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## MEMORANDUM

ATTENTION	Senate	DATE	February 5, 2021
FROM	Wade Parkhouse, Chair Senate Committee on Undergraduate Studies	PAGES	1/2
RE:	Course Changes (SCUS 21-04)		

**For information:**

Acting under delegated authority at its meeting of February 4, 2021 SCUS approved the following curriculum revisions effective Fall 2021.

**a. Faculty of Applied Sciences**1. School of Computing Science

- (i) Prerequisite change for CMPT 300 (Spring 2022)

2. School of Engineering Science

- (i) Description and prerequisite changes for ENSC 405W

3. School of Sustainable Energy Engineering

- (i) Equivalent statement changes for SEE 241 and 242

4. School of Mechatronics Systems Engineering

- (i) Title, description and prerequisite changes for MSE 310

**b. Beedie School of Business**

- (i) Deletion of BUS 328

**c. Faculty of Communication, Art and Technology**1. School of Communication

- (i) Prerequisite changes for CMNS 349
- (ii) Description changes for CMNS 353 and 453

## **d. Faculty of Environment**

### **1. School of Resource and Environmental Management**

- (i) Course number, prerequisite and equivalent statement changes for PLAN 200
- (ii) Prerequisite change for PLAN 407
- (iii) Prerequisite change for REM 200, 202W, 356W, 406, 407
- (iv) Prerequisite and equivalent statement changes for REM 495
- (v) Prerequisite and unit changes for REM 221
- (vi) Description and prerequisite changes for REM 320W
- (vii) Prerequisite, title and description change for SD 281 and 481
- (viii) Prerequisite and title change for SD 381
- (ix) Prerequisite, title, description and equivalent statement change for SD 401
- (x) Temporary withdrawal of REM 281, 356, 381, 481
- (xi) Temporary withdrawal of SD 301

## **e. Faculty of Science**

### **1. Department of Biomedical Physiology and Kinesiology**

- (i) Prerequisite change for BPK 402
- (ii) Description and prerequisite changes for BPK 448

### **2. Department of Earth Sciences**

- (i) Description change for EASC 101, 104, 108 and 210
- (ii) Description and equivalent statement changes for EASC 103
- (ii) Prerequisite change for EASC 411

### **3. Department of Molecular Biology and Biochemistry**

- (i) Prerequisite change for MBB 441

### **4. Department of Statistics and Actuarial Science**

- (i) Course number, title, description and equivalent statement changes for ACMA 210
- (ii) Course number, title, units, description, prerequisite and equivalent statement changes for ACMA 320
- (iii) Description and prerequisite changes for ACMA 340, 440, 455
- (iv) Description change for ACMA 355
- (v) Prerequisite change for ACMA 360W, 465, 470, 475
- (vi) Course number, title, description, prerequisite and equivalent statement changes for ACMA 425

Senators wishing to consult a more detailed report of curriculum revisions may do so on the Senate DocuShare repository at <https://docuShare.sfu.ca/dsweb/View/Collection-12682>.



<b>COURSE SUBJECT</b>	CMPT	<b>NUMBER</b>	300	<b>TITLE</b>	Operating Systems I CMPT 300 (3)
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

Prerequisite: ~~CMPT 225 and (CMPT 295 or (ENSC 251 and ENSC 252))~~

Prerequisite: CMPT 225 and (CMPT 295 or ENSC 254)

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Spring 2022

**RATIONALE** (must be included)

Cmpt 295 was added as a prereq for cmpt 300, starting Spring 2021. While we made this change, we haven't properly updated the ENSC prereqs to those equivalent to cmpt 295.

According to the internal transfer part of the calendar, "ENSC major students may use ENSC 251 and ENSC 254 in place of CMPT 295." Indeed, we should use ENSC 254 as an ENSC equivalent of CMPT 295 (and we may drop the explicit mention of ENSC 251, as ENSC 251 is already a prereq for ENSC 254). Both CMPT and ENSC UCC Chairs agreed on this proposed change.

<b>COURSE SUBJECT</b>	ENSC	<b>NUMBER</b>	405W	<b>TITLE</b>	Capstone A: Project Design, Management, and Documentation
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

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ENSC 405W - Capstone A: Project Design, Management, and Documentation (3)

This is the first course in a group-based, two-course capstone sequence: ENSC 405W, ENSC 440. Topics include group writing processes, project documentation and engineering design, group dynamics, engineering standards, project management, dispute resolution, intellectual property, entrepreneurship, and user interface design. These groups will be maintained for the completion of the capstone project in ENSC 440. Students must take ENSC 440 in the term directly following successful completion of ENSC 405W. ~~Grades awarded in ENSC 405W are conditional on the successful completion of ENSC 440 in the subsequent term.~~

Prerequisite: (ENSC 105W or MSE 101W), ENSC 204, all with a minimum grade of C-, completion of a minimum of 22 units of required upper division ENSC courses, and completion of (or concurrent enrollment in) two upper division technical electives meeting the requirements of the program. Students are required to complete at least two co-ops before enrolling in ENSC 440 Capstone B. Capstone B must be taken in the term immediately following Capstone A. Enrollment into Capstone A is by approval of the department via Capstone application form. Engineering Science students cannot take MSE 410, MSE 411, SEE 410W or SEE 411 for credit. Students who have taken (ENSC 304 and ENSC 305W) may not take ENSC 405W for credit. Writing.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021



**RATIONALE** (must be included)

The school does not wish to practice the withholding the 405W grade.

<b>COURSE SUBJECT</b>	SEE	<b>NUMBER</b>	241	<b>TITLE</b>	Measurement, Analysis and Forecasting
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input checked="" type="checkbox"/>

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An introduction to methods for collecting and analysing engineering data. Topics include engineering data representation, probability density functions, engineering measurements, error analysis, test of hypotheses, regression, and design of experiments. Prerequisite: PHYS 141, MATH 232. Corequisite: MATH 251. Students with credit for ENSC 280, MSE 210, ~~PHYS 231~~, or STAT 270 may not take this course for further credit.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021



**RATIONALE** (must be included)

The course descriptions are different. Besides, SEE 241 is normally taught by a P.Eng. designated instructor, which is an important factor in the accreditation process.



<b>COURSE SUBJECT</b>	SEE	<b>NUMBER</b>	242	<b>TITLE</b>	Computational Methods for Engineers
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input checked="" type="checkbox"/>

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Apply numerical methods to solve engineering problems with an emphasis on sustainable energy engineering. Prerequisite: MATH 152, MATH 232. Students with credit for ~~MACM 316~~ or MSE 211 may not take this course for further credit.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021



**RATIONALE** (must be included)

SEE 242 has a lab component and is normally taught by a P.Eng. designated instructor, both of which are important factors in the accreditation process. MACM 316 lacks the above-mentioned characteristics.

<b>COURSE SUBJECT</b>	MSE	<b>NUMBER</b>	310	<b>TITLE</b>	Introduction to Electro-Mechanical Sensors and Actuators
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input checked="" type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

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MSE 310 ~~Introduction to Electro-Mechanical~~Sensors and Actuators (4)

This course provides an introduction to sensors and actuators for electromechanical, computer-controlled machines and devices. Topics include operating principles, design considerations, and applications of analog sensors, digital transducers, stepper motors, continuous-drive actuators, and drive system electronics. Component integration and design considerations are studied through examples selected from various mechatronic applications of machine tools, mechatronics, precision machines, robotics, aerospace systems, and ground and underwater vehicles. Laboratory exercises to strengthen the understanding of the course material are developed and required. ~~component performance, system design and integration.~~

Prerequisite: MSE 221, MSE 222, MSE 280 or ENSC 380, MSE 251.

Students with credit for ENSC 387 may not take MSE 310 for further credit.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE**(must be included)

This course is updated for the first time since 2007 to better reflect the needs of our student graduates and enable further updates to our curriculum. We have updated the list of pre-requisites and the syllabus for the course.

**COURSE SUBJECT**  **NUMBER**  **TITLE**

**RATIONALE** (must be included)

Course was brought to SCUS in November 2018 to assist in capturing students who completed an international co-op within the Academic Progress Report (APR) process. Unfortunately this approval missed a step in consulting with Co-op on the introduction of a new course and how alternatives were available to address this identified gap. The course change caused unanticipated impact - a course deletion corrects the error.

## Context:

Currently all students completing an international work term are registered into section I1.00 of their first, second, third etc work term course (225, 325, 326, 327, 425). Having BUS 328 is problematic as its not clear +

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (enter in textbox)

**PLEASE DO THE FOLLOWING:**

1. Attach a program impact list along with your course deletion form. Contact the Senate and Academic Services Office (sfucal@sfu.ca) for a program impact list.
2. Once you have the program impact list, please review how deleting this course affects each program's requirements.
3. If more substantial changes are required to programs as a result of this deletion, please also submit a program modification form.
4. If no further changes other than deletion is required in program requirements, please list those programs in the box below:

- Business Co-operative Education Program

5. Lastly, please conduct a course impact analysis, which reviews the effect of a course number change and/or course deletion on course prerequisites. For instructions on how to do a course impact analysis, please visit [our page](#) and click on "deleting a course" and review Step 2. Course Impact Analysis.



<b>COURSE SUBJECT</b>	CMNS	<b>NUMBER</b>	349	<b>TITLE</b>	Environment, Media and Communication
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

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An examination of how media, culture and communication shape public opinion and behaviour about environmental issues such as global warming, (un)sustainable resource use and pollution, with special attention to the impact of practices such as advertising, public relations, science and risk communication, journalism and advocacy communication upon public discourse about the environment, and the role of dialogue and deliberation in mediating and resolving conflict over environmental issues. Prerequisite: 45 units, including at least one upper division course in CMNS, DIAL, ENV, EVSC, GEOG or BISC.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Summer 2021



**RATIONALE** (must be included)

The course focuses on different aspects on environmental issues and it makes sense to include ENV as part of the prerequisites.



<b>COURSE SUBJECT</b>	CMNS	<b>NUMBER</b>	353	<b>TITLE</b>	Topics in Technology and Society
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

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Examination of the emergence and shaping of information and communication technologies in the digital age. Explores new media and social change between everyday life, social institutions, and various enterprises. Emphasis is placed on social context and relations of power. ~~May repeat for credit if topic studied is different. This course can be repeated once for credit (up to a maximum of two times).~~ Prerequisite: CMNS 253W and one of CMNS 201W (201 or 260) or CMNS 202 (or 262). Recommended: CMNS 362.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

We would like to explicit how many times students can take this course for credits.

<b>COURSE SUBJECT</b>	CMNS	<b>NUMBER</b>	453	<b>TITLE</b>	Issues in the Information Society
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

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Advanced seminar to discuss issues in the interplay between contemporary society and new computer/communication technologies, at the level of comprehensive theories of society, on one hand, and major public policy, on the other. ~~May repeat for credit if topic studied is different.~~ This course can be repeated once for credit (up to a maximum of two times). Prerequisite: 75 units, including ~~CMNS 253W, 353 or 354.~~ CMNS 362 is recommended.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

We would like to explicit how many times students can take this course for credits.

**COURSE SUBJECT**  **NUMBER**  **TITLE**

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input checked="" type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input checked="" type="checkbox"/>

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PLAN ~~200~~ 100 - Introduction to Planning (3)

Students will be exposed to a broad overview of the field of planning. The course will introduce students to the role of a planner while exploring the practice of planning (human settlements and community planning) in varying contexts within Canada and internationally. ~~Prerequisite: One of REM 100, GEOG 100, GEOG 111, or EVSC 100, and 18 units. Students with credit for PLAN 200 may not take this course for further credit.~~ Breadth-Social Sciences.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

PLAN 200 is meant to be an introductory course to the field of planning that would enable students to potentially apply to the planning program at REM when they enter their second year. However, the course is currently serving mostly upper-division students looking for an elective. Along with the pre-requisites, this means that the course is not reaching its intended target group. The material in the course is designed to be taught at an introductory level so it would be beneficial for students who are new to SFU to have the opportunity to take this course in their first year particularly as this course has a B-Soc designation. The change from PLAN 200 to PLAN 100 does not involve creating a new course, as it will make use of the same introductory format and materials.

<b>COURSE SUBJECT</b>	PLAN	<b>NUMBER</b>	407	<b>TITLE</b>	Indigenous Governance and Resource Relationships
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

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PLAN 407 - Indigenous Governance and Resource Relationships (4)

Explores diverse Indigenous perspectives on governance, resource, land and water management, intergovernmental relations and economic development in the context of contemporary settler colonialism in Canada. Skills include critical thinking, anti-colonial, economic, political and policy analyses. Prerequisite: One of REM 207, ARCH 286, or any INDG course; and 75 units. ~~or permission of instructor.~~ Students with credit for REM 407 may not take this course for further credit.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

We are adding an additional prerequisite to ensure that students have a general understanding of Indigenous peoples and the challenges Indigenous communities face.

<b>COURSE SUBJECT</b>	REM	<b>NUMBER</b>	200	<b>TITLE</b>	Introduction to Resource and Environmental Management
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

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REM 200 - Introduction to Resource and Environmental Management in Canada (3)

Explores the natural and social science foundations of resource and environmental management and demonstrates how that knowledge can be used in environmental decision-making. Provides a basic understanding of the nature and management of natural resources, strategic thinking for environmental planning, socio-economic and biophysical trade-offs in natural resource decision making and approaches for addressing uncertain knowledge. Prerequisite: One of REM 100, GEOG 100, ~~or~~ GEOG 111, or EVSC 100; ~~and 30 units.~~ Breadth-Social Sci/Science.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

We wish to allow first year students to take this course in their second term if it is available and once they have completed the prerequisite. Retaining the course prerequisite means they cannot do REM 200 in their first term, which would not be appropriate.



<b>COURSE SUBJECT</b>	REM	<b>NUMBER</b>	202W	<b>TITLE</b>	Technical Communication for Environmental Professionals and Planners
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

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REM 202W - Technical Communication for Environmental Professionals and Planners (3)

REM 202W will teach students to communicate technical information clearly and concisely. Students will improve their skills through writing-intensive assignments related to the fields of resource management and planning. REM 202W will review the fundamentals of writing and progress to the creation and presentation of professional documents including journal manuscripts, technical reports, briefing notes, and emails. Students should familiarize themselves with a reference-management software; the course will reference the free, online program, Zotero. Prerequisite: ~~Completion of at least 30 units and o~~One of REM 100, or GEOG 100, ~~or~~ GEOG 111, or EVSC 100. Writing.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

We are removing the minimum unit prerequisite that has been a barrier for students to enroll in this course in a timely fashion. The remaining prerequisites are sufficient for success in this course.

COURSE SUBJECT  NUMBER  TITLE

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number  Units  Prerequisite   
Title  Description  Equivalent Statement

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

REM 356W - Environmental Policy (3)

Provides an overview of policy and governance approaches used to manage the natural environment at the international, national, provincial, regional, and local levels. Presents a basic set of evaluative questions that can be used to determine the effectiveness and efficiency of different approaches to regulate and manage the environment. Prerequisite: One of REM 100, GEOG 100, GEOG 111, or EVSC 100; and 45 units. Students with credit for REM 356 may not take this course for further credit.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

**RATIONALE** (must be included)

Adding more options for the course prerequisite will make the course prerequisite consistent with other similar REM courses and open up the course to more students across campus. However, experience has shown that a minimal earned credit requirement will ensure students have adequate background and are in their third year.

<b>COURSE SUBJECT</b>	REM	<b>NUMBER</b>	406	<b>TITLE</b>	Indigenous People and Co-Management
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

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REM 406 - Indigenous People and Co-management (4)

Introduces several basic co-management models, a framework for analyzing conditions which permit co-management institutions to develop and thrive, the dilemmas of communities involved in co-management and the challenges for governments working with them, with special but not exclusive attention to Canadian Indigenous communities. Prerequisite: ~~REM 356 and~~ One of REM 207, ARCH 286, or any INDG course; and 75 units.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

We are adding an additional prerequisite to ensure that students have a general understanding of Indigenous peoples and the challenges Indigenous communities face.

<b>COURSE SUBJECT</b>	REM	<b>NUMBER</b>	407	<b>TITLE</b>	Indigenous Governance and Resource Relationships
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

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REM 407 - Indigenous Governance and Resource Relationships (4)

Explores diverse Indigenous perspectives on governance, resource, land and water management, intergovernmental relations and economic development in the context of contemporary settler colonialism in Canada. Skills include critical thinking, anti-colonial, economic, political and policy analyses. Prerequisite: One of REM 207, ARCH 286, or any INDG course; and 75 units. ~~or permission of instructor.~~ Students with credit for PLAN 407 may not take this course for further credit.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

We are adding an additional prerequisite to ensure that students have a general understanding of Indigenous peoples and the challenges Indigenous communities face.



<b>COURSE SUBJECT</b>	REM	<b>NUMBER</b>	495	<b>TITLE</b>	Resource and Environmental Management Capstone
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input checked="" type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

REM 495 - Resource and Environmental Management Capstone (4)

By guiding students through the inception, development and communication of a novel interdisciplinary research project, this course will provide students with an opportunity to integrate the knowledge and skills they gained through their undergraduate degree. Students will work corroboratively to conceive, investigate and present an original research project that addresses a real-world environmental issue of the students' choice. Prerequisite: ~~90~~ 75 units ~~or permission of instructor~~. Students with credit for REM 491 - Directed Studies taken as the REM Capstone ~~only~~ may not take this course for further credit.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

We are reducing the prerequisite to ensure students can complete their capstone prior to graduation.



<b>COURSE SUBJECT</b>	REM	<b>NUMBER</b>	221	<b>TITLE</b>	Systems Thinking and the Environment
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input checked="" type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

REM 221 - Systems Thinking and the Environment (~~3~~) (4)

Introduces systems thinking in the context of environmental and sustainability challenges using system archetypes and system dynamics theory. Analytical and modeling techniques are applied to understand and project systems complexity. Prerequisite: One of REM 100, ~~or~~ GEOG 100, ~~or~~ GEOG 111, or EVSC 100. Students with credit for ENV 221 may not take this course for further credit. Quantitative.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

At present the tutorial is not long enough to support learning and understanding of the course material. The purpose of the unit change is to increase the contact time in the one-hour tutorial to two hours so the professor can convey more content.

COURSE SUBJECT  NUMBER  TITLE

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number  Units  Prerequisite   
 Title  Description  Equivalent Statement

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

REM 320W - Ethics and the Environment (3)

An introduction to the field of environmental ethics ~~for non-specialists~~. Addresses questions such as what obligations we have to future generations and the natural world, as well as the extent of these obligations. Prerequisite: ~~Students must have earned at least 45 units.~~  
 Philosophy Majors and Minors may not take this course for credit towards their major or minor degree. Students who have taken PHIL 333-3 or ENV 399-3 "Special Topics in Environmental Ethics" prior to or in 2011 and students with credit in ENV 320W or PHIL 328-3 may not enroll in this course for further credit. Writing.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

**RATIONALE** (must be included)

<b>COURSE SUBJECT</b>	SD	<b>NUMBER</b>	281	<b>TITLE</b>	Sustainable Communities, Sustainable World
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input checked="" type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

SD 281 - ~~Sustainable Communities, Sustainable World~~ Introduction to Sustainability (3)

Introduces the challenges and opportunities for developing sustainable communities and a sustainable world, through the framework of the Sustainable Development Goals (SDGs). ~~Builds an understanding of strengths and weaknesses of conventional approaches to development and of sustainable development.~~ and alternative perspectives around sustainability (e.g. Indigenous, just sustainabilities etc). Students will also learn from the practical experience of diverse experts and sustainability professionals. Conventional approaches to sustainable development will be critiqued to ensure considerations for equity and social justice. Emphasis on urban areas in Highlights will be showcased from the Global North and Global South. Prerequisite: 30 units. Students with credit for SCD 201 or REM 201 or REM 281 may not complete this course for further credit. Breadth-Social Sciences.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

Responsibility for the SD Program and for all SD courses has been shifted to REM and this provides an opportunity to rethink and update the core SD courses to better reflect current thinking about sustainability. The new title better reflects the course material. SD 281 is intended to be the introductory course for the SD program, as well as being a 200-level breadth-social science course. Making this clear in the title signifies to students the type and level of content that will be taught in the course. Since the SD program has been subsumed into REM, some of the core courses are now being taught by REM faculty. The description of the course has been updated to reflect the new approach and material of the course. The 30-credit prerequisite has been removed to allow more students to enroll in the course, as well as better reflecting the introductory nature of the course.



<b>COURSE SUBJECT</b>	SD	<b>NUMBER</b>	481	<b>TITLE</b>	Sustainable Communities Leadership Lab
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input checked="" type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

SD 481 - ~~Sustainable Communities Leadership Lab~~ Sustainability Governance and Leadership (4)

~~Students develop the skills to lead change toward sustainability at the community level. Starting with a process of analyzing a particular social or environmental challenge, and using a collaborative approach, they develop a promising idea into a feasible plan for a project or social enterprise. Engages students in understanding critical concepts and issues of sustainability at different scales and how they related to policy, management, leadership, and governance in a range of context and across different sectors (thinking about how local movements can come to influence national and international governance). Explores and analyzes the history of sustainability action, how change happens, the role of different levels of governance, current sustainability initiatives, and prospects for how to create change in the future.~~

Prerequisite: ~~One of PLAN 100, REM 100, or SD 281; and 60 units, and SD 281 or REM 281 or SD 201 or DEVS 201 or SCD 201 or REM 201 or admission to the Post Baccalaureate Diploma in Sustainable Development.~~ Students with credit for SCD 401 or REM 401 or REM 481 may not complete this course for further credit.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

Responsibility for the SD Program and for all SD courses has been shifted to REM and this provides an opportunity to rethink and update the core SD courses to better reflect current thinking about sustainability. For there to be a more natural progression between SD 281, SD 381, and SD 481, the course title and description has been changed. The new title better reflects the new course content. The new course description focuses on national and global sustainable development efforts, while SD 381 focuses on the community and city-level. Rather than have one course focus on local issues, and the other on international issues, we have re-organized the courses to focus on scales, but to include both local and international material in both courses. The Post Baccalaureate Diploma in Sustainable Development has been removed from the prerequisite because this program no longer exists. We have added a course prerequisite to SD 481 (one of PLAN 100, REM 100, or SD 281) to ensure that students taking this course have a foundation or basic knowledge of sustainable development.

<b>COURSE SUBJECT</b>	SD	<b>NUMBER</b>	381	<b>TITLE</b>	Building Sustainable Communities: Concepts and Cases
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input checked="" type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

SD 381 - Building Sustainable Communities: ~~Concepts and Cases~~ (4)

Engages students in understanding how to plan and cultivate sustainability at the community and city level, taking into consideration the environmental, economic, and social aspects of development. Explores and analyzes policy instruments, planning tools, and strategies from around the world for engaging people and institutions in building sustainable communities.

Prerequisite: ~~Completion of One of PLAN 100, REM 100, or SD 281; and 45 units, or admission to the Post Baccalaureate Diploma in Sustainable Development.~~ Students with credit for SCD 301 or REM 301 or REM 381 may not complete this course for further credit. Breadth-Social Sciences.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

Responsibility for the SD Program and for all SD courses has been shifted to REM and this provides an opportunity to rethink and update the core SD courses to better reflect current thinking about sustainability. The title of the course has changed because the current one is too long. The new one is more direct. Previously SD 301 and SD 381 had remarkably similar titles, so the " : Concepts and Cases" was needed to distinguish the two courses. This is no longer needed. The Post Baccalaureate Diploma in Sustainable Development has been removed from the prerequisite because this program no longer exists. We have added a course prerequisite to SD 381 (one of PLAN 100, REM 100, or SD 281) to ensure that students taking this course have a foundation or basic knowledge of sustainable development.

<b>COURSE SUBJECT</b>	SD	<b>NUMBER</b>	401	<b>TITLE</b>	Sustainable Development Goals Studio
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input checked="" type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input checked="" type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

SD 401 - Sustainable Development ~~Goals~~-Studio (4)

Engages students in creating innovative solutions to real-world challenges of sustainability and development, using studio-based approaches. Explores ~~the Sustainable Development Goals as a mechanism~~ social and environmental change governance in the context of Global North-South relations, and develops policies and strategies for implementing sustainability in different locations and at different scales. ~~the Goals at local and global scales.~~  
Prerequisite: SD 281; one of SD 381 or SD 481; and 60 75 units. ~~or admission to the Post Baccalaureate Diploma in Sustainable Development.~~ Recommended: SD 281 or equivalent.  
~~Students with credit for DEVS 401 may not take this course for further credit.~~

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

Responsibility for the SD Program and for all SD courses has been shifted to REM and this provides an opportunity to rethink and update the core SD courses to better reflect current thinking about sustainability. The course title was changed so the course was not explicitly connected to, or related to, the UN's Sustainable Development Goals (SDG). The term sustainable development is broader and is the same name as the program. The course description was also changed to reflect the shift away from explicitly focusing on the SDGs and use more general/generic language. The Post Baccalaureate Diploma in Sustainable Development has been removed from the prerequisite because this program no longer exists. DEVS 401 was removed because these courses are significantly different now.

We have added course prerequisites to SD 401 (SD 281; one of SD 381 or SD 481) to ensure that students taking this course have a solid foundation and strong understanding of sustainable development. We have also changed the prerequisite units from 60 to 75 to single to students that this course should be taken later in their degree, and after the other SD courses. The revised prerequisites will also limit who is eligible and allow the course to be tailored to a knowledgeable student group.

## MEMORANDUM

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To: Kris Nordgren, Assistant Registrar, Senate and Academic Services  
From: Paul Kingsbury, FENV, Chair, UCC

January 20, 2021

### **Re: Request to Temporarily Withdraw Courses**

Dear Kris,

Please find below a list of various courses, which REM would like to Temporarily Withdraw. I am also enclosing a memo from Duncan Knowler (REM's Chair of the Undergraduate Studies Committee), which confirms the official approval, the rationales, and desired effective date of Fall 2021.

REM 281, REM 356, REM 381, REM 481, SD 301

Thank you for your work. Please let me know if you have any questions about the above or require any further information.

Sincerely,

Paul/ 

Dr. Paul Kingsbury  
Associate Dean, Undergraduate, Faculty of Environment



**MEMORANDUM**

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<b>ATTENTION</b>	Senate Committee on Undergraduate Studies	<b>DATE</b>	January 5, 2021
<b>FROM</b>	Duncan Knowler, Chair, REM Undergraduate Program Committee	<b>PAGES</b>	2
<b>RE:</b>	Temporary withdrawal of REM 281 - <i>Sustainable Communities, Sustainable World</i> , REM 356 - <i>Environmental Policy</i> , REM 381 - <i>Building Sustainable Communities: Concepts and Cases</i> , REM 481 - <i>Sustainable Communities Leadership Lab</i> , SD 301 - <i>Building a Sustainable World: Concepts and Cases</i>		

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Dear SCUS,

On behalf of the REM Undergraduate Program Committee, I request your approval to mothball the following courses:

- REM 281 - *Sustainable Communities, Sustainable World*
- REM 356 - *Environmental Policy*
- REM 381 - *Building Sustainable Communities: Concepts and Cases*
- REM 481 - *Sustainable Communities Leadership Lab*
- SD 301 - *Building a Sustainable World: Concepts and Cases*

In the case of REM 356, we would like to suspend this course because we are currently offering only its W equivalent REM 356W, which is required and fulfills the upper division W requirement for our majors. We don't intend to offer REM 356 in the foreseeable future. However, in case there should be some reason to offer the non-W version of the course we would like to keep it "on the books", rather than to delete it.

We wish to suspend REM 281, REM 381 and REM 481, as these are cross-listed versions with Sustainable Development equivalents (SD 281, SD 381 and SD 481). Now that the SD program has been transferred to REM there is no need (nor desire) to split the enrollments nor sustain the added administrative burden associated with keeping the cross-listed REM course.

Finally, we would like to suspend SD 301 as we have had difficulty recruiting instructors for this course and it has not been offered regularly. Additionally, did not fit well with the revisions to the SD program we are bringing forward for approval. However, since we may wish to reconsider a place for this course in future adjustments to the SD program we prefer to keep it available rather than delete it at this time.

No other students, faculty or staff would be affected by these course suspensions. There are no resources to be reallocated once they are suspended and the suspensions would have no impact on other departments or faculties. For example, REM Major students following earlier versions of our program requirements (e.g. Fall 2017 entry), when the calendar lists only REM 356, can take the W version of the course to fulfill this requirement.

If you have any questions, or require further information, please contact me.



Thank you,

*Duncan Knowler*

Duncan Knowler  
Chair, REM Undergraduate Program Committee

**Faculty Approval**

Faculty Undergraduate Studies Committee	Signature	Date
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**Senate Committee on Undergraduate Studies Approval**

Senate Committee on Undergraduate Studies	Signature	Date
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<b>COURSE SUBJECT</b>	BPK	<b>NUMBER</b>	402	<b>TITLE</b>	Mechanical Behavior of Biological Tissues
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

Prerequisite: BPK 201 and BPK 306.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

Content additions to BPK 306 including muscle, bone and connective tissue physiology make it an appropriate prerequisite for BPK 402.

<b>COURSE SUBJECT</b>	BPK	<b>NUMBER</b>	448	<b>TITLE</b>	Rehabilitation of Movement Control
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

This course is aimed at students interested in neuromuscular rehabilitation. Students will learn about ~~the pathological origins of~~ movement disorders associated with diseases or trauma that cause impaired function of sensory and motor systems. The course will be focused on the stages and strategies for recovery of voluntary control of essential functions. The range of rehabilitation interventions available to assist recovery and restore voluntary control will be explored, with special emphasis on advanced techniques to restore control of movement and bodily functions in paralyzed people.

Prerequisite: BPK 201 or 207, and BPK 306, or for biomedical engineering students, BPK 201, and 208 ~~and 308~~.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

BPK 448 updates reflect subtle changes in course delivery and course offerings. BPK 308 will no longer be offered.

COURSE SUBJECT  NUMBER  TITLE

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number  Units  Prerequisite   
 Title  Description  Equivalent Statement

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

FROM: ~~Origin and character of minerals, rocks, Earth structure, Earth surface processes and plate tectonic theory. Primarily designed to deliver prereq. information to EASC majors/honours and students pursuing degrees in other Departments and Faculties that require a strong foundational course in Earth Science. Breadth-Science.~~

TO: Dynamic Earth offers an introduction to minerals, rocks, geologic resources and processes. Plate tectonics is the unifying theory of geology and is the focus as we learn how the Earth changes over geologic time and results in the formation of volcanoes and mountain belts, faults, folds and earthquakes. Breadth-Science.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

**RATIONALE** (must be included)

COURSE SUBJECT  NUMBER  TITLE

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number  Units  Prerequisite   
 Title  Description  Equivalent Statement

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

FROM: ~~An introduction to the range of geological hazards that affect the Earth, the environment and humanity. Topics covered will include the hazards and risks related to volcanic eruptions, earthquakes, landslides and avalanches, tsunamis, geomagnetic storms and other potentially cataclysmic events. The forecasting and possible mitigation of these geohazards will also be investigated. Students may not take EASC 104 for credit towards EASC major or minor program requirements. Students with credit for GEOG 312 may not take this course for further credit. Breadth-Science.~~

TO: Explore the range of geological hazards that affect the Earth, our environment and humanity. Topics will include the hazards, risks and processes associated with potentially cataclysmic events such as volcanic eruptions, earthquakes, landslides, and tsunamis. The forecasting and mitigation of the impacts of these hazards will also be investigated. Students with credit for GEOG 312 may not take this course for further credit. Breadth-Science.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

**RATIONALE** (must be included)

COURSE SUBJECT  NUMBER  TITLE

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number  Units  Prerequisite   
 Title  Description  Equivalent Statement

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

FROM: ~~An introduction to the geology of our solar system through a comparative survey of the planets. Emphasis will be on the geology of the Earth and how we can use this knowledge to learn more about the neighboring planets. A wealth of accessible information now exists from which we can attempt to reconstruct the geological history of each planetary surface in our solar system. Comparative planetology will be used to explore such topics as the structure and origin of the solar system, the origin and fate of the Earth, the importance of water in the solar system, the formation and geological history of planetary lithospheres and atmospheres. Students may not use EASC 108 for credit towards Earth Sciences major or minor program requirements. Breadth-Science.~~

TO: Explore our celestial neighbourhood through a comparative study of the planets, moons and asteroids of our solar system. Students will use the latest information from interplanetary missions to study topics including the formation of the solar system, the origin and fate of the Earth, and the search for extraterrestrial life. Breadth-Science.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

**RATIONALE** (must be included)

**COURSE SUBJECT**  **NUMBER**  **TITLE**

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

FROM: ~~The study of the evolution of the Earth, the geological time scale, fossils and evolution, stratigraphic concepts, geological history of western Canada.~~  
Prerequisite: EASC 101 with a grade of C- or better. Breadth-Science.

TO: The Earth has evolved dramatically over its 4.6 billion-year history. We explore the evolution of Earth's tectonic plates, oceans and atmosphere through time. We also review the appearance of life, its evolution and diversification, biological-geological interactions, and the occurrence and impact of mass extinction events. Prerequisite: EASC 101 with a grade of C- or better. Breadth-Science.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

The revised course description better reflects the course topics.

<b>COURSE SUBJECT</b>	EASC	<b>NUMBER</b>	103	<b>TITLE</b>	The Rise and Fall of the Dinosaurs
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input checked="" type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

**EFFECTIVE TERM AND YEAR FOR CHANGES**

FROM: ~~Class Dinosauria and how our understanding of this extinct group continues to evolve in the light of new discoveries. Topics include the rise of the dinosaurs, criteria for the recognition of the different groups, fossil data regarding dinosaur metabolism, evidence of dinosaur behavior, possible evolutionary relationships with birds, and theories of dinosaur extinction. Students may not take EASC 103 for credit towards EASC major or minor program requirements. Students with credit for EASC 103W may not take this course for further credit. Breadth-Science.~~

TO: Dinosaurs ruled our planet for nearly 150 million years until the abrupt extinction of all non-avian (non-bird) dinosaurs, approximately 66 million years ago. We examine geologic time, fossils and biological classification, and investigate the rise and fall of the theropods, sauropods, ornithopods, stegosaurus, ankylosaurus, ceratopsians, and pachycephalosaurs. Breadth-Science.

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

The revised course description better reflects the course topics.



COURSE SUBJECT  NUMBER  TITLE

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

FROM:  
Prerequisite: EASC ~~206~~ and ~~209W~~. All with a grade of C- or better.

TO:  
Prerequisite: EASC 209W and one of EASC 308, EVSC 305 or GEOG 310. All with a grade of C- or better.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

**RATIONALE** (must be included)

Earth Sciences has developed a third-year field course (EASC 308) that better prepares students for EASC 411. To allow Environmental Science students and Physical Geography majors to take this course, we will also accept their field school courses (EVSC 305 and GEOG 310).

These changes have been presented to Jeremy Venditti (Environmental Science) and Lance Lesack (Geography), and both find them acceptable.

COURSE SUBJECT  NUMBER  TITLE

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	Units	<input type="checkbox"/>	Prerequisite	X
Title	Description	<input type="checkbox"/>	Equivalent Statement	

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

MBB 441 – Bioinformatics (3)

Examining the use of, and theory behind, bioinformatic software and algorithms for the analysis of macromolecular data. Includes consideration of recent literature and discussion of ethics in method development and analysis. Prerequisite: MBB 243 or 3 units of CMPT or equivalent with a minimum grade of C, or permission of the instructor; MBB 331 and MBB 342, with a minimum grade of C.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

**RATIONALE** (must be included)

Students are required to take MBB 342 (Introductory Genomics & Bioinformatics) as a prerequisite for MBB 441, which ensures that they have the computer science background necessary to succeed in this course. However some students request an exemption from the computer science prerequisites for MBB 342 (MBB 243: Data Analysis for Molecular Biology and Biochemistry or 3 units of CMPT or equivalent), meaning that they are free to take MBB 441 without any CS background. Adding these same prerequisites to MBB 441 addresses this loophole.

<b>COURSE SUBJECT</b>	ACMA	<b>NUMBER</b>	210	<b>TITLE</b>	Mathematics of Compound Interest
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input checked="" type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input type="checkbox"/>
Title	<input checked="" type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input checked="" type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

### **ACMA 210 – Mathematics of Compound Interest 201 – Interest Theory and Applications (3)**

Measurement of interest, present value. Equations of value. ~~Basic annuities~~ Annuities: immediate, due, perpetuity. General annuities. ~~Yield rates: cash flow analysis, reinvestment rate, portfolio and investment year methods.~~ Loans and amortization schedules and sinking funds. Bonds and other securities. Cash flows: yield rates, duration, convexity, immunization. ~~Inflation,~~ Yield curves: spot rates, forward rates, immunization. Interest rate swaps. ~~Applications: real estate mortgages, depreciation methods. Interest rate disclosure and regulation in Canada.~~ Covers the interest theory portion of part of the syllabus for Exam FM of the Society of Actuaries and Exam 2 of the Casualty Actuarial Society. Prerequisite: MATH 152; or MATH 155 or MATH 158 with a grade of at least B. Quantitative.

Students with credit for ACMA 210 cannot take ACMA 201 for further credit.

### **EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

The changes to the syllabus are minor, reflecting a slight change of focus in the corresponding professional exam (FM). Mostly, we are changing the course number and name to signal a new direction to students: ACMA 210 was a “gatekeeper” course for the actuarial science major and had a reputation that it is too demanding. ACMA 201 is intended to be moderately challenging but not intimidating.

We are adding a reference to CAS exam 2 since some of our students pursue actuarial designation under the CAS’s education system, as opposed to the SOA’s.

COURSE SUBJECT  NUMBER  TITLE

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input checked="" type="checkbox"/>	Units	<input checked="" type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input checked="" type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input checked="" type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

**ACMA ~~320-301~~ - Long-Term Actuarial Mathematics I ~~(5)~~ (3)**

[requested short title: Long-Term Actuarial Math I]

Life tables, basic survival models. Basic life insurance and annuities for single life: present value random variables, premium calculations, reserves. Computer applications for pricing and reserving for life insurance portfolios. Covers part of the syllabus for Exam LTAM of the Society of Actuaries, and practical applications such as computational aspects of pricing and reserving and risk measurement of insurance portfolios. This course is accredited under the University Accreditation Program of the Canadian Institute of Actuaries. Prerequisite: STAT 285 and ACMA 201 (or 210), with a minimum grade of C. Corequisite: STAT 285. Quantitative.

Students with credit for ACMA 320 cannot take ACMA 301 for further credit.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

**RATIONALE** (must be included)

We are reorganizing the ACMA 320/425 sequence, with most of the material now fitting into 6 units (3+3) instead of 8 (5+3). The content in the new 301/401 sequence captures 85% of the content from the prior syllabi, allowing these courses to maintain their accreditation by the Canadian Institute of Actuaries while avoiding the burden of a 5-unit course for both students and faculty. The new split, which has ACMA 401 covering many of the same topics as 301 (survival models, premium calculations, reserves) but with more advanced features, allows for repetition of key concepts and makes the first course in the sequence less demanding. The new course title and number signal the new direction.

Also, accreditation under the CIA's University Accreditation Program, while expected to continue, is technically renewable annually so should not be in the calendar.

For the prerequisites:

ACMA 210 is changing to ACMA 201.

STAT 285 now covers less probability so it's not as critical to this course as it was before.

<b>COURSE SUBJECT</b>	ACMA	<b>NUMBER</b>	340	<b>TITLE</b>	Financial Economics for Actuaries
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

**ACMA 340 - Financial Economics for Actuaries (3)**

Actuarial models and their application to insurance and financial risks. Introductory derivatives. Options. Option strategies and risk management. Discrete-time models: binomial models, multi-period models. Continuous-time models: Black-Scholes-Merton model. Market-making, hedging, and option Greeks. Introduction to exotic options. Covers part of the syllabus for Exam IFM of the Society of Actuaries and Exam 3F of the Casualty Actuarial Society. ~~This course is accredited under the University Accreditation Program of the Canadian Institute of Actuaries.~~

Prerequisite: ACMA 201 (or 210), with a minimum grade of C. ~~and~~ Corequisite: STAT 285.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

Adding reference to CAS exam 3F since some of our students pursue actuarial designation under the CAS's education system, as opposed to the SOA's.

Accreditation under the CIA's University Accreditation Program, while expected to continue, is technically renewable annually so should not be in the calendar.

For the prerequisites:

ACMA 210 is changing to ACMA 201.

STAT 285 now covers less probability so it's not as critical to this course as it was before.

<b>COURSE SUBJECT</b>	ACMA	<b>NUMBER</b>	440	<b>TITLE</b>	Models for Financial Economics
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

**ACMA 440 - Models for Financial Economics (3)**

Advanced actuarial models and their application to insurance and financial risks. Introduction to stochastic calculus: Ito's lemma, risk neutrality. Fundamental theorems of asset pricing. Black-Scholes-Merton partial differential equations. Exotic options. Monte Carlo methods. Advanced option pricing models. Implied volatility. Actuarial applications. Covers part of the syllabus for Exam IFM of the Society of Actuaries and Exam 3F of the Casualty Actuarial Society. ~~This course is accredited under the University Accreditation Program of the Canadian Institute of Actuaries.~~

Prerequisite: ~~ACMA 320 and~~ ACMA 340.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

Adding reference to CAS exam 3F since some of our students pursue actuarial designation under the CAS's education system, as opposed to the SOA's.

Accreditation under the CIA's University Accreditation Program, while expected to continue, is technically renewable annually so should not be in the calendar.

For prerequisite:

With the proposed change from ACMA 320 to 301, we reviewed each course for which 320 was a prerequisite. In a number of cases ACMA 320 was a maturity prerequisite, not a content prerequisite—including ACMA 440. We determined this was no longer desirable. Having ACMA 320 (or the new ACMA 301) as a prerequisite may hinder some students' degree completion, now that ACMA 440 is proposed to be a required course for the actuarial science major.

COURSE SUBJECT  NUMBER  TITLE

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number  Units  Prerequisite

Title  Description  Equivalent Statement

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

**ACMA 455 - Loss Models II (3)**

Aggregate loss models. Credibility: models and estimation. Insurance and reinsurance coverages. Pricing and reserving for short-term insurance coverages. Covers part of the syllabus for Exam STAM of the Society of Actuaries. ~~This course is accredited under the University Accreditation Program of the Canadian Institute of Actuaries.~~

Prerequisite: ~~ACMA 320 and~~ ACMA 355.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

**RATIONALE** (must be included)

With the proposed change from ACMA 320 to 301, we reviewed each course for which 320 was a prerequisite. In a number of cases ACMA 320 was a maturity prerequisite, not a content prerequisite—including for ACMA 455. We determined this was no longer desirable. Having ACMA 320 (or the new ACMA 301) as a prerequisite may hinder some students' degree completion, now that ACMA 455 is proposed to be a required course for the actuarial science major.

Accreditation under the CIA's University Accreditation Program, while expected to continue, is technically renewable annually so should not be in the calendar.

COURSE SUBJECT  NUMBER  TITLE

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number  Units  Prerequisite   
 Title  Description  Equivalent Statement

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

**ACMA 355 - Loss Models I (3)**

Severity models. Risk measures. Frequency models. Frequency and severity with coverage modifications: deductibles, policy limits, coinsurance. Parametric estimation: method of moments, MLE. Bayesian estimation. Model selection. Covers part of the syllabus for Exam STAM of the Society of Actuaries. ~~This course is accredited under the University Accreditation Program of the Canadian Institute of Actuaries.~~ Corequisite: STAT 330. Quantitative.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

**RATIONALE** (must be included)

Accreditation under the CIA's University Accreditation Program, while expected to continue, is technically renewable annually so should not be in the calendar.

**COURSE SUBJECT**  **NUMBER**  **TITLE**

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number       Units       Prerequisite

Title       Description       Equivalent Statement

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

Prerequisite: ACMA 301 (or 320), with a minimum grade of C.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)



**RATIONALE** (must be included)

ACMA 320 changing to ACMA 301.



<b>COURSE SUBJECT</b>	ACMA	<b>NUMBER</b>	465	<b>TITLE</b>	Demography and Mortality Models
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

Prerequisite: ACMA 301 (or 320),with a minimum grade of C.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021



**RATIONALE** (must be included)

ACMA 320 changing to ACMA 301.



<b>COURSE SUBJECT</b>	ACMA	<b>NUMBER</b>	470	<b>TITLE</b>	Property and Casualty Insurance
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**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

~~Prerequisite: ACMA 320.~~

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021

**RATIONALE** (must be included)

With the proposed change from ACMA 320 to 301, we reviewed each course for which 320 was a prerequisite. In a number of cases ACMA 320 was a maturity prerequisite, not a content prerequisite—including for ACMA 470. We determined this was no longer desirable.

Since only students admitted to the actuarial science major are allowed to take upper division ACMA courses, a prerequisite is not needed for this course.



COURSE SUBJECT  NUMBER  TITLE

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input type="checkbox"/>	Description	<input type="checkbox"/>	Equivalent Statement	<input type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

Prerequisite: ACMA 301 (or 320), with a minimum grade of C. Corequisite: ACMA 425 401.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

Fall 2021



**RATIONALE** (must be included)

ACMA 320 changing to ACMA 301. ACMA 425 changing to ACMA 401.

COURSE SUBJECT  NUMBER  TITLE

**TYPE OF CHANGES.** Please type 'X' for the appropriate revision(s):

Course number	<input checked="" type="checkbox"/>	Units	<input type="checkbox"/>	Prerequisite	<input checked="" type="checkbox"/>
Title	<input checked="" type="checkbox"/>	Description	<input checked="" type="checkbox"/>	Equivalent Statement	<input checked="" type="checkbox"/>

**WORDING/DESCRIPTION EDITS.** Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under [Information about specific course components](#) if changing equivalent statement(s).

**ACMA 425 401 - Long-Term Actuarial Mathematics II (3)**

[requested short title: Long-Term Actuarial Math II]

~~Long-term insurance coverages. Advanced survival models estimation. Multiple state models. Advanced premium calculations and reserves. Profit testing. Pension plans and retirement benefits. Applications~~ Computer applications for pricing, reserving and risk measurement of life insurance portfolios. Covers part of the syllabus for Exam LTAM of the Society of Actuaries. ~~This course is accredited under the University Accreditation Program of the Canadian Institute of Actuaries.~~ Prerequisite: ACMA 301 (or 320), with a minimum grade of C. Quantitative.

Students with credit for ACMA 425 cannot take ACMA 401 for further credit.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (please enter in textbox)

**RATIONALE** (must be included)

We are reorganizing the ACMA 320/425 sequence, with most of the material now fitting into 6 units (3+3) instead of 8 (5+3). The content in the new 301/401 sequence captures 85% of the content from the prior syllabi, allowing these courses to maintain their accreditation by the Canadian Institute of Actuaries while avoiding the burden of a 5-unit course for both students and faculty. The new split, which has ACMA 401 covering many of the same topics as 301 (survival models, premium calculations, reserves) but with more advanced features, allows for repetition of key concepts, and makes the first course in the sequence less demanding. The new course title and number signal the new direction. Accreditation under the CIA's University Accreditation Program, while expected to continue, is technically renewable annually so should not be in the calendar.