre ensemble » au Canada. Peut comprendre des sections en ligne. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 555. |
| ***NEW*** | **CSSE 565 - Leadership et visions du monde autochtone**<br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Ce cours est axé sur les enseignements, approches et modèles autochtones pouvant guider les pratiques de leadership éducatif. Les étudiants auront l'opportunité d'amorcer une réflexion sur leurs propres pratiques et de développer des pratiques exemplaires en collaboration avec divers partenaires autochtones. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MEDU 565. |

## Reviewed/Approved by:

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| REQUIRED: Faculty Council (or delegate) and approval date.<br>FSJ Faculty council (online voting): February 21, 2024<br>FSJ Executive Committee: February 15, 2024 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
## for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Centre Collégial de l'Alberta |
| Contact Person: | Patrick Vanasse |
| Level of change: (choose one only) [?] | ☐ Undergraduate College |
| | ☐ Graduate |
| For which term will this change take effect? | Spring 2024 (Early implementation) |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

The ALS 115 course has been transferred from FSJ to the Language School, and merely completing this course does not ensure entry into CCALS 120 anymore. Every student is required to pass a placement test to be admitted. The purpose of this proposal is to revise the CCALS 120 course description to accurately represent our existing procedures. Furthermore, we are eliminating outdated references to other courses.

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Le cours ALS 115 a été transféré de la FSJ à l'École de langue et le fait d'avoir suivi ce cours ne donne plus automatiquement accès à CCALS 120. Tous les étudiants doivent faire un test de placement pour y accéder. L'objectif de cette proposition est de mettre à jour la description de CCALS 120 pour qu'elle reflète nos pratiques actuelles. On retire aussi des explications par rapport à d'autres cours car elles sont devenues obsolètes.

## Course Template

| **CURRENT**<br>**Current:** Removed language | **PROPOSED**<br>**Proposed:** New language |
|---|---|
| **CCALS 120 - Anglais intermédiaire**<br>Course Career **Undergraduate**<br>Units **3**<br>Approved Hours **3-0-2**<br>Fee index **6**<br>Faculty **Faculté Saint-Jean**<br>Department **Centre collégial de l'Alberta**<br>Typically Offered **l'un ou l'autre semestre** | **CCALS 120 - Anglais intermédiaire**<br>Course Career **Undergraduate**<br>Units **3**<br>Approved Hours **3-0-2**<br>Fee index **6**<br>Faculty **Faculté Saint-Jean**<br>Department **Centre collégial de l'Alberta**<br>Typically Offered **l'un ou l'autre semestre** |

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| **Description**<br>Étude des éléments et des structures complexes de l'anglais parlé et écrit. Note(s): (1) Cours réservé aux étudiants du Centre Collégial de l'Alberta (2) Anciennement ANGL 113 et ALS 160. (3) Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ESL ou EAP 140, 145, 150, ALS 120, 125, 160, ANGL 102 ou leurs équivalents. (4) Affectation par test de placement obligatoire ou préalable ALS 115. Veuillez consulter la section « Test obligatoire pour les étudiants ne présentant pas English 30 ou l'équivalent » de l'annuaire. | **Description**<br>Étude des éléments et des structures complexes de l'anglais parlé et écrit. Note(s): (1) Cours réservé aux étudiants du Centre Collégial de l'Alberta (2) Affectation par test de placement obligatoire. Veuillez consulter la section « Test obligatoire pour les étudiants ne présentant pas English 30 ou l'équivalent » de l'annuaire. |
| **CCALS 125 - Anglais avancé**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-2<br>**Fee index** 6<br>**Faculty F**aculté Saint-Jean<br>**Department** Centre collègial de l'Alberta<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Vise à faire acquérir les compétences communicatives écrites nécessaires à l'expression courante de niveau universitaire. Note(s): (1) Cours réservé aux étudiants du Centre Collégial de l'Alberta. (2) Anciennement ANGL 102. (3) Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ESL ou EAP 140, 145, 150, ALS 125, ALS 160, ANGL 102 ou leurs équivalents. (4) Affectation par test de placement obligatoire ou préalable ALS 120. Veuillez consulter la section « Test obligatoire pour les étudiants ne présentant pas English 30 ou l'équivalent » de l'annuaire. | **CCALS 125 - Anglais avancé**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-2<br>**Fee index** 6<br>**Faculty F**aculté Saint-Jean<br>**Department** Centre collègial de l'Alberta<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Vise à faire acquérir les compétences communicatives écrites nécessaires à l'expression courante de niveau collégial. Note(s): (1) Cours réservé aux étudiants du Centre Collégial de l'Alberta. Affectation par test de placement obligatoire ou préalable CCALS 120. Veuillez consulter la section « Test obligatoire pour les étudiants ne présentant pas English 30 ou l'équivalent » de l'annuaire. |

## Reviewed/Approved by:

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| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>CCA Executive Committee: March 13, 2024 (e-vote)<br>CCA Program Committee: March 8, 2024 (e-vote) |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
## for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculté Saint-Jean |
| Contact Person: | Hassan Safouhi (Vice-Dean - hsafouhi@ualberta.ca) |
| Level of change: (choose one only) [?] | ☑ Undergraduate |
| | ☐ Graduate |
| For which term will this change take effect? | Fall 2025 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

No course has been created in political science for many years. A new course focusing on a current topic and featuring an engaging title would renew the course offerings and attract not only political science students but also students from other programs (elective course). This course will be offered alternately with other political science courses; it will also be used in the new BA majors.

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Aucun cours n'a été créé en science politique depuis de nombreuses années. Un nouveau cours portant sur un sujet d'actualité et doté d'un titre engageant permettrait de renouveler l'offre de cours et d'attirer non seulement les étudiant.e.s de science politique mais les étudiant.e.s d'autres programmes (cours à option). Ce cours sera offert en alternance avec d'autres cours de science politique ; il servira aussi dans les nouvelles majeures du BA.

## Course Template

| **CURRENT**<br>**Current:** ~~Removed language~~ | **PROPOSED**<br>**Proposed:** New language |
|---|---|
| **NEW** | **SC PO 310 - Populisme et complotisme**<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Étude des transformations récentes de la démocratie et de l'évolution des idéologies contemporaines, sur la scène politique occidentale. Analyse |

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| | théorique de deux phénomènes politiques qui ébranlent les démocraties occidentales d'aujourd'hui, à savoir le phénomène populiste et le complotisme. |

## Reviewed/Approved by:

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|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br>FSJ Faculty council: March 22, 2024<br>FSJ Executive Committee: February 15, 2024<br>FSJ Academic Planning Committee: February 8, 2024 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
## for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculté Saint-Jean |
| Contact Person: | Hassan Safouhi (Vice-Dean - hsafouhi@ualberta.ca) |
| Level of change: (choose one only) [?] | ☑ Undergraduate |
| | ☐ Graduate |
| For which term will this change take effect? | Spring 2024 (Early implementation) |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

The course ALS 115 has been transferred from the FSJ to the FSJ School of Languages, and having taken this course no longer automatically allows entry to ALS 120. All students must take a placement test to determine their level of English language skills and be placed in the appropriate course. The aim of this proposal is to update the description of ALS 120 to reflect our current practices. Explanations in the descriptions of ALS 120 and ALS 125 regarding other courses are also being removed because they have become obsolete.

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Le cours ALS 115 a été transféré de la FSJ à l'École de langue et le fait d'avoir suivi ce cours ne donne plus automatiquement accès à ALS 120. Tous les étudiant.e.s doivent faire un test de placement pour déterminer leur niveau de compétences linguistiques en anglais et être placé.e.s. dans le cours adéquat.
L'objectif de cette proposition est de mettre à jour la description de ALS 120 pour qu'elle reflète nos pratiques actuelles. On retire aussi des explications des descriptifs de ALS 120 et ALS 125 par rapport à d'autres cours car elles sont devenues obsolètes.

## Course Template

| **CURRENT**<br>**Current:** ~~Removed language~~ | **PROPOSED**<br>**Proposed:** New language |
|---|---|
| **ALS 120 - Niveau intermédiaire 2**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-2<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description** | **ALS 120 - Niveau intermédiaire 2**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-2<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description** |

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| Étude des éléments et des structures complexes de l'anglais parlé et écrit. ~~Note : Anciennement ANGL 113 et ALS 160. Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ESL ou EAP 140, 145, 150, ALS 125, 160, ANGL 102 ou leurs équivalents.~~ Affectation par test de placement obligatoire ~~ou préalable ALS 115~~. Veuillez consulter l'article « Test obligatoire pour les étudiants ne présentant pas English 30 ou l'équivalent » dans la section de Faculté Saint-Jean de l'annuaire. | Étude des éléments et des structures complexes de l'anglais parlé et écrit. Affectation par test de placement obligatoire. Veuillez consulter l'article « Test obligatoire pour les étudiants ne présentant pas English 30 ou l'équivalent » dans la section de Faculté Saint-Jean de l'annuaire. |
| **ALS 125 - Introduction à l'anglais écrit, niveau universitaire**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-2<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Vise à faire acquérir les compétences communicatives écrites nécessaires à l'expression courante de niveau universitaire. ~~Note: Anciennement ANGL 102. Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour ESL ou EAP 140, 145, 150, ALS 160, ANGL 102 ou leurs équivalents~~. Affectation par test de placement obligatoire ou préalable ALS 120. Veuillez consulter l'article « Test obligatoire pour les étudiants ne présentant pas English. | **ALS 125 - Introduction à l'anglais écrit, niveau universitaire**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-2<br>**Fee index** 6<br>**Faculty** Faculté Saint-Jean<br>**Department** Saint-Jean<br>**Typically Offered** l'un ou l'autre semestre<br><br>**Description**<br>Vise à faire acquérir les compétences communicatives écrites nécessaires à l'expression courante de niveau universitaire. Affectation par test de placement obligatoire ou préalable ALS 120. Veuillez consulter l'article « Test obligatoire pour les étudiants ne présentant pas English. |

## Reviewed/Approved by:

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| REQUIRED: Faculty Council (or delegate) and approval date.<br>FSJ Faculty council: March 22, 2024<br>FSJ Executive Committee: February 15, 2024<br>FSJ Academic Planning Committee: February 8, 2024 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form

for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculté Saint-Jean |
| Contact Person: | Hassan Safouhi (Vice-Dean - hsafouhi@ualberta.ca) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2024 (Early Implementation) |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

During the FSJ Arts program redesign, we noted updates to the MATH courses in the Faculty of Sciences, such as MATH 215 being renumbered to MATH 315. To ensure alignment with equivalent courses at North Campus, we propose renumbering MATHQ 215 to MATHQ 315 and adjusting MATHQ 334 to correspond with MATH 315 and 334, maintaining consistent course equivalency across faculties.

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En travaillant sur la refonte du programme des Arts, nous avons constaté des changements dans les cours de MATH de la Faculté des Sciences, pour lesquels nous avons des équivalents. Les propositions visent à aligner le cours MATHQ 215 (qui devient MATHQ 315) et MATHQ 334 sur les cours équivalents MATH 315 et 334 du Campus Nord.

## Course Template

| **CURRENT**<br>**Current:** ~~Removed language~~ | **PROPOSED**<br>**Proposed:** New language |
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| **MATHQ ~~215~~ - Calcul intermédiaire II**<br>Course Career Undergraduate<br>Units 3<br>Approved Hours 3-0-0<br>Fee index 6<br>Faculty Faculté Saint-Jean<br>Department Saint-Jean<br>Typically Offered l'un ou l'autre semestre<br><br>**Description**<br>Équations différentielles d'ordre un et deux avec des coefficients constants. Courbes, vecteurs tangents, longueur d'arc, intégration en deux et trois dimensions, coordonnées polaires cylindriques et sphériques, intégrales de lignes et de surfaces. Théorèmes de Green, de Stokes et théorème de la divergence. Préalable(s): MATHQ 214 ~~ou~~ | **MATHQ 315 - Calcul intermédiaire II**<br>Course Career Undergraduate<br>Units 3<br>Approved Hours 3-0-0<br>Fee index 6<br>Faculty Faculté Saint-Jean<br>Department Saint-Jean<br>Typically Offered l'un ou l'autre semestre<br><br>**Description**<br>Équations différentielles d'ordre un et deux avec des coefficients constants. Courbes, vecteurs tangents, longueur d'arc, intégration en deux et trois dimensions, coordonnées polaires cylindriques et sphériques, intégrales de lignes et de surfaces. Théorèmes de Green, de Stokes et théorème de la divergence. |

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| ~~l'équivalent~~. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MATH~~Q~~ 209 ou MATH 317. | Préalable(s): Un parmi MATH/MATHQ 102, MATH/MATHQ 125 ou MATH 127, et MATH/MATHQ 214. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MATH 209 ou MATH 317. |
| **MATHQ 334 - Introduction aux équations différentielles**<br>Course Career Undergraduate<br>Units 3<br>Approved Hours 3-0-0<br>Fee index 6<br>Faculty Faculté Saint-Jean<br>Department Saint-Jean<br>Typically Offered l'un ou l'autre semestre<br><br>**Description**<br>Équations du premier ordre, équations linéaires d'ordre élevé. Solution par séries de puissance. Méthodes de transformée de Laplace. Introduction aux fonctions spéciales. Introduction aux systèmes linéaires. Préalable(s): ~~MATHQ 120 ou~~ MATH/MATHQ 125 ou MATH 127 et un parmi MATH/~~MATHQ~~ 209, 214 ou MATH 217. ~~Concomitant(s):~~ MATH/~~MATHQ 215 ou MATH 317.~~ Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MATH/~~MATHQ~~ 201 ~~ou~~ MATH 336. | **MATHQ 334 - Introduction aux équations différentielles**<br>Course Career Undergraduate<br>Units 3<br>Approved Hours 3-0-0<br>Fee index 6<br>Faculty Faculté Saint-Jean<br>Department Saint-Jean<br>Typically Offered l'un ou l'autre semestre<br><br>**Description**<br>Équations du premier ordre, équations linéaires d'ordre élevé. Solution par séries de puissance. Méthodes de transformée de Laplace. Introduction aux fonctions spéciales. Introduction aux systèmes linéaires. Préalable(s): Un parmi MATH/MATHQ 102, MATH/MATHQ 125 ou MATH 127, et un parmi MATH 209, MATH/MATHQ 214 ou MATH 217. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour MATH 201, MATH 336, MA PH 251. |

| **CURRENT**<br>**Current:** ~~Removed language~~ | **PROPOSED**<br>**Proposed:** New language |
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| https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47972&hl=%22Mathq+215%22&returnto=search<br><br>**Baccalauréat ès sciences**<br>[...]<br>**Majeures**<br>[...]<br>**Mathématiques**<br>Une majeure en mathématiques se compose d'au moins 36 crédits dont au moins 12 crédits au niveau 300 ou plus. La majeure doit inclure les cours suivants :<br><br>1. MATHQ 114 (ou MATH 113 ou MATH 117 ou MATH 134 ou MATH 144), MATHQ 115 (ou MATH 118 ou MATH 146), MATHQ 214 (ou MATH 217) et MATHQ ~~215~~ (ou MATH 317)<br>2. MATHQ 125 (MATHQ 120) (ou MATH 127) et MATHQ 225 (ou MATH 227)<br>3. Au moins 3 crédits parmi MATHQ 228 et MATHQ | https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47972&hl=%22Mathq+215%22&returnto=search<br><br>**Baccalauréat ès sciences**<br>[...]<br>**Majeures**<br>[...]<br>**Mathématiques**<br>Une majeure en mathématiques se compose d'au moins 36 crédits dont au moins 12 crédits au niveau 300 ou plus. La majeure doit inclure les cours suivants :<br><br>5. MATHQ 114 (ou MATH 113 ou MATH 117 ou MATH 134 ou MATH 144), MATHQ 115 (ou MATH 118 ou MATH 146), MATHQ 214 (ou MATH 217) et MATHQ 315 (ou MATH 317)<br>6. MATHQ 125 (MATHQ 120) (ou MATH 127) et |

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| 334<br>4. Au moins 12 parmi MATHQ au niveau 300 ou plus dont au moins 3 crédits au niveau 400. Si MATHQ 334 a été choisi pour satisfaire l'exigence (3), il pourra aussi être utilisé pour l'exigence (4).<br>[...]<br><br>**Mineures**<br>[...]<br>**Mathématiques**<br>Une mineure en mathématiques se compose d'au moins 24 crédits dont au moins 6 crédits au niveau 300 ou plus. La mineure doit inclure les cours suivants :<br><br>MATHQ 114 (ou MATH 113 ou MATH 117 ou MATH 134 ou MATH 144), MATHQ 115 (ou MATH 118 ou MATH 146), MATHQ 214 (ou MATH 217)<br>MATHQ 125 (ou MATH 127) et MATHQ 225 (ou MATH 227)<br>MATHQ 228 ou MATH ~~215~~ (ou 317) et MATHQ 334<br>Au moins 6 crédits parmi MATHQ au niveau 300 plus | MATHQ 225 (ou MATH 227)<br>7. Au moins 3 crédits parmi MATHQ 228 et MATHQ 334<br>8. Au moins 12 parmi MATHQ au niveau 300 ou plus dont au moins 3 crédits au niveau 400. Si MATHQ 334 a été choisi pour satisfaire l'exigence (3), il pourra aussi être utilisé pour l'exigence (4).<br>[...]<br>**Mineures**<br>[...]<br>**Mathématiques**<br>Une mineure en mathématiques se compose d'au moins 24 crédits dont au moins 6 crédits au niveau 300 ou plus. La mineure doit inclure les cours suivants :<br><br>MATHQ 114 (ou MATH 113 ou MATH 117 ou MATH 134 ou MATH 144), MATHQ 115 (ou MATH 118 ou MATH 146), MATHQ 214 (ou MATH 217)<br>MATHQ 125 (ou MATH 127) et MATHQ 225 (ou MATH 227)<br>MATHQ 228 ou MATH 315 (ou 317) et MATHQ 334<br>Au moins 6 crédits parmi MATHQ au niveau 300 plus |
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| **CURRENT**<br>**Current:** ~~Removed language~~ | **PROPOSED**<br>**Proposed:** New language |
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| https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55211&hl=%22mathq+215%22&returnto=search<br><br>**Bachelor of Science [English]**<br>[...]<br>**Majors**<br>[...]<br>**Mathematics**<br>A major in Mathematics consists of at least 36 units with at least 12 units at the 300-level or higher. The major must include the following:<br><br>MATHQ 114 (or MATH 117 or MATH 134 or MATH 144), MATHQ 115 (or MATH 118 or MATH 146), MATHQ 214 (or MATH 217) and MATHQ ~~215~~ (or MATH 317)<br>MATHQ 125 (or MATH 127) and MATHQ 225 (or MATH 227)<br>At least 3 units from MATHQ 228 and MATHQ 334<br>At least 12 units in MATHQ at the 300-level or higher, of which at least 3 units must be at the 400-level. If taken to meet Requirement (3) above, MATHQ 334 may be used toward Requirement (4) | https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55211&hl=%22mathq+215%22&returnto=search<br><br>**Bachelor of Science [English]**<br>[...]<br>**Majors**<br>[...]<br>**Mathematics**<br>A major in Mathematics consists of at least 36 units with at least 12 units at the 300-level or higher. The major must include the following:<br><br>MATHQ 114 (or MATH 117 or MATH 134 or MATH 144), MATHQ 115 (or MATH 118 or MATH 146), MATHQ 214 (or MATH 217) and MATHQ 315 (or MATH 317)<br>MATHQ 125 (or MATH 127) and MATHQ 225 (or MATH 227)<br>At least 3 units from MATHQ 228 and MATHQ 334<br>At least 12 units in MATHQ at the 300-level or higher, of which at least 3 units must be at the 400-level. If |

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| [...]<br><br>**Minors**<br>[...]<br>**Mathematics**<br>A minor in Mathematics consists of at least 24 units with at least 6 units at the 300-level or higher. The minor must include the following:<br><br>MATHQ 114 (or MATH 117 or MATH 134 or MATH 144), MATHQ 115 (or MATH 118 or MATH 146), MATHQ 214 (or MATH 217)<br>MATHQ 125 (or MATH 127) and MATHQ 225 (or MATH 227)<br>MATHQ 228 or both MATHQ ~~215~~ (or MATH 317) and MATHQ 334<br>At least 6 units in MATHQ at the 300-level or higher | taken to meet Requirement (3) above, MATHQ 334 may be used toward Requirement (4)<br><br>**Minors**<br>[...]<br>**Mathematics**<br>A minor in Mathematics consists of at least 24 units with at least 6 units at the 300-level or higher. The minor must include the following:<br><br>MATHQ 114 (or MATH 117 or MATH 134 or MATH 144), MATHQ 115 (or MATH 118 or MATH 146), MATHQ 214 (or MATH 217)<br>MATHQ 125 (or MATH 127) and MATHQ 225 (or MATH 227)<br>MATHQ 228 or both MATHQ 315 (or MATH 317) and MATHQ 334<br>At least 6 units in MATHQ at the 300-level or higher |

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| https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55289&hl=%22mathq+215%22&returnto=search<br><br>**Baccalauréat en Éducation** [Faculté - Français]<br>[...]<br>**Programmes**<br>[...]<br>**II. Secondaire**<br>[...]<br>**BEd Secondaire : cours obligatoires selon les spécialisations majeures 33 crédits**<br>[...]<br>**Mathématiques**<br>9 crédits parmi MATHQ, MATH, PHYSQ, INFOR<br>MATHQ 114 - Calcul élémentaire<br>MATHQ 115 - Calcul élémentaire II<br>MATHQ 125 - Algèbre linéaire I<br>MATHQ 214 - Calcul intermédiaire I<br>MATHQ ~~215~~ - Calcul intermédiaire II<br>MATHQ 241 - Géométrie<br>MATHQ 334 - Introduction aux équations différentielles<br>STATQ 151 - Introduction à la statistique appliquée I | https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55289&hl=%22mathq+215%22&returnto=search<br><br>**Baccalauréat en Éducation** [Faculté - Français]<br>[...]<br>**Programmes**<br>[...]<br>**II. Secondaire**<br>[...]<br>**BEd Secondaire : cours obligatoires selon les spécialisations majeures 33 crédits**<br>[...]<br>**Mathématiques**<br>9 crédits parmi MATHQ, MATH, PHYSQ, INFOR<br>MATHQ 114 - Calcul élémentaire<br>MATHQ 115 - Calcul élémentaire II<br>MATHQ 125 - Algèbre linéaire I<br>MATHQ 214 - Calcul intermédiaire I<br>MATHQ 315 - Calcul intermédiaire II<br>MATHQ 241 - Géométrie<br>MATHQ 334 - Introduction aux équations différentielles<br>STATQ 151 - Introduction à la statistique appliquée I |
| https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55264&hl=%22mathq+215%22&returnto=search<br><br>**Bachelor of Education [Faculté - English]**<br>[...]<br>Programs | https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55264&hl=%22mathq+215%22&returnto=search<br><br>**Bachelor of Education [Faculté - English]**<br>[...] |

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| [...]<br>**II. Secondary**<br>[...]<br>**BEd Secondaire : cours obligatoires selon les spécialisations majeures 33 crédits**<br>[...]<br>**Mathématiques**<br>9 crédits parmi MATHQ, MATH, PHYSQ, INFOR<br>MATHQ 114 - Calcul élémentaire<br>MATHQ 115 - Calcul élémentaire II<br>MATHQ 125 - Algèbre linéaire I<br>MATHQ 214 - Calcul intermédiaire I<br>MATHQ ~~215~~ - Calcul intermédiaire II<br>MATHQ 241 - Géométrie<br>MATHQ 334 - Introduction aux équations différentielles<br>STATQ 151 - Introduction à la statistique appliquée I | Programs<br>[...]<br>**II. Secondary**<br>[...]<br>**BEd Secondaire : cours obligatoires selon les spécialisations majeures 33 crédits**<br>[...]<br>**Mathématiques**<br>9 crédits parmi MATHQ, MATH, PHYSQ, INFOR<br>MATHQ 114 - Calcul élémentaire<br>MATHQ 115 - Calcul élémentaire II<br>MATHQ 125 - Algèbre linéaire I<br>MATHQ 214 - Calcul intermédiaire I<br>MATHQ 315 - Calcul intermédiaire II<br>MATHQ 241 - Géométrie<br>MATHQ 334 - Introduction aux équations différentielles<br>STATQ 151 - Introduction à la statistique appliquée I |

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| MATHQ 363 - Histoire des Mathématiques<br>STATQ 151 - Introduction à la statistique appliquée I | MATHQ 241 - Géométrie<br>MATHQ 334 - Introduction aux équations différentielles<br>MATHQ 363 - Histoire des Mathématiques<br>STATQ 151 - Introduction à la statistique appliquée I |
| https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55275&hl=%22mathq+215%22&returnto=search<br><br>**Bachelor of Education [Faculté - English]**<br>[...]<br>**Programs**<br>[...]<br>**III. Baccalauréat en éducation après diplôme**<br>[...]<br>**Minors**<br>**Bed/AD Secondaire: cours obligatoires selon les spécialisations mineures**<br>[...]<br>**Mathématiques**<br>EDU M 456 - Enseignement des mathématiques au secondaire<br>3 crédits de cours de contenu parmi les cours suivants<br>MATHQ 125 - Algèbre linéaire I<br>MATHQ 214 - Calcul intermédiaire I<br>MATHQ ~~215~~ - Calcul intermédiaire II<br>MATHQ 241 - Géométrie<br>MATHQ 334 - Introduction aux équations différentielles<br>MATHQ 363 - Histoire des Mathématiques<br>STATQ 151 - Introduction à la statistique appliquée I | https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55275&hl=%22mathq+215%22&returnto=search<br><br>**Bachelor of Education [Faculté - English]**<br>[...]<br>**Programs**<br>[...]<br>**III. Baccalauréat en éducation après diplôme**<br>[...]<br>**Minors**<br>**Bed/AD Secondaire: cours obligatoires selon les spécialisations mineures**<br>[...]<br>**Mathématiques**<br>EDU M 456 - Enseignement des mathématiques au secondaire<br>3 crédits de cours de contenu parmi les cours suivants<br>MATHQ 125 - Algèbre linéaire I<br>MATHQ 214 - Calcul intermédiaire I<br>MATHQ 315 - Calcul intermédiaire II<br>MATHQ 241 - Géométrie<br>MATHQ 334 - Introduction aux équations différentielles<br>MATHQ 363 - Histoire des Mathématiques<br>STATQ 151 - Introduction à la statistique appliquée I |

## Reviewed/Approved by:

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| REQUIRED: Faculty Council (or delegate) and approval date.<br>FSJ Executive Committee on behalf of FSJ Council : April 15, 2024 (e-vote)<br>FSJ Academic Planning Committee : March 21, 2024<br>FSJ Arts & Sciences Group: March 15, 2024 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
## for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Education |
| Contact Person: | Makere Stewart-Harawira |
| Level of change: (choose one only) | • Undergraduate |
| | • Graduate ☑ |
| Type of change request: (check all that apply) | • Program |
| | • Regulation |
| For which term is this intended to take effect? | Spring 2024 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | yes |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Climate change and its related social, health and biospheric impacts is a highly topical, indeed urgent subject, whose impacts and effects are unevenly distributed. A central principle in addressing social, economic and health aspects of climate change is climate justice. Minority, Indigenous and impoverished populations are most severely impacted and hence most at risk, a risk which is exacerbated by climate obstructionism on the part of some governments, policymakers and industries. Children and youth are likewise severely impacted. They are experiencing emotional harm yet teachers are inadequately prepared to acknowledge or respond to these impacts. Likewise, educational leadership is inadequately prepared to deal with social, cultural emotional and economic impacts and implications. Hence there is a demand for such a course.

The course name and description are being updated to reflect these recent developments and changing terminology in relation to sustainability and to better account for the place of Indigenous knowledge, peoples, and politics in addressing climate change on a global scale.

The course also has significance in terms of "Faculty of Education" commitments to fulfilling UofA Sustainability Commitments, one of the measures for global/national University rankings. This course directly responds to Sustainable Development Goal 13, to "take urgent action to combat climate change and its impacts".
The audience for the course and its location as an SJI elective available to students across the Faculty and University remains the same.

Consultation on this change was made with Dr. Florence Glanfield, Vice-Provost (Indigenous Programming & Research).

## Calendar Copy

URL in current Calendar (or "New page")

| **Current Copy:**<br>~~Removed language~~ | **Proposed Copy:**<br>New language |
|---|---|
| **EDPS 528**<br>**~~Global Transformations, Indigenous Knowledge and the Crisis of Sustainability~~**<br><br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Education<br>**Typically Offered** either term<br><br>**Description**<br>This course examines ~~the intersection of Indigenous peoples, Indigenous traditional and contemporary knowledge and global transformations in the early 21st century. Central to the course are changes to the conceptualization of education and knowledge and the contested nature and role of Indigenous knowledge and politics. In this context the course has particular regard to what has been designated as the 'triple crisis of sustainability'. This course is open to all graduate students. Credit cannot be received for both EDPS 636 and EDPS 528.~~ | **EDPS 528**<br>**Climate Change Impacts, Implications, and the Nature of Response: Indigenous Knowledges at the Intersection**<br><br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 6<br>**Faculty** Education<br>**Typically Offered** either term<br><br>**Description**<br>This course examines the socio-politico-economic and health impacts and implications of rapidly escalating climatic change on diverse groups and populations. It examines barriers to climate justice, particularly for marginalised and Indigenous populations and explores pathways to achievement. More-than-human or multi-species justice will also be a topic.<br>An important focus is the role of Indigenous communities and Indigenous knowledge in responding to and mitigating the impacts of climate change on planetary health. Other responses such as the role and forms of activism, and political responses are also included. Participants will have the opportunity to develop solutions-oriented case studies, curricula for teaching climate change to school pupils and policy analyses and recommendations. |

## Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.
**April 8, 2024 by the Faculty of Education Graduate Academic Affairs Council (GAAC).**

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

Sample Bibliography

Learning to Live with Climate Change:

Jones, C.A., Lucas, C. (2023). Listen to me!': Young people's experiences of talking about emotional impacts of climate change, *Global Environmental Change, 83.*

Verlie, B. (2022). Learning to Live with Climate Change. From anxiety to transformation. Oxon and NY: Routledge.

Verlie, B. (2019). Bearing worlds: learning to live-with climate change, *Environmental Education Research,25*(5), 751-766, DOI: 10.1080/13504622.2019.1637823

Indigenous Peoples and Climate Justice

Castleden, H. & Skinner, E. (2015). Whitewashing Indigenous Water Rights in Canada: How can we Indigenize Climate Change Adaptation if we Ignore the Fundamentals? In Dominic Stucker, Elena Lopez-Gunn, Eds. *Adaptation to Climate Change through Water Resources Management Capacity, Equity and Sustainability*. Routledge.

McGregor, D., Whitaker, S., & Sritharan, M. (2020). Indigenous environmental justice and sustainability. *Current Opinion in Environmental Sustainability, 43*, 35-40.

Sultana, F. (2022). The unbearable heaviness of climate coloniality. *Political Geography*, 102638.

More-Than-Human Climate Justice

Tschakert, P., Schlosberg, D., Celermajer, D., Rickards, L., Winter, C., Thaler, M., ... & Verlie, B. (2021). Multispecies justice: Climate-just futures with, for and beyond humans. *Wiley Interdisciplinary Reviews: Climate Change*, *12*(2), e699.

Braiding Indigenous and Scientific Knowledge

Mattalia, G., Stryamets,N., V. Rivalta (2024).Correspondence between local and scientific knowledge of climate change: the case of Hutsuls, Northern Romanian Carpathians. In *Routledge Handbook of Climate Change Impacts on Indigenous Peoples and Local Communities*, pp.30-45.

Reid, J., Challies, E., Tau, TM & Awatere, S. (2024). Adapting to climate change through nature-based solutions and indigenous knowledge: the case for landscape-scale ecosystem regeneration in the Rokohouia Delta, Kōtuitui: *New Zealand Journal of Social Science.* DOI: 10.1080/1177083X.2023.2299364

Theories & Practices of Change

Marquardt, J. & Lederer, M. (2022). Politicizing climate change in times of populism: an introduction, *Environmental Politics, 31*:5, 735-754, DOI:10.1080/09644016.2022.2083478

Mayer, B. (2023). Climate Change Mitigation as an Obligation under Customary International Law. *Yale Journal of International Law 48*, 105.

Stuart, D., Petersen, B, & Gunderson, R. (2022): Articulating system change to effectively and justly address the climate crisis, *Globalizations*, DOI:10.1080/14747731.2022.2106040

Vigni, F. L., Blanchard, E., & Tasset, C. (2022). Theories of global collapse: closing down or opening up the futures?. *Journal of Futures Studies.* DOI: 10.6531/JFS.

Walker, C., & van Holstein, E. (2023). Beyond climate strikes: Intersectionality and environmental care. In *Handbook of Children and Youth Studies* (11), pp. 1-17). Springer.

UNIVERSITY OF ALBERTA

# EXECUTIVE SUMMARY

## PROGRAM CHANGES (OTHER)

***Note:*** *Prior to completing this form, please consult with the programs team in the Office of the Provost (Carley Roth or Suzanne French) to ensure this is the appropriate form for the changes you wish to propose.*

| | | |
|---|---|---|
| **Program/Specialization Name** | Bachelor of Science in Material Engineering (Traditional and Co-op Sequences) | |
| **Faculty/Department** | Faculty of Engineering, Chemical and Materials Engineering | |
| **Contact Information** | Name and Title | Prof. Anthony Yeung, Associate Dean (Undergraduate) |
| | Email | tony.yeung@ualberta.ca |
| **Proposed Effective Date** | Fall 2024 | |

**Attachments**

✓ Proposed Calendar changes

- Change in the course sequences (Traditional and Co-op)
- Addition of a new course MAT E 303 - Principles of Nonmetallic-inorganic Materials
- Combining MAT E 341 and MAT E 345 into a single comprehensive course MAT E 341- Applied Electrochemistry and Corrosion
- Addition of a new course MAT E 374 - Computational Methods in Materials Engineering
- Including CME 482 - Fundamentals of Polymers as a core course

**OVERVIEW** | *Brief description of what is being proposed*

1. Removal of one complementary science (CS) elective.
2. CME 482 as a core course which is currently listed as a program & technical elective.
3. Combining MAT E 341 and MAT E 345 into a single comprehensive course MAT E 341. Renaming of the course MAT E 341 as “Applied Electrochemistry and Corrosion”.
4. Addition of two new courses MAT E 303 (as a replacement of MAT E 345) and MAT E 374 (as a replacement of CH E 374).

**RATIONALE** | *Why is this being proposed? What problems and/or opportunities will it address?*

i) **Combining MAT E 341 and MAT E 345 into a single comprehensive course *MAT E 341 Applied Electrochemistry and Corrosion*:** This decision is driven by several compelling reasons, with a strong focus on enhancing the educational experience and aligning our curriculum with industry demands and research trends. MAT E 341 and MAT E 345 have historically featured a substantial overlap in content, particularly in the area of electrochemistry. This redundancy was identified as an inefficiency in our curriculum, resulting in the duplication of efforts for both students and instructors. By merging these courses, we aim to streamline the curriculum, allowing students to explore the critical concepts of electrochemistry, corrosion theory, and material-degradation within a single, integrated framework.

ii) **Introducing a new course *MAT E 303 Principles of Nonmetallic-inorganic Materials*:** Combining courses MAT E 341 and MAT E 345 enable us to optimize departmental resources by consolidating teaching materials and introducing a new course as a replacement of MAT E 345. The course MAT E 303 focuses particularly on nonmetallic inorganic materials, allowing students to develop an understanding of the chemistry associated with the processing and fabrication of nonmetallic inorganic materials. In addition, students will recognize the engineering application of these materials in energy conversion.

iii) **Introducing a new course *MAT E 374 Computational Methods in Materials Engineering***: Currently, CH E 374 (Computational Methods in Engineering) is taught in the Material Engineering Program. Inclusion of a course on computational methods with a focus on material engineering application would enhance students' learning experience in their specific interest area. Therefore, the MAT E 374 course is designed with the aim of facilitating a deeper understanding of computational tools that aligns with the holistic approach to materials engineering practice.

iv) **Including *CME 482 Fundamentals of Polymers* as a core course and removing *one CS elective***: Considering the significant relevance of polymer materials and associated engineering aspects in material engineering, the department proposes to make this course as a core course, which is currently listed as a Program & Technical Elective. This course will prepare students for productive, professional careers in the plastics and composites industries. This course will replace one complementary science (CS) elective in the Material Engineering Program.

**FINANCIAL IMPLICATIONS** | *Basic costs and funding sources (as applicable)*

No additional resources are required.

**CONSULTATION** | *Who has been consulted? (e.g., students, faculty, other stakeholders, etc.)*

The proposed program description and structure was presented to the Department Council meeting and Faculty Academic Planning Committee (F-APC). The proposed changes in the existing program were supported by department council members and approved in the F-APC.

**LEARNER IMPACT** | *Will this proposal affect current students, and if so, how will negative impacts (if relevant) be mitigated?*

When the new curriculum is introduced in Fall 2024, the following cohorts of students will still need to graduate under the current curriculum.

Cohort 1 (T1/C1): Traditional and Co-op students whose start date is September 2023
Cohort 2 (T2/C2): Traditional and Co-op students whose start date is September 2022
Cohort 3 (T3/C3): Traditional and Co-op students whose start date is September 2021
Cohort 4 (C4): Co-op students whose start date is September 2020

The revised course sequence proposes the merging of course *MAT E 345 Corrosion, Oxidation, and Degradation with MAT E 341 Applied Electrochemistry* and revising the syllabus of MAT E 341 to include the content of MAT E 345. However, MAT E 345 will still be offered in the spring-summer to ensure that all students following the recommended sequence of courses in the old curriculum will be able to graduate.

Inclusion of the course MAT E 374 will substitute the course CH E 374; however CH E 374 is still offered in the Chemical Engineering Program. Therefore, students following the recommended sequence of courses in the old curriculum can still take the CH E 374 course.

Other changes, such as addition of a new course MAT E 303 and including CME 482 as a core course will not affect the current students enrolled in this Option.

**COMMITMENT TO TRC'S CALLS TO ACTION** | *How does this proposal address commitment to the goals outlined in Braiding Past, Present and Future: University of Alberta Indigenous Strategic Plan (see goal 3.0 Indigenous Ways of Knowing: programs, 3.1)?*

Indigenous perspectives will be woven throughout the curriculum in a meaningful way and an Indigenization Strategy, consistent with the template being developed for the Faculty of Engineering, is being developed.

**COMMITMENT TO EQUITY, DIVERSITY, + INCLUSION** | *How does this proposal address commitment to considerations for equity, diversity, and inclusion (see Strategic Plan for Equity, Diversity, and Inclusion)?*

The most current best practices in equity, diversity and inclusion are incorporated into the core part of the program and an EDI Strategy, consistent with the template for the Faculty of Engineering, will be developed.

The EDI Strategy will include the provision of training in group dynamics and decision-making, including recognizing decision-making biases and implicit biases, incorporating design projects that include the engineering design for developing assistive tools/technologies for people with differing abilities, and engaging organizations and industries with leaders who are from traditionally underrepresented groups in engineering as partners in capstone design projects.

Industry, Indigenous, and EDI perspectives will be incorporated in regular program reviews.

**ADDITIONAL INFORMATION** | *Optional*

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
## for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Engineering<br>Chemical & Materials Engineering |
| Contact Person: | Prof. Anthony Yeung (tony.yeung@ualberta.ca)<br>Associate Dean (Undergraduate) |
| Level of change: (choose one only) | • **Undergraduate** |
| | • Graduate |
| Type of change request: (check all that apply) | • **Program** |
| | • Regulation |
| For which term is this intended to take effect? | Fall 2024 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | Yes (attached as separate forms) |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Based on the feedback from both students and faculty members, the CME undergraduate curriculum review committee has made the decision to propose the following change in the existing curriculum of the Material Engineering Program:

i) **Combining MAT E 341 and MAT E 345 into a single comprehensive course *MAT E 341 Applied Electrochemistry and Corrosion*:** This decision is driven by several compelling reasons, with a strong focus on enhancing the educational experience and aligning our curriculum with industry demands and research trends. MAT E 341 and MAT E 345 have historically featured a substantial overlap in content, particularly in the area of electrochemistry. This redundancy was identified as an inefficiency in our curriculum, resulting in the duplication of efforts for both students and instructors. By merging these courses, we aim to streamline the curriculum, allowing students to explore the critical concepts of electrochemistry, corrosion theory, and material-degradation within a single, integrated framework.

ii) **Introducing a new course *MAT E 303 Principles of Nonmetallic-inorganic Materials*:** Combining courses MAT E 341 and MAT E 345 enable us to optimize departmental resources by consolidating teaching materials and introducing a new course as a replacement of MAT E 345. The course MAT E 303 focuses particularly on nonmetallic inorganic materials, allowing students to develop an understanding of the chemistry associated with the processing and fabrication of nonmetallic inorganic materials. In addition, students will recognize the engineering application of these materials in energy conversion. This course is listed as a core course in the Term 6 (Traditional Sequence) of the program "*Bachelor of Science in Material Engineering*".

iii) **Introducing a new course *MAT E 374 Computational Methods in Materials Engineering***: Currently, CH E 374 (Computational Methods in Engineering) is taught in the Material Engineering Program. Inclusion of a course on computational methods with a focus on material engineering application would enhance students' learning experience in their specific interest area. Therefore, the MAT E 374 course is designed with the aim

of facilitating a deeper understanding of computational tools that aligns with the holistic approach to materials engineering practice.

iv) **Including *CME 482 Fundamentals of Polymers* as a core course and removing *one CS elective***: Considering the significant relevance of polymer materials and associated engineering aspects in Material Engineering, the department proposes to make this course as a core course, which is currently listed as a Program & Technical Elective. This course will prepare students for productive, professional careers in the plastics and composites industries. This course will replace one complementary science (CS) elective in Term 7 (Traditional Sequence) of the Material Engineering Program.

## Calendar Copy

URL in current Calendar (or "New page")

https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47942&returnto=12339

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
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| **Bachelor of Science in Materials Engineering**<br><br>**Engineering Disciplines**<br>To find descriptions of the various disciplines of Engineering, visit Explore our Programs on the Faculty of Engineering website.<br><br>**Admission Requirements**<br>General Undergraduate Admission Requirements<br>Admission Requirements for Qualifying Year<br><br>**Academic Regulations**<br>University Regulations<br>Faculty of Engineering Regulations<br><br>**Program Requirements**<br><br>**Year 1**<br>Requirements for Year 1 can be found in Bachelor of Science in Engineering - Qualifying Year.<br><br>Information regarding admission to a specialized program from the Qualifying Year Program can be found in Faculty of Engineering Regulations. | **Bachelor of Science in Materials Engineering**<br><br>**Engineering Disciplines**<br>To find descriptions of the various disciplines of Engineering, visit Explore our Programs on the Faculty of Engineering website.<br><br>**Admission Requirements**<br>General Undergraduate Admission Requirements<br>Admission Requirements for Qualifying Year<br><br>**Academic Regulations**<br>University Regulations<br>Faculty of Engineering Regulations<br><br>**Program Requirements**<br><br>**Year 1**<br>Requirements for Year 1 can be found in Bachelor of Science in Engineering - Qualifying Year.<br><br>Information regarding admission to a specialized program from the Qualifying Year Program can be found in Faculty of Engineering Regulations. |

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| **Year 2**<br>**Term 3**<br>CH E 243 - Engineering Thermodynamics<br>CHEM 261 - Organic Chemistry I<br>CME 200 - Introduction to Chemical and Materials Engineering<br>MAT E 202 - Materials Science II<br>MATH 209 - Calculus for Engineering III<br>STAT 235 - Introductory Statistics for Engineering<br>ITS Elective (3-0-0)<br><br>**Term 4**<br>CH E 312 - Fluid Mechanics<br>CIV E 270 - Mechanics of Deformable Bodies I<br>CME 265 - Process Analysis<br>MATH 201 - Differential Equations<br>MAT E 204 - Materials Engineering Thermodynamics<br>MAT E 211 - Characterization of Materials | **Year 2**<br>**Term 3**<br>CH E 243 - Engineering Thermodynamics<br>CHEM 261 - Organic Chemistry I<br>CME 200 - Introduction to Chemical and Materials Engineering<br>MAT E 202 - Materials Science II<br>MATH 209 - Calculus for Engineering III<br>STAT 235 - Introductory Statistics for Engineering<br>ITS Elective (3-0-0)<br><br>**Term 4**<br>CH E 312 - Fluid Mechanics<br>CIV E 270 - Mechanics of Deformable Bodies I<br>CME 265 - Process Analysis<br>MATH 201 - Differential Equations<br>MAT E 204 - Materials Engineering Thermodynamics<br>MAT E 211 - Characterization of Materials |
| **Year 3**<br>**Term 5**<br>CH E 314 - Heat Transfer<br>~~CH E 374 - Computational Methods in Engineering~~<br>Complementary Studies Elective (3-0-0)<br>MAT E 335 - Phase Transformations I<br>MAT E 341 - Applied Electrochemistry<br>MAT E 361 - Materials Engineering Laboratory I<br><br>**Term 6**<br>MAT E 336 - Phase Transformations II<br>~~MAT E 345 - Corrosion, Oxidation, and Degradation~~<br>MAT E 351 - Mechanical Properties<br>MAT E 362 - Materials Engineering Laboratory II<br>MAT E 473 - Processing of Materials<br>Complementary Studies Elective (3-0-0) | **Year 3**<br>**Term 5**<br>CH E 314 - Heat Transfer<br>MAT E 374 - Computational Methods in Materials Engineering<br>Complementary Studies Elective (3-0-0)<br>MAT E 335 - Phase Transformations I<br>MAT E 341 - Applied Electrochemistry and Corrosion<br>MAT E 361 - Materials Engineering Laboratory I<br><br>**Term 6**<br>MAT E 336 - Phase Transformations II<br>MAT E 303 - Principles of Nonmetallic-inorganic Materials<br>MAT E 351 - Mechanical Properties<br>MAT E 362 - Materials Engineering Laboratory II<br>MAT E 473 - Processing of Materials<br>Complementary Studies Elective (3-0-0) |
| **Year 4**<br>**Term 7**<br>CME 481 - Colloquium I<br>ENG M 310 - Engineering Economy<br>**OR**<br>ENG M 401 - Financial Management for Engineers<br>ENGG 404 - Engineering Safety and Risk Management-Leadership in Risk Management | **Year 4**<br>**Term 7**<br>CME 481 - Colloquium I<br>ENG M 310 - Engineering Economy<br>**OR**<br>ENG M 401 - Financial Management for Engineers<br>ENGG 404 - Engineering Safety and Risk Management-Leadership in Risk Management |

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| MAT E 464 - Materials Process Engineering Design<br>Program Elective (3-0-0)<br>~~Complementary Studies Elective (3-0-0)~~ | MAT E 464 - Materials Process Engineering Design<br>Program Elective (3-0-0)<br>CME 482 - Fundamentals of Polymers |
| **Term 8**<br>ENGG 400 - The Practice of the Engineering Profession<br>MAT E 461 - Materials Engineering Laboratory III<br>MAT E 465 - Materials Design Project<br>MAT E 474 - Performance of Materials<br>Program Elective (3-0-0)<br>Program Elective (3-0-0) | **Term 8**<br>ENGG 400 - The Practice of the Engineering Profession<br>MAT E 461 - Materials Engineering Laboratory III<br>MAT E 465 - Materials Design Project<br>MAT E 474 - Performance of Materials<br>Program Elective (3-0-0)<br>Program Elective (3-0-0) |
| **Notes**<br>1. See Program and Technical Electives below for restrictions on the three program electives.<br>2. Students who are interested in Structural Materials, Mineral Processing and Extractive Metallurgy, Functional Materials, or Polymer Materials Elective Streams should consult the Department for course schedules. | **Notes**<br>1. See Program and Technical Electives below for restrictions on the three program electives.<br>2. Students who are interested in Structural Materials, Mineral Processing and Extractive Metallurgy, Functional Materials, or Polymer Materials Elective Streams should consult the Department for course schedules. |
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| CME 459 - Special Projects in Chemical and Materials Engineering II (see Note 1) | CME 459 - Special Projects in Chemical and Materials Engineering II (see Note 1) |
| CME 472 - Extractive Metallurgy | CME 472 - Extractive Metallurgy |
| ~~CME 482 - Fundamentals of Polymers~~ | CME 484 |
| CME 484 | CME 485 |
| CME 485 | CME 494 - Special Topics in Chemical and Materials Engineering |
| CME 494 - Special Topics in Chemical and Materials Engineering | CH E 343 - Chemical Engineering Thermodynamics |
| CH E 343 - Chemical Engineering Thermodynamics | CH E 446 - Process Dynamics and Control |
| CH E 446 - Process Dynamics and Control | CH E 482 |
| CH E 482 | CH E 484 - Introduction to Biochemical Engineering |
| CH E 484 - Introduction to Biochemical Engineering | CH E 485 - Fuel Cells and Their Applications |
| CH E 485 - Fuel Cells and Their Applications | CH E 582 - Introduction to Biomaterials |
| CH E 582 - Introduction to Biomaterials | CHEM 211 - Quantitative Analysis I |
| CHEM 211 - Quantitative Analysis I | CHEM 213 - Quantitative Analysis II |
| CHEM 213 - Quantitative Analysis II | CHEM 263 - Organic Chemistry II |
| CHEM 263 - Organic Chemistry II | CHEM 303 - Environmental Chemistry I |
| CHEM 303 - Environmental Chemistry I | CHEM 333 - Inorganic Materials Chemistry |
| CHEM 333 - Inorganic Materials Chemistry | CHEM 371 - Energetics of Chemical Reactions |
| CHEM 371 - Energetics of Chemical Reactions | CHEM 373 - Physical Properties and Dynamics of Chemical Systems |
| CHEM 373 - Physical Properties and Dynamics of Chemical Systems | CIV E 221 - Environmental Engineering Fundamentals |
| CIV E 221 - Environmental Engineering Fundamentals | CIV E 321 - Principles of Environmental Modeling and Risk |
| CIV E 321 - Principles of Environmental Modeling and Risk | CIV E 372 - Structural Analysis I |
| CIV E 372 - Structural Analysis I | CIV E 374 - Structural Design I |
| CIV E 374 - Structural Design I | CIV E 421 |
| CIV E 421 | EAS 210 - Engineering Earth Science |
| EAS 210 - Engineering Earth Science | EAS 224 - Mineralogy I |
| EAS 224 - Mineralogy I | EAS 320 - Geochemistry I |
| EAS 320 - Geochemistry I | ECE 209 - Fundamentals of Electrical Engineering |
| ECE 209 - Fundamentals of Electrical Engineering | ECE 457 - Microfabrication and Devices |
| ECE 457 - Microfabrication and Devices | ENGG 406 - Engineering Safety and Risk Management - Methodologies and Tools |
| ENGG 406 - Engineering Safety and Risk Management - Methodologies and Tools | ENG M 514 - Reliability Engineering |
| ENG M 514 - Reliability Engineering | ENG M 530 - Engineering Project Management |
| ENG M 530 - Engineering Project Management | ENV E 251 - Properties of Environmental Engineering Materials |
| ENV E 251 - Properties of Environmental Engineering Materials | GEOPH 223 - Environmental Geophysics |
| GEOPH 223 - Environmental Geophysics | MAT E 466 - Special Topics in Materials Engineering |
| MAT E 466 - Special Topics in Materials Engineering | MAT E 470 - Process Dynamics |
| MAT E 470 - Process Dynamics | MAT E 471 - Ceramics |
| MAT E 471 - Ceramics | MAT E 476 - Microalloyed Steels |
| MAT E 476 - Microalloyed Steels | MAT E 491 - Properties and Physics of Functional Materials |
| MAT E 491 - Properties and Physics of Functional Materials | MAT E 494 - Nanostructured Materials |
| MAT E 494 - Nanostructured Materials | MAT E 495 - Nanomaterials and Biomedical Applications |
| MAT E 495 - Nanomaterials and Biomedical Applications | MATH 300 - Advanced Boundary Value Problems |
| MATH 300 - Advanced Boundary Value Problems | MEC E 250 - Engineering Mechanics II |
| MEC E 250 - Engineering Mechanics II | MEC E 260 - Mechanical Design I |

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| MEC E 260 - Mechanical Design I<br>MEC E 360 - Mechanical Design II<br>MEC E 380 - Advanced Strength of Materials I<br>MGTSC 405 - Forecasting for Planners and Managers<br>BTM 311 - Management Information Systems<br>OM 352 - Operations Management<br>OM 404<br>OM 422 - Simulation and Computer Modelling Techniques in Management<br>OM 426<br>PHYS 230 - Electricity and Magnetism<br>PHYS 271 - Introduction to Modern Physics<br>STAT 265 - Probability and Statistics I<br>STAT 335<br>STAT 368 - Introduction to Design and Analysis of Experiments<br>STAT 378 - Applied Regression Analysis | MEC E 360 - Mechanical Design II<br>MEC E 380 - Advanced Strength of Materials I<br>MGTSC 405 - Forecasting for Planners and Managers<br>BTM 311 - Management Information Systems<br>OM 352 - Operations Management<br>OM 404<br>OM 422 - Simulation and Computer Modelling Techniques in Management<br>OM 426<br>PHYS 230 - Electricity and Magnetism<br>PHYS 271 - Introduction to Modern Physics<br>STAT 265 - Probability and Statistics I<br>STAT 335<br>STAT 368 - Introduction to Design and Analysis of Experiments<br>STAT 378 - Applied Regression Analysis |
| **Notes**<br>1. CME 458 or CME 459 may only be taken with an appropriate project approved by the Department.<br>2. Other courses may be taken as program electives with written permission from the Department. | **Notes**<br>3. CME 458 or CME 459 may only be taken with an appropriate project approved by the Department.<br>4. Other courses may be taken as program electives with written permission from the Department. |
| **Mineral Processing and Extractive Metallurgy Elective Stream**<br>The three program electives should be CME 421, CME 422, and CME 472.<br><br>Students interested in this elective stream should consult the Department for a course schedule. | **Mineral Processing and Extractive Metallurgy Elective Stream**<br>The three program electives should be CME 421, CME 422, and CME 472.<br><br>Students interested in this elective stream should consult the Department for a course schedule. |
| **Polymer Materials Elective Stream**<br>The ~~three~~ program electives should be ~~CME 482,~~ CME 484, and CME 485.<br><br>Students interested in this elective stream should consult the Department for a course schedule. | **Polymer Materials Elective Stream**<br>The two program electives should be CME 484 and CME 485.<br><br>Students interested in this elective stream should consult the Department for a course schedule. |
| **Structural Materials Elective Stream**<br>Two of the three program electives should be CME 472 and MAT E 476. The third program elective can be one of MAT E 466, MAT E 470, MAT E 471 ~~or CME 482~~.<br><br>Students interested in this elective stream should consult the Department for a course schedule. | **Structural Materials Elective Stream**<br>Two of the three program electives should be CME 472 and MAT E 476. The third program elective can be one of MAT E 466, MAT E 470, or MAT E 471.<br><br>Students interested in this elective stream should consult the Department for a course schedule. |

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| **Functional Materials Elective Stream**<br>The two of the three program electives should be MAT E 491 and MAT E 494. The third program elective can be selected from the above Program and Technical Electives list.<br><br>Students interested in this elective stream should consult the Department for a course schedule. | **Functional Materials Elective Stream**<br>The two of the three program electives should be MAT E 491 and MAT E 494. The third program elective can be selected from the above Program and Technical Electives list.<br><br>Students interested in this elective stream should consult the Department for a course schedule. |

## Reviewed/Approved by:

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| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Department Council: **May 18, 2023**<br>Faculty Academic Planning Committee (F-APC): **Oct 12, 2023**<br>Faculty of Engineering Executive Coordinating Committee (ECC): **Jan 23, 2024** |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
## for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

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| Faculty (& Department or Academic Unit): | Faculty of Engineering<br>Chemical & Materials Engineering |
| Contact Person: | Prof. Anthony Yeung (tony.yeung@ualberta.ca)<br>Associate Dean (Undergraduate Studies) |
| Level of change: (choose one only) | • **Undergraduate** |
| | • Graduate |
| Type of change request: (check all that apply) | • **Program (Co-op Sequence)** |
| | • Regulation |
| For which term is this intended to take effect? | Fall 2024 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | Yes (attached as separate forms) |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Based on the feedback from both students and faculty members, the CME undergraduate curriculum review committee has made the decision to propose the following change in the existing curriculum of the Material Engineering Program:

i) **Combining MAT E 341 and MAT E 345 into a single comprehensive course *MAT E 341 Applied Electrochemistry and Corrosion*:** This decision is driven by several compelling reasons, with a strong focus on enhancing the educational experience and aligning our curriculum with industry demands and research trends. MAT E 341 and MAT E 345 have historically featured a substantial overlap in content, particularly in the area of electrochemistry. This redundancy was identified as an inefficiency in our curriculum, resulting in the duplication of efforts for both students and instructors. By merging these courses, we aim to streamline the curriculum, allowing students to explore the critical concepts of electrochemistry, corrosion theory, and material-degradation within a single, integrated framework.

ii) **Introducing a new course *MAT E 303 Principles of Nonmetallic-inorganic Materials*:** Combining courses MAT E 341 and MAT E 345 enable us to optimize departmental resources by consolidating teaching materials and introducing a new course as a replacement of MAT E 345. The course MAT E 303 focuses particularly on nonmetallic inorganic materials, allowing students to develop an understanding of the chemistry associated with the processing and fabrication of nonmetallic inorganic materials. In addition, students will recognize the engineering application of these materials in energy conversion. This course is listed as a core course in the Winter Term 7 (Co-op sequence) of the program "*Bachelor of Science in Material Engineering*".

iii) **Introducing a new course *MAT E 374 Computational Methods in Materials Engineering***: Currently, CH E 374 (Computational Methods in Engineering) is taught in the Material Engineering Program. Inclusion of a course on computational methods with a focus on material engineering application would enhance students' learning experience in their specific interest area. Therefore, the MAT E 374 course is designed with the aim

of facilitating a deeper understanding of computational tools that aligns with the holistic approach to materials engineering practice.

iv) **Including *CME 482 Fundamentals of Polymers* as a core course and removing *one CS elective***: Considering the significant relevance of polymer materials and associated engineering aspects in Material Engineering, the department proposes to make this course as a core course, which is currently listed as a Program & Technical Elective. This course will prepare students for productive, professional careers in the plastics and composites industries. This course will replace one complementary science (CS) elective in Fall Term 6 (Co-op Sequence) of the Material Engineering Program.

## Calendar Copy

URL in current Calendar (or "New page")

https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47943&returnto=12339

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
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| **Bachelor of Science in Materials Engineering Co-op**<br><br>**Engineering Disciplines**<br>To find descriptions of the various disciplines of Engineering, visit Explore our Programs on the Faculty of Engineering website.<br><br>**Admission Requirements**<br>General Undergraduate Admission Requirements<br>Admission Requirements for Qualifying Year<br><br>**Academic Regulations**<br>University Regulations<br>Faculty of Engineering Regulations<br><br>**Program Requirements**<br>**Year 1**<br>Requirements for Year 1 can be found in Bachelor of Science in Engineering - Qualifying Year.<br><br>Information regarding admission to a specialized program from the Qualifying Year Program can be found in Faculty of Engineering Regulations. | **Bachelor of Science in Materials Engineering Co-op**<br><br>**Engineering Disciplines**<br>To find descriptions of the various disciplines of Engineering, visit Explore our Programs on the Faculty of Engineering website.<br><br>**Admission Requirements**<br>General Undergraduate Admission Requirements<br>Admission Requirements for Qualifying Year<br><br>**Academic Regulations**<br>University Regulations<br>Faculty of Engineering Regulations<br><br>**Program Requirements**<br>**Year 1**<br>Requirements for Year 1 can be found in Bachelor of Science in Engineering - Qualifying Year.<br><br>Information regarding admission to a specialized program from the Qualifying Year Program can be found in Faculty of Engineering Regulations. |

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| **Year 2**<br>**Fall Term 3**<br>CH E 243 - Engineering Thermodynamics<br>CHEM 261 - Organic Chemistry I<br>CME 200 - Introduction to Chemical and Materials Engineering<br>ENGG 299 - Orientation to Cooperative Education<br>MAT E 202 - Materials Science II<br>MATH 209 - Calculus for Engineering III<br>STAT 235 - Introductory Statistics for Engineering<br><br>**Winter Term 4**<br>CIV E 270 - Mechanics of Deformable Bodies I<br>CH E 312 - Fluid Mechanics<br>CME 265 - Process Analysis<br>MATH 201 - Differential Equations<br>MAT E 204 - Materials Engineering Thermodynamics<br>MAT E 211 - Characterization of Materials<br><br>**Summer**<br>WEXP 901- Engineering Work Experience I<br><br>**Year 3**<br>**Fall Term 5**<br>Complementary Studies Elective (3-0-0)<br>CH E 314 - Heat Transfer<br>~~CH E~~ 374 - Computational Methods in Engineering<br>MAT E 335 - Phase Transformations I<br>MAT E 341 - Applied Electrochemistry<br>MAT E 361 - Materials Engineering Laboratory I<br><br>**Winter**<br>WEXP 902- Engineering Work Experience II<br><br>**Summer**<br>WKEXP 903 - Engineering Work Experience III<br><br>**Year 4**<br>**Fall Term 6**<br>ENG M 310 - Engineering Economy<br>**OR**<br>ENG M 401 - Financial Management for Engineers<br>ENGG 404 - Engineering Safety and Risk Management-Leadership in Risk Management<br>MAT E 464 - Materials Process Engineering Design | **Year 2**<br>**Fall Term 3**<br>CH E 243 - Engineering Thermodynamics<br>CHEM 261 - Organic Chemistry I<br>CME 200 - Introduction to Chemical and Materials Engineering<br>ENGG 299 - Orientation to Cooperative Education<br>MAT E 202 - Materials Science II<br>MATH 209 - Calculus for Engineering III<br>STAT 235 - Introductory Statistics for Engineering<br><br>**Winter Term 4**<br>CIV E 270 - Mechanics of Deformable Bodies I<br>CH E 312 - Fluid Mechanics<br>CME 265 - Process Analysis<br>MATH 201 - Differential Equations<br>MAT E 204 - Materials Engineering Thermodynamics<br>MAT E 211 - Characterization of Materials<br><br>**Summer**<br>WEXP 901- Engineering Work Experience I<br><br>**Year 3**<br>**Fall Term 5**<br>Complementary Studies Elective (3-0-0)<br>CH E 314 - Heat Transfer<br>MAT E 374 - Computational Methods in Materials Engineering<br>MAT E 335 - Phase Transformations I<br>MAT E 341 - Applied Electrochemistry and Corrosion<br>MAT E 361 - Materials Engineering Laboratory I<br><br>**Winter**<br>WEXP 902- Engineering Work Experience II<br><br>**Summer**<br>WKEXP 903 - Engineering Work Experience III<br><br>**Year 4**<br>**Fall Term 6**<br>ENG M 310 - Engineering Economy<br>**OR**<br>ENG M 401 - Financial Management for Engineers<br>ENGG 404 - Engineering Safety and Risk Management-Leadership in Risk Management<br>MAT E 464 - Materials Process Engineering Design |

ITS Elective (3-0-0)
Program Elective (3-0-0)
Complementary Studies Elective (3-0-0)

**Winter Term 7**

CME 481 - Colloquium I
~~MAT E 345 - Corrosion, Oxidation, and Degradation~~
MAT E 336 - Phase Transformations II
MAT E 351 - Mechanical Properties
MAT E 362 - Materials Engineering Laboratory II
MAT E 473 - Processing of Materials
~~Complementary Studies Elective (3-0-0)~~

**Summer**

WKEXP 904 - Engineering Work Experience IV

## Year 5

**Fall**

WKEXP 905 - Engineering Work Experience V

**Winter Term 8**

ENGG 400 - The Practice of the Engineering Profession
MAT E 461 - Materials Engineering Laboratory III
MAT E 465 - Materials Design Project
MAT E 474 - Performance of Materials
Program Elective (3-0-0)
Program Elective (3-0-0)

**Notes**

1. See Program and Technical Electives below for restrictions on the three program electives.
2. Students who are interested in Structural Materials, Mineral Processing and Extractive Metallurgy, Functional Materials, or Polymer Materials Elective Streams should consult the Department for course schedules.

### Complementary Studies and Impact of Technology on Society (ITS) Electives

See Complementary Studies and Impact of Technology on Society (ITS) Electives for a list of approved electives.

CME 482 - Fundamentals of Polymers
ITS Elective (3-0-0)
Program Elective (3-0-0)
Complementary Studies Elective (3-0-0)

**Winter Term 7**

CME 481 - Colloquium I
MAT E 303 - Principles of Nonmetallic-inorganic Materials
MAT E 336 - Phase Transformations II
MAT E 351 - Mechanical Properties
MAT E 362 - Materials Engineering Laboratory II
MAT E 473 - Processing of Materials

**Summer**

WKEXP 904 - Engineering Work Experience IV

## Year 5

**Fall**

WKEXP 905 - Engineering Work Experience V

**Winter Term 8**

ENGG 400 - The Practice of the Engineering Profession
MAT E 461 - Materials Engineering Laboratory III
MAT E 465 - Materials Design Project
MAT E 474 - Performance of Materials
Program Elective (3-0-0)
Program Elective (3-0-0)

**Notes**

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| ECE 209 - Fundamentals of Electrical Engineering<br>ECE 457 - Microfabrication and Devices<br>ENGG 406 - Engineering Safety and Risk Management - Methodologies and Tools<br>ENG M 514 - Reliability Engineering<br>ENG M 530 - Engineering Project Management<br>ENV E 251 - Properties of Environmental Engineering Materials<br>GEOPH 223 - Environmental Geophysics<br>MAT E 466 - Special Topics in Materials Engineering<br>MAT E 470 - Process Dynamics<br>MAT E 471 - Ceramics<br>MAT E 476 - Microalloyed Steels<br>MAT E 491 - Properties and Physics of Functional Materials<br>MAT E 494 - Nanostructured Materials<br>MAT E 495 - Nanomaterials and Biomedical Applications<br>MATH 300 - Advanced Boundary Value Problems<br>MEC E 250 - Engineering Mechanics II<br>MEC E 260 - Mechanical Design I<br>MEC E 360 - Mechanical Design II<br>MEC E 380 - Advanced Strength of Materials I<br>MGTSC 405 - Forecasting for Planners and Managers<br>BTM 311 - Management Information Systems<br>OM 352 - Operations Management<br>OM 404<br>OM 422 - Simulation and Computer Modelling Techniques in Management<br>OM 426<br>PHYS 230 - Electricity and Magnetism<br>PHYS 271 - Introduction to Modern Physics<br>STAT 265 - Probability and Statistics I<br>STAT 335<br>STAT 368 - Introduction to Design and Analysis of Experiments<br>STAT 378 - Applied Regression Analysis | ECE 457 - Microfabrication and Devices<br>ENGG 406 - Engineering Safety and Risk Management - Methodologies and Tools<br>ENG M 514 - Reliability Engineering<br>ENG M 530 - Engineering Project Management<br>ENV E 251 - Properties of Environmental Engineering Materials<br>GEOPH 223 - Environmental Geophysics<br>MAT E 466 - Special Topics in Materials Engineering<br>MAT E 470 - Process Dynamics<br>MAT E 471 - Ceramics<br>MAT E 476 - Microalloyed Steels<br>MAT E 491 - Properties and Physics of Functional Materials<br>MAT E 494 - Nanostructured Materials<br>MAT E 495 - Nanomaterials and Biomedical Applications<br>MATH 300 - Advanced Boundary Value Problems<br>MEC E 250 - Engineering Mechanics II<br>MEC E 260 - Mechanical Design I<br>MEC E 360 - Mechanical Design II<br>MEC E 380 - Advanced Strength of Materials I<br>MGTSC 405 - Forecasting for Planners and Managers<br>BTM 311 - Management Information Systems<br>OM 352 - Operations Management<br>OM 404<br>OM 422 - Simulation and Computer Modelling Techniques in Management<br>OM 426<br>PHYS 230 - Electricity and Magnetism<br>PHYS 271 - Introduction to Modern Physics<br>STAT 265 - Probability and Statistics I<br>STAT 335<br>STAT 368 - Introduction to Design and Analysis of Experiments<br>STAT 378 - Applied Regression Analysis |
| **Notes**<br>1. CME 458 or CME 459 may only be taken with an appropriate project approved by the Department.<br>2. Other courses may be taken as program electives with written permission from the Department.<br><br>**Mineral Processing and Extractive Metallurgy Elective Stream**<br>The three program electives should be CME 421, CME 422, and CME 472. | **Notes**<br>3. CME 458 or CME 459 may only be taken with an appropriate project approved by the Department.<br>4. Other courses may be taken as program electives with written permission from the Department.<br><br>**Mineral Processing and Extractive Metallurgy Elective Stream**<br>The three program electives should be CME 421, CME 422, and CME 472. |

| | |
|---|---|
| Students interested in this elective stream should consult the Department for a course schedule.<br><br>**Polymer Materials Elective Stream**<br>The ~~three~~ program electives should be ~~CME 482,~~ CME 484, and CME 485.<br><br>Students interested in this elective stream should consult the Department for a course schedule.<br><br>**Structural Materials Elective Stream**<br>Two of the three program electives should be CME 472 and MAT E 476. The third program elective can be one of MAT E 466, MAT E 470, MAT E 471 ~~or CME 482~~.<br><br>Students interested in this elective stream should consult the Department for a course schedule.<br><br>**Functional Materials Elective Stream**<br>The two of the three program electives should be MAT E 491 and MAT E 494. The third program elective can be selected from the above Program and Technical Electives list.<br><br>Students interested in this elective stream should consult the Department for a course schedule. | Students interested in this elective stream should consult the Department for a course schedule.<br><br>**Polymer Materials Elective Stream**<br>The two program electives should be CME 484 and CME 485.<br><br>Students interested in this elective stream should consult the Department for a course schedule.<br><br>**Structural Materials Elective Stream**<br>Two of the three program electives should be CME 472 and MAT E 476. The third program elective can be one of MAT E 466, MAT E 470, or MAT E 471.<br><br>Students interested in this elective stream should consult the Department for a course schedule.<br><br>**Functional Materials Elective Stream**<br>The two of the three program electives should be MAT E 491 and MAT E 494. The third program elective can be selected from the above Program and Technical Electives list.<br><br>Students interested in this elective stream should consult the Department for a course schedule. |

## Reviewed/Approved by:

| |
|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Department Council: **May 18, 2023**<br>Faculty Academic Planning Committee (F-APC): **Oct 12, 2023**<br>Faculty of Engineering Executive Coordinating Committee (ECC): **Jan 23, 2024** |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
## for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Engineering<br>Chemical & Materials Engineering |
| Contact Person: | Prof. Anthony Yeung (tony.yeung@ualberta.ca)<br>Associate Dean (Undergraduate) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2024 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Based on the feedback from both students and faculty members, the MAT E undergraduate curriculum review committee has made the decision to combine MAT E 341 and MAT E 345 into a single comprehensive course. This decision is driven by several compelling reasons, with a strong focus on enhancing the educational experience and aligning our curriculum with industry demands and research trends.

MAT E 341 and MAT E 345 have historically featured a substantial overlap in content, particularly in the area of electrochemistry. This redundancy was identified as an inefficiency in our curriculum, resulting in the duplication of efforts for both students and instructors. By merging these courses, we aim to streamline the curriculum, making it more efficient and coherent. This will allow students to explore the critical concepts of electrochemistry, corrosion theory, and materials degradation within a single, integrated framework. Combining courses will enable us to optimize departmental resources by consolidating teaching materials, reducing administrative overhead, and providing instructors with a clearer and more focused teaching agenda.

Students will benefit from a unified course that covers the breadth of electrochemistry, corrosion, and materials behavior. This approach fosters a deeper and more holistic understanding of these interconnected topics, aligning with the holistic approach to materials engineering practice. Students will experience a more streamlined and coherent learning journey, reducing confusion caused by overlapping content. This change aims to enhance the overall student experience by presenting the material in a logical sequence.

## Course Template

| **Current:** ~~Removed language~~ | **Proposed:** New language |
|---|---|
| **Subject & Number** MAT E 341<br><br>**Title** Applied Electrochemistry<br><br>**Course Career** Undergraduate<br>**Units** ~~3.5~~<br>**Approved Hours** ~~3-1s-0~~<br>**Fee index** 8<br>**Faculty:** Engineering<br>**Department:** Chemical & Materials Engineering<br>**Typically Offered:** either term<br><br>**Description**<br>Electrochemical reactions, equilibrium electrode potentials, cell potentials and Pourbaix diagrams. Electrochemical reaction kinetics, Butler-Volmer Model, polarization and Tafel equations. Electrochemical measurements including linear polarization resistance and monitoring. Metal recovery from solutions, electroplating, electrowinning, electroless plating. Batteries, fuel cells.<br><br>**Prerequisites:** MAT E ~~301 or~~ 204~~,~~ or CH E 343. | **Subject & Number** MAT E 341<br><br>**Title** Applied Electrochemistry and Corrosion<br><br>**Course Career** Undergraduate<br>**Units** 4<br>**Approved Hours** 3-2s-0<br>**Fee index** 8<br>**Faculty:** Engineering<br>**Department:** Chemical & Materials Engineering<br>**Typically Offered:** either term<br><br>**Description**<br>Electrochemical reactions, equilibrium electrode potentials, cell potentials and Pourbaix diagrams. Electrochemical reaction kinetics, Butler-Volmer Model, polarization and Tafel equations. Electrochemical measurements including linear polarization resistance and monitoring. Metal recovery from solutions, electroplating, electrowinning, electroless plating. Batteries, fuel cells. The different forms of corrosion. Corrosion measurements, protection, coatings, materials selection, and design for corrosion control. High temperature oxidation and its control.<br><br>**Prerequisites:** MAT E 204 or CH E 343. |

## Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.

Department Council: **May 18, 2023**

Faculty Academic Planning Committee (F-APC): **Oct 12, 2023**

Faculty of Engineering Executive Coordinating Committee (ECC): **Jan 23, 2024**

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

# Supporting Information

## Learning Outcomes

1. Demonstrate a deep understanding of fundamental electrochemical principles, including electrochemical reactions and equilibrium electrode potentials.
2. Analyze and calculate cell potentials using knowledge of electrochemical reactions and electrode potentials.
3. Interpret and apply Pourbaix diagrams to predict the stability of electrochemical systems.
4. Comprehend the kinetics of electrochemical reactions through the Butler-Volmer Model and Tafel equations.
5. Perform electrochemical measurements, including the application of linear polarization resistance techniques.
6. Identify and analyze the corrosion processes of metals, utilizing knowledge of potential-pH diagrams and Evans diagrams.
7. Investigate metallurgical and environmental cells and their role in corrosion mechanisms.
8. Assess corrosion-mechanical interactions and propose strategies for corrosion protection.
9. Utilize various methods for measuring corrosion rates and corrosion-related parameters.
10. Explore industrial electrochemical processes, such as metal recovery from solutions, electroplating, and electrowinning.
11. Understand the principles behind electroless plating and its applications in different industries.
12. Gain knowledge of batteries, fuel cells, and their respective functionalities in various industrial contexts.

## Relationship of Learning Outcomes and Graduate Attributes

| Learning Outcome | Graduate Attribute | Instructional Level |
|---|---|---|
| 1 | Knowledge base | Developed |
| 2 | Problem Solving<br>Investigation | Applied |
| 3 | Problem Solving<br>Investigation | Applied |
| 4 | Knowledge base | Developed |
| 5–9 | Knowledge base<br>Problem Solving<br>Investigation | Applied |
| 10–12 | Knowledge base<br>Investigation<br>Team Work | Applied |

## Assessments of Learning Outcomes

| Learning Outcome | Assessments/Activities |
|---|---|
| 1–9 | Assignment, Midterms, Final Exam |
| 10–12 | Case Study |

## Accreditation Units

| AU Category | Linked to which learning outcome | Percentage of course content[1] |
|---|---|---|
| Math | - | - |
| Natural Sciences | - | - |
| Engineering Science | 1–12 | 100% |
| Engineering Design (requires PEng) | - | - |
| Complementary studies | - | - |
| Other | - | - |

[1] **Accreditation unit (AU) calculation –**

1. Total Lecture hours = course lecture hours as per calendar description x 12.6 weeks = X
2. Total Seminar hours = course seminar hours as per calendar description x 12.6 weeks = Y
3. Total Lab hours = course lab hours as per calendar description x 12.6 weeks = Z

Total course hours = X+Y+Z = TCH
Total AUs in a course $AU_{total}$= 12.6 x (X+ ½ Y + ½ Z)
Number of hours (lecture, seminar, lab) spent on teaching and doing examples of accreditation category "i", is $H_i$
where subscript, i, is for the number total hours spent in course for either Math (M), Engineering Design (ED), Natural Sciences (NS), Engineering Science (ES), Complementary studies (CS), or Other (O)
Percentage course content in AU category i, is: $\%_i = H_i/TCH$
Accreditation unit for category i, is: $A_i = AU_{total} \times \%_i$

## Final Course AUs

| Total | Math | NS | ES | ED | CS | Other |
|---|---|---|---|---|---|---|
| 50.4 | - | - | 50.4 | - | - | - |

## Proposed Grading criteria (subject to change pending Instructor course modification)

The breakdown of the assessments included in this course is found in the table below.

| Component | Percentage |
|---|---|
| Assignment | 20% |
| Case Study | 20% |
| Midterm exam | 20% |
| Final exam | 40% |
| Total | 100% |

Unexcused absence from Midterm Examination will result in 0 out of 30%. With a legitimate excuse, the Midterm weight will be carried over to the Final (i.e., Final Exam will be worth 80% of the overall grade).

## Recommended Textbooks:

1. Bard, A. J., Faulkner, L. R., & White, H. S. (2022). Electrochemical methods: fundamentals and applications. John Wiley & Sons.
2. Bradford, S. A., & Bringas, J. E. (1993). *Corrosion control* (Vol. 115). New York: Van Nostrand Reinhold.
3. Kelly, R. G., Scully, J. R., Shoesmith, D., & Buchheit, R. G. (2002). Electrochemical techniques in corrosion science and engineering. CRC Press.

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Engineering<br>Chemical & Materials Engineering |
| Contact Person: | Prof. Anthony Yeung (tony.yeung@ualberta.ca)<br>Associate Dean (Undergraduate) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2024 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Combining courses MAT E 341 and MAT E 345 enable us to optimize departmental resources by consolidating teaching materials and introducing a new course MAT E 303 as a replacement of MAT E 345. The course MAT E 303 focuses particularly on nonmetallic inorganic materials, allowing students to develop an understanding of the chemistry associated with the processing and fabrication of nonmetallic inorganic materials. In addition, students will recognize the engineering application of these materials in energy conversion. This course is listed as a core course in Term 6 (Traditional sequence) and Winter Term 7 (Co-op sequence) of the program "*Bachelor of Science in Material Engineering*".

## Course Template

| **Current:** ~~Removed language~~ | **Proposed:** New language |
|---|---|
| | **Subject & Number** MAT E 303<br><br>**Title** Principles of Nonmetallic-inorganic Materials<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 3-0-0<br>**Fee index** 8<br>**Faculty:** Engineering<br>**Department:** Chemical & Materials Engineering<br>**Typically Offered:** either term or Spring/Summer<br><br>**Description**<br>Structure, properties and application of nonmetallic-inorganic materials. Structure of crystalline and amorphous materials. Reciprocal lattice, Brillouin Zone, crystal vibrations, and energy bands. Sintering theory, defect chemistry and Brouwer diagram. Processing and fabrication of glasses. Electrical, dielectric, thermal and optical properties. Advanced application in energy conversion and storage.<br><br>**Prerequisites:** (MAT E 202, MAT E 211 and MAT E 204) or consent of instructor. |

## Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.

Department Council: **May 18, 2023**

Faculty Academic Planning Committee (F-APC): **Oct 12, 2023**

Faculty of Engineering Executive Coordinating Committee (ECC): **Jan 23, 2024**

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

# Supporting Information

## Learning Outcomes

1. Describe the basics of atomic and crystal structure of both traditional and advanced crystalline/non-crystalline inorganic materials.
2. Explain effects of atomic and crystal structures of crystalline/non-crystalline inorganic materials on physical properties such as melting point, thermal expansion, Young's modulus, and surface energy.
3. Recognize the major processing steps involved in the fabrication of non-metallic inorganic materials and select appropriate processing methodologies based on processing-structure-property relationships.
4. Apply appropriate characterization methods to examine microstructural features of raw materials and final sintered inorganic materials.
5. Express defect types present in ceramics, use stoichiometric/nonstoichiometric defect reactions and thermodynamics to explain the point defect chemistry of ceramics, including the use of Brouwer (Kroger-Vink) diagrams.
6. Identify formation and structure, list properties of glasses, and discuss fundamentals responsible for the unique properties of glasses.
7. Explain the basics of ceramic processing, including sintering theory and grain growth. Develop knowledge of structural evolution during sintering, including solid-state, viscous flow, and liquid- phase sintering.
8. Report key mechanical, electrical, thermal, dielectric, and optical properties of ceramics, and demonstrate the structure-property relation of crystalline/non-crystalline products in everyday activities.
9. Describe key features of both functional and structural inorganic materials, and illustrate their applications in energy materials.

## Relationship of Learning Outcomes and Graduate Attributes

| Learning Outcome | Graduate Attribute | Instructional Level |
|---|---|---|
| 1–3 | Knowledge Base for Engineering | Developed |
| 4–9 | Problem Analysis<br>Investigation | Applied |

## Assessments of Learning Outcomes

| Learning Outcome | Assessments/Activities |
|---|---|
| 1–9 | Homework Assignments, Midterm Exam, Final Exam |

## Accreditation Units

| AU Category | Linked to which learning outcome | Percentage of course content[1] |
|---|---|---|
| Math | | |
| Natural Sciences | 1, 2, 6, 7, 10 | 50% |
| Engineering Science | 3–5, 8, 9 | 50% |
| Engineering Design (requires PEng) | | |
| Complementary studies | | |
| Other | | |

[1] **Accreditation unit (AU) calculation –**

1. Total Lecture hours = course lecture hours as per calendar description x 12.6 weeks = X
2. Total Seminar hours = course seminar hours as per calendar description x 12.6 weeks = Y
3. Total Lab hours = course lab hours as per calendar description x 12.6 weeks = Z

Total course hours = X+Y+Z = TCH
Total AUs in a course $AU_{total}$= 12.6 x (X+ ½ Y + ½ Z)
Number of hours (lecture, seminar, lab) spent on teaching and doing examples of accreditation category "i", is $H_i$
where subscript, i, is for the number total hours spent in course for either Math (M), Engineering Design (ED), Natural Sciences (NS), Engineering Science (ES), Complementary studies (CS), or Other (O)
Percentage course content in AU category i, is: $\%_i = H_i/TCH$
Accreditation unit for category i, is: $A_i = AU_{total} \times \%_i$

## Final Course AUs

| Total | Math | NS | ES | ED | CS | Other |
|---|---|---|---|---|---|---|
| 37.8 | - | 18.9 | 18.9 | - | - | - |

## Proposed Grading criteria (subject to change pending Instructor course modification)

The breakdown of the assessments included in this course is found in the table below.

| Component | Percentage |
|---|---|
| Homework Assignments | 25% |
| Midterm exam | 30% |
| Final exam | 45% |
| Total | 100% |

Unexcused absence from Midterm Examination will result in 0 out of 30%. With legitimate excuse, the Midterm weight will be carried over to the Final (i.e., Final Exam will be worth 75% of the overall grade).

## Recommended Textbooks

1. "Fundamentals of Ceramics", Michel Barsoum, Taylor and Francis, New York, NY, 2003
2. "Introduction to Ceramics", W. David Kingery, H. K. Bowen, Donald R. Uhlmann, 2nd Ed. Wiley, 1976
3. "Materials Science and Engineering, An Introduction”, 8th or 9th Ed., by W.D. Callister Jr., John Wiley & Sons

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Engineering<br>Chemical & Materials Engineering |
| Contact Person: | Prof. Anthony Yeung (tony.yeung@ualberta.ca)<br>Associate Dean (Undergraduate) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2024 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Considering the significant relevance of polymer materials and associated engineering aspects in Material Engineering, the department proposes CME 482 as a core course, which is currently listed as a Program & Technical Elective. This course will prepare students for productive, professional careers in various industries, such as plastics and composites industries.

## Course Template

| **Current:** ~~Removed language~~ | **Proposed:** New language |
|---|---|
| **Subject & Number** CME 482<br><br>**Title** Fundamentals of Polymers<br><br>**Course Career** Undergraduate<br>**Units** 3.5<br>**Approved Hours** 3-1s-0<br>**Fee index** 8<br>**Faculty:** Engineering<br>**Department:** Chemical & Materials Engineering<br>**Typically Offered:** ~~first term~~<br><br>**Description**<br>Polymerization, molecular weight distribution, molecular weight measurement techniques, isomerism and conformation, rubber elasticity, glass transition, amorphous and crystalline states, crystallization and melting, tensile property, polymer melts and rheology, polymer solutions and blends. May include a tour to a local polymer manufacturer.<br><br>**Prerequisites:** STAT 235, CH E 312 and (CH E 343 or ~~MAT E 301 or 340~~). | **Subject & Number** CME 482<br><br>**Title** Fundamentals of Polymers<br><br>**Course Career** Undergraduate<br>**Units** 3.5<br>**Approved Hours** 3-1s-0<br>**Fee index** 8<br>**Faculty:** Engineering<br>**Department:** Chemical & Materials Engineering<br>**Typically Offered:** either term<br><br>**Description**<br>Polymerization, molecular weight distribution, molecular weight measurement techniques, isomerism and conformation, rubber elasticity, glass transition, amorphous and crystalline states, crystallization and melting, tensile property, polymer melts and rheology, polymer solutions and blends. May include a tour to a local polymer manufacturer.<br><br>**Prerequisites: (**STAT 235, CH E 312 and (CH E 343 or MAT E 204) or consent of instructor. |

## Reviewed/Approved by:

| |
|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Department Council: **May 18, 2023**<br>Faculty Academic Planning Committee (F-APC): **Oct 12, 2023**<br>Faculty of Engineering Executive Coordinating Committee (ECC): **Jan 23, 2024** |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Engineering<br>Chemical & Materials Engineering |
| Contact Person: | Prof. Anthony Yeung (tony.yeung@ualberta.ca)<br>Associate Dean (Undergraduate) |
| Level of change: (choose one only) [?] | • Undergraduate |
| | • Graduate |
| For which term will this change take effect? | Fall 2024 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

This course focuses on the numerical methods and computational tools required to formulate and solve the material engineering problems. Students will gain a hands-on experience with various computational tools used for materials modeling and simulations. Inclusion of a course on computational methods with a focus on material engineering application would enhance students' learning experience in their specific interest area. MAT E 374 course is designed with the aim of facilitating a deeper understanding of computational tools that aligns with the holistic approach to materials engineering practice.

## Course Template

| **Current:** ~~Removed language~~ | **Proposed:** New language |
|---|---|
| | **Subject & Number** MAT E 374<br><br>**Title** Computational Methods in Materials Engineering<br><br>**Course Career** Undergraduate<br>**Units** 3.5<br>**Approved Hours** 3-1s-0<br>**Fee index** 8<br>**Faculty:** Engineering<br>**Department:** Chemical & Materials Engineering<br>**Typically Offered:** either term<br><br>**Description**<br>Formulation and solution of materials engineering problems; solution of systems of linear and nonlinear algebraic equations; materials modeling and simulation techniques that cover different time and length scales, which include density functional theory methods, Monte Carlo, molecular dynamics, phase field, finite element method, and machine learning approaches; hands-on experience with several modern materials modeling codes.<br>**Prerequisites:** ENCMP 100 (or equivalent), MATH 102, 201 and 209. |

## Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.

Department Council: **May 18, 2023**

Faculty Academic Planning Committee (F-APC): **Oct 12, 2023**

Faculty of Engineering Executive Coordinating Committee (ECC): **Jan 23, 2024**

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

# Supporting Information

## Learning Outcomes

1. Appreciate the concept of numerical approximation in the solution of materials engineering problems.
2. Describe the consequences of finite precision and the limits of the different materials modeling and simulation methods considered.
3. Select appropriate numerical methods to apply to various types of problems in materials engineering in consideration of time and length scale as well as the mathematical operations.
4. Relate mathematical concepts that underpin the numerical methods considered.
5. Develop and implement numerical solution algorithms applied to root finding for non-linear equations.
6. Develop and implement numerical solution algorithms applied to solving systems of linear algebraic equations.
7. Develop and implement numerical solution algorithms applied to curve fitting and interpolation techniques.
8. Develop and implement numerical solution algorithms applied to phase transformation using Monte Carlo simulation.
9. Perform atomistic simulations related to phase transformation, diffusion, energy minimization using LAMMPS.
10. Perform structural relaxation to estimate surface properties using density functional theory.

## Relationship of Learning Outcomes and Graduate Attributes

| Learning Outcome | Graduate Attribute | Instructional Level |
|---|---|---|
| 1 | Knowledge Base | Developed |
| 2 | Knowledge Base | Developed |
| 3 | Investigation | Applied |
| 4–7 | Problem Solving<br>Investigation<br>Use of Engg. Tools | Applied |
| 8–10 | Problem Solving<br>Investigation<br>Use of Engg. Tools<br>Design | Applied |

## Assessments of Learning Outcomes

| Learning Outcome | Assessments/Activities |
|---|---|
| 1–10 | Assignment, Midterm Exam, Final Exam |

## Accreditation Units

| AU Category | Linked to which learning outcome | Percentage of course content[1] |
|---|---|---|
| Math | 4–7 | 40% |
| Natural Sciences | - | - |
| Engineering Science | 1–3 | 30% |
| Engineering Design (requires PEng) | 8–10 | 30% |
| Complementary studies | - | - |
| Other | - | - |

[1] **Accreditation unit (AU) calculation –**

1. Total Lecture hours = course lecture hours as per calendar description x 12.6 weeks = X
2. Total Seminar hours = course seminar hours as per calendar description x 12.6 weeks = Y
3. Total Lab hours = course lab hours as per calendar description x 12.6 weeks = Z

Total course hours = X+Y+Z = TCH
Total AUs in a course $AU_{total}$= 12.6 x (X+ ½ Y + ½ Z)
Number of hours (lecture, seminar, lab) spent on teaching and doing examples of accreditation category "i", is $H_i$
where subscript, i, is for the number total hours spent in course for either Math (M), Engineering Design (ED), Natural Sciences (NS), Engineering Science (ES), Complementary studies (CS), or Other (O)
Percentage course content in AU category i, is: $\%_i = H_i/TCH$
Accreditation unit for category i, is: $A_i = AU_{total} \times \%_i$

## Final Course AUs

| Total | Math | NS | ES | ED | CS | Other |
|---|---|---|---|---|---|---|
| 44.1 | 17.6 | - | 13.2 | 13.2 | - | - |

## Proposed Grading Criteria (subject to change pending Instructor course modification)

The breakdown of the assessments included in this course is found in the table below.

| Component | Percentage |
|---|---|
| Assignments | 35 |
| Midterm Exam | 25 |
| Final Exam | 40 |
| Total | 100 |

Unexcused absence from Midterm Examination will result in 0 out of 30%. With legitimate excuse, the Midterm weight will be carried over to the Final (i.e., Final Exam will be worth 80% of the overall grade).

## Recommended Textbooks:

1. **A. Gilat and V. Subramaniam**. Numerical Methods for Engineers and Scientists. An Introduction with Applications Using MATLAB® 2nd/3rd ed. 2011, Jon Wiley & Sons, Inc.
   The E-Text version is available: http://www.wiley.ca
2. **M.P. Allen and D.J. Tildesley**, Computer Simulation of Liquids, 1989, Clarendon Press
3. **D. Frenkel and B. Smit**, Understanding Molecular Simulation: From Algorithms to Applications, 3rd Ed. 2023, Academic Press
4. **R.G. Parr and W.T. Yang**, Density-Functional Theory of Atoms and Molecules, 1992, Oxford University Press

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Engineering, Biomedical Engineering |
| Contact Person: | Maral Aminpour <aminpour@ualberta.ca>; |
| Level of change: (choose one only) [?] | • Graduate |
| For which term will this change take effect? | Fall 2025 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Rational drug design to treat a variety of diseases plaguing humans is a vision that is fast becoming a practically achievable goal of computer-aided drug discovery research. In the modern era of personalized medicine and targeted therapeutics, understanding the principles of rational drug design is imperative for graduate students in Biomedical Engineering and related disciplines. The increasingly complex landscape of drug discovery, coupled with the rising necessity for targeted interventions and the urgency highlighted by recent global pandemic, underscores the importance of this knowledge base. Hence, the proposed course "Rational Drug Design and Discovery: Principles and Applications" has been designed to bridge this critical gap in the curriculum.

Although this course is primarily intended for graduate students in the Department of Biomedical Engineering (BME), it will also be available to qualified graduate students in **other engineering disciplines** and students from other faculties (for example, **Science and Medicine & Dentistry**).

The course offers an integrated approach to drug design and discovery, blending theoretical foundations for several important concepts with hands-on practical exercises to enhance and solidify your understanding of various drug design techniques. Each section of the course is finished with **practical drug design related exercises**. The practical computational techniques in this course are by far the most popular in both academia and industry and should be a part of the skill set of every aspiring in silico drug design scientist or practitioner in health and drug discovery field.

**The proposed course is unique** for its focus on applied drug design, blending foundational knowledge in structure-based and ligand-based methods with hands-on use of Molecular Operating Environment (MOE) software for real-world modeling. Moreover, we go beyond conventional approaches to drug design. The curriculum is updated to incorporate emerging trends like Artificial Intelligence and precision medicine, ensuring that students are prepared for the future landscape of drug discovery. Additionally, to offer a comprehensive understanding of the field, subjects such as systems biology and pharmacokinetics are introduced.

While the Faculty of Pharmacy and Pharmaceutical Sciences at the University of Alberta does offer another course in drug design, it primarily concentrates on a narrow range of computational techniques. In contrast, our proposed course is designed to provide a much more encompassing view of drug discovery. It not only covers traditional drug design methods but also extends the curriculum to incorporate contemporary trends, such as Artificial Intelligence and precision medicine.

## Course Template

| **Current:** ~~Removed language~~ | **Proposed:** New language |
|---|---|
| ****** New Course ****** | **Proposed**<br><br>**Subject & Number:** BME 620<br><br>**Title:** Rational Drug Design and Discovery: Principles and Applications<br><br>**Course Career:** Graduate<br>**Units:** 3<br>**Approved Hours:** 3-0-0 |

| | |
|---|---|
| | **Fee index:** 6<br>**Faculty:** Engineering<br>**Department:** Biomedical Engineering<br>**Typically Offered:** Either term<br><br>**Description:** An introduction to topics and tools in structure-based and ligand-based *in silico* drug design such as molecular dynamics, virtual screening, receptor-drug interactions, and pharmacophore modeling. Holistic view of drug discovery including topics such as pharmacokinetics and systems biology, Artificial Intelligence's role in drug discovery and an introduction to precision medicine. |

## Reviewed/Approved by:

| |
|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br>Department of Biomedical Engineering Department Council – October 25, 2023<br>Faculty of Engineering Graduate Planning Committee (GPC) – November 1, 2023<br>Faculty of Engineering Academic Planning Committee (APC) – December 14, 2023<br>Faculty of Engineering Executive Coordinating Committee (ECC) - January 23, 2024 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# **Calendar Change Request Form** for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Engineering, Department of Mechanical Engineering |
| Contact Person: | Mostafa Yakout |
| Level of change (choose one only) [?] | • Graduate |
| For which term will this change take effect? | Fall 2024 |

## Rationale

Additive manufacturing (AM) offers a new paradigm in product design, manufacturing, metallurgy, and functionality. Although 44% of the Canadian manufacturers use AM processes, Canada represents only 2% of the global AM ecosystem. A recent study by the Information and Communications Technology Council (ICTC) of Canada showed that the limited knowledge of AM and lack of sufficient experiences among recent university graduates is a key challenge impacting the growth of AM ecosystem in Canada. The rapid growth of AM demands offering graduate-level courses tailored to embrace the fundamentals of process development and materials processing.

This course will provide graduate students with in-depth knowledge and technical aspects of processing metallic and ceramic materials using AM technologies with an emphasis on fundamentals of laser-material interactions, laser AM processes, and the multiphysics nature of AM processes. The course will help students develop technical skills required for potential employment opportunities in the AM field after graduation.

The course will promote educational opportunities in engineering areas related to AM, such as materials processing, solid mechanics, modelling, design of experiments, mechanical design, and laser physics, which will attract more graduate students who are interested in manufacturing to join the Department of Mechanical Engineering at the University of Alberta (UofA). It complements the multidisciplinary research area of design and manufacturing by emphasizing on the multiscale nature of AM for metals and ceramics, which will drive more research discoveries in the department.

Similar graduate courses have been offered at a number of national and international institutions, such as University of Toronto MSE 1068 and MIE 1724; McMaster University ME/SEP 735; University of Waterloo ME 739; Western University MME 9651; Penn State University ME 566, AMD 500, AMD 501, AMD 527, AMD 545, AMD 562, and AMD 567; Purdue University MSE 59700; Arizona State University MFG 598; and Nanyang Technological University Singapore MA 6502, MA 6511, MA 6513, MA 6503, and MA 6515. However, none of these courses focus on the fundamentals of AM processes for metallic and ceramic materials with an emphasis on materials design taking into consideration the requirements for AM processes. Therefore, there is a need for offering this graduate course at the UofA to meet the bar and help differentiate the Department of Mechanical Engineering at the UofA from others across Canada by offering a unique set of fundamental topics related to AM.

## Course Template

| Current | Proposed |
| --- | --- |
| | **Subject & Number:** MEC E 665<br><br>**Title:** Fundamentals and Materials Design in Additive Manufacturing<br><br>**Course Career:** Graduate<br>**Units:** 3<br>**Approved Hours:** 3-0-0<br>**Fee index:** 6<br>**Faculty:** Engineering<br>**Department:** Mechanical Engineering<br>**Typically Offered:** Annually (either term)<br><br>**Description:** Fundamental aspects and recent developments in additive manufacturing (AM) of metallic and ceramic components, including materials for AM, standard processes for metals and ceramics, laser-material interactions, process modelling, process-structure-property relationships, design for AM, defects and performance evaluation, and applications in industry. |

## Reviewed/Approved by:

| |
| --- |
| REQUIRED:<br>Approved by the MECE Department Council on Aug 30, 2023<br>Approved by Faculty Executive Coordinating Committee on Oct 24, 2023 |
| Approved by Faculty Graduate Program Committee on Sep 6, 2023<br>Approved by Faculty Academic Planning Committee on Sep 14, 2023 |

## Course Description and Justification:

**1. Calendar Description** (as above)

MEC E 6xx - Additive Manufacturing Technologies

★3.0 (*fi 6*) (either term, 3-0-0) Fundamental aspects and recent developments in additive manufacturing (AM) of metallic and ceramic components, including materials for AM, standard processes for metals and ceramics, laser-material interactions, process modelling, process-structure-property relationships, design for AM, defects and performance evaluation, and applications in industry.

**2. Course Justification**

Additive manufacturing (AM) offers a new paradigm in product design, manufacturing, metallurgy, and functionality. Although 44% of the Canadian manufacturers use AM processes, Canada represents only 2% of the global AM ecosystem. A recent study by the Information and Communications Technology Council (ICTC) of Canada showed that the limited knowledge of AM and lack of sufficient experiences among recent university graduates is a key challenge impacting the growth of AM ecosystem in Canada. The rapid growth of AM demands offering graduate-level courses tailored to embrace the fundamentals of process development and materials processing.

This course will provide graduate students with in-depth knowledge and technical aspects of processing metallic and ceramic materials using AM technologies with an emphasis on fundamentals of laser-material interactions, laser AM processes, and the multiphysics nature of AM processes. The course will help students develop technical skills required for potential employment opportunities in the AM field after graduation.

The course will promote educational opportunities in engineering areas related to AM, such as materials processing, solid mechanics, modelling, design of experiments, mechanical design, and laser physics, which will attract more graduate students who are interested in manufacturing to join the Department of Mechanical Engineering at the University of Alberta (UofA). It complements the multidisciplinary research area of design and manufacturing by emphasizing on the multiscale nature of AM for metals and ceramics, which will drive more research discoveries in the department.

Similar graduate courses have been offered at a number of national and international institutions, such as University of Toronto MSE 1068 and MIE 1724; McMaster University ME/SEP 735; University of Waterloo ME 739; Western University MME 9651; Penn State University ME 566, AMD 500, AMD 501, AMD 527, AMD 545, AMD 562, and AMD 567; Purdue University MSE 59700; Arizona State University MFG 598; and Nanyang Technological University Singapore MA 6502, MA 6511, MA 6513, MA 6503, and MA 6515. However, none of these courses focus on the fundamentals of AM processes for metallic and ceramic materials with an emphasis on materials design taking into consideration the requirements for AM processes. Therefore, there is a need for offering this graduate course at the UofA to meet the bar and help differentiate the Department of Mechanical Engineering at the UofA from others across Canada by offering a unique set of fundamental topics related to AM.

## Complementary Courses at the University of Alberta

Complementary courses within the university include the following:

### MEC E 69X - Multiscale Modeling of Materials

MEC E 69X focuses on methods for simulating materials across multiple scales. Computational and analytical treatment of multiscale problems. Constitutive modeling using atomistic simulation. Coarse-graining and homogenization. Concurrent and hierarchical multiscale modeling. Machine-learning based multiscale methods. Applications will be taken from fluid and solid mechanics.

Difference: This course focuses on techniques used for multiscale simulation with applications from fluid and solid mechanics, while the proposed course focuses on AM techniques and methods with a small portion of overlap by explaining the use of process modelling to understand the multiphysics nature of AM techniques.

### ENG M 607 - Lean Manufacturing

ENG M 607 provides overview of lean manufacturing concepts, tools and techniques. Identifying waste. Value stream mapping, push vs. pull systems data analysis tools, cell layout design, operator balance charts, 5S, set up time reduction, work in process minimization, standardized work, visual management, and optimized floor space. Introduction to six sigma tools.

Difference: The proposed course focuses on additive manufacturing with an emphasis on materials design, process-structure-property relationships, and fundamentals of processes used for metallic and ceramic components. Hence, the new course would complement ENG M 607 by providing the fundamentals, benefits, and applications of AM, which is considered a lean manufacturing technology.

### MAT E 673 - Welding Metallurgy

MAT E 673 discusses weld thermal cycles, fusion zone solidification, phase transformations, heat affected zone phenomena, cracking during welding, and ferrous and non-ferrous weldments.

Difference: The proposed course utilizes the welding knowledge and solidification of metals to describe the melt pool dynamics in additive manufacturing and the metallurgical defects in fusion-based additive manufacturing processes.

## Previous Response from Graduate Students

The following examples show that a high number of graduate students in mechanical engineering may be interested in studying the fundamentals and applications of additive manufacturing:

1. In the 2017-18 academic year, I co-developed and taught a graduate course on additive manufacturing at McMaster University. Graduate students from other departments were interested in taking the course for credit; therefore, it was open to all graduate students within the Faculty of Engineering. The course has grown from an enrolment of 21 graduate students in the 2018-19 academic year to an enrolment of 73 graduate students in the 2021-22 academic year.
2. In the 2021-22 academic year, I developed and taught an additive manufacturing course at Western

University and 48 graduate students were enrolled in the course.

## 3. Course Objectives

This course aims at advancing graduate students' knowledge in manufacturing through in-depth technical analysis of laser additive manufacturing processes with an emphasis on laser-material interactions, development of metallic and ceramic materials for additive manufacturing, and process modelling toward current industry needs. The course-specific objectives are as follows:

1. Introduce technical aspects of standard additive manufacturing processes in compliance with standards developed by the American Society for Testing and Materials (ASTM International) and the International Organization for Standardization (ISO).
2. Provide in-depth knowledge of metal additive manufacturing processes with examples of powder bed fusion and directed energy deposition.
3. Explain the anisotropic properties of additive manufacturing parts with an emphasis on the process-structure-property relationships.
4. Evaluate the metallurgical requirements to develop new metal alloys and ceramics tailored to the specific benefits and constraints of additive manufacturing processes.
5. Develop multiscale models for laser additive manufacturing processes to evaluate the performance of processing metallic alloys.
6. Demonstrate industrial applications of additive manufacturing in producing metallic components, ceramic parts, and functionally graded structures.

## 4. Learning Outcomes

By the end of the course, students will be able to:

1. ***Explain*** and ***discuss*** the additive manufacturing process chain through process planning (Topics 6-9), manufacturing (Topics 1-5), and performance evaluation (Topics 10-11).
2. Critically ***compare*** additive manufacturing processes with formative and subtractive manufacturing processes in terms of materials, applications, and mechanical properties.
3. ***Assess*** additive manufacturing of metals and ceramics through the development of process maps using design of experiments and process-structure-property relationships.
4. ***Apply*** fundamentals of laser-material interactions and solidification to ***develop*** multiscale models for metal additive manufacturing processes.
5. ***Analyze*** the quality of additive manufacturing parts through a combination of hands-on activities, design exercises, and literature investigations.
6. ***Develop*** defect-mitigation strategies in additive manufacturing of various metals and ceramics through process optimization.

The above-mentioned learning outcomes will be assessed using individual assignments (30%), group projects (30%), lab reports (10%), and final exam (30%). Figure 1 shows the distribution of coursework among learning outcomes as well as the weight of each learning outcome as a percentage of the final grade.

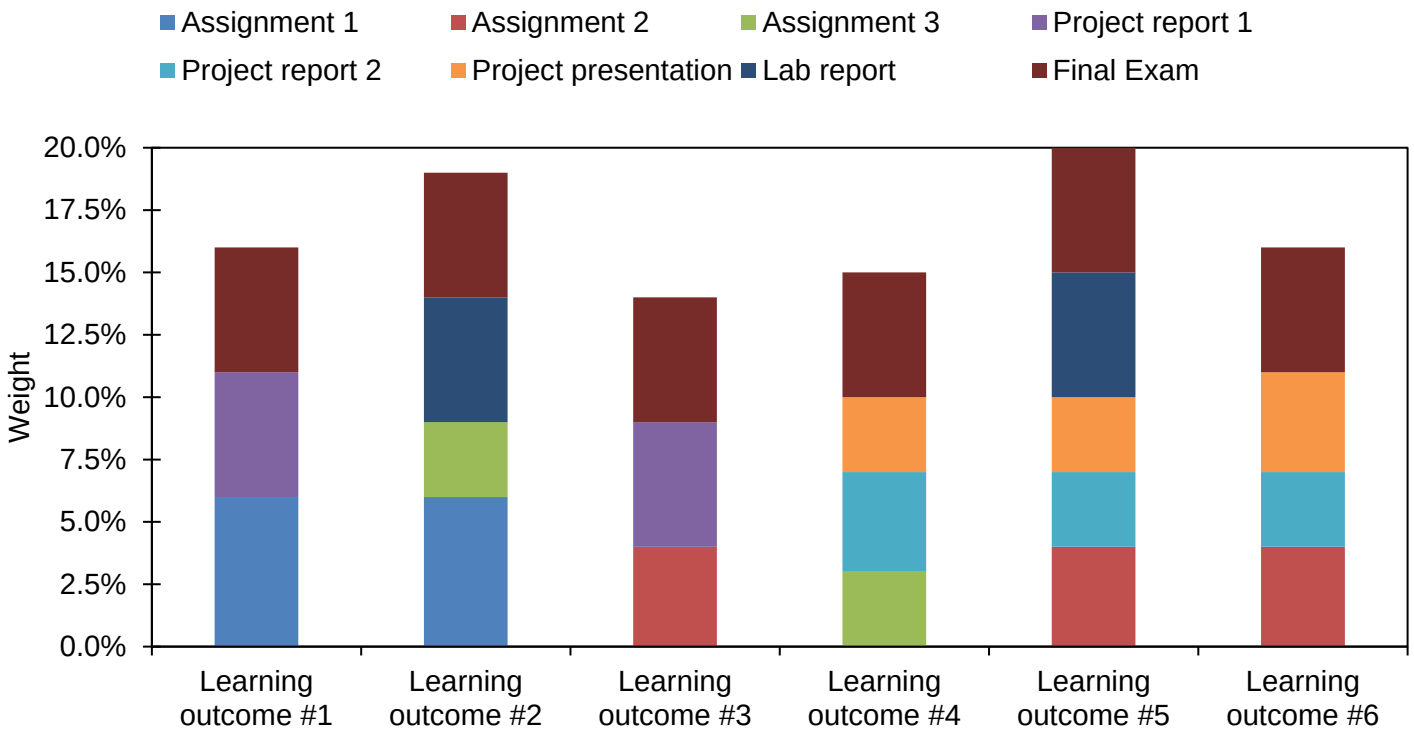


*Figure 1: Distribution of coursework over the course learning outcomes*

## 5. Relation Between Learning Outcome and Graduate Attributes

Not applicable to 600-level course.

## 6. Detailed New Course Outline and Schedule

The purpose of this course is to teach graduate students the fundamentals of additive manufacturing processes with an emphasis on the development of metallic and ceramic materials, laser-material interactions, solidification, and process modelling. The tentative schedule is as follows:

**Week #** **Topic(s)**

1 History of additive manufacturing (AM), standard AM processes, and AM process chain (planning, manufacturing, and performance evaluation)

2 Materials for AM including metal alloys, composites, ceramics, functionally graded materials, and high-performance multi-functional materials

3 Metallurgy in AM including nucleation, grain growth, solidification, and thermal cycle

4 Production of metal feedstock, heat source characteristics, and scanning strategies in powder bed fusion process

5 Types of feedstock materials and deposition strategies in directed energy deposition AM process

6 Laser AM processes with an emphasis on laser-material interactions, absorptivity and melting, melt pool dynamics, and laser surface modification (other laser manufacturing processes will be used to explain the Multiphysics nature of AM AM)

7 Transport phenomena in materials processing and the development of modelling strategies for AM processes including experimental validation, related challenges, and opportunities

8 Types of defects in metal AM processes, introduction to ceramic defects, and the development of defect-mitigation strategies

9 Optimization of AM processes through process maps, process-structure-property relationships, and design of experiments

10 Feedstock characterization standards, performance evaluation, process monitoring, and post-processing with the aim of enhancing the quality of AM products (Guest speakers from industry will be invited to speak on their experiences and expertise in the maturity of AM in industry)

11 Applications of AM in the energy, aerospace, defence, biomedical, and automotive industries (Each student will present an AM application in three minutes as a student-centered learning activity)

12 Final project presentation (cohort #1: 5 groups, 10 students)

13 Final project presentation (cohort #2: 5 groups, 10 students)

**7. Course Implementation**

The course consists of the following teaching and learning methods:

1. **Lectures** that will provide graduate students with in-depth knowledge and theoretical aspects of additive manufacturing of metallic and ceramic materials.
2. **Project-based learning** which will give students the opportunity to gain hands-on skills on the development of multiscale modelling for additive manufacturing processes.
3. **Student-centered learning** activities that will allow students to present novel applications of

additive manufacturing in industry in three minutes. These sessions will motivate students to concisely convey their ideas, establish effective student-student and student-instructor interactions, and participate in the internationally recognized Three-Minute Thesis (3MT) competition.

4. **Lab demonstration** which will provide graduate students with hands-on experience on the quality of additive manufacturing parts in comparison to traditionally manufactured parts.
5. **Guest speakers** from industry to speak on their experiences and expertise in the maturity of additive manufacturing in industry. Possible guest speakers include Dr. Gary Fisher (InnoTech Alberta), Ms. Mila Little (Department of National Defence), Dr. Nejib Chekir (Liburdi Engineering), and Ms. Kristin Mulherin (President of Women in 3D Printing).
6. **Standardization** which will emphasis on the importance of additive manufacturing standards developed by the ASTM Technical Committee F42 on Additive Manufacturing Technologies.

**Recommended Textbooks and References**

The following resources are available to graduate students at the electronic library of the University of Alberta. These resources are recommended for further readings and examples on additive manufacturing processes and fundamentals.


[1] Bourell, D.L., Frazier, W., Kuhn, H., Seifi, M. (Eds.). (2020). *ASM Handbook, Volume 24: Additive Manufacturing Processes*. ASM International.
[2] Yadroitsev, I., Yadroitsava, I., Du Plessis, A., MacDonald, E. (Eds.) (2021). *Fundamentals of Laser Powder Bed Fusion of Metals*. Elsevier.
[3] Gu, D. (2022). *Laser Additive Manufacturing of Metallic Materials and Components*. Elsevier.
[4] Brandt, M. (Ed.). (2017). *Laser Additive Manufacturing: Materials, Design, Technologies, and Applications*. Elsevier.
[5] Yang, L., et al. (2017). *Additive Manufacturing of Metals: The Technology, Materials, Design and Production*. Springer.
[6] Gibson, I., Rosen, D., Stucker, B., Khorasani, M. (2021). *Additive Manufacturing Technologies* (3rd Edition). Springer.
[7] Standards under the Jurisdiction of the ASTM Committee F42 on Additive Manufacturing Technologies and/or ISO Technical Committee TC 261 on Additive Manufacturing.
[8] Selection of recent published papers.


**Opportunity for Co-Teaching**

The multidisciplinary nature of additive manufacturing opens the door for opportunities to co-teach the course (e.g., co-teach with Dr. James Hogan who would handle testing and modelling components, while I handle manufacturing and materials components).

## 8. Expected and Types of Assessments and Suggested Grade Weight

This ***project-based learning course*** includes various types of assessments to meet the above-mentioned learning outcomes. Table 1 shows the suggested grade weight of each assessment, and Table 2 shows the suggested deadlines for each coursework.

*Table 1: Assessment types and their suggested grade weights*

| Assessment type | Learning outcome #1 | Learning outcome #2 | Learning outcome #3 | Learning outcome #4 | Learning outcome #5 | Learning outcome #6 | Total |
|---|---|---|---|---|---|---|---|
| **Assignment 1** | 6% | 6% | | | | | **12%** |
| **Assignment 2** | | | 4% | | 4% | 4% | **12%** |
| **Assignment 3** | | 3% | | 3% | | | **6%** |
| **Project report 1** | 5% | | 5% | | | | **10%** |
| **Project report 2** | | | | 4% | 3% | 3% | **10%** |
| **Project presentation** | | | | 3% | 3% | 4% | **10%** |
| **Lab reports** | | 5% | | | 5% | | **10%** |
| **Final exam** | 5% | 5% | 5% | 5% | 5% | 5% | **30%** |
| **Total** | **16%** | **19%** | **14%** | **15%** | **20%** | **16%** | **100%** |

*Table 2: Suggested deadlines of the coursework*

| Task | Material Covered | Tentative Due Date | Weight |
|---|---|---|---|
| Assignment 1 | Topics 1-4 | Week 5 | 12% |
| Assignment 2 | Topics 5-8 | Week 8 | 12% |
| Assignment 3 (3M of AM) | Topics 9-11 | Week 11 | 6% |
| Lab reports | Topics 2 & 8 | Week 3 & 9 | 10% |
| Project report 1 | All topics | Week 7 | 10% |
| Project report 2 | All topics | Week 12 & 13 | 10% |
| Project presentation | All topics | Week 12 & 13 | 10% |
| Final exam | All topics | TBD | 30% |

The details of the coursework are as follows:

1. **Individual assignments (30%)**
   Students will be required to work on and submit three individual assignments. The first assignment is expected to assess students' ability to explain and discuss the additive manufacturing process chain (***learning outcome #1***) in comparison to formative and subtractive manufacturing processes (***learning outcome #2***) through descriptive and comparative questions from the lectures, textbooks, open literature, and additive manufacturing standards. The second assignment evaluates the students' performance in developing process maps in additive manufacturing (***learning outcome #3***), analyzing the quality of additive manufacturing parts (***learning outcome #5***), and creating mitigation strategies for defects (***learning outcome #6***) through numerical questions and quantitative exercises. The third assignment is a centered-learning activity, where each student is asked to choose one application for additive manufacturing and describe it in three minutes during the class (***learning outcome #2***), while emphasizing on the multiphysics models needed to evaluate this application depending on the additive manufacturing process (***learning outcome #4***).

2. **Group project (30%)**
   Students will be working in groups of two members to design and evaluate an industrial metallic or ceramic part that can be produced using a laser additive manufacturing process. The part should be designed at a reasonable scale, and it must be functional and have value or an intended purpose in industry. Each group will work on and submit two progress reports and a final presentation, showing the contribution of each student in the group.

   The first report should cover design aspects including Additive Manufacturing File (AMF) generation, part slicing, and part preparation (***learning outcome #1***), as well as proper material selection on the basis of process-structure-property relationships (***learning outcome #3***). In the second report, students should analyze the quality of the additive manufacturing part using literature investigations, multiscale modelling (***learning outcome #5***), and fundamentals of laser-material interactions (***learning outcome #4***). Students should also conclude and recommend mitigation strategies to deal with any defects during the additive manufacturing process (***learning outcome #6***).

   Each group will be given 20 minutes to present the project results in the last two weeks of the term, where all group members are requested to contribute to the presentation. The project presentation should cover the overall project progress with an emphasis on the modelling of the additive manufacturing process (***learning outcome #4***), predicted quality of the part (***learning outcome #5***), and recommended defect-mitigation strategies (***learning outcome #6***).

3. **Lab reports (10%)**
   In the second week of the term, students will be able to compare between additive manufacturing and tradition manufacturing processes in terms of the material properties of parts produced (***learning outcome #2***) through a demonstration experiment in the Centre for Design of Advanced Materials (***learning outcome #5***). In the eighth week of the term, students will also differentiate between different defects in additive manufacturing through a demonstration experiment to compare parts with different defects (***learning outcome #5***). Both lab reports will be done individually.

4. **Final exam (30%)**
   Students will be given a final exam to gauge their ability to equally assess all learning outcomes.

**9. Additional Staffing, Operating Costs and Space Implementation**

- No additional space is required.
- No additional staff is required.
- TA is not required.
- The class size is limited to 20 graduate students.

UNIVERSITY OF ALBERTA

# **Calendar Change Request Form** for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Engineering, Biomedical Engineering |
| Contact Person: | Hosna Jabbari |
| Level of change (choose one only) [?] | • Undergraduate |
| For which term will this change take effect? | Fall 2025 |

## Rationale

The Department of Biomedical Engineering is proposing to include a "Design and Analysis of Bioinformatics Algorithms" course (Cross listed with BME 615) into the curriculum of the Biomedical Engineering program at the University of Alberta. This proposal is founded on the premise that the integration of bioinformatics into the curriculum will offer significant academic and professional advantages to our biomedical engineering students. The addition of this course aligns with the evolving landscape of the field and is supported by the following key justifications:

1. **Interdisciplinary Synergy:** Biomedical engineering resides at the nexus of engineering, biology, and medicine. The introduction of a "Design and Analysis of Bioinformatics Algorithms" course will facilitate the bridging of theoretical and practical divides between these fields, emphasizing the pivotal role of computational methods in addressing tangible biomedical challenges.
2. **Data-Driven Paradigm:** Contemporary healthcare and biomedical research are undergoing a profound transformation, marked by an ever-increasing reliance on data-driven approaches. The proliferation of genomics, proteomics, medical imaging, and related data sources necessitates that future biomedical engineers are proficient in bioinformatics tools and techniques for the effective management and interpretation of biological and clinical data.
3. **Personalized Healthcare:** Personalized medicine, which customizes medical treatments based on an individual's genetic profile, is a cornerstone of modern healthcare. Proficiency in bioinformatics is indispensable for deciphering genetic information, enabling the development of tailored treatment strategies, and actively contributing to the advancement of precision medicine initiatives.
4. **Biological Signal Processing:** Bioinformatics techniques are at the forefront of processing and analyzing biological signals, including DNA sequences, protein structures, and metabolic pathways. These skills have direct applicability to signal processing in the development of medical devices, diagnostics, and imaging technologies, aligning harmoniously with the core objectives of the biomedical engineering field.
5. **Drug Discovery and Development:** Biomedical engineers are frequently involved in the drug discovery and development process. An understanding of bioinformatics is essential in drug design, target identification, and lead optimization. It facilitates the prediction of interactions between potential drugs and biological molecules, thus expediting research and development initiatives.
6. **Research and Development Proficiency:** Graduates of our program often embark on careers in research and development roles in the biotechnology and pharmaceutical industries. A comprehensive grounding in bioinformatics will empower our students to actively participate in research projects, analyze experimental data, and develop computational tools that can bolster the innovative endeavors of their respective organizations.
7. **Expanding Career Horizons:** The field of bioinformatics is witnessing exponential growth, and professionals with bioinformatics expertise are in high demand across various sectors, including

healthcare, research, and industry. The proposed course will enhance the employability of our graduates and broaden their career prospects.

8. **Effective Interdisciplinary Collaboration:** Effective collaboration with biologists, clinicians, and computer scientists is pivotal to addressing multifaceted healthcare challenges. An understanding of bioinformatics fosters proficient communication and collaboration among experts from diverse backgrounds, thus contributing to the success of collaborative projects.

The proposed course will be accessible as a technical elective to all engineering students and to students from other faculties (by instructor's approval). The course will present all necessary concepts from molecular biology and some mathematical techniques, but requires basic understanding of algorithm design and programming skills.

**The proposed course is unique**, as the emphasis of this course on understanding of existing design mechanism and applying them to biological problems, whereas existing courses in the Faculty of Science courses (i.e. BIOIN 301, BIOIN 401, BIOL 391 and IMIN 410) focus on using the existing tools and databases without a design and analysis focus.

The equivalent of this course (CSC 482B) was successfully delivered by Hosna Jabbari at the Faculty of Engineering at University of Victoria for three semesters (Fall 2019, Fall 2021, Spring 2022).

## Course Template

| | |
|---|---|
| ****** New Course ****** | **Proposed**<br><br>**Subject & Number: BME 415**<br><br>**Title:** Design and Analysis of Bioinformatics Algorithms<br><br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours:** 3-0-0<br>**Fee index:** 8<br>**Faculty:** Engineering<br>**Department:** Biomedical Engineering<br>**Typically Offered:** Either term<br><br>**Description:** An introduction to design and development of bioinformatics algorithms and their applications in bioinformatics. Topics may include algorithms for sequence comparison/alignment, large-scale biological database search, evolutionary tree reconstruction, and identification of important features in nucleic acid and protein sequences and underlying computational techniques. |

## Reviewed/Approved by:

REQUIRED:

Department of Biomedical Engineering Department Council – October 25, 2023
Faculty of Engineering Academic Planning Committee – December 14, 2023
Faculty of Engineering Executive Coordinating Committee (ECC) - January 23, 2024

UNIVERSITY OF ALBERTA

# **Calendar Change Request Form** for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Engineering, Biomedical Engineering |
| Contact Person: | Hosna Jabbari |
| Level of change (choose one only) [?] | • Graduate |
| For which term will this change take effect? | Fall 2025 |

## Rationale

The Department of Biomedical Engineering is proposing to include a "Design and Analysis of Bioinformatics Algorithms" course (cross listed as BME 415) into the curriculum of the Biomedical Engineering program at the University of Alberta. This proposal is founded on the premise that the integration of bioinformatics into the curriculum will offer significant academic and professional advantages to our biomedical engineering students. The addition of this course aligns with the evolving landscape of the field and is supported by the following key justifications:

1. **Interdisciplinary Synergy:** Biomedical engineering resides at the nexus of engineering, biology, and medicine. The introduction of a "Design and Analysis of Bioinformatics Algorithms" course will facilitate the bridging of theoretical and practical divides between these fields, emphasizing the pivotal role of computational methods in addressing tangible biomedical challenges.
2. **Data-Driven Paradigm:** Contemporary healthcare and biomedical research are undergoing a profound transformation, marked by an ever-increasing reliance on data-driven approaches. The proliferation of genomics, proteomics, medical imaging, and related data sources necessitates that future biomedical engineers are proficient in bioinformatics tools and techniques for the effective management and interpretation of biological and clinical data.
3. **Personalized Healthcare:** Personalized medicine, which customizes medical treatments based on an individual's genetic profile, is a cornerstone of modern healthcare. Proficiency in bioinformatics is indispensable for deciphering genetic information, enabling the development of tailored treatment strategies, and actively contributing to the advancement of precision medicine initiatives.
4. **Biological Signal Processing:** Bioinformatics techniques are at the forefront of processing and analyzing biological signals, including DNA sequences, protein structures, and metabolic pathways. These skills have direct applicability to signal processing in the development of medical devices, diagnostics, and imaging technologies, aligning harmoniously with the core objectives of the biomedical engineering field.
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6. **Research and Development Proficiency:** Graduates of our program often embark on careers in research and development roles in the biotechnology and pharmaceutical industries. A comprehensive grounding in bioinformatics will empower our students to actively participate in research projects, analyze experimental data, and develop computational tools that can bolster the innovative endeavors of their respective organizations.
7. **Expanding Career Horizons:** The field of bioinformatics is witnessing exponential growth, and professionals with bioinformatics expertise are in high demand across various sectors, including healthcare, research, and industry. The proposed course will enhance the employability of our graduates and broaden their career prospects.
8. **Effective Interdisciplinary Collaboration:** Effective collaboration with biologists, clinicians, and computer scientists is pivotal to addressing multifaceted healthcare challenges. An understanding of

bioinformatics fosters proficient communication and collaboration among experts from diverse backgrounds, thus contributing to the success of collaborative projects.

The proposed course will be available to BME graduate students as part of both the course-based and thesis-based MSc options. The course will also be available as a graduate course to all engineering students and non-engineering graduate student (with instructor permission). The course will present all necessary concepts from molecular biology and some mathematical techniques, but requires basic understanding of algorithm design and programming skills.

**The proposed course is unique**, as the emphasis of this course on understanding of existing design mechanism and applying them to biological problems, whereas existing graduate course in the Faculty of Agricultural, Life and Environmental Sciences (AFNS 508), Faculty of Science (BIOL 501), and Faculty of Medicine and Dentistry (MMI 510) focus on using the existing tools and databases without a design and analysis of algorithms focus.

The equivalent of this course (CSC 525) was successfully delivered by Hosna Jabbari at the Faculty of Engineering at University of Victoria for three semesters (Fall 2019, Fall 2021, Spring 2022).

## Course Template

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| ****** New Course ****** | **Proposed**<br><br>**Subject & Number: BME 615**<br><br>**Title:** Design and Analysis of Bioinformatics Algorithms<br><br>**Course Career** Graduate<br>**Units** 3<br>**Approved Hours:** 3-0-0<br>**Fee index:** 6<br>**Faculty:** Engineering<br>**Department:** Biomedical Engineering<br>**Typically Offered:** Either term<br><br>**Description:** An introduction to design and development of bioinformatics algorithms and their applications in bioinformatics. Topics may include algorithms for sequence comparison/alignment, large-scale biological database search, evolutionary tree reconstruction, and identification of important features in nucleic acid and protein sequences and underlying computational techniques. Credit cannot be obtained for both BME 415 and BME 615. |

## Reviewed/Approved by:

REQUIRED:
Department of Biomedical Engineering Department Council – October 25, 2023
Faculty of Engineering Graduate Planning Committee (GPC) – November 1, 2023
Faculty of Engineering Academic Planning Committee (APC) – December 14, 2023

Faculty of Engineering Executive Coordinating Committee (ECC) - January 23, 2024

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

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| Faculty (& Department or Academic Unit): | Faculty of Engineering |
| Contact Person: | Pierre Mertiny |
| Level of change: (choose one only) | • Undergraduate |
| | • Graduate |
| Type of change request: (check all that apply) | • Program |
| | • Regulation |
| For which term is this intended to take effect? | Fall 2024 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

NS 201 is an online option of NS 200. NS 200 is already a Complementary Studies Electives for Engineering programs. Adding NS 201 provides significantly more seats for students to enroll as NS 200 typically offers only a limited number of seats.

## Calendar Copy

URL in current Calendar (or “New page”)

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
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| **Complementary Studies Electives**<br>To better understand the role of Engineering within a broader social context, all programs require an element of complementary studies consisting of the humanities, social sciences, arts, languages, management, engineering economics and communications. Aspects of these topics are covered in mandatory courses, but each program contains complementary studies electives so that students may explore areas of particular interest.<br><br>Students must take the number of complementary studies electives as required by their program from the complementary studies electives list below.<br>Note | **Complementary Studies Electives**<br>To better understand the role of Engineering within a broader social context, all programs require an element of complementary studies consisting of the humanities, social sciences, arts, languages, management, engineering economics and communications. Aspects of these topics are covered in mandatory courses, but each program contains complementary studies electives so that students may explore areas of particular interest.<br><br>Students must take the number of complementary studies electives as required by their program from the complementary studies electives list below.<br>Note |

that in some cases, a course may appear both on a complementary studies list and as a program required or program elective course. A single course cannot be used to satisfy multiple course requirements under Programs.

Students interested in taking a minor should select their first complementary studies courses with this in mind. For the Business minor, student should take ECON 204; for an Arts minor, students should select a course in a possible area of concentration of interest, see minors for specific requirements for each minor.

**Complementary studies electives list (Alphabetical order);**
Any language courses offered by the departments of Modern Languages and Cultural Studies, History, Classics, and Religion, and East Asian Studies, and the Faculty of Native Studies.

ACCTG 300 - Introduction to Accounting
ACCTG 311 - Introduction to Accounting for Financial Performance
ANTHR 101 - Introductory Anthropology
ANTHR 110 - Gender, Age, and Culture
ANTHR 150 - Race and Racism
ANTHR 230 - Anthropology of Science, Technology, and Environment
AREC 365 - Natural Resource Economics
B LAW 301 - Legal Foundations of the Canadian Economy *
B LAW 422 - Law of Business Organizations B LAW 428 - Natural Resource and Environmental Law **
B LAW 432 - The Legal Regulation of Business B LAW 444 - International Business Transactions B LAW 456 - Legal Issues in Real Estate
CHRTC 350 - Science and Religion
CLASS 102 - Greek and Roman Mythology CLASS 103 - Introduction to Ancient Greece CLASS 104 - Introduction to Ancient Rome CLASS 110 - The Ancient World
CLASS 220 - Introduction to the Methodology, Theory and Practice of Classical Archaeology
CLASS 254 - Introduction to Greek Art and Archaeology
CLASS 255 - Introduction to Roman Art and Archaeology
CLASS 283 - Introductory Roman History II
CLASS 291 - Introduction to Scientific Terminology

that in some cases, a course may appear both on a complementary studies list and as a program required or program elective course. A single course cannot be used to satisfy multiple course requirements under Programs.

Students interested in taking a minor should select their first complementary studies courses with this in mind. For the Business minor, student should take ECON 204; for an Arts minor, students should select a course in a possible area of concentration of interest, see minors for specific requirements for each minor.

**Complementary studies electives list (Alphabetical order);**
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CLASS 254 - Introduction to Greek Art and Archaeology
CLASS 255 - Introduction to Roman Art and Archaeology
CLASS 283 - Introductory Roman History II
CLASS 291 - Introduction to Scientific Terminology

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| CLASS 294 - Ancient Science, Technology, and Medicine<br>CLASS 376<br>ECON 101 - Introduction to Microeconomics ECON 102 - Introduction to Macroeconomics ECON 204 - Principles of Economics<br>ECON 281 - Intermediate Microeconomic Theory I ECON 282 - Intermediate Macroeconomic Theory I ENG M 402 - Project Management and Entrepreneurship<br>ENGG 260 - Innovation and Entrepreneurship with Engineers<br>ENGG 420 - Engineering Law<br>ENGG 490 - Engineering Leadership Lab<br>ENGL 125 - Indigenous Literatures<br>HADVC 206 - History of Art, Design, and Visual Culture in the Early 20th Century<br>HADVC 209 - History of Modern Design<br>HADVC 215 - China Art Now<br>HADVC 226 - Gender, Sexuality and Visual Culture HADVC 246 - History of Art, Design and Visual Culture in the Mid-20th Century<br>HADVC 256 - History of Art, Design, and Visual Culture in the Contemporary Era<br>HECOL 211 - Human Sexuality<br>HGEO 100 - Introduction to Human Geography and Planning<br>HGEO 240 - Cities and Urbanism<br>HGEO 250 - Sustainable Development and Environmental Management<br>HIST 110 - The Pre-Modern World<br>HIST 111 - The Early Modern World<br>HIST 112 - The Modern World<br>HIST 114 - The History of the World in the Last 10 Years<br>HIST 115 - Technology and History<br>HIST 116 - The Emergence of the Atlantic World HIST 260 - Pre-Confederation Canada<br>HIST 261 - Post-Confederation Canada<br>HIST 295 - 20th-Century Warfare<br>HIST 391 - History of Technology<br>HIST 397<br>HIST 398 - History of Science II<br>INT D 301 - Foundations of Leadership<br>INT D 303 - Economics of World Food and Agriculture<br>LA ST 210 - South America<br>LING 101 - Introduction to Linguistic | CLASS 294 - Ancient Science, Technology, and Medicine<br>CLASS 376<br>ECON 101 - Introduction to Microeconomics ECON 102 - Introduction to Macroeconomics ECON 204 - Principles of Economics<br>ECON 281 - Intermediate Microeconomic Theory I ECON 282 - Intermediate Macroeconomic Theory I ENG M 402 - Project Management and Entrepreneurship<br>ENGG 260 - Innovation and Entrepreneurship with Engineers<br>ENGG 420 - Engineering Law<br>ENGG 490 - Engineering Leadership Lab<br>ENGL 125 - Indigenous Literatures<br>HADVC 206 - History of Art, Design, and Visual Culture in the Early 20th Century<br>HADVC 209 - History of Modern Design<br>HADVC 215 - China Art Now<br>HADVC 226 - Gender, Sexuality and Visual Culture HADVC 246 - History of Art, Design and Visual Culture in the Mid-20th Century<br>HADVC 256 - History of Art, Design, and Visual Culture in the Contemporary Era<br>HECOL 211 - Human Sexuality<br>HGEO 100 - Introduction to Human Geography and Planning<br>HGEO 240 - Cities and Urbanism<br>HGEO 250 - Sustainable Development and Environmental Management<br>HIST 110 - The Pre-Modern World<br>HIST 111 - The Early Modern World<br>HIST 112 - The Modern World<br>HIST 114 - The History of the World in the Last 10 Years<br>HIST 115 - Technology and History<br>HIST 116 - The Emergence of the Atlantic World HIST 260 - Pre-Confederation Canada<br>HIST 261 - Post-Confederation Canada<br>HIST 295 - 20th-Century Warfare<br>HIST 391 - History of Technology<br>HIST 397<br>HIST 398 - History of Science II<br>INT D 301 - Foundations of Leadership<br>INT D 303 - Economics of World Food and Agriculture<br>LA ST 210 - South America<br>LING 101 - Introduction to Linguistic |

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| Analysis LING 204 - Syntax of the World's Languages LING 205 - Phonetics MARK 301 - Introduction to Marketing | Analysis LING 204 - Syntax of the World's Languages LING 205 - Phonetics MARK 301 - Introduction to Marketing |

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| NS 110 - Historical Perspectives in Indigenous Studies<br>NS 111 - Contemporary Perspectives in Indigenous Studies<br>~~NS 200 - Indigenous \| Canada: Looking Forward/Looking Back~~<br>NS 240 - Introduction to Indigenous Legal Issues OM 352 - Operations Management<br>PHIL 120 - Symbolic Logic I<br>PHIL 125 - Practical Logic<br>PHIL 205 - Philosophy of Mind<br>PHIL 215 - Epistemology<br>PHIL 220 - Symbolic Logic II<br>PHIL 250 - Contemporary Ethical Issues<br>PHIL 265 - Philosophy of Science<br>PHIL 325 - Risk, Choice, and Rationality<br>PHIL 355 - Environmental Ethics<br>PHIL 366 - Computers and Culture<br>PHIL 375<br>POL S 101 - Introduction to Politics<br>POL S 223 - City Government and Politics<br>PSYCH 104 - Basic Psychological Processes<br>PSYCH 223 - Lifespan Developmental Psychology PSYCH 239 - Abnormal Psychology<br>PSYCH 241 - Social Psychology<br>PSYCH 258 - Cognitive Psychology<br>PSYCH 275 - Brain and Behavior<br>PSYCH 323 - Infant and Child Development PSYCH 327 - Adolescent Development<br>PSYCH 329 - Adult Development and Aging PSYCH 377 - Human Neuropsychology<br>PSYCH 381 - Principles of Learning<br>R SOC 355 - Rural Communities and Global Economies<br>R SOC 365 - Sociology of Environment and Development<br>R SOC 375 - Public Participation and Conflict Resolution<br>SEM 200 - Introduction to Management for Non Business Students<br>SEM 301 - Behavior in Organizations<br>SEM 330 - Exploring Innovation and Entrepreneurship<br>SOC 100 - Introductory Sociology<br>SOC 212 - Classical Social Theory<br>SOC 224 - Sociology of Deviance and Conformity SOC 225 - Criminology<br>SOC 241 - Social Psychology<br>SOC 242 - Biologically Coordinated Social Psychology<br>SOC 251 - Population and Society | NS 110 - Historical Perspectives in Indigenous Studies<br>NS 111 - Contemporary Perspectives in Indigenous Studies<br>NS 200 or NS 201 - Indigenous \| Canada: Looking Forward/Looking Back<br>NS 240 - Introduction to Indigenous Legal Issues OM 352 - Operations Management<br>PHIL 120 - Symbolic Logic I<br>PHIL 125 - Practical Logic<br>PHIL 205 - Philosophy of Mind<br>PHIL 215 - Epistemology<br>PHIL 220 - Symbolic Logic II<br>PHIL 250 - Contemporary Ethical Issues<br>PHIL 265 - Philosophy of Science<br>PHIL 325 - Risk, Choice, and Rationality<br>PHIL 355 - Environmental Ethics<br>PHIL 366 - Computers and Culture<br>PHIL 375<br>POL S 101 - Introduction to Politics<br>POL S 223 - City Government and Politics<br>PSYCH 104 - Basic Psychological Processes<br>PSYCH 223 - Lifespan Developmental Psychology PSYCH 239 - Abnormal Psychology<br>PSYCH 241 - Social Psychology<br>PSYCH 258 - Cognitive Psychology<br>PSYCH 275 - Brain and Behavior<br>PSYCH 323 - Infant and Child Development PSYCH 327 - Adolescent Development<br>PSYCH 329 - Adult Development and Aging PSYCH 377 - Human Neuropsychology<br>PSYCH 381 - Principles of Learning<br>R SOC 355 - Rural Communities and Global Economies<br>R SOC 365 - Sociology of Environment and Development<br>R SOC 375 - Public Participation and Conflict Resolution<br>SEM 200 - Introduction to Management for Non Business Students<br>SEM 301 - Behavior in Organizations<br>SEM 330 - Exploring Innovation and Entrepreneurship<br>SOC 100 - Introductory Sociology<br>SOC 212 - Classical Social Theory<br>SOC 224 - Sociology of Deviance and Conformity SOC 225 - Criminology<br>SOC 241 - Social Psychology<br>SOC 242 - Biologically Coordinated Social Psychology<br>SOC 251 - Population and Society |

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| SOC 301 - Sociology of Gender<br>SOC 363 - Sociology of Work and Industry SOC 366 - People in Industry<br>STS 200 - Introduction to Studies in Science, Technology and Society<br>SUST 201 - Introduction to Sustainability<br>SUST 202 - Global Sustainable Development and the Sustainable Development Goals<br>WGS 220 - Feminism and Popular Culture WGS 250 - Gender and Science | SOC 301 - Sociology of Gender<br>SOC 363 - Sociology of Work and Industry SOC 366 - People in Industry<br>STS 200 - Introduction to Studies in Science, Technology and Society<br>SUST 201 - Introduction to Sustainability<br>SUST 202 - Global Sustainable Development and the Sustainable Development Goals<br>WGS 220 - Feminism and Popular Culture WGS 250 - Gender and Science |

## Reviewed/Approved by:

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| REQUIRED: Faculty of Engineering Executive Coordinating Committee (ECC) - January 23, 2024 |
| OPTIONAL: Approval Faculty Academic Planning Committee: Oct 12, 2023 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
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| Faculty (& Department or Academic Unit): | Faculty of Engineering<br>Chemical & Materials Engineering |
| Contact Person: | Prof. Anthony Yeung (tony.yeung@ualberta.ca)<br>Associate Dean, Undergraduate Studies |
| Level of change: (choose one only) | • **Undergraduate** |
| | • Graduate |
| Type of change request: (check all that apply) | • **Program** |
| | • Regulation |
| For which term is this intended to take effect? | Fall 2024 onwards |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | Yes (attached as separate forms) |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Removal of one complementary science elective will reduce the students' workload. The revised course sequence still offers 35 credit units per year, which is sufficient to meet the CEAB requirements.

*Renaming of CH E 316 and CH E 358 (Term 6) has been approved previously. These changes have been highlighted here for information only.*

## Calendar Copy

URL in current Calendar (or "New page")

https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47822&returnto=12339

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| **Bachelor of Science in Chemical Engineering**<br><br>**Engineering Disciplines**<br>To find descriptions of the various disciplines of Engineering, visit Explore our Programs on the Faculty of Engineering website. | **Bachelor of Science in Chemical Engineering**<br><br>**Engineering Disciplines**<br>To find descriptions of the various disciplines of Engineering, visit Explore our Programs on the Faculty of Engineering website. |

## Admission Requirements

General Undergraduate Admission Requirements
Admission Requirements for Qualifying Year

## Academic Regulations

University Regulations
Faculty of Engineering Regulations

## Program Requirements

### Year 1

Requirements for Year 1 can be found in Bachelor of Science in Engineering - Qualifying Year.

Information regarding admission to a specialized program from the Qualifying Year Program can be found in Faculty of Engineering Regulations.

### Year 2

**Term 3**

CH E 243 - Engineering Thermodynamics
CHEM 261 - Organic Chemistry I
CME 200 - Introduction to Chemical and Materials Engineering
CME 265 - Process Analysis
MATH 209 - Calculus for Engineering III
Complementary Studies Elective (3-0-0)
~~Complementary Studies Elective (3-0-0)~~

**Term 4**

CH E 312 - Fluid Mechanics
ECE 209 - Fundamentals of Electrical Engineering
MATH 201 - Differential Equations
MAT E 202 - Materials Science II
STAT 235 - Introductory Statistics for Engineering
ITS Elective (3-0-0)

### Year 3

**Term 5**

CH E 314 - Heat Transfer
CH E 343 - Chemical Engineering Thermodynamics
CH E 351 - Chemical Engineering Laboratory
CH E 374 - Computational Methods in Engineering
Program and Technical Elective (3-0-0)

## Admission Requirements

General Undergraduate Admission Requirements
Admission Requirements for Qualifying Year

## Academic Regulations

University Regulations
Faculty of Engineering Regulations

## Program Requirements

### Year 1

Requirements for Year 1 can be found in Bachelor of Science in Engineering - Qualifying Year.

Information regarding admission to a specialized program from the Qualifying Year Program can be found in Faculty of Engineering Regulations.

### Year 2

**Term 3**

CH E 243 - Engineering Thermodynamics
CHEM 261 - Organic Chemistry I
CME 200 - Introduction to Chemical and Materials Engineering
CME 265 - Process Analysis
MATH 209 - Calculus for Engineering III
Complementary Studies Elective (3-0-0)

**Term 4**

CH E 312 - Fluid Mechanics
ECE 209 - Fundamentals of Electrical Engineering
MATH 201 - Differential Equations
MAT E 202 - Materials Science II
STAT 235 - Introductory Statistics for Engineering
ITS Elective (3-0-0)

### Year 3

**Term 5**

CH E 314 - Heat Transfer
CH E 343 - Chemical Engineering Thermodynamics
CH E 351 - Chemical Engineering Laboratory
CH E 374 - Computational Methods in Engineering
Program and Technical Elective (3-0-0)

**Term 6**

CH E 316 - ~~Equilibrium Stage Process~~
CH E 318 - Mass Transfer
CH E 345 - Chemical Reactor Analysis I
CH E 358 - Process Data ~~Analysis~~
ENG M 310 - Engineering Economy **OR**
ENG M 401 - Financial Management for Engineers
ENGG 404 - Engineering Safety and Risk Management-Leadership in Risk Management

## Year 4

**Term 7**

CH E 445 - Chemical Reactor Analysis II
CH E 446 - Process Dynamics and Control
CH E 464 - Chemical Engineering Design I
CME 481 - Colloquium I
Complementary Studies Elective (3-0-0)
Program and Technical Elective (3-1s-0)

**Term 8**

CH E 454 - Chemical Engineering Project Laboratory
CH E 465 - Chemical Engineering Design II
ENGG 400 - The Practice of the Engineering Profession
Program and Technical Elective (3-1s-0)
Program and Technical Elective (3-1s-0)

**Notes**

1. See Program and Technical Electives below for restrictions on the four program electives.
2. Students who are interested in taking Nanoscale Engineering, Mineral Processing and Extractive Metallurgy, or Polymer Materials Elective Streams should consult the Department for course schedules.

### Complementary Studies and Impact of Technology on Society (ITS) Electives

See Complementary Studies and Impact of Technology on Society (ITS) Electives for a list of approved electives.

### Program and Technical Electives

Of the four single-term program electives:

**Term 6**

CH E 316 - Separation Processes
CH E 318 - Mass Transfer
CH E 345 - Chemical Reactor Analysis I
CH E 358 - Process Data Analytics and Machine Learning
ENG M 310 - Engineering Economy **OR**
ENG M 401 - Financial Management for Engineers
ENGG 404 - Engineering Safety and Risk Management-Leadership in Risk Management

## Year 4

**Term 7**

CH E 445 - Chemical Reactor Analysis II
CH E 446 - Process Dynamics and Control
CH E 464 - Chemical Engineering Design I
CME 481 - Colloquium I
Complementary Studies Elective (3-0-0)
Program and Technical Elective (3-1s-0)

**Term 8**

CH E 454 - Chemical Engineering Project Laboratory
CH E 465 - Chemical Engineering Design II
ENGG 400 - The Practice of the Engineering Profession
Program and Technical Elective (3-1s-0)
Program and Technical Elective (3-1s-0)

**Notes**

1. See Program and Technical Electives below for restrictions on the four program electives.
2. Students who are interested in taking Nanoscale Engineering, Mineral Processing and Extractive Metallurgy, or Polymer Materials Elective Streams should consult the Department for course schedules.

### Complementary Studies and Impact of Technology on Society (ITS) Electives

See Complementary Studies and Impact of Technology on Society (ITS) Electives for a list of approved electives.

### Program and Technical Electives

Of the four single-term program electives:

| | |
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| **Exactly one must be a "Science" elective selected from:**<br>BIOL 107 - Introduction to Cell Biology<br>BIOL 108 - Introduction to Biological Diversity<br>CHEM 211 - Quantitative Analysis I<br>CHEM 263 - Organic Chemistry II<br>EAS 100 - Planet Earth<br>EAS 210 - Engineering Earth Science<br>PHYS 230 - Electricity and Magnetism<br>PHYS 244 - Classical Mechanics I<br>PHYS 271 - Introduction to Modern Physics<br><br>**At least two must be Engineering Science and/or Engineering Design courses selected from:**<br>BME 320 - Human Anatomy and Physiology: Cells and Tissue<br>BME 321 - Human Anatomy and Physiology: Systems<br>CME 421 - Mineral Processing<br>CME 422<br>CME 458 - Special Projects in Chemical and Materials Engineering I (see Note)<br>CME 459 - Special Projects in Chemical and Materials Engineering II (see Note)<br>CME 472 - Extractive Metallurgy<br>CME 482 - Fundamentals of Polymers<br>CME 484<br>CME 485<br>CME 494 - Special Topics in Chemical and Materials Engineering<br>CME 496<br>CH E 412 - Introduction to Fluid-Particle Systems<br>CH E 420 - Mixing in the Process Industries<br>CH E 472 - Modelling Process Dynamics<br>CH E 482<br>CH E 484 - Introduction to Biochemical Engineering<br>CH E 485 - Fuel Cells and Their Applications<br>CH E 487<br>CH E 494 - Special Topics in Chemical Engineering<br>CH E 496<br>CH E 522 - Fundamentals of Oil Sands Upgrading<br>CH E 534 - Fundamentals of Oilsands Extraction<br>CH E 572<br>CH E 573 - Digital Signal Processing for Chemical Engineers<br>CH E 576 - Intermediate Process Control<br>CH E 580<br>CH E 582 - Introduction to Biomaterials<br>CH E 583<br>CH E 584 | **Exactly one must be a "Science" elective selected from:**<br>BIOL 107 - Introduction to Cell Biology<br>BIOL 108 - Introduction to Biological Diversity<br>CHEM 211 - Quantitative Analysis I<br>CHEM 263 - Organic Chemistry II<br>EAS 100 - Planet Earth<br>EAS 210 - Engineering Earth Science<br>PHYS 230 - Electricity and Magnetism<br>PHYS 244 - Classical Mechanics I<br>PHYS 271 - Introduction to Modern Physics<br><br>**At least two must be Engineering Science and/or Engineering Design courses selected from:**<br>BME 320 - Human Anatomy and Physiology: Cells and Tissue<br>BME 321 - Human Anatomy and Physiology: Systems<br>CME 421 - Mineral Processing<br>CME 422<br>CME 458 - Special Projects in Chemical and Materials Engineering I (see Note)<br>CME 459 - Special Projects in Chemical and Materials Engineering II (see Note)<br>CME 472 - Extractive Metallurgy<br>CME 482 - Fundamentals of Polymers<br>CME 484<br>CME 485<br>CME 494 - Special Topics in Chemical and Materials Engineering<br>CME 496<br>CH E 412 - Introduction to Fluid-Particle Systems<br>CH E 420 - Mixing in the Process Industries<br>CH E 472 - Modelling Process Dynamics<br>CH E 482<br>CH E 484 - Introduction to Biochemical Engineering<br>CH E 485 - Fuel Cells and Their Applications<br>CH E 487<br>CH E 494 - Special Topics in Chemical Engineering<br>CH E 496<br>CH E 522 - Fundamentals of Oil Sands Upgrading<br>CH E 534 - Fundamentals of Oilsands Extraction<br>CH E 572<br>CH E 573 - Digital Signal Processing for Chemical Engineers<br>CH E 576 - Intermediate Process Control<br>CH E 580<br>CH E 582 - Introduction to Biomaterials<br>CH E 583<br>CH E 584 |

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| CH E 594<br>CH E 596<br>CIV E 270 - Mechanics of Deformable Bodies I<br>CIV E 321 - Principles of Environmental Modeling and Risk<br>ECE 203 - Electrical Circuits II<br>ECE 210 - Introduction to Digital Logic Design<br>ECE 212 - Introduction to Microprocessors<br>ENGG 406 - Engineering Safety and Risk Management - Methodologies and Tools<br>ENG M 501 - Production and Operations Management<br>ENG M 530 - Engineering Project Management<br>ENV E 302 - Environmental Impact Assessment<br>MAT E 335 - Phase Transformations I<br>MAT E 336 - Phase Transformations II<br>MAT E 341 - Applied Electrochemistry<br>MAT E 345 - Corrosion, Oxidation, and Degradation<br>MAT E 351 - Mechanical Properties<br>MAT E 466 - Special Topics in Materials Engineering<br>MAT E 471 - Ceramics<br>MAT E 473 - Processing of Materials<br>MAT E 474 - Performance of Materials<br>MAT E 491 - Properties and Physics of Functional Materials<br>MAT E 494 - Nanostructured Materials<br>MAT E 495 - Nanomaterials and Biomedical Applications<br>MEC E 250 - Engineering Mechanics II<br>MEC E 443 - Energy Conversion<br>MGTSC 405 - Forecasting for Planners and Managers<br>MIN E 310 - Ore Reserve Estimation<br>PET E 364 - Drilling Engineering<br>PET E 365 - Well Logging and Formation Evaluation<br>PET E 366 - Petroleum Production Operations<br>PET E 375 - Applied Reservoir Engineering<br><br>**Note:**<br>CME 458 or CME 459 may only be taken with an appropriate project approved by the department.<br><br>**No more than one single-term program elective may be selected from the following approved list:**<br><br>BIOCH 200 - Introductory Biochemistry<br>BIOL 201 - Eukaryotic Cellular Biology<br>BIOL 208 - Principles of Ecology<br>BIOL 381 - A Planet in Crisis<br>BOT 340 - Plant Physiology<br>CELL 201 - Introduction to Molecular Cell Biology<br>CHEM 211 - Quantitative Analysis I<br>CHEM 213 - Quantitative Analysis II | CH E 594<br>CH E 596<br>CIV E 270 - Mechanics of Deformable Bodies I<br>CIV E 321 - Principles of Environmental Modeling and Risk<br>ECE 203 - Electrical Circuits II<br>ECE 210 - Introduction to Digital Logic Design<br>ECE 212 - Introduction to Microprocessors<br>ENGG 406 - Engineering Safety and Risk Management - Methodologies and Tools<br>ENG M 501 - Production and Operations Management<br>ENG M 530 - Engineering Project Management<br>ENV E 302 - Environmental Impact Assessment<br>MAT E 335 - Phase Transformations I<br>MAT E 336 - Phase Transformations II<br>MAT E 341 - Applied Electrochemistry<br>MAT E 345 - Corrosion, Oxidation, and Degradation<br>MAT E 351 - Mechanical Properties<br>MAT E 466 - Special Topics in Materials Engineering<br>MAT E 471 - Ceramics<br>MAT E 473 - Processing of Materials<br>MAT E 474 - Performance of Materials<br>MAT E 491 - Properties and Physics of Functional Materials<br>MAT E 494 - Nanostructured Materials<br>MAT E 495 - Nanomaterials and Biomedical Applications<br>MEC E 250 - Engineering Mechanics II<br>MEC E 443 - Energy Conversion<br>MGTSC 405 - Forecasting for Planners and Managers<br>MIN E 310 - Ore Reserve Estimation<br>PET E 364 - Drilling Engineering<br>PET E 365 - Well Logging and Formation Evaluation<br>PET E 366 - Petroleum Production Operations<br>PET E 375 - Applied Reservoir Engineering<br><br>**Note:**<br>CME 458 or CME 459 may only be taken with an appropriate project approved by the department.<br><br>**No more than one single-term program elective may be selected from the following approved list:**<br><br>BIOCH 200 - Introductory Biochemistry<br>BIOL 201 - Eukaryotic Cellular Biology<br>BIOL 208 - Principles of Ecology<br>BIOL 381 - A Planet in Crisis<br>BOT 340 - Plant Physiology<br>CELL 201 - Introduction to Molecular Cell Biology<br>CHEM 211 - Quantitative Analysis I<br>CHEM 213 - Quantitative Analysis II |

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| CHEM 303 - Environmental Chemistry I<br>CHEM 333 - Inorganic Materials Chemistry<br>CHEM 479 - Molecular Kinetics<br>CHEM 495 - Molecular Dynamics and its Applications<br>EAS 201 - Earth Science I<br>EAS 209 - Geology of Western Canada and the National and Provincial Parks<br>MATH 225 - Linear Algebra II<br>MATH 241 - Geometry<br>MATH 300 - Advanced Boundary Value Problems<br>MATH 309 - Mathematical Methods for Electrical Engineers<br>MATH 311 - Theory of Functions of a Complex Variable<br>MATH 337 - Introduction to Partial Differential Equations<br>MATH 371 - Mathematical Modelling in the Life Sciences<br>MATH 373 - Introduction to Optimization<br>MATH 374<br>MGTSC 405 - Forecasting for Planners and Managers<br>MICRB 265 - General Microbiology<br>MICRB 311 - Microbial Physiology<br>MICRB 316 - Molecular Microbiology<br>OM 352 - Operations Management<br>OM 404<br>OM 422 - Simulation and Computer Modelling Techniques in Management<br>OM 426<br>REN R 210 - Introduction to Soil Science<br>REN R 355<br>REN R 442 - Soil Biogeochemistry<br>REN R 443 - Soil Physics<br>REN R 444 - Environmental Soil Chemistry<br>REN R 482 - Soil Remediation<br>REN R 483 - Waste Management and Utilization<br><br>**Note:**<br>Other courses may be taken as program electives with written permission from the Department.<br><br>**Elective Streams in Chemical Engineering**<br>In addition to the required courses, students in Chemical Engineering may study certain fields in depth by choosing appropriate program elective courses. The following lists elective streams that are currently available in Chemical Engineering.<br><br>**Note:** The following elective streams apply to Chemical Engineering Traditional Program and Co-op Plan II. Due to | CHEM 303 - Environmental Chemistry I<br>CHEM 333 - Inorganic Materials Chemistry<br>CHEM 479 - Molecular Kinetics<br>CHEM 495 - Molecular Dynamics and its Applications<br>EAS 201 - Earth Science I<br>EAS 209 - Geology of Western Canada and the National and Provincial Parks<br>MATH 225 - Linear Algebra II<br>MATH 241 - Geometry<br>MATH 300 - Advanced Boundary Value Problems<br>MATH 309 - Mathematical Methods for Electrical Engineers<br>MATH 311 - Theory of Functions of a Complex Variable<br>MATH 337 - Introduction to Partial Differential Equations<br>MATH 371 - Mathematical Modelling in the Life Sciences<br>MATH 373 - Introduction to Optimization<br>MATH 374<br>MGTSC 405 - Forecasting for Planners and Managers<br>MICRB 265 - General Microbiology<br>MICRB 311 - Microbial Physiology<br>MICRB 316 - Molecular Microbiology<br>OM 352 - Operations Management<br>OM 404<br>OM 422 - Simulation and Computer Modelling Techniques in Management<br>OM 426<br>REN R 210 - Introduction to Soil Science<br>REN R 355<br>REN R 442 - Soil Biogeochemistry<br>REN R 443 - Soil Physics<br>REN R 444 - Environmental Soil Chemistry<br>REN R 482 - Soil Remediation<br>REN R 483 - Waste Management and Utilization<br><br>**Note:**<br>Other courses may be taken as program electives with written permission from the Department.<br><br>**Elective Streams in Chemical Engineering**<br>In addition to the required courses, students in Chemical Engineering may study certain fields in depth by choosing appropriate program elective courses. The following lists elective streams that are currently available in Chemical Engineering.<br><br>**Note:** The following elective streams apply to Chemical Engineering Traditional Program and Co-op Plan II. Due to |

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| course scheduling difficulties, these elective streams do not apply to Co-op Plan I.<br><br>**Nanoscale Engineering Elective Stream**<br>One of the four program electives should be MAT E 211. The remaining three program electives can be selected from CH E 487, CH E 583, CH E 584 and MAT E 495.<br><br>Students interested in this elective stream should consult the Department for a course schedule.<br><br>**Mineral Processing and Extractive Metallurgy Elective Stream**<br>Three of the four program electives should be CME 421, CME 422, and CME 472. The fourth program elective can be selected from the above lists and must be approved by the Department.<br><br>Students interested in this elective stream should consult the Department for a course schedule.<br><br>**Polymer Materials Elective Stream**<br>Three of the four program electives should be CME 482, CME 484 and CME 485. The fourth program elective can be selected from the above lists and must be approved by the Department.<br><br>Students interested in this elective stream should consult the Department for a course schedule. | course scheduling difficulties, these elective streams do not apply to Co-op Plan I.<br><br>**Nanoscale Engineering Elective Stream**<br>One of the four program electives should be MAT E 211. The remaining three program electives can be selected from CH E 487, CH E 583, CH E 584 and MAT E 495.<br><br>Students interested in this elective stream should consult the Department for a course schedule.<br><br>**Mineral Processing and Extractive Metallurgy Elective Stream**<br>Three of the four program electives should be CME 421, CME 422, and CME 472. The fourth program elective can be selected from the above lists and must be approved by the Department.<br><br>Students interested in this elective stream should consult the Department for a course schedule.<br><br>**Polymer Materials Elective Stream**<br>Three of the four program electives should be CME 482, CME 484 and CME 485. The fourth program elective can be selected from the above lists and must be approved by the Department.<br><br>Students interested in this elective stream should consult the Department for a course schedule. |

## Reviewed/Approved by:

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| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Approved by Department Council Members: August 17, 2022<br>Approved by Faculty Academic Planning Committee: October 12, 2023<br>Approved by Faculty Executive Coordinating Committee: January 23, 2024 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
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| Faculty (& Department or Academic Unit): | Faculty of Engineering<br>Chemical & Materials Engineering |
| Contact Person: | Prof. Anthony Yeung (tony.yeung@ualberta.ca)<br>Associate Dean, Undergraduate Studies |
| Level of change: (choose one only) | • **Undergraduate** |
| | • Graduate |
| Type of change request: (check all that apply) | • **Program** |
| | • Regulation |
| For which term is this intended to take effect? | Fall 2024 onwards |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | Yes (attached as separate forms) |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Removal of one complementary science elective will reduce the students' workload. The credit units in the revised course sequence meet the CEAB requirements.

*Renaming of CH E 316 and CH E 358 (Term 6) has been approved previously. These changes have been highlighted here for information only.*

## Calendar Copy

URL in current Calendar (or "New page")

https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47898&returnto=12339

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
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| **Bachelor of Science in Chemical Engineering Co-op - Plan I**<br><br>**Engineering Disciplines**<br>To find descriptions of the various disciplines of Engineering, visit Explore our Programs on the Faculty of Engineering website. | **Bachelor of Science in Chemical Engineering Co-op - Plan I**<br><br>**Engineering Disciplines**<br>To find descriptions of the various disciplines of Engineering, visit Explore our Programs on the Faculty of Engineering website. |

## Admission Requirements

General Undergraduate Admission Requirements
Admission Requirements for Qualifying Year

## Academic Regulations

University Regulations
Faculty of Engineering Regulations

## Program Requirements

### Year 1

Requirements for Year 1 can be found in Bachelor of Science in Engineering - Qualifying Year.

Information regarding admission to a specialized program from the Qualifying Year Program can be found in Faculty of Engineering Regulations.

### Year 2

**Fall Term 3**

- CH E 243 - Engineering Thermodynamics
- CME 200 - Introduction to Chemical and Materials Engineering
- CHEM 261 - Organic Chemistry I
- ENGG 299 - Orientation to Cooperative Education
- MAT E 202 - Materials Science II
- MATH 209 - Calculus for Engineering III
- Complementary Studies Elective (3-0-0)
- ~~Complementary Studies Elective (3-0-0)~~

**Winter Term 4**

- CME 265 - Process Analysis
- CH E 312 - Fluid Mechanics
- ECE 209 - Fundamentals of Electrical Engineering
- MATH 201 - Differential Equations
- ITS Elective (3-0-0)
- STAT 235 - Introductory Statistics for Engineering

**Summer**

- WKEXP 901 - Engineering Work Experience I

### Year 3

**Fall**

- WKEXP 902 - Engineering Work Experience II

## Admission Requirements

General Undergraduate Admission Requirements
Admission Requirements for Qualifying Year

## Academic Regulations

University Regulations
Faculty of Engineering Regulations

## Program Requirements

### Year 1

Requirements for Year 1 can be found in Bachelor of Science in Engineering - Qualifying Year.

Information regarding admission to a specialized program from the Qualifying Year Program can be found in Faculty of Engineering Regulations.

### Year 2

**Fall Term 3**

- CH E 243 - Engineering Thermodynamics
- CME 200 - Introduction to Chemical and Materials Engineering
- CHEM 261 - Organic Chemistry I
- ENGG 299 - Orientation to Cooperative Education
- MAT E 202 - Materials Science II
- MATH 209 - Calculus for Engineering III
- Complementary Studies Elective (3-0-0)

**Winter Term 4**

- CME 265 - Process Analysis
- CH E 312 - Fluid Mechanics
- ECE 209 - Fundamentals of Electrical Engineering
- MATH 201 - Differential Equations
- ITS Elective (3-0-0)
- STAT 235 - Introductory Statistics for Engineering

**Summer**

- WKEXP 901 - Engineering Work Experience I

### Year 3

**Fall**

- WKEXP 902 - Engineering Work Experience II

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| **Winter Term 5**<br>CH E 314 - Heat Transfer<br>CH E 343 - Chemical Engineering Thermodynamics<br>CH E 351 - Chemical Engineering Laboratory<br>CH E 374 - Computational Methods in Engineering<br>Program and Technical Elective (3-0-0)<br><br>**Summer Term 6**<br>CH E 316 - ~~Equilibrium Stage Process~~<br>CH E 318 - Mass Transfer<br>CH E 345 - Chemical Reactor Analysis I<br>CH E 358 - Process Data ~~Analysis~~<br>ENG M 310 - Engineering Economy **OR**<br>ENG M 401 - Financial Management for Engineers<br>ENGG 404 - Engineering Safety and Risk Management-Leadership in Risk Management<br><br>**Year 4**<br>**Fall**<br>WKEXP 903 - Engineering Work Experience III<br><br>**Winter Term 7**<br>CH E 445 - Chemical Reactor Analysis II<br>CH E 446 - Process Dynamics and Control<br>CH E 464 - Chemical Engineering Design I<br>CME 481 - Colloquium I<br>Program and Technical Elective (3-1s-0)<br>Complementary Studies Elective (3-0-0)<br><br>**Summer**<br>WKEXP 904 - Engineering Work Experience IV<br><br>**Year 5**<br>**Fall**<br>WKEXP 905 - Engineering Work Experience V<br><br>**Winter Term 8**<br>CH E 454 - Chemical Engineering Project Laboratory<br>CH E 465 - Chemical Engineering Design II<br>ENGG 400 - The Practice of the Engineering Profession<br>Program and Technical Elective (3-1s-0)<br>Program and Technical Elective (3-1s-0) | **Winter Term 5**<br>CH E 314 - Heat Transfer<br>CH E 343 - Chemical Engineering Thermodynamics<br>CH E 351 - Chemical Engineering Laboratory<br>CH E 374 - Computational Methods in Engineering<br>Program and Technical Elective (3-0-0)<br><br>**Summer Term 6**<br>CH E 316 - Separation Processes<br>CH E 318 - Mass Transfer<br>CH E 345 - Chemical Reactor Analysis I<br>CH E 358 - Process Data Analytics and Machine Learning<br>ENG M 310 - Engineering Economy **OR**<br>ENG M 401 - Financial Management for Engineers<br>ENGG 404 - Engineering Safety and Risk Management-Leadership in Risk Management<br><br>**Year 4**<br>**Fall**<br>WKEXP 903 - Engineering Work Experience III<br><br>**Winter Term 7**<br>CH E 445 - Chemical Reactor Analysis II<br>CH E 446 - Process Dynamics and Control<br>CH E 464 - Chemical Engineering Design I<br>CME 481 - Colloquium I<br>Program and Technical Elective (3-1s-0)<br>Complementary Studies Elective (3-0-0)<br><br>**Summer**<br>WKEXP 904 - Engineering Work Experience IV<br><br>**Year 5**<br>**Fall**<br>WKEXP 905 - Engineering Work Experience V<br><br>**Winter Term 8**<br>CH E 454 - Chemical Engineering Project Laboratory<br>CH E 465 - Chemical Engineering Design II<br>ENGG 400 - The Practice of the Engineering Profession<br>Program and Technical Elective (3-1s-0)<br>Program and Technical Elective (3-1s-0) |
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| **Notes**<br>1. See Program and Technical Electives below for restrictions on the four program electives.<br><br>**Complementary Studies and Impact of Technology on Society (ITS) Electives**<br>See Complementary Studies and Impact of Technology on Society (ITS) Electives for a list of approved electives.<br><br>**Program and Technical Electives**<br>The four single-term program electives must be selected from lists in Bachelor of Science in Chemical Engineering. Exactly one must be a “Science” elective. At least two of these electives must be Engineering Science and/or Engineering Design in BSc in Chemical Engineering. Other courses may be taken with written permission from the department prior to enrollment. | **Notes**<br>1. See Program and Technical Electives below for restrictions on the four program electives.<br><br>**Complementary Studies and Impact of Technology on Society (ITS) Electives**<br>See Complementary Studies and Impact of Technology on Society (ITS) Electives for a list of approved electives.<br><br>**Program and Technical Electives**<br>The four single-term program electives must be selected from lists in Bachelor of Science in Chemical Engineering. Exactly one must be a “Science” elective. At least two of these electives must be Engineering Science and/or Engineering Design in BSc in Chemical Engineering. Other courses may be taken with written permission from the department prior to enrollment. |

## Reviewed/Approved by:

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| REQUIRED: Faculty Council (or delegate) and approval date.<br><br>Approved by Department Council Members: August 17, 2022<br>Approved by Faculty Academic Planning Committee: October 12, 2023<br>Approved by Faculty Executive Coordinating Committee: January 23, 2024 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Engineering<br>Department of Civil and Environmental Engineering |
| Contact Person: | Wanyan Liu<br>Dr. Yuntong She |
| Level of change: (choose one only) | ☑ Undergraduate |
| | ☐ Graduate |
| Type of change request: (check all that apply) | ☑ Program |
| | ☐ Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

To correspond with the Bachelor of Science in Civil Engineering traditional option, we are adding CIV E 460 and CIV E 461 to the Program and Technical Elective List. This is the only change made.

## Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47916

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| **Year 2**<br>**Fall Term 3**<br>• CIV E 265 - Engineering Drawing and Computer Graphics<br>• CIV E 270 - Mechanics of Deformable Bodies I<br>• ENGG 299 - Orientation to Cooperative Education<br>• EAS 210 - Engineering Earth Science<br>• MAT E 202 - Materials Science II<br>• MATH 209 - Calculus III<br><br>**Winter Term 4** | **Year 2**<br>**Fall Term 3**<br>• CIV E 265 - Engineering Drawing and Computer Graphics<br>• CIV E 270 - Mechanics of Deformable Bodies I<br>• ENGG 299 - Orientation to Cooperative Education<br>• EAS 210 - Engineering Earth Science<br>• MAT E 202 - Materials Science II<br>• MATH 209 - Calculus III<br><br>**Winter Term 4** |

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| • CIV E 221 - Environmental Engineering Fundamentals<br>• CIV E 240 - Technical Communications<br>• CIV E 250 - Plane Surveying<br>• CIV E 251 - Survey School *<br>• CIV E 295 - Numerical Methods for Civil Engineers<br>• MATH 201 - Differential Equations<br>• STAT 235 - Introductory Statistics for Engineering<br><br>Note: *Held in Spring/Summer (Spring Term)<br><br>**Summer**<br>• WKEXP 901 - Engineering Work Experience I<br><br>**Year 3**<br>**Fall**<br>• WKEXP 902 - Engineering Work Experience II<br><br>**Winter Term 5**<br>• CIV E 303 - Project Management<br>• CIV E 315 - Transportation Engineering<br>• CIV E 321 - Principles of Environmental Modeling and Risk<br>• CIV E 330 - Introduction to Fluid Mechanics<br>• CIV E 372 - Structural Analysis I<br>• CIV E 395 - Civil Engineering Analysis<br><br>**Summer**<br>• WKEXP 903 - Engineering Work Experience III<br><br>**Year 4**<br>**Fall Term 6**<br>• CIV E 331 - Applied Hydraulics<br>• CIV E 374 - Structural Design I<br>• CIV E 381 - Soil Mechanics<br>• CIV E 391 - Civil Engineering Materials<br>• CIV E 398 - Introduction to Continuum Mechanics<br>• Complementary Studies Elective (3-0-0)<br><br>**Winter**<br>• WKEXP 904 - Engineering Work Experience IV<br><br>**Summer** | • CIV E 221 - Environmental Engineering Fundamentals<br>• CIV E 240 - Technical Communications<br>• CIV E 250 - Plane Surveying<br>• CIV E 251 - Survey School *<br>• CIV E 295 - Numerical Methods for Civil Engineers<br>• MATH 201 - Differential Equations<br>• STAT 235 - Introductory Statistics for Engineering<br><br>Note: *Held in Spring/Summer (Spring Term)<br><br>**Summer**<br>• WKEXP 901 - Engineering Work Experience I<br><br>**Year 3**<br>**Fall**<br>• WKEXP 902 - Engineering Work Experience II<br><br>**Winter Term 5**<br>• CIV E 303 - Project Management<br>• CIV E 315 - Transportation Engineering<br>• CIV E 321 - Principles of Environmental Modeling and Risk<br>• CIV E 330 - Introduction to Fluid Mechanics<br>• CIV E 372 - Structural Analysis I<br>• CIV E 395 - Civil Engineering Analysis<br><br>**Summer**<br>• WKEXP 903 - Engineering Work Experience III<br><br>**Year 4**<br>**Fall Term 6**<br>• CIV E 331 - Applied Hydraulics<br>• CIV E 374 - Structural Design I<br>• CIV E 381 - Soil Mechanics<br>• CIV E 391 - Civil Engineering Materials<br>• CIV E 398 - Introduction to Continuum Mechanics<br>• Complementary Studies Elective (3-0-0)<br><br>**Winter**<br>• WKEXP 904 - Engineering Work Experience IV<br><br>**Summer** |

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| • WKEXP 905 - Engineering Work Experience V | • WKEXP 905 - Engineering Work Experience V |
| **Year 5**<br>**Fall Term 7**<br>• Program and Technical Elective<br>• Program and Technical Elective<br>• Program and Technical Elective<br>• ENGG 404 - Engineering Safety and Risk Management-Leadership in Risk Management | **Year 5**<br>**Fall Term 7**<br>• Program and Technical Elective<br>• Program and Technical Elective<br>• Program and Technical Elective<br>• ENGG 404 - Engineering Safety and Risk Management-Leadership in Risk Management |
| One of<br>• ECE 209 - Fundamentals of Electrical Engineering<br>• MEC E 250 - Engineering Mechanics II<br>• CH E 243 - Engineering Thermodynamics | One of<br>• ECE 209 - Fundamentals of Electrical Engineering<br>• MEC E 250 - Engineering Mechanics II<br>• CH E 243 - Engineering Thermodynamics |
| **Winter Term 8**<br>• ENG M 310 - Engineering Economy **OR**<br>ENG M 401 - Financial Management for Engineers<br>• ENGG 400 - The Practice of the Engineering Profession<br>• ENGG 420 - Engineering Law<br>• Program and Technical Elective<br>• Program and Technical Elective<br>• ITS Elective | **Winter Term 8**<br>• ENG M 310 - Engineering Economy **OR**<br>ENG M 401 - Financial Management for Engineers<br>• ENGG 400 - The Practice of the Engineering Profession<br>• ENGG 420 - Engineering Law<br>• Program and Technical Elective<br>• Program and Technical Elective<br>• ITS Elective |
| **Five program electives are required.**<br>Three must be selected from<br>• CIV E 406 - Construction Estimating, Planning, and Control<br>• CIV E 411 - Transportation Engineering II<br>• CIV E 431 - Water Resources Engineering<br>• CIV E 474 - Structural Design II<br>• CIV E 481 - Soil Engineering<br>• ENV E 421 - Municipal Systems<br>and two from<br>• CIV E 409 - Construction Methods<br>• CIV E 419 - Transportation Engineering: Highway Planning and Design<br>• CIV E 429 - Environmental Engineering Design<br>• CIV E 439 - Water Resources Engineering Design<br>• CIV E 479 - Structural Design III<br>• CIV E 489 - Geotechnical Design | **Five program electives are required.**<br>Three must be selected from<br>• CIV E 406 - Construction Estimating, Planning, and Control<br>• CIV E 411 - Transportation Engineering II<br>• CIV E 431 - Water Resources Engineering<br>• CIV E 460 - Civil Engineering Design Project I<br>• CIV E 474 - Structural Design II<br>• CIV E 481 - Soil Engineering<br>• ENV E 421 - Municipal Systems<br>and two from<br>• CIV E 409 - Construction Methods<br>• CIV E 419 - Transportation Engineering: Highway Planning and Design<br>• CIV E 429 - Environmental Engineering Design<br>• CIV E 439 - Water Resources Engineering Design<br>• CIV E 461 - Civil Engineering Design Project II<br>• CIV E 479 - Structural Design III<br>• CIV E 489 - Geotechnical Design |

## Reviewed/Approved by:

REQUIRED:
Engineering Faculty Academic Planning Committee (APC): March 14, 2024
Faculty of Engineering Executive Coordinating Committee (ECC): March 26, 2024

OPTIONAL:

- Department Council on September 30, 2019.

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Engineering - Electrical & Computer Engineering |
| Contact Person: | Ashwin Iyer |
| Level of change: (choose one only) | • Undergraduate |
| | • Graduate |
| Type of change request: (check all that apply) | • Program |
| | • Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Addition of CMPUT 365, CMPUT 312, and CMPUT 428 to Group II Electives in Computer Engineering.

The inclusion of CMPUT 365, CMPUT 312, and CMPUT 428 provides additional technical electives for our Computer Engineering Program, offering students more flexibility and a wider array of course content. Given the broad applicability and relevance of the course material, it will be entered into the Group II elective category for all second level specializations.

## Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47950&returnto=12339

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
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| **Program and Technical Electives**<br>**Group I (Interdisciplinary) Electives**<br>Two from CH E 243, MAT E 201 and MEC E 250 must be selected.<br><br>**Group II Electives**<br>The two program electives in this group must be selected from the following list:<br><br>• CMPUT 250 - Computers and Games<br>• CMPUT 304 - Algorithms II<br>• CMPUT 307 - 3D Modeling and Animation<br>• CMPUT 325 - Non-Procedural Programming Languages<br>• CMPUT 350 - Advanced Games Programming<br>• CMPUT 366 - Search and Planning in Artificial Intelligence | **Program and Technical Electives**<br>**Group I (Interdisciplinary) Electives**<br>Two from CH E 243, MAT E 201 and MEC E 250 must be selected.<br><br>**Group II Electives**<br>The two program electives in this group must be selected from the following list:<br><br>• CMPUT 250 - Computers and Games<br>• CMPUT 304 - Algorithms II<br>• CMPUT 307 - 3D Modeling and Animation<br>• CMPUT 312 – Introduction to Robotics and Mechatronics<br>• CMPUT 325 - Non-Procedural Programming Languages<br>• CMPUT 350 - Advanced Games Programming |

| | |
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| • CMPUT 391 - Database Management Systems<br>• CMPUT 411 - Introduction to Computer Graphics<br>• CMPUT 415 - Compiler Design<br>• CMPUT 466 - Machine Learning<br>• ECE 303 - Analog Electronics<br>• ECE 321 - Software Requirements Engineering<br>• ECE 322 - Software Testing and Maintenance Engineering<br>• ECE 360 - Control Systems I<br>• ECE 380 - Introduction to Communication Systems<br>• ECE 402 - RF Communication Circuits<br>• ECE 403 - Integrated Circuit Design<br>• ECE 405 - Biophysical Measurement and Instrumentation<br>• ECE 406 - Special Topics in Computer Engineering OR<br>• ECE 407 - Special Topics in Computer Engineering<br>• ECE 412 - Fault-Tolerant Computing<br>• ECE 421 - Exploring Software Development Domains<br>• ECE 422 - Reliable and Secure Systems Design<br>• ECE 423 - Distributed Computing System<br>• ECE 440 - Digital Computer Processing of Images<br>• ECE 442 - Introduction to Multimedia Signal Processing<br>• ECE 447 - Data Analysis and Machine Learning for Engineers<br>• ECE 449 - Intelligent Systems Engineering<br>• ECE 450 - Nanoscale Phenomena in Electronic Devices<br>• ECE 455 - Engineering of Nanobiotechnological Systems<br>• ECE 456 - Introduction to Nanoelectronics<br>• ECE 475 - Optoelectronic and Photovoltaic Devices | • CMPUT 365 - Introduction to Reinforcement Learning<br>• CMPUT 366 - Search and Planning in Artificial Intelligence<br>• CMPUT 391 - Database Management Systems<br>• CMPUT 411 - Introduction to Computer Graphics<br>• CMPUT 415 - Compiler Design<br>• CMPUT 428 – Computer Vision<br>• CMPUT 466 - Machine Learning<br>• ECE 303 - Analog Electronics<br>• ECE 321 - Software Requirements Engineering<br>• ECE 322 - Software Testing and Maintenance Engineering<br>• ECE 360 - Control Systems I<br>• ECE 380 - Introduction to Communication Systems<br>• ECE 402 - RF Communication Circuits<br>• ECE 403 - Integrated Circuit Design<br>• ECE 405 - Biophysical Measurement and Instrumentation<br>• ECE 406 - Special Topics in Computer Engineering OR<br>• ECE 407 - Special Topics in Computer Engineering<br>• ECE 412 - Fault-Tolerant Computing<br>• ECE 421 - Exploring Software Development Domains<br>• ECE 422 - Reliable and Secure Systems Design<br>• ECE 423 - Distributed Computing System<br>• ECE 440 - Digital Computer Processing of Images<br>• ECE 442 - Introduction to Multimedia Signal Processing<br>• ECE 447 - Data Analysis and Machine Learning for Engineers<br>• ECE 449 - Intelligent Systems Engineering<br>• ECE 450 - Nanoscale Phenomena in Electronic Devices<br>• ECE 455 - Engineering of Nanobiotechnological Systems<br>• ECE 456 - Introduction to Nanoelectronics<br>• ECE 475 - Optoelectronic and Photovoltaic Devices |

## Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.

- Faculty of Engineering – Academic Planning Committee: Feb. 15, 2024
- Faculty of Engineering Executive Coordinating Committee (ECC) - March 26, 2024

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

- ECE Undergraduate Studies Committee, Jan. 22, 2024
- ECE Department Council, Jan. 29, 2024

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Engineering - Electrical & Computer Engineering |
| Contact Person: | Ashwin Iyer |
| Level of change: (choose one only) | • Undergraduate |
| | • Graduate |
| Type of change request: (check all that apply) | • Program |
| | • Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Addition of CMPUT 365, CMPUT 312, and CMPUT 428 to Group II Electives in Computer Engineering Co-op.

The inclusion of CMPUT 365, CMPUT 312, and CMPUT 428 provides additional technical electives for our Computer Engineering Program, offering students more flexibility and a wider array of course content. Given the broad applicability and relevance of the course material, it will be entered into the Group II elective category for all second level specializations.

## Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47952&returnto=12339

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| **Program and Technical Electives**<br>**Group I (Interdisciplinary) Electives**<br>Two from CH E 243, MAT E 201 and MEC E 250 must be selected.<br><br>**Group II Electives**<br>The two program electives in this group must be selected from the following list:<br><br>• CMPUT 250 - Computers and Games<br>• CMPUT 304 - Algorithms II<br>• CMPUT 307 - 3D Modeling and Animation<br>• CMPUT 325 - Non-Procedural Programming Languages<br>• CMPUT 350 - Advanced Games Programming<br>• CMPUT 366 - Search and Planning in Artificial Intelligence | **Program and Technical Electives**<br>**Group I (Interdisciplinary) Electives**<br>Two from CH E 243, MAT E 201 and MEC E 250 must be selected.<br><br>**Group II Electives**<br>The two program electives in this group must be selected from the following list:<br><br>• CMPUT 250 - Computers and Games<br>• CMPUT 304 - Algorithms II<br>• CMPUT 307 - 3D Modeling and Animation<br>• CMPUT 312 – Introduction to Robotics and Mechatronics<br>• CMPUT 325 - Non-Procedural Programming Languages<br>• CMPUT 350 - Advanced Games Programming |

| | |
|---|---|
| • CMPUT 391 - Database Management Systems<br>• CMPUT 411 - Introduction to Computer Graphics<br>• CMPUT 415 - Compiler Design<br>• CMPUT 466 - Machine Learning<br>• ECE 303 - Analog Electronics<br>• ECE 321 - Software Requirements Engineering<br>• ECE 322 - Software Testing and Maintenance Engineering<br>• ECE 360 - Control Systems I<br>• ECE 380 - Introduction to Communication Systems<br>• ECE 402 - RF Communication Circuits<br>• ECE 403 - Integrated Circuit Design<br>• ECE 405 - Biophysical Measurement and Instrumentation<br>• ECE 406 - Special Topics in Computer Engineering **OR**<br>• ECE 407 - Special Topics in Computer Engineering<br>• ECE 412 - Fault-Tolerant Computing<br>• ECE 421 - Exploring Software Development Domains<br>• ECE 422 - Reliable and Secure Systems Design<br>• ECE 423 - Distributed Computing System<br>• ECE 440 - Digital Computer Processing of Images<br>• ECE 442 - Introduction to Multimedia Signal Processing<br>• ECE 447 - Data Analysis and Machine Learning for Engineers<br>• ECE 449 - Intelligent Systems Engineering<br>• ECE 450 - Nanoscale Phenomena in Electronic Devices<br>• ECE 455 - Engineering of Nanobiotechnological Systems<br>• ECE 456 - Introduction to Nanoelectronics<br>• ECE 475 - Optoelectronic and Photovoltaic Devices | • CMPUT 365 - Introduction to Reinforcement Learning<br>• CMPUT 366 - Search and Planning in Artificial Intelligence<br>• CMPUT 391 - Database Management Systems<br>• CMPUT 411 - Introduction to Computer Graphics<br>• CMPUT 415 - Compiler Design<br>• CMPUT 428 – Computer Vision<br>• CMPUT 466 - Machine Learning<br>• ECE 303 - Analog Electronics<br>• ECE 321 - Software Requirements Engineering<br>• ECE 322 - Software Testing and Maintenance Engineering<br>• ECE 360 - Control Systems I<br>• ECE 380 - Introduction to Communication Systems<br>• ECE 402 - RF Communication Circuits<br>• ECE 403 - Integrated Circuit Design<br>• ECE 405 - Biophysical Measurement and Instrumentation<br>• ECE 406 - Special Topics in Computer Engineering **OR**<br>• ECE 407 - Special Topics in Computer Engineering<br>• ECE 412 - Fault-Tolerant Computing<br>• ECE 421 - Exploring Software Development Domains<br>• ECE 422 - Reliable and Secure Systems Design<br>• ECE 423 - Distributed Computing System<br>• ECE 440 - Digital Computer Processing of Images<br>• ECE 442 - Introduction to Multimedia Signal Processing<br>• ECE 447 - Data Analysis and Machine Learning for Engineers<br>• ECE 449 - Intelligent Systems Engineering<br>• ECE 450 - Nanoscale Phenomena in Electronic Devices<br>• ECE 455 - Engineering of Nanobiotechnological Systems<br>• ECE 456 - Introduction to Nanoelectronics<br>• ECE 475 - Optoelectronic and Photovoltaic Devices |

## Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.

- Faculty of Engineering – Academic Planning Committee: Feb. 15, 2024
- Faculty of Engineering Executive Coordinating Committee (ECC) - March 26, 2024

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

- ECE Undergraduate Studies Committee, Jan. 22, 2024
- ECE Department Council, Jan. 29, 2024

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Engineering - Electrical & Computer Engineering |
| Contact Person: | Ashwin Iyer |
| Level of change: (choose one only) | • Undergraduate |
| | • Graduate |
| Type of change request: (check all that apply) | • Program |
| | • Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Addition of CMPUT 365, CMPUT 312, and CMPUT 428 to Group II Electives in Computer Engineering - Nanoscale System Design Option.

The inclusion of CMPUT 365, CMPUT 312, and CMPUT 428 provides additional technical electives for our Computer Engineering Program, offering students more flexibility and a wider array of course content. Given the broad applicability and relevance of the course material, it will be entered into the Group II elective category for all second level specializations.

## Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47949&returnto=12339

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| **Program and Technical Electives**<br>**Group I (Interdisciplinary) Electives**<br>Two from CH E 243, MAT E 201 and MEC E 250 must be selected.<br><br>**Group II Electives**<br>The two program electives in this group must be selected from the following list:<br><br>• CMPUT 313 - Computer Networks<br>• CMPUT 379 - Operating System Concepts<br>• ECE 340 - Discrete Time Signals and Systems<br>• ECE 370 - Engineering Electromagnetics<br>• ECE 380 - Introduction to Communication Systems<br>• ECE 406 - Special Topics in Computer Engineering **OR** | **Program and Technical Electives**<br>**Group I (Interdisciplinary) Electives**<br>Two from CH E 243, MAT E 201 and MEC E 250 must be selected.<br><br>**Group II Electives**<br>The two program electives in this group must be selected from the following list:<br><br>• CMPUT 312 – Introduction to Robotics and Mechatronics<br>• CMPUT 313 - Computer Networks<br>• CMPUT 365 - Introduction to Reinforcement Learning<br>• CMPUT 379 - Operating System Concepts<br>• CMPUT 428 – Computer Vision |

| | |
|---|---|
| • ECE 407 - Special Topics in Computer Engineering<br>• ECE 422 - Reliable and Secure Systems Design<br>• ECE 423 - Distributed Computing System<br>• ECE 447 - Data Analysis and Machine Learning for Engineers<br>• ECE 449 - Intelligent Systems Engineering<br>• ECE 452 - Computation for Nanoengineering<br>• ECE 455 - Engineering of Nanobiotechnological Systems<br>• ECE 456 - Introduction to Nanoelectronics<br>• ECE 487 - Data Communication Networks | • ECE 340 - Discrete Time Signals and Systems<br>• ECE 370 - Engineering Electromagnetics<br>• ECE 380 - Introduction to Communication Systems<br>• ECE 406 - Special Topics in Computer Engineering **OR**<br>• ECE 407 - Special Topics in Computer Engineering<br>• ECE 422 - Reliable and Secure Systems Design<br>• ECE 423 - Distributed Computing System<br>• ECE 447 - Data Analysis and Machine Learning for Engineers<br>• ECE 449 - Intelligent Systems Engineering<br>• ECE 452 - Computation for Nanoengineering<br>• ECE 455 - Engineering of Nanobiotechnological Systems<br>• ECE 456 - Introduction to Nanoelectronics<br>• ECE 487 - Data Communication Networks |

## Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.
- Faculty of Engineering – Academic Planning Committee: Feb. 15, 2024
- Faculty of Engineering Executive Coordinating Committee (ECC) - March 26, 2024

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.
- ECE Undergraduate Studies Committee, Jan. 22, 2024
- ECE Department Council, Jan. 29, 2024

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Engineering - Electrical & Computer Engineering |
| Contact Person: | Ashwin Iyer |
| Level of change: (choose one only) | • Undergraduate |
| | • Graduate |
| Type of change request: (check all that apply) | • Program |
| | • Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Addition of CMPUT 365, CMPUT 312, and CMPUT 428 to Group II Electives in Computer Engineering Co-op - Nanoscale System Design Option.

The inclusion of CMPUT 365, CMPUT 312, and CMPUT 428 provides additional technical electives for our Computer Engineering Program, offering students more flexibility and a wider array of course content. Given the broad applicability and relevance of the course material, it will be entered into the Group II elective category for all second level specializations.

## Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47954&returnto=12339

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| **Program and Technical Electives**<br>**Group I (Interdisciplinary) Electives**<br>Two from CH E 243, MAT E 201 and MEC E 250 must be selected.<br><br>**Group II Electives**<br>The two program electives in this group must be selected from the following list:<br><br>• CMPUT 313 - Computer Networks<br>• CMPUT 379 - Operating System Concepts<br>• ECE 340 - Discrete Time Signals and Systems<br>• ECE 370 - Engineering Electromagnetics<br>• ECE 380 - Introduction to Communication Systems<br>• ECE 406 - Special Topics in Computer Engineering **OR** | **Program and Technical Electives**<br>**Group I (Interdisciplinary) Electives**<br>Two from CH E 243, MAT E 201 and MEC E 250 must be selected.<br><br>**Group II Electives**<br>The two program electives in this group must be selected from the following list:<br><br>• CMPUT 312 – Introduction to Robotics and Mechatronics<br>• CMPUT 313 - Computer Networks<br>• CMPUT 365 - Introduction to Reinforcement Learning<br>• CMPUT 379 - Operating System Concepts<br>• CMPUT 428 – Computer Vision |

| | |
|---|---|
| • ECE 407 - Special Topics in Computer Engineering<br>• ECE 422 - Reliable and Secure Systems Design<br>• ECE 423 - Distributed Computing System<br>• ECE 447 - Data Analysis and Machine Learning for Engineers<br>• ECE 449 - Intelligent Systems Engineering<br>• ECE 452 - Computation for Nanoengineering<br>• ECE 455 - Engineering of Nanobiotechnological Systems<br>• ECE 456 - Introduction to Nanoelectronics<br>• ECE 487 - Data Communication Networks | • ECE 340 - Discrete Time Signals and Systems<br>• ECE 370 - Engineering Electromagnetics<br>• ECE 380 - Introduction to Communication Systems<br>• ECE 406 - Special Topics in Computer Engineering **OR**<br>• ECE 407 - Special Topics in Computer Engineering<br>• ECE 422 - Reliable and Secure Systems Design<br>• ECE 423 - Distributed Computing System<br>• ECE 447 - Data Analysis and Machine Learning for Engineers<br>• ECE 449 - Intelligent Systems Engineering<br>• ECE 452 - Computation for Nanoengineering<br>• ECE 455 - Engineering of Nanobiotechnological Systems<br>• ECE 456 - Introduction to Nanoelectronics<br>• ECE 487 - Data Communication Networks |

## Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.
- Faculty of Engineering – Academic Planning Committee: Feb. 15, 2024
- Faculty of Engineering Executive Coordinating Committee (ECC) - March 26, 2024

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.
- ECE Undergraduate Studies Committee, Jan. 22, 2024
- ECE Department Council, Jan. 29, 2024

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Engineering - Electrical & Computer Engineering |
| Contact Person: | Ashwin Iyer |
| Level of change: (choose one only) | • Undergraduate |
| | • Graduate |
| Type of change request: (check all that apply) | • Program |
| | • Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Addition of CMPUT 365, CMPUT 312, and CMPUT 428 to Group II Electives in Computer Engineering Co-op - Software Option.

The inclusion of CMPUT 365, CMPUT 312, and CMPUT 428 provides additional technical electives for our Computer Engineering Program, offering students more flexibility and a wider array of course content. Given the broad applicability and relevance of the course material, it will be entered into the Group II elective category for all second level specializations.

## Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47959&returnto=12339

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| **Program and Technical Electives**<br>**Group I (Interdisciplinary) Electives**<br>Two from CH E 243, MAT E 201 and MEC E 250 must be selected.<br><br>**Group II Electives**<br>The two program electives in this group must be selected from the following list:<br><br>• CMPUT 250 - Computers and Games<br>• CMPUT 304 - Algorithms II<br>• CMPUT 307 - 3D Modeling and Animation<br>• CMPUT 325 - Non-Procedural Programming Languages<br>• CMPUT 350 - Advanced Games Programming | **Program and Technical Electives**<br>**Group I (Interdisciplinary) Electives**<br>Two from CH E 243, MAT E 201 and MEC E 250 must be selected.<br><br>**Group II Electives**<br>The two program electives in this group must be selected from the following list:<br><br>• CMPUT 250 - Computers and Games<br>• CMPUT 304 - Algorithms II<br>• CMPUT 307 - 3D Modeling and Animation<br>• CMPUT 312 – Introduction to Robotics and Mechatronics<br>• CMPUT 325 - Non-Procedural Programming Languages |

| | |
|---|---|
| • CMPUT 366 - Search and Planning in Artificial Intelligence<br>• CMPUT 391 - Database Management Systems<br>• CMPUT 404 - Web Applications and Architecture<br>• CMPUT 411 - Introduction to Computer Graphics<br>• CMPUT 415 - Compiler Design<br>• CMPUT 466 - Machine Learning<br>• ECE 360 - Control Systems I<br>• ECE 370 - Engineering Electromagnetics<br>• ECE 380 - Introduction to Communication Systems<br>• ECE 405 - Biophysical Measurement and Instrumentation<br>• ECE 406 - Special Topics in Computer Engineering **OR**<br>• ECE 407 - Special Topics in Computer Engineering<br>• ECE 423 - Distributed Computing System<br>• ECE 440 - Digital Computer Processing of Images<br>• ECE 442 - Introduction to Multimedia Signal Processing<br>• ECE 447 - Data Analysis and Machine Learning for Engineers<br>• ECE 449 - Intelligent Systems Engineering<br>• ECE 455 - Engineering of Nanobiotechnological Systems | • CMPUT 350 - Advanced Games Programming<br>• CMPUT 365 - Introduction to Reinforcement Learning<br>• CMPUT 366 - Search and Planning in Artificial Intelligence<br>• CMPUT 391 - Database Management Systems<br>• CMPUT 404 - Web Applications and Architecture<br>• CMPUT 411 - Introduction to Computer Graphics<br>• CMPUT 415 - Compiler Design<br>• CMPUT 428 – Computer Vision<br>• CMPUT 466 - Machine Learning<br>• ECE 360 - Control Systems I<br>• ECE 370 - Engineering Electromagnetics<br>• ECE 380 - Introduction to Communication Systems<br>• ECE 405 - Biophysical Measurement and Instrumentation<br>• ECE 406 - Special Topics in Computer Engineering **OR**<br>• ECE 407 - Special Topics in Computer Engineering<br>• ECE 423 - Distributed Computing System<br>• ECE 440 - Digital Computer Processing of Images<br>• ECE 442 - Introduction to Multimedia Signal Processing<br>• ECE 447 - Data Analysis and Machine Learning for Engineers<br>• ECE 449 - Intelligent Systems Engineering<br>• ECE 455 - Engineering of Nanobiotechnological Systems |

## Reviewed/Approved by:

REQUIRED: Faculty Council (or delegate) and approval date.

- Faculty of Engineering – Academic Planning Committee: Feb. 15, 2024
- Faculty of Engineering Executive Coordinating Committee (ECC) - March 26, 2024

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

- ECE Undergraduate Studies Committee, Jan. 22, 2024
- ECE Department Council, Jan. 29, 2024

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Engineering (Electrical and Computer Engineering) |
| Contact Person: | Ashwin K. Iyer |
| Level of change: (choose one only) | ● Undergraduate |
| | ● Graduate |
| Type of change request: (check all that apply) | ● Program |
| | ● Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No. |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

EE and EE (nano) trad/co-op are the *only* ECE programs with lab-hour requirements on Group II TEs. There is no CEAB rule on lab hours, except through minimum AU counts. In EE trad/co-op, these requirements are automatically met through the requirement that students take a minimum of three Group II TEs from the first sub-list. In EE (nano) trad/co-op, the previous accreditation did not rely on the Group II TEs at all to meet minimum AU counts. **This calendar change request form pertains to Bachelor of Science in Electrical Engineering.**

## Calendar Copy

https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47926&returnto=12339

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| Program and Technical Electives<br>Group I (Interdisciplinary) Electives<br>[...]<br>Group II Electives<br>~~Total lab hours per week in the Group II Electives must be a minimum of 4.5 hours. The Lab hours in a graduate course may not count towards the minimum 4.5 hours/week.~~ | Program and Technical Electives<br>Group I (Interdisciplinary) Electives<br>[...]<br>Group II Electives |

## Reviewed/Approved by:

REQUIRED:
- Faculty Academic Planning Committee: June 21, 2023
- Faculty of Engineering Executive Coordinating Committee (ECC) - March 26, 2024

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

- ECE Undergraduate Studies Committee: April 4, 2023
- ECE Department Council: June 7, 2023

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Engineering (Electrical and Computer Engineering) |
| Contact Person: | Ashwin K. Iyer |
| Level of change: (choose one only) | ● Undergraduate |
| | ● Graduate |
| Type of change request: (check all that apply) | ● Program |
| | ● Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No. |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

EE and EE (nano) trad/co-op are the *only* ECE programs with lab-hour requirements on Group II TEs. There is no CEAB rule on lab hours, except through minimum AU counts. In EE trad/co-op, these requirements are automatically met through the requirement that students take a minimum of three Group II TEs from the first sub-list. In EE (nano) trad/co-op, the previous accreditation did not rely on the Group II TEs at all to meet minimum AU counts. **This calendar change request form pertains to Bachelor of Science in Electrical Engineering Co-op.**

## Calendar Copy

https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47938&returnto=12339

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| Program and Technical Electives<br>Group I (Interdisciplinary) Electives<br>[...]<br>Group II Electives<br>~~Total lab hours per week in the Group II Electives must be a minimum of 4.5 hours. The Lab hours in a graduate course may not count towards the minimum 4.5 hours/week.~~ | Program and Technical Electives<br>Group I (Interdisciplinary) Electives<br>[...]<br>Group II Electives |

## Reviewed/Approved by:

REQUIRED:
- Faculty Academic Planning Committee: June 21, 2023
- Faculty of Engineering Executive Coordinating Committee (ECC) - March 26, 2024

| |
|---|
| • |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.<br>• ECE Undergraduate Studies Committee: April 4, 2023<br>• ECE Department Council: June 7, 2023 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Engineering (Electrical and Computer Engineering) |
| Contact Person: | Ashwin K. Iyer |
| Level of change: (choose one only) | ● Undergraduate |
| | ● Graduate |
| Type of change request: (check all that apply) | ● Program |
| | ● Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No. |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

EE and EE (nano) trad/co-op are the *only* ECE programs with lab-hour requirements on Group II TEs. There is no CEAB rule on lab hours, except through minimum AU counts. In EE trad/co-op, these requirements are automatically met through the requirement that students take a minimum of three Group II TEs from the first sub-list. In EE (nano) trad/co-op, the previous accreditation did not rely on the Group II TEs at all to meet minimum AU counts. **This calendar change request form pertains to Bachelor of Science in Electrical Engineering - Nanoengineering Option.**

## Calendar Copy

https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47937&returnto=12339

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| Program and Technical Electives<br>Group I (Interdisciplinary) Electives<br>[...]<br>Group II Electives<br>~~Total lab hours per week in the Group II Electives must be a minimum of 3.0 hours. The Lab hours in a graduate course may not count towards the minimum 3 hours/week.~~ | Program and Technical Electives<br>Group I (Interdisciplinary) Electives<br>[...]<br>Group II Electives |

## Reviewed/Approved by:

REQUIRED:
- Faculty Academic Planning Committee: June 21, 2023

- Faculty of Engineering Executive Coordinating Committee (ECC) - March 26, 2024

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

- ECE Undergraduate Studies Committee: April 4, 2023
- ECE Department Council: June 7, 2023

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Engineering (Electrical and Computer Engineering) |
| Contact Person: | Ashwin K. Iyer |
| Level of change: (choose one only) | ● Undergraduate |
| | ● Graduate |
| Type of change request: (check all that apply) | ● Program |
| | ● Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No. |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

EE and EE (nano) trad/co-op are the *only* ECE programs with lab-hour requirements on Group II TEs. There is no CEAB rule on lab hours, except through minimum AU counts. In EE trad/co-op, these requirements are automatically met through the requirement that students take a minimum of three Group II TEs from the first sub-list. In EE (nano) trad/co-op, the previous accreditation did not rely on the Group II TEs at all to meet minimum AU counts. **This calendar change request form pertains to Bachelor of Science in Electrical Engineering Co-op - Nanoengineering Option.**

## Calendar Copy

https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47940&returnto=12339

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| Program and Technical Electives<br>Group I (Interdisciplinary) Electives<br>[...]<br>Group II Electives<br>~~Total lab hours per week in the Group II Electives must be a minimum of 3.0 hours. The Lab hours in a graduate course may not count towards the minimum 3 hours/week.~~ | Program and Technical Electives<br>Group I (Interdisciplinary) Electives<br>[...]<br>Group II Electives |

## Reviewed/Approved by:

REQUIRED:
- Faculty Academic Planning Committee: June 21, 2023
- Faculty of Engineering Executive Coordinating Committee (ECC) - March 26, 2024

OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.

- ECE Undergraduate Studies Committee: April 4, 2023
- ECE Department Council: June 7, 2023

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Faculty of Medicine and Dentistry, Department of Laboratory Medicine and Pathology |
| Contact Person: | Jelena Holovati – jelena.holovati@ualberta.ca |
| Level of change: (choose one only) | ☐ Undergraduate |
| | ☑ Graduate |
| Type of change request: (check all that apply) | ☑ Program |
| | ☐ Regulation |
| For which term is this intended to take effect? | Fall 2024 - as Calendar Addenda |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

This proposal seeks to add Calendar wording that outlines the Program Requirement information for the Master of Science with Specialization in Transfusion Science program that was approved by GFC Programs Committee on Nov 9, 2023.

## Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=39&poid=47732&returnto=12424

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| Graduate Programs in Laboratory Medicine and Pathology<br><br>[...]<br><br>Graduate Program Requirements | Graduate Programs in Laboratory Medicine and Pathology<br><br>[...]<br><br>Graduate Program Requirements |

| | |
|---|---|
| **Master's Programs**<br>● Master of Science (Laboratory Medicine and Pathology)<br>● Master of Science with Specialization in Analytical and Environmental Toxicology (Laboratory Medicine and Pathology)<br>● Master of Science with Specialization in Biopreservation (Laboratory Medicine and Pathology)<br>● Master of Science with Specialization in Molecular Pathology (Laboratory Medicine and Pathology)<br>● Master of Science with Specialization in Pathologists' Assistant (Laboratory Medicine and Pathology) | **Master's Programs**<br>● Master of Science (Laboratory Medicine and Pathology)<br>● Master of Science with Specialization in Analytical and Environmental Toxicology (Laboratory Medicine and Pathology)<br>● Master of Science with Specialization in Biopreservation (Laboratory Medicine and Pathology)<br>● Master of Science with Specialization in Molecular Pathology (Laboratory Medicine and Pathology)<br>● Master of Science with Specialization in Pathologists' Assistant (Laboratory Medicine and Pathology)<br>● Master of Science with Specialization in Transfusion Science (Laboratory Medicine and Pathology) |
| **New drop-down information** | **Master of Science with Specialization in Transfusion Science (Laboratory Medicine and Pathology)**<br><br>**Program Requirements**<br><br>This is a course-based program.<br><br>Students are required to complete a minimum 36 units in graded coursework, including a 6-unit clinical practicum and a 6-unit capstone research project.<br><br>**Required Coursework including practicum courses (36 units)** |

**Year 1 (18 units)**

- LABMP 501 Advanced Immunohematology
- LABMP 502 Immunohematology Techniques
- LABMP 503 Blood Supply and Distribution 1
- LABMP 504 Blood Supply and Distribution 2
- LABMP 505 Advanced Transfusion Support
- LABMP 506 Clinical Laboratory Operations and Quality Management

**Year 2 (18 units)**

- LABMP 600 - Clinical Practicum I
- LABMP 601 - Clinical Practicum II
- LABMP 900 - Research Project

Two 3-unit graduate level courses in Laboratory Medicine and Pathology (LABMP) or related fields as approved by the Department of Laboratory Medicine and Pathology graduate program.

**Seminar Requirement**

Students must attend specified seminars and make one or more oral presentations as specified by the Department.

**Ethics Requirement**

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| | Course-based students in the Department of Laboratory Medicine & Pathology must meet the GPS Ethics and Academic Citizenship Training Requirement through the completion of INT D 710 (for both master's and doctoral students) by the end of the first term of registration in their degree program.<br><br>**Professional Development Requirement**<br><br>Students in the Department of Laboratory Medicine & Pathology must satisfy the GPS Professional Development Requirement.<br><br>**Length of Program**<br><br>The course-based MSc with Specialization in Transfusion Science is a two-year full-time program or a four-year part-time program. |

## Reviewed/Approved by:

| |
|---|
| REQUIRED: FoMD Faculty Learning Committee (Faculty Council-delegated Approver) - March 6, 2024<br>GPST - March 25, 2024 / GPS Council - April 17, 2024 (Anticipated) |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Course Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | FoKSR |
| Contact Person: | Angela Bayduza<br>KSR Associate Dean, Undergraduate Programs<br>ksradu@ualberta.ca |
| Level of change: (choose one only) [?] | ☑ Undergraduate |
| | ☐ Graduate |
| For which term will this change take effect? | Fall 2024 |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Important learnings and feedback from instructors from the first two full academic cycles of the new activity core course offerings are being incorporated in the proposed course changes below. Specifically, in KIN 104, KIN 156, and KIN 356, the proposed changes attempt to allow timetabling of these activity based courses in such a way so that they may be offered in a safe, high quality experience while attempting to meet increasing overall internal and external demand for these courses.

The following proposal also includes the continued removal of the course name “PAC” from the calendar course listings (e.g., related to KIN 294, 320, 325, 365, 435, 436).

## Course Template

| **Current:** ~~Removed language~~ | **Proposed:** New language |
|---|---|
| **KIN 104 - Individual Movement Pursuit Foundations**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** ~~0 3L~~ -0<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** ~~variable~~<br><br>**Description**<br>This course places the study of physical activity and fundamentals of human movement at the level of the individual. Intertwined with the ways in which the individual life is organized, environmentally influenced, and personally experienced, the course will experientially explore the pragmatics and implementation of theories of adaptation, accessibility, and inclusion for the development of individual fundamental movement skill and movement pursuit. Students will be introduced to critical reflection and engagement with course concepts and provided movement experiences to develop assessment and intervention strategies in responding to how the historical and contemporary social issues of kinesiology (e.g., ableism, racism, sexism, classism, | **KIN 104 - Individual Movement Pursuit Foundations**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1.5-0-2<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>This course places the study of physical activity and fundamentals of human movement at the level of the individual. Intertwined with the ways in which the individual life is organized, environmentally influenced, and personally experienced, the course will experientially explore the pragmatics and implementation of theories of adaptation, accessibility, and inclusion for the development of individual fundamental movement skill and movement pursuit. Students will be introduced to critical reflection and engagement with course concepts and provided movement experiences to develop assessment and intervention strategies in responding to how the historical and contemporary social issues of kinesiology (e.g., ableism, racism, sexism, classism, |

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| power relations, privilege, injustice, processes of normalization, colonialism) affect development of movement fundamentals and participation in physical culture. | power relations, privilege, injustice, processes of normalization, colonialism) affect development of movement fundamentals and participation in physical culture. |
| **KIN 156 - Introduction to Movement Foundations in Fitness**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** ~~0 3L 0~~<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** ~~variable~~<br><br>**Description**<br>An introduction to integrative movement practice to understand the optimal functioning of the body through a holistic approach. Students will be introduced to the mechanics of body alignment through the exploration of various movement patterns across different regions of the body, the importance of breathing to facilitate the body-mind connection, and the roles of mindfulness, body awareness, and various body ideals in different fitness, exercise, and well-being contexts. | **KIN 156 - Introduction to Movement Foundations in Fitness**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1.5-0-2<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>An introduction to integrative movement practice to understand the optimal functioning of the body through a holistic approach. Students will be introduced to the mechanics of body alignment through the exploration of various movement patterns across different regions of the body, the importance of breathing to facilitate the body-mind connection, and the roles of mindfulness, body awareness, and various body ideals in different fitness, exercise, and well-being contexts. |
| **KIN 294 - A Conceptual Approach to Physical Activity**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** ~~0 3L~~-0<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>An exploration of the principles and concepts that underlie movement of individuals and groups in a variety of settings. Through examination of and experience in a wide range of physical activities and their contexts, the focus of the course is on the development of a conceptual understanding of movement. ~~Note: Credit will be granted for only one of PAC 101 or KIN 294 or PEDS 294.~~ | **KIN 294 - A Conceptual Approach to Physical Activity**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1.5-2L-0<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>An exploration of the principles and concepts that underlie movement of individuals and groups in a variety of settings. Through examination of and experience in a wide range of physical activities and their contexts, the focus of the course is on the development of a conceptual understanding of movement. |
| **KIN 320 - Structure and Strategy of Games**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1-2L-0<br>**Fee index** 6 | **KIN 320 - Structure and Strategy of Games**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1-2L-0<br>**Fee index** 6 |

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| **Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>A study of similarities and differences in games (sports) through an examination of their specific rules, skills and strategies. Class members will be exposed to experiences at the practical and theoretical levels in the categories of territory, target, field and court games. Prerequisite: Successful completion of a minimum of 30 units. ~~Note: Credit will be granted for only one of PAC 320 or KIN 320.~~ | **Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>A study of similarities and differences in games (sports) through an examination of their specific rules, skills and strategies. Class members will be exposed to experiences at the practical and theoretical levels in the categories of territory, target, field and court games. Prerequisite: Successful completion of a minimum of 30 units. |
| **KIN 325 - The Study of Games for Children and Youth**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1-2L-0<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>An in-depth look at the cognitive, affective and psychomotor development of children and youth as it applies to providing age and developmentally appropriate experiences in games. The focus is on the design, delivery and assessment of quality games for children and youth aged 4 to 15. This course is relevant to those going on to work with children and youth in educational, recreation, and coaching environments. Coursework in childhood development is strongly recommended (eg. KIN 293 or KIN 207). Prerequisite: Successful completion of a minimum of 30 units. ~~Note: Credit will be granted for only one of PAC 325 or KIN 325.~~ | **KIN 325 - The Study of Games for Children and Youth**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1-2L-0<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>An in-depth look at the cognitive, affective and psychomotor development of children and youth as it applies to providing age and developmentally appropriate experiences in games. The focus is on the design, delivery and assessment of quality games for children and youth aged 4 to 15. This course is relevant to those going on to work with children and youth in educational, recreation, and coaching environments. Coursework in childhood development is strongly recommended (eg. KIN 293 or KIN 207). Prerequisite: Successful completion of a minimum of 30 units. |
| **KIN 365 - The Study of Gymnastics for Children and Youth**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1-2~~S~~-0<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>A study of a variety of gymnastic programs from the perspective of their potential to meet the needs of | **KIN 365 - The Study of Gymnastics for Children and Youth**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1-2L-0<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>A study of a variety of gymnastic programs from the perspective of their potential to meet the needs of |

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| children and youth at various ages. Class members will be required to plan, present, and evaluate gymnastic activities for children and youth. Prerequisite: Successful completion of a minimum of 60 units. ~~Note: Credit will be granted for only one of PAC 365 or KIN 365.~~ | children and youth at various ages. Class members will be required to plan, present, and evaluate gymnastic activities for children and youth. Prerequisite: Successful completion of a minimum of 60 units. |
| **KIN 356 - Advanced Practices and Program Development in Fitness Instruction**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** ~~0 3L 0~~<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** ~~variable~~<br><br>**Description**<br>Emphasis on scientific basis, philosophy, and unique approaches to fitness and broader level critical thinking about processes around program development in health related, fitness industry and personal training contexts. Prerequisite: KIN 156. | **KIN 356 - Advanced Practices and Program Development in Fitness Instruction**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1.5-0-2<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>Emphasis on scientific basis, philosophy, and unique approaches to fitness and broader level critical thinking about processes around program development in health related, fitness industry and personal training contexts. Prerequisite: KIN 156. |
| **KIN 435 - Applied Resistance Training**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1.5-0-1.5<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>The scientific examination of resistance training as an applied training methodology for general conditioning and sport-specific enhancement. Emphasis on resistance training techniques, lifting mechanics, program design and implementation will be the core element. Supplementary topics include plyometric training, Olympic lifts, and selected population program modifications. Prerequisite: KIN 335. ~~Note: Credit will be granted for only one of PAC 490 or KIN 435.~~ | **KIN 435 - Applied Resistance Training**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1.5-0-1.5<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec<br>**Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>The scientific examination of resistance training as an applied training methodology for general conditioning and sport-specific enhancement. Emphasis on resistance training techniques, lifting mechanics, program design and implementation will be the core element. Supplementary topics include plyometric training, Olympic lifts, and selected population program modifications. Prerequisite: KIN 335. |
| **KIN 436 - Applied Endurance Training**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1.5-1.5~~S~~-0<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec | **KIN 436 - Applied Endurance Training**<br>**Course Career** Undergraduate<br>**Units** 3<br>**Approved Hours** 1.5-1.5L-0<br>**Fee index** 6<br>**Faculty** Kinesiology, Sport, & Rec |

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| **Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>Students will learn how to develop and implement effective endurance training programming for a wide range of individuals through experiential learning opportunities. Further, students will work across sport science disciplines to explore how a range of theoretical concepts interact and intersect to produce quality endurance sport performances. Prerequisite: KIN 335. ~~Note: Credit will be granted for only one of PAC 491 or KIN 436.~~ | **Department** Kinesiology, Sport, & Rec<br>**Typically Offered** either term<br><br>**Description**<br>Students will learn how to develop and implement effective endurance training programming for a wide range of individuals through experiential learning opportunities. Further, students will work across sport science disciplines to explore how a range of theoretical concepts interact and intersect to produce quality endurance sport performances. Prerequisite: KIN 335. |

## Reviewed/Approved by:

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|---|
| REQUIRED: Faculty Council (or delegate) and approval date.<br>KSR Undergraduate Programs Committee: March 13th, 2024 approval<br>KSR Faculty Executive: March 20th, 2024 reporting<br>KSR Faculty Council: March 27th, 2024 reporting<br>Program Support Team (Undergraduate & Non-Credit): for omnibus consent agenda May 2nd, 2024 (pending) |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates. |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Nursing |
| Contact Person: | Janeen Jorden |
| Level of change: (choose one only) | ☑ Undergraduate |
| | ☐ Graduate |
| Type of change request: (check all that apply) | ☑ Program |
| | ☐ Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

INT D 403 and INT D 408 are the preferred Interprofessional Initiatives and the College of Health Sciences offers INT D 403 only in Fall term. The INT D 403 course consists of an in-person scheduled 1/2 day Interprofessional Launch; the remaining course hours are delivered in an on-line flexible delivery mode.

## Calendar Copy

URL in current Calendar (or "New page") - Collaborative Program
https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55198&returnto=13674

Collaborative Honors Program
https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55294&returnto=13674

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| Collaborative Program<br><br>Course Sequence | Collaborative Program<br><br>Course Sequence |

As of September 2022 at University of Alberta (see Maintaining Registration)

## Year 3 (see Notes 1, 6, and 10)

### Fall Term

- NURS 205 - Innovation, Leadership, Policy, and Health Care Organizations
- NURS 321 - Advanced Acute Care Nursing Practice I

One of (see Note 11)

NURS 323 - Community Nursing through the Lifespan **AND**
NURS 322 - Maternal/Child Nursing Practice

**OR**

NURS 327 - Mental Health and Wellness in Nursing

### Winter Term

- ~~2 units in Interprofessional Initiatives (see Note 10)~~
- NURS 325 - Advanced Acute Care Nursing Practice II

One of (see Note 11)

As of September 2022 at University of Alberta (see Maintaining Registration)

## Year 3 (see Notes 1, 6, and 10)

### Fall Term

- NURS 205 - Innovation, Leadership, Policy, and Health Care Organizations
- NURS 321 - Advanced Acute Care Nursing Practice I
- 1 unit in Interprofessional Initiatives (see Note 10)

One of (see Note 11)

NURS 323 - Community Nursing through the Lifespan **AND**
NURS 322 - Maternal/Child Nursing Practice

**OR**

NURS 327 - Mental Health and Wellness in Nursing

### Winter Term

- 1 unit in Interprofessional Initiatives (see Note 10)

NURS 323 - Community Nursing through the Lifespan **AND**
NURS 322 - Maternal/Child Nursing Practice

**OR**

NURS 327 - Mental Health and Wellness in Nursing

# Collaborative Honors Program

## Year 3 (see Notes 1, 5, and 6)

### Fall Term

- NURS 205 - Innovation, Leadership, Policy, and Health Care Organizations
- NURS 321 - Advanced Acute Care Nursing Practice I

One of (see Note 6)

NURS 323 - Community Nursing through the Lifespan **AND**

- NURS 325 - Advanced Acute Care Nursing Practice II

One of (see Note 11)

NURS 323 - Community Nursing through the Lifespan **AND**
NURS 322 - Maternal/Child Nursing Practice

**OR**

NURS 327 - Mental Health and Wellness in Nursing

# Collaborative Honors Program

## Year 3 (see Notes 1, 5, and 6)

### Fall Term

- NURS 205 - Innovation, Leadership, Policy, and Health Care Organizations
- NURS 321 - Advanced Acute Care Nursing Practice I
- 1 unit in Interprofessional Initiatives (see Note 5)

NURS 322 - Maternal/Child Nursing Practice

**OR**

NURS 327 - Mental Health and Wellness in Nursing (see Note 2)

Two Term

- NURS 399 - Selected Topics in Nursing Research

Winter Term

- ~~2 units in Interprofessional Initiatives (see Note 5)~~
- NURS 325 - Advanced Acute Care Nursing Practice II

One of (see Note 6)

NURS 323 - Community Nursing through the Lifespan **AND**
NURS 322 - Maternal/Child Nursing Practice

**OR**

NURS 327 - Mental Health and Wellness in Nursing

One of (see Note 6)

NURS 323 - Community Nursing through the Lifespan **AND**
NURS 322 - Maternal/Child Nursing Practice

**OR**

NURS 327 - Mental Health and Wellness in Nursing (see Note 2)

Two Term

- NURS 399 - Selected Topics in Nursing Research

Winter Term

- 1 unit in Interprofessional Initiatives (see Note 5)
- NURS 325 - Advanced Acute Care Nursing Practice II

One of (see Note 6)

NURS 323 - Community Nursing through the Lifespan **AND**
NURS 322 - Maternal/Child Nursing Practice

**OR**

NURS 327 - Mental Health and Wellness in Nursing

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## Reviewed/Approved by:

| |
|---|
| REQUIRED: Faculty Council (or delegate) and approval date - March 26, 2024<br>Faculty of Nursing Executive Committee - April 8 , 2024 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.<br>Undergraduate Curriculum Committee - March 6, 2024<br>Faculty Caucus - March 26, 2024 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Nursing |
| Contact Person: | Janeen Jorden |
| Level of change: (choose one only) | ☑ Undergraduate |
| | ☐ Graduate |
| Type of change request: (check all that apply) | ☑ Program |
| | ☐ Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

INT D 403 and INT D 408 are the preferred Interprofessional Initiatives and the College of Health Sciences offers INT D 403 only in Fall term. The INT D 403 course consists of an in-person scheduled 1/2 day Interprofessional Launch; the remaining course hours are delivered in an on-line flexible delivery mode.

## Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55198&returnto=13674

Collaborative Bilingual Program
https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=54586&returnto=13674

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| Bilingual Program<br><br>Course Sequence<br><br>As of September 2022 at University of Alberta (see Maintaining Registration) | Bilingual Program<br><br>Course Sequence<br><br>As of September 2022 at University of Alberta (see Maintaining Registration) |

## Year 3 (see Notes 3, 4, 5, and 11)

### Fall Term

- NURS 321 - Advanced Acute Care Nursing Practice I
- NURS 322 - Maternal/Child Nursing Practice
- NURS 323 - Community Nursing through the Lifespan
- SC PO 320 - La politique du système de santé au Canada (see Note 7)

### Winter Term

NURS 325 - Advanced Acute Care Nursing Practice II

NURS 327 - Mental Health and Wellness in Nursing (see Note 8) **OR** SC INF 327 - Santé mentale et bien-être en soins infirmiers

~~2 units in Interprofessional Initiatives (see Note 10)~~

## Year 3 (see Notes 3, 4, 5, and 11)

### Fall Term

- NURS 321 - Advanced Acute Care Nursing Practice I
- NURS 322 - Maternal/Child Nursing Practice
- NURS 323 - Community Nursing through the Lifespan
- SC PO 320 - La politique du système de santé au Canada (see Note 7)

1 unit in Interprofessional Initiatives (see Note 11)

### Winter Term

NURS 325 - Advanced Acute Care Nursing Practice II

NURS 327 - Mental Health and Wellness in Nursing (see Note 8) **OR** SC INF 327 - Santé mentale et bien-être en soins infirmiers

1 unit in Interprofessional Initiatives (see Note 11)

## Reviewed/Approved by:

| |
|---|
| REQUIRED: Faculty Council (or delegate) and approval date - March 26, 2024<br>Faculty of Nursing Executive Committee - April 8 , 2024<br>Campus Saint-Jean Faculty Council - Sent March 28, 2024 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.<br>Undergraduate Curriculum Committee - March 6, 2024<br>Faculty Caucus - March 26, 2024 |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Nursing |
| Contact Person: | Janeen Jorden |
| Level of change: (choose one only) | ☑ Undergraduate |
| | ☐ Graduate |
| Type of change request: (check all that apply) | ☑ Program |
| | ☐ Regulation |
| For which term is this intended to take effect? | Fall 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

Students must have completed both electives by the end of WInter term of their second year because the Fast Track begins in the following Spring term.

## Calendar Copy

URL in current Calendar (or "New page")
https://calendar.ualberta.ca/preview_program.php?catoid=44&poid=55198&returnto=13674

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| Notes | Notes |
| **5.** ~~Elective~~ may be taken at any time in the program prior to Year 4. | **5.** Electives may be taken at any time in the program prior to Year 4. |
| **9.** The Fast Track program will only accept Collaborative BScN students (excluding Collaborative Honors students) in their second year; students must have | **9.** The Fast Track program will only accept Collaborative BScN students (excluding Collaborative Honors students) in their second year; students must have |

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| completed 2 electives ~~or 1 elective and NURS 122~~ prior to the end of Winter Term of their second year to be eligible (Faculty of Nursing- Collaborative Program). | completed 2 electives prior to the end of Winter Term of their second year to be eligible (Faculty of Nursing- Collaborative Program). |

## Reviewed/Approved by:

| |
|---|
| REQUIRED: Faculty Council (or delegate) and approval date - March 26, 2024<br>Faculty of Nursing Executive Committee - April 8, 2024 |
| OPTIONAL: Other internal faculty approving bodies, consultation groups, or departments, and approval dates.<br>Undergraduate Curriculum Committee - March 6, 2024<br>Faculty Caucus - March 26, 2024 |

**FINAL ITEM NO. 5**

**Decision** X **Discussion** ☐ **Information** ☐

**ITEM OBJECTIVE**: To seek approval for a Name and Program change for the Master of Science in Integrated Petroleum Geosciences (IPG).

| | |
|---|---|
| **DATE** | May 16, 2024 |
| **TO** | GFC Programs Committee |
| **RESPONSIBLE PORTFOLIO** | Provost and Vice-President (Academic) |

**MOTION**: Be it resolved that the GFC Programs Committee approve the name change for the MSc in Integrated Petroleum Geosciences to the MSc in Integrated Energy Geosciences, and the corresponding load and program changes, for implementation upon final approval.

**EXECUTIVE SUMMARY**:

At the April 11 GFC-Programs Committee meeting, members asked questions and raised concerns about the program's alignment with the University of Alberta Indigenous Strategic Plan, and the University's commitment to respond to the Truth and Reconciliation Commission's Calls to Action (see Supplementary Notes below). Following the meeting, proponents consulted with Vice-Provost (Indigenous Programming and Research) Dr. Florence Glanfield to seek ways to identify strategies for the program to respond to the TRC Calls to Action. These discussions resulted in the specific addition to the proposal that incoming students will be required to present a certificate of completion for the Indigenous Canada MOOC prior to registering for courses. This change is reflected in the included calendar language. It will help ensure that students in the program are better able to work from a place of increased understanding of Indigenous identities, languages, cultures and worldviews. The proponents will work to find additional ways to reflect these issues throughout the program.

**Background**
The Departments of Earth & Atmospheric Sciences and Physics propose to change the name of the Integrated Petroleum Geosciences program to the Integrated Energy Geosciences program. The new specialization name will better reflect new content that modernizes and broadens the scope to include other energy- and renewable-related geoscience subjects, including geothermal power, carbon capture and storage, and the extraction of commercial commodities from basin brines such as lithium. The new content will be reflected in additional courses and new capstone projects. Specific new courses (optional for most students in the program) will include: (1) geothermics, (2) fluid phase equilibria/aqueous geochemistry, (3) coupled fluid flow - reaction modeling, and (4) geomechanics. The capstone project will become more in-depth. These program changes will also allow graduates to find employment in new parts of an expanding energy sector within Alberta, while the new name better communicates the broadened content and will attract new students to the program.

Load and Program changes will also be made to reflect updates to the program. The program will now provide opportunities for students to study geosciences topics related to geothermal

**GOVERNANCE OUTLINE**

energy, carbon capture and storage, and commercial commodities in basin brines, with new course selections. An increased course load is required to provide the necessary academic background. The expanded capstone project will provide the opportunity for students to gain greater experience in their areas of focus and demonstrate their capabilities with realistic projects.

**Analysis / Discussion**

Changes to the Integrated Petroleum Geosciences (IPG) program are advisable in light of (1) declining enrollments; (2) industrial developments in the renewable energy sector both within Canada and globally; (3) commitments at the provincial and federal levels to $CO_2$ sequestration. In its current form with a primary focus on training for the petroleum industry, the IPG program has had enrollments of six students in each of the past two years and only one Canadian student. Undergraduates with whom the program directors have spoken in recruiting trips have frequently expressed in training in subjects related to renewable energy and climate change mitigation.

The IPG program can be expanded with relatively minor additional course development to provide training in geothermal energy, carbon capture and storage and commercial commodities in basin brines. Graduates from the modified program should find new employment opportunities in these sectors, given the industry developments and government programs noted above. As a result of the proposed changes, enrollments should expand significantly.

The program name should be modified to better represent the objectives and content of the program.

**Risk Discussion / Mitigation of the Risk**

The primary risk in making these changes to the program is that enrollments will not increase. In order to mitigate that risk, a systematic approach to advertising the program and to recruiting students should be undertaken once final approvals are in place (see Next Steps).

An updated industry advisory board should be established to identify emerging gaps in training and course content, opportunities for capstone projects and other student engagement with industry, and to promote employment opportunities for program graduates.

At the five-year point of the modified program, an in-depth review of the program should be undertaken to determine whether the modifications are successful and whether additional changes should be implemented.

**Next Steps**

**FINAL ITEM NO.**

After final approvals have been made, the modified program should be advertised to potential students:

1. The program website should be updated and improved.
2. The modified program should be advertised in social media (LinkedIn) and trade journals.
3. Recruiting visits to universities should be undertaken within Canada and internationally.

Additional courses will be developed, noted above in Background. The necessary calendar change documents for these courses should be prepared in time for implementation in academic year 2025-26.

New capstone projects will be developed in carbon capture and storage, dissolved commodities and geothermal topics. Links should be established with potential new industry partners to provide appropriate datasets and to explore funding for capstone projects.

**Supporting Materials**:

- Program Name Change
- Load Change
- Calendar Change
- Appendix B: Overview of IPG Program Changes

**SCHEDULE A:**

**Engagement and Routing**

***Consultation:***

- Consultation with program advisory board members, various 2020 through 2023;
- Consultation with program graduates, Nov. 2022

***Approval Route:***

- Approved by EAS Department Council, Nov 30, 2023;
- Approved by Physics Department Council, Jan 23 2024;
- Approved by GPST, Feb 26 2024;
- Approved Faculty of Science Grad Portfolio Committee, April 26, 2024
- GPS Council: March 13, 2024
- GFC Programs Committee: April 11, 2024 (Discussion)
- GPST: April 29, 2024
- GPS Council: May 15, 2024 (Anticipated)
- GFC Programs Committee: May 16, 2024 (Anticipated)

**Supplementary Notes / Context**:

**GOVERNANCE OUTLINE**

**FINAL ITEM NO.**

The proposed Name and Program change for the Master of Science in Integrated Petroleum Geosciences (IPG) were presented at the April 11, 2024 meeting of the General Faculties Council Programs Committee. After a discussion in which members asked questions and raised concerns about the program's alignment with *Braiding Past Present and Future, the University of Alberta Indigenous Strategic Plan,* and the University's commitment to respond to the Truth and Reconciliation Commission's Calls to Action, the motion was brought to a vote and the motion failed with eight members indicating their desire to have their name recorded in the minutes.

**GOVERNANCE OUTLINE**

## Proposal Template: Program/Specialization Name Change

This template is for proposals to change the name of a ministry-approved program or specialization.

Name change proposals for degree programs are typically subject to review by the Campus Alberta Quality Council.
Institutions should:

- ensure that submission content is concise. Any additional information may be appended; and
- ensure that applicable supporting documents are attached to the proposal

### SECTION A: PROPOSAL INFORMATION

**Basic Information** *(Complete the table below)*

| | |
|---|---|
| **Institution** | **University of Alberta** |
| **Current Program Name** | **Master of Science** |
| **Current Specialization Name** | **Integrated Petroleum Geosciences** |
| **Credential Awarded** | **Master of Science** |
| **Proposed Implementation Date** | **July 1 2025** |

**1. Proposed New Name** *(Answer the following questions)*

**a.** Specify the new name that is being proposed.

- **Integrated Energy Geosciences**

b. Specify if the new name is for a program or a specialization within a program?

☐ Program
✔ Specialization

**Reviewer's Comment:**

2. **Rationale for Proposed New Name** *(Answer the following questions)*

a. Describe the rationale for the proposed name change.

- The new specialization name will better reflect new content that modernizes and broadens the scope to include other energy- and renewable-related geoscience subjects, including geothermal power, carbon capture and storage, and the extraction of commercial commodities from basin brines such as lithium. The new content will be reflected in additional courses and capstone projects. Specific new courses (optional for most students in the program) will include: (1) geothermics, (2) fluid phase equilibria/aqueous geochemistry, (3) coupled fluid flow - reaction modeling, and (4) geomechanics. The capstone project will become more in-depth.
- Graduates will find employment in new parts of an expanding energy sector within Alberta.
- The proposed new name better communicates the broadened content and will attract new students to the program.

b. Is comparable nomenclature used for similar programs/specializations offered across the Alberta Adult Learning System and, where relevant, in other jurisdictions?

- This program is unique within Alberta and, in fact, unique within Canada. The proposed name change does not affect that assessment.

**Reviewer's Comment:**

## SECTION B: SYSTEM IMPACT

### 1. Impact on Learners *(Answer the following questions)*

**a.** Were students consulted regarding this proposed name change? If so, what was the feedback received as a result of this consultation?

- **Former students were consulted on the proposed name change. They were unanimously supportive of the name change.**

**b.** Describe benefits for students of proposed new name.

- **The change in specialization name will create a broader appeal to potential employers. The new name will better convey the expanded course content and experiential learning to potential employers, providing graduates with more employment opportunities.**

**c.** Describe plans to accommodate active students who may wish to graduate with the previously approved name.

- **Not applicable. These changes will not apply to students active in the program before the name change.**

**d.** Describe plans to accommodate previous graduates who may request to exchange their parchment for one with the new program or specialization name.

- **Students who graduate before the name is changed will not be able to exchange their parchment. It would not be appropriate to allow them to do so because the version of the program they completed did not include the updated content associated with the name change.**

**Reviewer's Comment:**

### 2. Potential Risks.

**a.** Identify the potential risks associated with implementing the name change, if any, and your institution's risk mitigation strategies.

- **The name change presents very little risk. (1) The proposed name is dissimilar from other program names within Canada. (2) The proposed name is sufficiently similar to the historical name that students and other stakeholders (including potential employers) will recognize it. (3) Past employers of program graduates will be made aware that essential features of the original program will be retained under the new name.**

**Reviewer's Comment:**

### 3. Consultation/Collaboration (Answer the following questions)

a. Identify which stakeholder groups, if any, were consulted:

✔ Faculty
✔ Advisory committee
☐ Regulatory bodies/professional associations
✔ Employers
✔ Other (past graduates of the program)

b. Summarize feedback received including anticipated impacts on stakeholders.

- **Feedback has been very positive from all stakeholders.**

**Reviewer's Comment:**

**4. Communication**

a. Describe how information about the name change will be communicated to students and applicants

- **The website will be changed, with notice of the new specialization name, at the time the change is approved.**
- **Potential applicants will be advised during recruiting trips to other universities.**
- **The new name and related program changes will be communicated through advertisements in relevant journals, magazines and newsletters.**

**Reviewer's Comment:**

## SECTION C: INSTITUTIONAL AND REGULATORY APPROVAL/SUPPORT

**3. Proposed New Name** *(Answer the following questions)*

Provide specific information about which internal governance body approved this proposed name change and the date of approval.

- **Approved by EAS (Department of Earth & Atmospheric Sciences) department council Nov 30, 2023**
- **Approved by Physics department council (electronic vote, completed Jan 23, 2024)**
- **Approved by Faculty of Science Grad Portfolio Committee for Science Faculty Council (April 26, 2024)**
- **Approved by Graduate Program Support Team (April 29, 2024)**
- **Approved by GPS Council (March 13, 2024)**
- **GFC Programs Committee (pending)**

**a.** If applicable, describe authorization/endorsement(s) from relevant professional organizations, regulatory bodies, and/or advisory committees.

-

**Reviewer's Comment:**

## RECOMMENDATION (FOR DEPARTMENT USE)

**Do Any Issues or Information Gap Remain?**

**Recommendation(s):**

**Rationale for Recommendation:**

**Reviewer(s):**

**Date Completed:**

## Proposal Template: Load Change

This template is for proposals for changes in program or specialization load characteristics, including Program Length, Terms, Instructional Credits/Hours and Practicum Credits/Hours.

For degree programs, substantive changes to curriculum resulting in load changes may require referral to the Campus Alberta Quality Council.
Institutions should:

- ensure that submission content is concise. Any additional information may be appended; and
- ensure that applicable supporting documents are attached to the proposal

**Basic Information** *(Complete the table below)*

| | |
|---|---|
| **Institution** | **University of Alberta** |
| **Program Name** | **Master of Science** |
| **Specialization Name** | **Integrated Petroleum Geosciences** |
| **Credential Awarded** | **Master of Science** |
| **Proposed Implementation Date** | **July 1, 2025** |

a. Specify the change(s) to load characteristics being proposed. In cases where load changes reflect changes to existing curriculum, please attach revised course lists including calendar-level information (course titles, descriptions, weights).
   - Program length will be expanded from 1.0 to 1.5 years.
   - Total credits required for completion will increase from 36 to 45 credits.
   - Students will be required to complete one additional 3 credit course and the number of credits attached to the capstone project will be expanded from 6 to 12 credits.

b. Briefly describe the institution's approval process for the proposed change(s).

   - Science Faculty Council (April 26, 2024)
   - Graduate Program Support Team (April 29, 2024)
   - GPS Council (May 15, 2024 - pending)
   - GFC Programs Committee (May 16, 2024 - pending)

c. Provide a rationale for the proposed change(s). (Factors may include, but need not be limited to changes in the relevant body of knowledge and/or technology, changes in regulatory and/or professional standards, feedback from students or employers, or alignment with similar/related programs at other institutions.)
   - Program will now provide opportunities for students to study geosciences topics related to geothermal energy, carbon capture and storage, and commercial commodities in basin brines, with new course selections. An increased course load is required to provide the necessary academic background.
   - Expanded capstone project will provide the opportunity for students to gain greater experience in their area of focus and demonstrate their capabilities with realistic projects.

   **See Appendix A for a detailed comparison (current vs. proposed) table.**

| |
|---|
| d. Describe anticipated impacts on students, and plans to ameliorate any such impacts.<br>● Students will take 1.5 years instead of 1.0 year to complete the program. However, the tuition costs will remain approximately the same, and a lower per-semester course load will make it easier for students to support themselves while in the program. |
| e. Where appropriate, provide evidence of consultation with external stakeholders (e.g. employers, professional/ regulatory organizations) and describe any anticipated impacts on those stakeholders.<br>● The Integrated Petroleum Geosciences (IPG) program advisory board was consulted and supports the program changes.<br>● Graduates of the IPG program were consulted and support the program changes. |
| f. Discuss any anticipated impacts of the proposed change(s) on institutional operations and resources (e.g. operating budget, staffing, student services, information technology, library, classroom and lab space).<br>● No anticipated negative impacts on institutional operations and resources. Increased enrollment should provide additional tuition revenue. |
| **Reviewer's Comment:** |

UNIVERSITY OF ALBERTA

# Calendar Change Request Form
for Program and Regulation Changes

See the Calendar Guide for tips on how to complete this form.

| | |
|---|---|
| Faculty (& Department or Academic Unit): | Science, EAS and Physics |
| Contact Person: | Nicholas B. Harris |
| Level of change: (choose one only) | • Undergraduate |
| | • Graduate - Yes |
| Type of change request: (check all that apply) | • Program - Yes |
| | • Regulation |
| For which term is this intended to take effect? | Fall, 2025 |
| Does this proposal have corresponding course changes? (Should be submitted at the same time) | No. |

## Rationale

*Things to consider (maximum 500 words): Why is this being changed; How will it benefit students/department/unit; How is this comparable to similar programs (internal or external); Historical context; Impacts to administration or program structure; Consultation with stakeholders*

These changes will broaden the scope of the Integrated Petroleum Geosciences program to include geothermal resources, carbon capture and storage, and economic commodities sequestered in basinal brines. However, relatively minor changes to program content and teaching loads will be required. The new program title reflects the broader scope. The proposed changes will attract more students and will provide program graduates with more employment opportunities. In addition, the new program will provide opportunities to package subsets of courses for microcredentials.

Following the April 11 GFC-PC meeting, consultation with Vice-Provost (Indigenous Programming and Research) Dr. Florence Glanfield resulted in the addition to the Calendar Change proposal a statement that incoming students will be required to present a certificate of completion for the Indigenous Canada MOOC prior to registering for courses.

## Calendar Copy

URL in current Calendar (or “New page”)

| **Current Copy:** ~~Removed language~~ | **Proposed Copy:** New language |
|---|---|
| Master of Science in Integrated ~~Petroleum~~ Geosciences<br>(Earth and Atmospheric Sciences) | Master of Science in Integrated Energy Geosciences<br>(Earth and Atmospheric Sciences and Physics)<br><br>Students entering the Integrated Energy Geosciences program will select a specialization from one of the following: Petroleum, Geothermal, Carbon Capture and Storage, Minerals. |

| | |
|---|---|
| This course-based program requires the completion of ~~36~~ units in graduate-level course work, including ~~24~~ units of required, core courses and ~~12~~ units of optional graduate-level course work. The core courses include a ~~6-unit research project that is to be completed~~ once the course work has been completed. The core courses are in Integrated ~~Petroleum~~ Geosciences (~~IPG~~) whereas the optional courses are selected from ~~prescribed~~ Earth and Atmospheric Science (EAS) courses and Geophysics (GEOPH) courses. Students must maintain standards Acceptable to the Faculty of Graduate & Postdoctoral Studies to remain in the program. | This course-based program requires the completion of 45 units in graduate-level course work, including 30 units of required, core courses and 15 units of optional graduate-level course work. The core courses include a 12-unit capstone project that is to be undertaken once the course work has been completed. The core courses are in Integrated Energy Geosciences (IEG) or prescribed EAS or GEOPH courses whereas the optional courses are selected from Earth and Atmospheric Science (EAS) courses and Geophysics (GEOPH) courses, with the approved of the IEG program director. Students must maintain standards acceptable to the Faculty of Graduate & Postdoctoral Studies to remain in the program. |
| | Entrance Requirement<br><br>All students admitted to this program are required to complete a course focused on the histories, experiences, and/or perspective of Indigenous peoples in Canada. This is a program prerequisite that must be fulfilled by completing the certificate version of the University of Alberta Indigenous Canada MOOC within the 5 years preceding the first term of registration. |
| Length of Program<br><br>The course-based MSc program in Integrated ~~Petroleum~~ Geosciences is designed for completion within ~~one~~ calendar year beyond a completed undergraduate degree in Earth Science. The program must normally be completed within three years from admission. | Length of Program<br><br>The course-based MSc program in Integrated Energy Geosciences is designed for completion within 1.5 calendar years beyond a completed undergraduate degree in Earth Science. The program must normally be completed within three years from admission. |

## Reviewed/Approved by:

Approved by EAS Department Council, Nov 30, 2023
Approved by Physics Department Council, Jan 23 2024
Approved Faculty of Science Grad Portfolio Committee, April 26, 2024
Approved by GPST, April 29, 2024
GPS Council, May 15, 2024 (Anticipated)
GFC Programs Committee, May 16, 2024 (Anticipated

**APPENDIX A**

| **Current** | **Proposed** |
|---|---|
| 6 required courses (3 units) | 6 required courses (3 units) |
| Req'd capstone/research project (6 units) | Req'd capstone/research project (12 units) |
| 4 optional courses | 5 optional courses |
| 36 credit units total | 45 units total |

| **Required Courses (24 credit units)** | **Required courses (30 credit units) - Petroleum focus** | **Geothermal focus** | **CCUS focus** | **Minerals focus** |
|---|---|---|---|---|
| IPG 510 (3 units) | IPG 510 (3 units) | IPG 510 (3 units) | IPG 510 (3 units) | IPG 510 (3 units) |
| IPG 512 (3 units) | IPG 512 (3 units) | IPG 512 (3 units) | IPG 512 (3 units) | IPG 512 (3 units) |
| IPG 514 (3 units) | IPG 514 (3 units) | GEOPHYS 620 (3 units) | GEOPHYS 620 (3 units) | EAS 568 |
| IPG 516 (3 units) | IPG 516 (3 units) | Geothermics (new course) | Fluid phase equilibria (new course) | Fluid phase equilibria (new course) |
| IPG 518 (3 units) | IPG 518 (3 units) | IPG 518 (3 units) | IPG 518 (3 units) | IPG 518 (3 units) |
| IPG 610 - seminar course (3 units) | IPG 610 - seminar course (3 units) | IPG 610 - seminar course (3 units) | IPG 610 - seminar course (3 units) | IPG 610 - seminar course (3 units) |
| IPG 601a and b - research project (6 units) | IPG 601a and b - research project (12 units) | IPG 601a and b - research project (12 units) | IPG 601a and b - research project (12 units) | IPG 601a and b - research project (12 units) |
| | | | | |
| **Optional Courses (*12 units)** | **Optional Courses (*15 units)** | **Optional Courses (*15 units)** | **Optional Courses (*15 units)** | **Optional Courses (*15 units)** |
| EAS 520 | EAS 520 | EAS 520 | EAS 520 | EAS 520 |
| EAS 521 | EAS 521 | EAS 521 | EAS 521 | EAS 521 |
| EAS 560 | EAS 522 | EAS 522 | EAS 522 | EAS 522 |
| EAS 562 | EAS 540 | EAS 540 | EAS 540 | EAS 540 |
| EAS 565 | EAS 560 | EAS 555 | EAS 555 | EAS 555 |
| GEOPHYS 524 | EAS 562 | EAS 562 | EAS 562 | EAS 562 |
| GOEPHYS 526 | EAS 565 | EAS 568 | EAS 568 | GOEPHYS 526 |
| GEOPHYS 531 | GEOPHYS 524 | GEOPHYS 524 | GEOPHYS 524 | GEOPHYS 538 |
| GEOPHYS 538 | GOEPHYS 526 | GOEPHYS 526 | GOEPHYS 526 | GEOPHYS 521 |
| | GEOPHYS 538 | GEOPHYS 538 | GEOPHYS 538 | geothermics |
| | GEOPHYS 620 | GEOPHYS 521 | GEOPHYS 620 | geomechanics |
| | GEOPHYS 521 | geomechanics | GEOPHYS 521 | Coupled fluid flow - reaction modeling |
| | GEOPHYS 568 | Coupled fluid flow - reaction modeling | geothermics | |
| | geothermics | | geomechanics | |
| | geomechanics | | Coupled fluid flow - reaction modeling | |

Existing course added
Minor change: term offered & credit value)
New course

| Integrated Petroleum Geosciences | | Integrated Energy Geosciences |
| --- | --- | --- |
| Exclusively a petroleum focus | | Four concentrations:<br>(1) Petroleum, (2) CCS,<br>(3) Geothermal, (4) Minerals |
| one year program, Sept through August | | One and one half (1.5) year program, Sept through Feb of following year |
| 5 core courses,<br>4 optional courses<br>Fall, winter, spring term (1 intensive modular course) | | 5 core courses,<br>5 optional courses<br>Fall, winter, spring / summer as intensive modules |
| Capstone project (independent research project) in spring / summer (3.5 months) | | Capstone project (independent research project) in fall and winter (up to mid-Feb (5 months) |

## Integrated Petroleum Geosciences

Exclusively a petroleum focus

## Integrated Energy Geosciences

Four concentrations:
(1) Petroleum, (2) CCS,
(3) Geothermal, (4) Minerals

Justification:

(1) broad consistency across four disciplines, so can retain much of current course structure

(2) Interest on part of potential students

(3) Increase enrollment and smooth out enrollment cycles related to oil and gas sector

| Integrated Petroleum Geosciences | Integrated Energy Geosciences |
| --- | --- |
| one year program, Sept through August | One and one half (1.5) year program, Sept through Feb of following year |

Justification:

(1) Courses spread out over one full year (including spring / summer) will decrease course load – allow students to work part-time with less damage to their academic program.

(2) Flexibility with courses offered in spring / summer

(3) Extended capstone project

(4) The older cohort could mentor the younger cohort

| Integrated Petroleum Geosciences | Integrated Energy Geosciences |
| --- | --- |
| 5 core courses,<br>4 optional courses<br>Fall, winter, spring term (1 intensive modular course) | 5 core courses,<br>5 optional courses<br>Fall, winter, four courses<br>spring / summer as intensive modules, four courses |

Justification:

(1) Basic structure has worked well – some disciplines will require different core courses.

Additional comments:

(1) Intensive modules in spring / summer will make it easier to find sessionals for courses that our current staffing does not allow.

(2) Spring / summer sequences of courses may work for micro-credential packages.

## Integrated Petroleum Geosciences

Capstone project (independent research project) in spring / summer (3.5 months)

## Integrated Energy Geosciences

Capstone project (independent research project) in fall and winter (up to mid-Feb (5 months)

Justification:

(1) More substantial projects (esp. since some projects will be highly software intensive, and learning curve is significant).

(2) Projects could be integrated into EAS / Physics research programs.

New courses:  Geothermics, Hydrogeology, Numerical modeling

- All to be taught in spring / summer as intensive modules (easier to bring in sessionals

Support for capstone projects

New program cannot be managed with current staff if we have 30+ students

Will require sessional hires from Edmonton or Calgary (elsewhere?) to teach some new courses and to meet with students 2-3 times for capstone projects.

**FINAL ITEM NO. 6**

**Decision ☒ Discussion ☐ Information ☐**

**ITEM OBJECTIVE**: Incorporation of Principles and Guidelines for Senate Lay Admissions Observers into the GFC Programs Committee documentation to enhance the formality of the role.

| | |
|---|---|
| **DATE** | May 7, 2024 |
| **TO** | GFC Programs Committee |
| **RESPONSIBLE PORTFOLIO** | Office of the Chancellor & Senate |

**MOTION**: THAT GFC Programs Committee adopt the Senate Lay Admissions Observers Principles and Guidelines, as circulated.

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**EXECUTIVE SUMMARY**: As GFC Programs Committee has refreshed its Terms of Reference, the Office of the Chancellor & Senate has been working for clarify and formalize the role of the Senate Lay Admission Observers. The adoption of these principles and guidelines will complete that task.

Background

Senate Lay Admissions Observers sit as non-voting members of the admissions committees for 'undergraduate quota programs.' The role is neither an advisory or a consultative one, and the lay admissions observer does not have decision-making power or responsibility in the admissions process (i.e. they serve as a non-voting member of admissions committees).

Senate Lay Admissions Observers are chosen from

- Senators appointed from the public by the Minister under section 11(3)(b)(viii) and
- Senators elected from by the public under section 11(3)(c)

of the Post-Secondary Learning Act.

Since 1978, Senate Lay Admissions Observers have been assigned by the University of Alberta Senate in response to an invitation from the General Faculties Council (GFC, May 29, 1978):

> "The University Senate shall be invited to assign one lay member of the Senate to each Faculty with a quota program as an observer of the admissions process. The Senate members so assigned shall be invited to liaise with the GFC Committee on Admissions and Transfer so that their comments and/or recommendations may be incorporated in any CAT reports to General Faculties Council on admission to quota programs. The role of the Senate lay observer relating to admission procedures is to question and observe. The objective is to ensure that the process is, and is seen to be, equitable. The role is neither an advisory nor a consultative one, and the lay observer does not have decision-making power or responsibility in the admissions process. At the conclusion of the admissions meetings the observer will submit a written report to Senate regarding the process. Written comments and recommendations on the admissions procedures which

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**GOVERNANCE OUTLINE**

are received by Senate from individual lay observers are then forwarded to the Chair of the Committee on Admissions and Transfers."

Analysis / Discussion
These Observers help fulfill Senate's legislated mandate "to inquire into any matter that might benefit the university and enhance its position in the community" by questioning and observing the admissions committees for undergraduate quota programs.

Risk Discussion / Mitigation of the Risk
None

Legislation
Post-Secondary Learning Act:

- 13(1) It is the duty of a senate to inquire into any matter that might benefit the university and enhance its position in the community.
    - (2) Without restricting the generality of subsection (1), a senate may
        - (d) make any report and recommendations respecting the matters referred to in clauses (a) to (c) that it considers advisable to the board, the general faculties council or the Minister.
- 26(1) Subject to the authority of the board, a general faculties council is responsible for the academic affairs of the university and, without restricting the generality of the foregoing, has the authority to
    - (n) determine standards and policies respecting the admission of persons to the university as students;
- 29(1) A faculty council may
    - (c) provide for the admission of students to the faculty,

UAPPOL Undergraduate Admissions Procedure:

- Quota Program Admissions Committees: Terms of Reference
    - Non-Voting Members
        - SENATE: One representative, appointed by the University Senate as a Lay Observer. The Senate member so assigned will be invited to liaise with the GFC Academic Standards Committee (ASC) so that their comments and/or recommendations may be incorporated, where appropriate, in any reports emanating from ASC to GFC on admissions to the University.

Next Steps
Adoption of the Principles & Guidelines
Senate Office to include in communications with Undergraduate Quota Programs in the coming academic year

**Supporting Materials**:
Attachment 1 - Senate Lay Admissions Observers Principles and Guidelines

***See Schedule A for additional items to include if needed.**

**FINAL ITEM NO. 6**

**SCHEDULE A:**

**Engagement and Routing**

Consultation and Stakeholder Participation / Approval Route (parties who have seen the proposal and in what capacity) <*Governance Resources Section Student Participation Protocol*>

| |
|---|
| *Those who are actively **participating**:*<br>• Senate Lay Admissions Observers<br>• GFC Programs Committee |
| *Those who have been **consulted**:*<br>• Office of the Registrar<br>• Undergraduate Quota Programs |
| *Those who have been **informed**:*<br>• Senate Executive Committee |
| ***Approval Route:***<br>GFC Programs Committee |

**Supplementary Notes / Context**:

| |
|---|
| |

# Senate Lay Admissions Observers Principles and Guidelines For GFC Programs Committee

***GFC Delegated Authority***

GFC has also delegated to the Committee the duty to receive and discuss the Report of the Senate Lay Observers concerning their observations of Undergraduate Quota Program admission processes (Program's Committee Terms of Reference, section 2.3).

***Selection***

Senate Lay Admissions Observers are chosen from

- Senators appointed from the public by the Minister under section 11(3)(b)(viii) and
- Senators elected from by the public under section 11(3)(c)

of the Post-Secondary Learning Act.

***Duties***

Senate Lay Admissions Observers sit as non-voting members of the admissions committees for 'undergraduate quota programs.' These Observers help fulfill Senate's legislated mandate "to inquire into any matter that might benefit the university and enhance its position in the community" by questioning and observing the admissions committees for undergraduate quota programs. The objective of the role is to ensure that the process is, and is seen to be, equitable. The role is neither an advisory or a consultative one, and the lay admissions observer does not have decision-making power or responsibility in the admissions process (i.e. they serve as a non-voting member of admissions committees).

The Office of the Senate assigns Senate Lay Admissions Observers each year based on Senator interest and at the request of GFC. Senate Lay Admissions Observers may also be assigned to other program admissions committees at the request of the program.

An annual report of the activity, observations, and feedback of the Senate Lay Admissions Observers will be provided to GFC PC for review and discussion.

***Background***

*"It is the duty of a senate to inquire into any matter that might benefit the university and enhance its position in the community."*

Post-Secondary Learning Act, 2003

Since 1978, Senate Lay Admissions Observers have been assigned by the University of Alberta Senate in response to an invitation from the General Faculties Council (GFC, May 29, 1978):

> "The University Senate shall be invited to assign one lay member of the Senate to each Faculty with a quota program as an observer of the admissions process. The Senate members so assigned shall be invited to liaise with the GFC Committee on Admissions and Transfer so that their comments and/or recommendations may be incorporated in any CAT reports to General Faculties Council on admission to quota programs. The role of the Senate lay observer relating to admission procedures is to question and observe. The objective is to ensure that the process is, and is seen to be, equitable. The role is neither an advisory nor a consultative

one, and the lay observer does not have decision-making power or responsibility in the admissions process. At the conclusion of the admissions meetings the observer will submit a written report to Senate regarding the process. Written comments and recommendations on the admissions procedures which are received by Senate from individual lay observers are then forwarded to the Chair of the Committee on Admissions and Transfers."

***Definitions***

- Undergraduate quota programs - any undergraduate program that has a limited number of admissions and requires a selection process to fill them

***Supplemental Information***

- UAPPOL Undergraduate Admissions Procedure
- Quota Program Admissions Committees: Terms of Reference
- University of Alberta Senate Membership