Senate Undergraduate Council

Open & Confidential Sessions

June 16, 2025

1:00 p.m. - 3:00 p.m.

Needles Hall

NH 3318 / Virtual Option

Waterloo Campus

Think Differently | Act with Purpose | Work Together

2025 06 16 Senate Undergraduate Council Meeting Book

AGENDA

	Governance Resources		
	Link to Governance Resources		
	1. Conflict of Interest		
	1.1 Conflict of Interest - Excerpt from Senate Bylaw 1		4
1:00 p.m.	Consent Agenda Motion: To approve or receive for information the items on the consent agenda, listed as items 2-3 below.		
	2. Approval of the Minutes		
	2.1 Minutes of April 8, 2025 Meeting		5
	3. Curricular Submissions		
	3.1 Report from the SUC Curriculum Subcommittee	Information	8
	3.2 Faculty of Engineering	Decision (SUC)	10
	3.3 Faculty of Environment	Decision (SUC)	33
	3.4 Faculty of Mathematics	Decision (SUC)	61
	Regular Agenda		
1:05 p.m.	4. Business Arising from the Minutes	Information	
1:10 p.m.	5. Chair's Remarks	Information	
1:20 p.m.	6. External Partners and Capstone Projects [Prier, Rayside]		
	6.1 External Partners and Capstone Projects: Overview	Information	141
1:40 p.m.	7. 2026-2027 Academic Calendar Dates [Couglin]		
	7.1 Academic Calendar Dates Report	Decision (SEN-R)	143
1:50 p.m.	8. Outline Advisory Committee [Deakin, DeVidi]		
	8.1 Advisory Group Terms of Reference	Information	148
2:05 p.m.	9. Usefulness of Advisory Committees for General Purposes [DeVidi]	Information	
2:20 p.m.	10. Sustainability Project Outcomes: Revisiting the UDLES [Thijssen]	Information	
	Confidential Session		
2:35 p.m.	11. Senate Effectiveness Survey	Discussion	
	11.1 Results of the Senate Effectiveness Survey		150
	12. Other Business	Information	

13. Adjournment

Excerpt from Senate Bylaw 1

8. Declarations of conflict of interest

8.01	At the beginning of each meeting of Senate or any of Senate's committees or councils, the chair will call for members to declare any conflicts of interest with regard to any agenda item. For agenda items to be discussed in closed session, the chair will call for declarations of conflict of interest at the beginning of the closed portion of the meeting. Members may nonetheless declare conflicts at any time during a meeting.
8.02	A member shall be considered to have an actual, perceived or potential conflict of interest, when the opportunity exists for the member to use confidential information gained as a member of Senate, or any of Senate's committees or councils, for the personal profit or advantage of any person, or use the authority, knowledge or influence of the Senate, or a committee or council thereof, to further her/his personal, familial or corporate interests or the interests of an employee of the university with whom the member has a marital, familial or sexual relationship.
8.03	Members who declare conflicts of interest shall not enter into debate nor vote upon the specified item upon which they have declared a conflict of interest. The chair will determine whether it is appropriate for said member to remove themselves from the meeting for the duration of debate on the specified item(s).
8.04	Where Senate or a committee or council of Senate is of the opinion that a conflict of interest exists that has not been declared, the body may declare by a resolution carried by two-thirds of its members present at the meeting that a conflict of interest exists and a member thus found to be in conflict shall not enter into debate on the specified item upon which they have declared a conflict of interest. The chair will determine whether it is appropriate for said member to remove themselves from the meeting for the duration of debate on the specified item(s).

University of Waterloo
SENATE UNDERGRADUATE COUNCIL
Minutes of the April 8, 2025 Meeting

Present: Katherine Acheson, Faisal Al-Faisal, Kareem Alfarra, Veronica Austen, Benoit Charbonneau, Victoria Chu, Ashley Day (secretary), Laura Deakin, David DeVidi (chair), Leanne Ferries, Jason Grove, Kristiina Montero, Cathy Newell Kelly, Cynthia Richard, Helena Shilomboleni, Robert Stark, Victoria Swanson, Johanna Wandel, Richard Wikkerink, Matthew Woodward, William Wong

Resources/Guests: Angela Christelis, Blair Clarance, Jennifer Coghlin, Mike Grivicic, Danielle Jeanneault, George Lamont, Carrie MacKinnon Molson, Felicia Pantazi, Andrea Prier, Kyle Scholz

Absent: Avery Akkerman, Chloe Ding, Namrah Hassan, Carol Ann MacGregor, Nicholas Pfeifle, Chris Vigna

Organization of Meeting David DeVidi took the chair, and Ashley Day acted as secretary. The secretary advised that a quorum was present. The agenda was approved without formal motion.

1. CONFLICT OF INTEREST
No conflicts of interest were declared.

CONSENT AGENDA
Council heard a motion to approve or receive for information the items of the consent agenda. Charbonneau and Deakin. Carried.

2. MINUTES OF THE JANUARY 28, 2025 MEETING
Council approved the minutes of the meeting as distributed.

3. NEW AND RENEWED UNDERGRADUATE AWARDS
Council received for information an update to the undergraduate awards.

4. UPDATE TO RULES FOR MAJOR MODIFICATIONS – PROGRAM NAME CHANGES
Council received for information an update to the rules for major modifications.

5. CURRICULAR SUBMISSIONS
Council received for information item 5.1 - 5.2 and approved item 5.3 on behalf of Senate.

REGULAR AGENDA

6. BUSINESS ARISING FROM THE MINUTES
At the SUC meeting on January 28th, it was agreed to conduct an e-vote on the Course Outline Requirements item led by Laura Deakin. The SUC e-vote took place from February 11-14th and passed. The item was approved at the March Senate meeting.

7. CHAIR'S REMARKS
The chair welcomed Matthew Woodward as the new Environment Society student member of SUC.

8. Teaching Innovation Incubator
Kyle Scholz, Managing Director of the Teaching Innovation Incubator, presented an overview of the incubator's work from the previous year. The goal of the Teaching Innovation Incubator is to provide project teams, faculty, and staff with funding and support in an incubator space. The new process for 2025 includes project criteria, an advisory committee and project support model. An open call was made for projects related to the theme of Global Futures. Three projects will receive the support of the incubator including virtual and physical space on campus for collaboration, safe testing, and experimentation of different educational technologies.

9. UNDERGRADUATE COMMUNICATIONS REQUIREMENT GROUP

George Lamont, Director, Undergraduate Communication Requirement, presented an update on the undergraduate communications requirement group. Senate had previously tasked the group with designing a process, which has now be drafted. The process was built with collaboration across 6 faculties and multiple units, and provides an approval pathway through to Senate.

Next steps will be to begin the process and reviews as soon as items are ready. This will include meetings to review changes and proposals, talking to employers, and finding ways to appeal to students and parents about preparation for the workplace.

10. CO-OPERATIVE AND EXPERIENTIAL EDUCATION APPROACH

Wikkerink and Prier presented an update to the course content for PD 14: Technological Futures - Responsible Digital Innovation. The item is being brought back with completed action items from the last SUC meeting. Wikkerink and Prier worked closely with Deakin and Ferries to review the changes. The course description has been updated to include a reflective element and learning outcomes have been updated from the last meeting. The course design and content is currently being built by two course instructors.

SUC was in consensus that this additional update has satisfied the follow-up action pertaining to learning outcomes, as requested at the January 28, 2025 meeting. Additional feedback or comments can be sent to Andrea Prier directly.

11. CURRICULAR SUBMISSIONS

11.2 Faculty of Science - BScFM

Deakin presented the proposal from the Faculty of Science which has incorporated feedback from the SUC Curriculum Subcommittee. The proposed changes stem from high attrition rates and a recommendation from students to provide more options in science and business management options. The Chartered Professional Accounting (CPA) designation will soon require masters level courses. Once CPA Ontario has finalized their new requirements, the Faculty will bring forward changes to align programming.

A motion was heard to recommend that Senate approve the creation of a Bachelor of Science and Financial Management (BScFM) program with three new science and three new business specializations, and, to retire the Bachelor of Science, Biotechnology/Chartered Professional Accountancy program at the same time, effective September 1, 2026, as presented.
Deakin and Ferries. Carried.

11.3 Faculty of Science - Honours Bachelor of Medical Sciences (BMSci)

Deakin presented an overview of the new program proposal, an Honours Bachelor of Medical Sciences. This proposal includes a partnership with St. George University for a medical school pathway which will be a new kind of revenue generation opportunity for the University. The partnership agreement designates the University of Waterloo as the North American partner for the undergraduate component of the program. Students will apply to St. George University and transfer to UW as a first-year student. Council discussed the option for students to return to Canada to practice and how students may form pathways and residencies in Canada; how to anticipate existing UW students wanting to apply to the program; intention to include the program in the academic calendar and have policies in place.

The chair introduced the expedited approval process for a Fall 2026 launch which requires Senate approval by June 2025. DeVidi walked the council through the proposed plan and information items, such as the Financial Viability Report, which have not yet been completed. Council should expect an updated proposal after the site visit for an e-vote in May 2025 for approval. SUC was in agreement on the expedited process for this program approval.

12. OTHER BUSINESS

The chair spoke to the upcoming Annual Senate Survey that will be administered by the Secretariat in the coming weeks. DeVidi encouraged all members to participate as feedback is important to ensure the council is running effectively and efficiently.

13. ADJOURNMENT

With no further business, the meeting adjourned. The next meeting will be held on Monday June 16, 2025, from 1-3pm in NH 3318.

April 14, 2025

Ashley Day
Governance Officer

For Approval **Consent Agenda**

To:	Senate Undergraduate Council
Sponsor/Presenter:	David DeVidi, Associate Vice-President, Academic
Date of Meeting:	June 16, 2025
Agenda Item Identification:	3.1 SUC Curriculum Subcommittee Report: Consent Agenda for Approval

Recommendation/Motion

To approve the following curricular motions on behalf of Senate, as presented:

i. Faculty of Engineering
To recommend that SUC approve, through its consent agenda, the Faculty of Engineering course changes and minor modifications to the Management Science Option, as presented, on behalf of Senate.

ii. Faculty of Environment
To recommend that SUC approve, through its consent agenda, the Faculty of Environment course retirement and changes and minor modifications to the Environmental Planning Specialization, as presented, on behalf of Senate.

iii. Faculty of Mathematics
To recommend that SUC approve, through its consent agenda, the Faculty of Mathematics course retirements and minor modifications to the Data Science, Computer Science, and Mathematics programs, as presented, on behalf of Senate.

Summary

The SUC Curriculum Subcommittee has reviewed and agreed, via an e-vote which closed on June 5, 2025 to recommend to SUC for approval or receive for information as part of the consent agenda, the items included in the subsequent sections of this report (3.2 – 3.4).

To support easier navigation, items are also available in Kuali via the following links. If you have any issues accessing the links below, please contact Ashley Day, Governance Officer, for support.

i. Faculty of Engineering
ii. Faculty of Environment
iii. Faculty of Mathematics

Jurisdictional Information

As provided for in Senate Bylaw 2, section 5.03, council is empowered to make approvals on behalf of Senate for a variety of operational matters:

a. Make recommendations to Senate with respect to rules and regulations for the governance, direction and management of undergraduate studies in the university;

c. Make recommendations to Senate with respect to new undergraduate programs/plans, the deletion of undergraduate programs/plans, and major changes to undergraduate programs/plans.

Governance Path

Senate Undergraduate Council, Curriculum Subcommittee: June 5, 2025 (via e-vote)
Senate Undergraduate Council: June 16, 2025 (prospective)

Documents Included

- 3.2 Faculty of Engineering
- 3.3 Faculty of Environment
- 3.4 Faculty of Mathematics

SUC Curriculum Subcommittee - 2025 - 05 - Consent Agenda - Faculty of Engineering

Meeting Information

Agenda Page Title
SUC Curriculum Subcommittee - 2025 - 05 - Consent Agenda - Faculty of Engineering

Career Level
Undergraduate

Faculty/Unit
Engineering

Date
05/20/2025

Time

Location

Summary

Undergraduate Studies Submission for SUC Curriculum Subcommittee Consent Agenda - May 20,2025

Other Business

Attachment(s)

Course Proposals

Course Proposal Details

Course Changes

ARCH 126 - Removal of department consent to add course
ARCH 212 - Change lecture component to lab component

ECE 432 - Update to course description to reflect changes in course content
ECE 495 - Add H-Mechanical, H-Mechatronics and H-Software Engineering to the "Enrolled in" prerequisite

MSE 546 - Updates the prerequisites by including courses deemed equivalent

Courses: Retire
No proposals have been added.

Courses: New
No proposals have been added.

Courses: Changes

Code	Title	Type	Workflow Step
ARCH 126	Environmental Building Design	Course	SUC Subcommittee, SUC Curricular Subcommittee | Under Review
ARCH 212	Digital Fabrication	Course	SUC Subcommittee, SUC Curricular Subcommittee | Under Review
ECE 432	Radio Frequency Integrated Devices and Circuits	Course	SUC Subcommittee, SUC Curricular Subcommittee | Under Review
ECE 495	Autonomous Vehicles	Course	SUC Subcommittee, SUC Curricular Subcommittee | Under Review
MSE 546	Advanced Machine Learning	Course	SUC Subcommittee, SUC Curricular Subcommittee | Under Review

Programs & Plans Proposals

Programs & Plans Proposal Details

Minor Modifications

Management Science Option - Add SYDE535 as a new elective

Programs & Plans: Retire

No proposals have been added.

Programs & Plans: Major Modifications

No proposals have been added.

Programs & Plans: Minor Modifications

Code	Title	Type	Workflow Step
Management Science Option	Management Science Option	Program	SUC Subcommittee, SUC Curricular Subcommittee | Under Review

Regulations Proposals

Regulations Proposal Details

Regulations: Retire

No proposals have been added.

Regulations: New

No proposals have been added.

Regulations: Changes

No proposals have been added.

ARCH 126
Environmental Building Design

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Consent to Add
- Special Consent Required to Add
- participants
- Effective Term and Year
- Admin Notes

Effective Date & Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2024

Quest Course ID
3541

Offering Number
1

Proposal Details

Proposal Type
Change

Academic Unit Approval
10/23/2024

Rationale for Change
There seems to be a legacy requirement requiring departmental approval on this course. The pre-requisite course was dropped in 2018. We would like to drop department approval as we block enroll our 1B students into this course, and our location in Cambridge sees zero interest in other students taking the course.

Consultations

Supporting Documentation

Course Information

Faculty
Faculty of Engineering

Academic Unit
School of Architecture

Subject Code
ARCH

Number
126

Course Level
100

Title
Environmental Building Design

Abbreviated Title
Environmental Building Design

Undergraduate Communication Requirement Identifier
No

Description
An introduction to environmental design practices leading to low carbon design. Topics of discussion include passive heating and cooling, solar geometry, climate and meteorological influences, microclimate, site design, daylighting, active systems, embodied energy, sustainable rating systems, sustainable design philosophies such as cradle to cradle, biomimicry, and design for disassembly. Energy-related issues will be addressed and energy-based software design programs will be introduced. Understanding the role of design in an energy efficient or passive solar building will be a central learning outcome.

Units
0.50

Exceptions to fees or academic progress units

Components
Lecture

Primary Component
Lecture

Grading Information

Standard Course Grading
Yes

Cross-Listing Information

Is this course cross-listed?
No

Repeatable Courses

Can this course be repeated for credit?
No

Enrolment Rules

Proposed
Consent to Add
No consent required

Existing
Consent to Add
Department consent required

Consent to Drop
Department consent required

Prerequisites
- Enrolled in H-Architectural Studies

Corequisites
No Rules

Antirequisites
- Not completed nor concurrently enrolled in: ARCH226

Course Notes

Fee Statement
This course may have additional fees. See academic unit for details.

Notes

Workflow Information

Workflow Path
Committee approvals

Faculty/AFIW Path(s) for Workflow
Faculty of Engineering

Dependencies

Dependent Courses and Programs/Plans
REQUIRED COURSES (TERM BY TERM)
H-Architectural Studies - Architectural Studies (Bachelor of Architectural Studies - Honours) View Programs

ARCH 212
Digital Fabrication

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Primary Component
- Components
- participants
- Effective Term and Year
- Admin Notes

Effective Date & Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2024

Quest Course ID
15006

Offering Number
1

Proposal Details

Proposal Type
Change

Academic Unit Approval
10/23/2024

Rationale for Change
When the course was initially mounted the primary delivery method was lecture as we had little available equipment for student use. Our lab has substantially been expanded and so the primary method of teaching happens in the fabrication lab. With the new limitations of the 48 hour absence, it is preferred to change the course from lecture to lab as it is impossible for students to make up the lab experience.

Consultations

Supporting Documentation

Course Information

Faculty
Faculty of Engineering

Academic Unit
School of Architecture

Subject Code
ARCH

Number
212

Course Level
200

Title
Digital Fabrication

Abbreviated Title
Digital Fabrication

Undergraduate Communication Requirement Identifier
No

Description
This course will introduce students to the tools, work-flows, and culture surrounding computer-aided design/computer-aided manufacturing (CAD/CAM) and its creative applications within architecture. Students will learn how to work with CAD/CAM technologies such as laser cutters, three-dimensional (3D) printers, and computer numerical control (CNC) routers while expanding their knowledge of two- and three-dimensional CAD geometries that inform the digital fabrication process.

Units
0.50

Exceptions to fees or academic progress units

Proposed
Components
Laboratory

Proposed
Primary Component
Laboratory

Existing
Components
Lecture

Existing
Primary Component
Lecture

Grading Information

Standard Course Grading
Yes

Cross-Listing Information

Is this course cross-listed?
No

Repeatable Courses

Can this course be repeated for credit?
No

Enrolment Rules

Consent to Add
No consent required

Consent to Drop
Department consent required

Prerequisites

- Must have completed the following:
  - ARCH113 - Visual and Digital Media 2 (0.50)

Corequisites
No Rules

Antirequisites
No Rules

Course Notes

Fee Statement

Notes

Workflow Information

Workflow Path
Committee approvals

Faculty/AFIW Path(s) for Workflow
Faculty of Engineering

Dependencies

Dependent Courses and Programs/Plans
REQUIRED COURSES (TERM BY TERM)
H-Architectural Studies - Architectural Studies (Bachelor of Architectural Studies - Honours) View Programs

ECE 432
Radio Frequency Integrated Devices and Circuits

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Description
- participants
- Prerequisites
- Effective Term and Year
- Admin Notes

Effective Date & Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2024

Quest Course ID
13436

Offering Number
1

Proposal Details

Proposal Type
Change

Academic Unit Approval
03/21/2024

Rationale for Change
Update to course description to reflect changes in course content

Consultations
ECE USC, ECE Department.

Supporting Documentation

Course Information

Faculty
Faculty of Engineering

Academic Unit
Department of Electrical and Computer Engineering

Subject Code
ECE

Number
432

Course Level
400

Title
Radio Frequency Integrated Devices and Circuits

Abbreviated Title
Radio Freq Devices & Circuits

Undergraduate Communication Requirement Identifier
No

Proposed
Description
An introduction to the theory of Radio Frequency Integrated Circuit (RFIC) design. Physics and modelling for RF applications of integrated passive (R, L, and C), MOSFETs, and heterojunction bipolar transistors (HBTs). Properties of integrated devices at RF (e.g., noise, fT/fMAX, quality factor) and RFIC performance metrics. Transistor-level design of circuits for RFICs, including low-noise amplifiers (LNA), voltage-controlled oscillators (VCO) and mixers.

Existing
Description
An introduction to the theory and practice of Radio Frequency (RF) Integrated Circuit design. Physics and modelling of RF integrated components such as resistor, inductor, capacitor (RLC) passives, diodes, metal oxide semiconductor field-effect transistors (MOSFETs), high electron mobility transistors, hetero-junction bipolar transistors. RF integrated components properties and representation such as short channel effects, noise parameters, transit frequency (ft), maximum frequency of oscillation (fmax), and quality factor.

Units
0.50

Exceptions to fees or academic progress units

Components
LaboratoryLectureTest SlotTutorial

Primary Component
Lecture

Grading Information

Standard Course Grading
Yes

Cross-Listing Information

Is this course cross-listed?
No

Repeatable Courses

Can this course be repeated for credit?
No

Enrolment Rules

Consent to Add
No consent required

Consent to Drop
No consent required

Prerequisites

- Complete all of the following
  - ~~Complete 1 of the following~~
    - ~~Must have completed the following:~~
      - ~~ECE340 - Electronic Circuits 2 (0.50)~~
    - ~~Must have completed the following: ECE242~~
  - **Must have completed the following:**
    - **ECE106 - Electricity and Magnetism (0.50)**
    - **ECE331 - Electronic Devices (0.50)**
    - **ECE340 - Electronic Circuits 2 (0.50)**
  - Students must be in level 4A or higher
  - Enrolled in H-Computer Engineering, or H-Electrical Engineering

Corequisites
No Rules

Antirequisites
No Rules

Course Notes

Fee Statement

Notes

Workflow Information

Workflow Path
Committee approvals

Faculty/AFIW Path(s) for Workflow
Faculty of Engineering

Dependencies

Dependent Courses and Programs/Plans

COURSE LISTS

- H-Electrical Engineering - Electrical Engineering (Bachelor of Applied Science - Honours) View Programs
- H-Computer Engineering - Computer Engineering (Bachelor of Applied Science - Honours) View Programs
- H-Nanotechnology Engineering - Nanotechnology Engineering (Bachelor of Applied Science - Honours) View Programs

COURSE REQUIREMENTS (NO UNITS)

- Nanoelectronics Specialization - Nanoelectronics Specialization View Programs

ECE 495
Autonomous Vehicles

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Prerequisites
- Effective Term and Year
- Admin Notes

Effective Date & Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2024

Quest Course ID
15999

Offering Number
1

Proposal Details

Proposal Type
Change

Academic Unit Approval
11/14/2024

Rationale for Change
Adding additional programs to (H-Mechatronics and H-Software Engineering) to prerequisite list. ECE would like to make the course available to a larger population of students who may have interest in or benefit from the course material.

March 28th FUGS meeting - Bill Owen asked for Mechanical Engineering to be added to the pre-req list. Mahesh confirmed with the department.

Consultations

Supporting Documentation

Course Information

Faculty
Faculty of Engineering

Academic Unit
Department of Electrical and Computer Engineering

Subject Code
ECE

Number
495

Course Level
400

Title
Autonomous Vehicles

Abbreviated Title
Autonomous Vehicles

Undergraduate Communication Requirement Identifier
No

Description
Autonomous driving system overview; computer vision basics, deep learning for perception, motion modelling and state estimation, localization and mapping, object tracking, behavioral planning and reinforcement learning, path planning and vehicle control, safety and verification and validation, adoption and impact.

Units
0.50

Exceptions to fees or academic progress units

Components
LaboratoryLectureTutorial

Primary Component
Lecture

Grading Information

Standard Course Grading
Yes

Cross-Listing Information

Is this course cross-listed?
No

Repeatable Courses

Can this course be repeated for credit?
No

Enrolment Rules

Consent to Add
No consent required

Consent to Drop
No consent required

Prerequisites

- Complete all of the following
  - Students must be in level 3B or higher
  - Enrolled in H-Computer Engineering, H-Electrical Engineering, **H-Mechanical Engineering**, **H-Mechatronics Engineering**, or **H-Software Engineering**

Corequisites

No Rules

Antirequisites

No Rules

Course Notes

Fee Statement

Notes

Workflow Information

Workflow Path

Committee approvals

Faculty/AFIW Path(s) for Workflow

Faculty of Engineering

Dependencies

Dependent Courses and Programs/Plans

COURSE LISTS

H-Mechanical Engineering - Mechanical Engineering (Bachelor of Applied Science - Honours)	View Programs
H-Electrical Engineering - Electrical Engineering (Bachelor of Applied Science - Honours)	View Programs
H-Computer Engineering - Computer Engineering (Bachelor of Applied Science - Honours)	View Programs
H-Mechatronics Engineering - Mechatronics Engineering (Bachelor of Applied Science - Honours)	View Programs
H-Software Engineering - Software Engineering (Bachelor of Software Engineering - Honours)	View Programs

COURSE REQUIREMENTS (NO UNITS)

Artificial Intelligence Option - Artificial Intelligence Option	View Programs
SE-Artificial Intelligence Specialization - Artificial Intelligence Specialization	View Programs
CS-Artificial Intelligence Specialization - Artificial Intelligence Specialization	View Programs

MSE 546
Advanced Machine Learning

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

- Tim Weber-Kraljevski
- Mike Grivicic
- Diana Goncalves
- Kuali - Arts
- Kuali - Env
- Melanie Figueiredo
- Kuali - Math
- Kuali - Eng
- Kuali - Hlth
- Ashley Day
- Kuali - Science

Changes

- participants
- Prerequisites
- Effective Term and Year

Effective Date & Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2025

Quest Course ID
16243

Offering Number
1

Proposal Details

Proposal Type
Change

Academic Unit Approval
03/03/2025

Rationale for Change
The course is a technical elective in Management Engineering, but also a part of the AI, Computing, Computer Engineering, MSCI, and Software Engineering options. This proposal updates the pre-requisites by including courses deemed equivalent - in the context of this course - for one of the pre-existing pre-requisites (MSE 332). The change will make it easier for students outside of Management Engineering to take it. The change will reduce admin overhead (e.g., instructor over-rides) for students taking the course.

Consultations

Supporting Documentation

Course Information

Faculty
Faculty of Engineering

Academic Unit
Department of Management Science and Engineering

Subject Code
MSE

Number
546

Course Level
500

Title
Advanced Machine Learning

Abbreviated Title
Advanced Machine Learning

Undergraduate Communication Requirement Identifier
No

Description
This course provides a deeper understanding of machine learning (ML) techniques by utilizing students' prior background in ML and operations research to understand the drivers of ML methodologies rather than using black-box processes. The course first reviews supervised and unsupervised learning methods, and then dives deeper into their assumptions, mathematical models, and underlying algorithms to help students systematically develop and enhance ML processes. Using the same approach, the course covers more advanced topics in ML, such as neural networks and reinforcement learning. Application areas within this course may include, but are not limited to healthcare, energy, sports, transportation, and manufacturing.

Units
0.50

Exceptions to fees or academic progress units

Components
LectureTutorial

Primary Component
Lecture

Grading Information

Standard Course Grading
Yes

Cross-Listing Information

Is this course cross-listed?
No

Repeatable Courses

Can this course be repeated for credit?
No

Enrolment Rules

Consent to Add
No consent required

Consent to Drop
No consent required

Prerequisites

- Complete all of the following
  - Complete 1 of the following
    - ~~Must have completed the following:~~
      - ~~MSE332 - Deterministic Optimization Models and Methods (0.50)~~
    - **Must have completed at least 1 of the following:**
      - **BME411 - Optimization and Numerical Methods (0.50)**
      - **CHE521 - Process Optimization (0.50)**
      - **CO250 - Introduction to Optimization (0.50)**
      - **ENVE335 - Decision Making for Environmental Engineers (0.50)**
      - **MSE331 - Introduction to Optimization (0.50)**
      - **MSE332 - Deterministic Optimization Models and Methods (0.50)**
      - **SYDE411 - Optimization and Numerical Methods (0.50)**
    - Must have completed **at least 1 of** the following: **MSCI331,** MSCI332
  - Complete 1 of the following
    - Must have completed at least 1 of the following:
      - CS480 - Introduction to Machine Learning (0.50)
      - ECE457B - Fundamentals of Computational Intelligence (0.50)
      - MSE446 - Introduction to Machine Learning (0.50)
      - SYDE522 - Foundations of Artificial Intelligence (0.50)
    - Must have completed the following: MSCI446

Corequisites

No Rules

Antirequisites

No Rules

Course Notes

Fee Statement

Notes

Workflow Information

Workflow Path

Committee approvals

Faculty/AFIW Path(s) for Workflow

Faculty of Engineering

Dependencies

Dependent Courses and Programs/Plans

COURSE LISTS

- Computing Option - Computing Option — View Programs
- Computer Engineering Option - Computer Engineering Option — View Programs
- Software Engineering Option - Software Engineering Option — View Programs
- H-Electrical Engineering - Electrical Engineering (Bachelor of Applied Science - Honours) — View Programs
- H-Computer Engineering - Computer Engineering (Bachelor of Applied Science - Honours) — View Programs
- H-Management Engineering - Management Engineering (Bachelor of Applied Science - Honours) — View Programs

COURSE REQUIREMENTS (NO UNITS)

- Management Science Option - Management Science Option — View Programs
- Artificial Intelligence Option - Artificial Intelligence Option — View Programs

Management Science Option
Management Science Option

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Course Requirements (no units)
- participants
- Effective Term and Year

Effective Date and Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2025

Proposal Details

Proposal Type
Change

Academic Unit Approval
03/03/2025

Quality Assurance Designation
Minor Modification

Is there an impact to existing students?
Yes

Impact on Existing Students
Students currently completing their engineering studies can take advantage of the additional elective course added to the option

Is the credential name changing?
No

Co-operative System of Study and Requirements
Not Applicable

Creating or Changing Invalid Combinations
No

Change to Learning Outcomes
–

Rationale and Background for Change(s)
The proposal adds a new elective SYDE535 - Computational Simulations for Societal and Environmental Systems, on the recommendation of the coordinator of the Management Science Option. The course is deemed to fit within the theme of the option.

Consultations (Departmental)
Consulted with SYDE department. No issues were raised.

Supporting Documentation

General Program/Plan Information

Faculty
Faculty of Engineering

Academic Unit
Department of Management Science and Engineering

Field of Study
Options: Faculty of Engineering

Faculty
Faculty of Engineering

Undergraduate Credential Type
Option

Program/Plan Name
Management Science Option

Admissions

Option is available for students in the following degrees
Bachelor of Applied ScienceBachelor of Software Engineering

Admissions Entry Point
Declare Plan

Declaration Requirements

- Before requesting admission to this academic plan, see invalid credential combinations.

Requirements Information

Invalid Combinations
Yes

List of Invalid Combinations
H-Management Engineering

Average Requirement

Yes

Minimum Average(s) Required

- A minimum cumulative option average of 60.0%.

Graduation Requirements

- Complete a total of 3.0 units.

Course Requirements (units)

Required Courses

0
Units to Complete

No Rules

Course Requirements (no units)

Required Courses

- Complete all of the following
  - Complete 1 of the following:
    - MSE211 - Organizational Behaviour (0.50)
    - MSE311 - Organizational Design and Technology (0.50)
    - PSYCH238 - Organizational Psychology (0.50)
  - Complete 1 of the following:
    - BME411 - Optimization and Numerical Methods (0.50)
    - CHE521 - Process Optimization (0.50)
    - CIVE332 - Civil Systems and Project Management (0.50)
    - CO250 - Introduction to Optimization (0.50)
    - ENVE335 - Decision Making for Environmental Engineers (0.50)
    - MSE331 - Introduction to Optimization (0.50)
    - SYDE411 - Optimization and Numerical Methods (0.50)
  - Complete all of the following
    - Complete 4 courses from the following lists.
    - Choose any of the following:
      - CIVE343 - Traffic Simulation Modelling and Applications (0.50)
      - ECON371 - Business Finance 1 (0.50)
      - HRM200 - Basic Human Resources Management (0.50)
      - MSE311 - Organizational Design and Technology (0.50)
      - MSE332 - Deterministic Optimization Models and Methods (0.50)
      - MSE343 - Human-Computer Interaction (0.50)
      - MSE422 - Economic Impact of Technological Change and Entrepreneurship (0.50)
      - MSE431 - Stochastic Models and Methods (0.50)
      - MSE432 - Production and Service Operations Management (0.50)
      - MSE433 - Applications of Management Engineering (0.50)
      - MSE435 - Advanced Optimization Techniques (0.50)
      - MSE442 - Impact of Information Systems on Organizations and Society (0.50)
      - MSE452 - Decision Making Under Uncertainty (0.50)
      - MSE454 - Technical Entrepreneurship (0.50)
      - MSE531 - Stochastic Processes and Decision Making (0.50)
      - MSE541 - Search Engines (0.50)
      - MSE543 - Analytics and User Experience (0.50)
      - MSE546 - Advanced Machine Learning (0.50)
      - MSE551 - Quality Management and Control (0.50)
      - MSE555 - Scheduling: Theory and Practice (0.50)
      - MSE597 - Complementary Studies Topics in Management Science and Engineering (0.50)
      - MSE598 - Special Topics in Management Engineering (0.50)
      - SYDE531 - Design Optimization Under Probabilistic Uncertainty (0.50)
      - SYDE533 - Conflict Resolution (0.50)
      - **SYDE535 - Computational Simulations for Societal and Environmental Systems (0.50)**
    - Complete no more than 1 from the following:
      - AE392 - Economics and Life Cycle Cost Analysis (0.50)
      - BME364 - Engineering Biomedical Economics (0.50)
      - CIVE392 - Economics and Life Cycle Cost Analysis (0.50)
      - ENVE392 - Economics and Life Cycle Cost Analysis (0.50)
      - GEOE392 - Economics and Life Cycle Cost Analysis (0.50)
      - MSE261 - Engineering Economics: Financial Management for Engineers (0.50)
      - SYDE262 - Engineering Economics of Design (0.50)
    - Complete no more than 1 from the following:
      - BET450 - Leadership (0.50)
      - MSE411 - Leadership and Influence (0.50)
    - Complete no more than 1 from the following:
      - CS480 - Introduction to Machine Learning (0.50)
      - ECE457B - Fundamentals of Computational Intelligence (0.50)
      - MSE446 - Introduction to Machine Learning (0.50)
      - SYDE522 - Foundations of Artificial Intelligence (0.50)

- Complete no more than 1 from the following:
  - ECON201 - Microeconomic Theory for Business and Policy (0.50)
  - MSE263 - Managerial Economics (0.50)
- Complete no more than 1 from the following:
  - MSE211 - Organizational Behaviour (0.50)
  - PSYCH238 - Organizational Psychology (0.50)

Course Lists

Required Courses

No Rules

Are there cross-listed courses listed in requirements?
No

Additional Constraints

1. At least three courses must be MSE-labelled courses.
2. A maximum of one course from outside the approved list may be counted towards the Option, subject to approval of the option co-ordinator.
3. Students may take both MSE211 and MSE311; each course may only be used towards one requirement.

Notes

- For further information about the Management Science Option, contact the option co-ordinator in the Management Science and Engineering Department.

Undergraduate Plan Guidelines

Adherence to Academic Plan Guidelines
Yes

Workflow Information

Workflow Path	Faculty/AFIW Path(s) for Workflow	Senate Workflow
Committee approvals	Faculty of Engineering	--

Dependencies

Dependent Courses and Programs/Plans
There are no dependencies

SUC - 2025-06 - Consent Agenda - Faculty of Environment

Meeting Information

Agenda Page Title
SUC - 2025-06 - Consent Agenda - Faculty of Environment

Career Level
Undergraduate

Faculty/Unit
Faculty of Environment

Date
06/16/2025

Time

Location

Summary

Information only:

- Editorial changes:
    1. GEOG323/REC383: PLAN362 removed from prereq. This course has been retired, effective F2024, and was last offered 2018. This was submitted as an editorial change effective 2025/2026
    2. SFM101 - Remove ENVS474 antireq - last offered F21 - effective September 2026 (editorial change)
    3. ENBUS315 - Remove ENBUS375 antireq - last offered S21 - effective September 2026 (editorial change)
    4. GEOG415 - title approved as "Economic & Society Project" instead of "Economy & Society Project" (editorial correction) - approved at: SUC subcommittee (Jan 8, 2025)

Other Business

Attachment(s)

Course Proposals

Course Proposal Details
retired:

1. PLAN102 - replaced with ENVS131, effective September 2025. Last offered Fall 2024.

Change:

1. ENBUS304 - remove course prerequisite. Level prerequisite remains.
2. ENBUS475, ENVS474 - adding components for scheduling flexibility.

Courses: Retire

Code	Title	Type	Workflow Step
PLAN 102	Professional Communication	Course	SUC Subcommittee, SUC Curricular Subcommittee | Under Review

Courses: New

No proposals have been added.

Courses: Changes

Code	Title	Type	Workflow Step
ENBUS 304	Circular Economy	Course	SUC Subcommittee, SUC Curricular Subcommittee | Under Review
ENBUS 475	Special Topics in Environment and Business	Course	SUC Subcommittee, SUC Curricular Subcommittee | Under Review
ENVS 469	Landscape Ecology, Restoration and Rehabilitation	Course	SUC Subcommittee, SUC Curricular Subcommittee | Under Review
ENVS 474	Special Topics in Environment	Course	SUC Subcommittee, SUC Curricular Subcommittee | Under Review

Programs & Plans Proposals

Programs & Plans Proposal Details

Programs & Plans: Retire

No proposals have been added.

Programs & Plans: Major Modifications

No proposals have been added.

Programs & Plans: Minor Modifications

Code	Title	Type	Workflow Step
Environmental Planning Specialization	Environmental Planning Specialization	Program	SUC Subcommittee, SUC Curricular Subcommittee | Under Review

Regulations Proposals

Regulations Proposal Details

Regulations: Retire

No proposals have been added.

Regulations: New

No proposals have been added.

Regulations: Changes

No proposals have been added.

PLAN 102
Professional Communication

Under Review | Fall 2026

Proposal Information

Status

Changes

~~Active~~**Retired**

Warning: All versions that start after the retired version will be deleted.

Workflow Status

In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand

Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Effective Term and Year
- Admin Notes

Effective Date & Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2023

Quest Course ID
11119

Offering Number
1

Proposal Details

Proposal Type
Retire

Academic Unit Approval

Last Offering of Course

Retired Impact
No

Rationale for Change
Replacing PLAN 102 with ENVS 131 aligns with the Faculty of Environment's Environment 2035 vision to move toward "One Environment" through a common core curriculum, increased cross-unit teaching, and more flexible pathways for students. The School of Planning approved this change on October 25, 2024. This course has been removed from the Planning curriculum effective September 2025.

Course last offered Fall 2024.

Related agenda proposals: none

Consultations
University UCR group.

Supporting Documentation

Course Information

Faculty
Faculty of Environment

Academic Unit
School of Planning

Subject Code
PLAN

Number
102

Course Level
100

Title
Professional Communication

Abbreviated Title
Professional Communication

Undergraduate Communication Requirement Identifier
Yes

Description
This is a practical introduction to written communications and oral presentations as they are used specifically in the Planning profession. Report writing, correspondence and interaction with the news media are among the forms of communication considered. Students complete both written and oral assignments. Considerable critical comment is provided on assignment content as well as on technical aspects such as style and grammar.

Units
0.50

Exceptions to fees or academic progress units

Components
LectureTutorial

Primary Component
Lecture

Grading Information

Standard Course Grading
Yes

Cross-Listing Information

Is this course cross-listed?
No

Repeatable Courses

Can this course be repeated for credit?
No

Enrolment Rules

Consent to Add
No consent required

Consent to Drop
No consent required

Prerequisites
No Rules

Corequisites
No Rules

Antirequisites
No Rules

Course Notes

Fee Statement

Notes

Workflow Information

Workflow Path
Committee approvals

Faculty/AFIW Path(s) for Workflow
Faculty of Environment

Dependencies

Dependent Courses and Programs/Plans
There are no dependencies

ENBUS 304
Circular Economy

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Prerequisites
- Effective Term and Year

Effective Date & Career

Career
Undergraduate

Important!

Quest Course ID
16431

Proposed
Effective Term and Year
Fall 2026

Offering Number
1

Existing
Effective Term and Year
Fall 2025

Proposal Details

Proposal Type
Change

Academic Unit Approval
03/07/2025

Rationale for Change
The proposal seeks to bring ENBUS304 in line with our other theme elective courses in terms of their prerequisites, and reflects that students can be successful in this course without the current prerequisite of ENBUS204.

ENBUS 102 is not considered to be necessary for students to be successful in ENBUS 304. ENBUS 102 introduces students to frameworks that help understand and guide the integration of sustainability into business operations. ENBUS 304 takes a broader look at the Circular Economy and considers the role of consumers, government, as well as businesses.

In general, the ENBUS third year theme electives (ENBUS 310, ENBUS 314, ENBUS 308, ENBUS 309, ENBUS 315) are designed to be accessible and attractive to students outside of the ENBUS program and, as such, are designed to be 'stand-alone' courses. Students from a wide range of programs should be able to be successful in ENBUS 304 without a prerequisite, just as they are in ENBUS 309, ENBUS 310, and ENBUS 315 which typically draw many students from outside the program.

ENBUS304 is expected to be an elective that fits well with other programs (ERS and GEM). At present, the ENBUS204 prerequisite makes it difficult for these students to take ENBUS304.

Related agenda proposals: none

Consultations
Consultations made with the ENBUS204 and ENBUS304 instructor, as well as SEED faculty.

Supporting Documentation

Course Information

Faculty
Faculty of Environment

Academic Unit
School of Environment, Enterprise and Development

Subject Code
ENBUS

Number
304

Course Level
300

Title
Circular Economy

Abbreviated Title
Circular Economy

Undergraduate Communication Requirement Identifier
No

Description

Students will be equipped with the knowledge and expertise required to design and implement a circular economy initiative and monitor its progress through circularity indicators. In addition, students will be guided in assessing the business value of circular economy cases. Students will also gain a deep understanding by considering the individual circular economy cases from a system perspective to get a complete picture of environmental gains and losses.

Units

0.50

Exceptions to fees or academic progress units

Components

LectureTutorial

Primary Component

Lecture

Grading Information

Standard Course Grading

Yes

Cross-Listing Information

Is this course cross-listed?

No

Repeatable Courses

Can this course be repeated for credit?

No

Enrolment Rules

Consent to Add

No consent required

Consent to Drop

No consent required

Prerequisites

- ~~Must have completed the following:~~
    - ~~ENBUS204 - Principles of Industrial Ecology~~ ~~(0.50)~~
- Students must be in level 2B or higher

Corequisites
No Rules

Antirequisites
No Rules

Course Notes

Fee Statement

Notes

Workflow Information

Workflow Path
Committee approvals

Faculty/AFIW Path(s) for Workflow
Faculty of Environment

Dependencies

Dependent Courses and Programs/Plans
COURSE REQUIREMENTS (UNITS)
H-Environment & Business - Environment and Business (Bachelor of Environmental Studies - Honours) View Programs

ENBUS 475
Special Topics in Environment and Business

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Components
- Effective Term and Year
- Admin Notes

Effective Date & Career

Career
Undergraduate

Important!

Quest Course ID
12905

Proposed
Effective Term and Year
Fall 2026

Offering Number
1

Existing
Effective Term and Year
Fall 2024

Proposal Details

Proposal Type
Change

Academic Unit Approval
03/07/2025

Rationale for Change
ENBUS475 is a special topics course and adding a Reading option to the components will allow flexibility in using this course code for different delivery formats.

Related agenda proposals: none

Consultations
Consulted with SEED faculty.

Supporting Documentation

Course Information

Faculty
Faculty of Environment

Academic Unit
School of Environment, Enterprise and Development

Subject Code
ENBUS

Number
475

Course Level
400

Title
Special Topics in Environment and Business

Abbreviated Title
Env & Bus Special Topics

Undergraduate Communication Requirement Identifier
No

Description
This course will allow for additions to the program on a short-term basis, and for the development of future permanent courses.

Units
0.50

Exceptions to fees or academic progress units

Proposed
Components
Field StudiesLectureProjectSeminarTutorialReading

Primary Component
Lecture

Existing
Components
Field StudiesLectureProjectSeminarTutorial

Grading Information

Standard Course Grading
Yes

Cross-Listing Information

Is this course cross-listed?
No

Repeatable Courses

Can this course be repeated for credit?
Yes

Total Completions Allowed
03

Allow Multiple Enrol in a Term
Yes

Enrolment Rules

Consent to Add
No consent required

Consent to Drop
No consent required

Prerequisites

- Students must be in level 3A or higher

Corequisites
No Rules

Antirequisites
No Rules

Course Notes

Fee Statement
This course may have additional fees. See academic unit for details.

Notes

Workflow Information

Workflow Path
Committee approvals

Faculty/AFIW Path(s) for Workflow
Faculty of Environment

Dependencies

Dependent Courses and Programs/Plans

COURSE LISTS

H-Environment & Business - Environment and Business (Bachelor of Environmental Studies - Honours) View Programs

ENVS 469
Landscape Ecology, Restoration and Rehabilitation

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Prerequisites
- Effective Term and Year
- Admin Notes

Effective Date & Career

Career ?
Undergraduate

Important! ?

Proposed
Effective Term and Year ?
Fall 2026

Existing
Effective Term and Year ?
Fall 2024

Quest Course ID
5302

Offering Number
1

Proposal Details

Proposal Type
Change

Academic Unit Approval

Rationale for Change
Lower prerequisite level to 3A. Beginning W2026 this course is moving from being offered every year, to being offered every second year. This is one of two core courses for the Diploma in Ecological Restoration; as such, given the new offering sequence, some students will need to take it in third year. In the past the prereq for level at least 4A has been routinely overridden if the student was in 3A or above. Students in 3A or above will have the knowledge and skill set to be successful in this course.

Related agenda proposals: none

Consultations

Supporting Documentation

Course Information

Faculty
Faculty of Environment

Academic Unit
Dean of Environment Office

Subject Code
ENVS

Number
469

Course Level
400

Title
Landscape Ecology, Restoration and Rehabilitation

Abbreviated Title
Landscape: Ecol/Rest/Rehab

Undergraduate Communication Requirement Identifier
No

Description
Survey of the major concepts and theories of landscape ecology. Application of these concepts to case studies in restoration and/or rehabilitation. Interaction with professionals from government, NGOs, or private industry on ecological issues will also be part of the course. The course includes a practical component on the planning of ecological restoration or rehabilitation projects.

Units
0.50

Exceptions to fees or academic progress units

Components
LaboratoryLecture

Primary Component
Lecture

Grading Information

Standard Course Grading
Yes

Cross-Listing Information

Is this course cross-listed?
No

Repeatable Courses

Can this course be repeated for credit?
No

Enrolment Rules

Consent to Add
No consent required

Consent to Drop
No consent required

Prerequisites

- Complete all of the following
  - ~~Students must be in level 4A or higher~~**Students must be in level 3A or higher**
  - Obtained all of the following milestones: Workplace Hazardous Materials Information System Milestone

Corequisites
No Rules

Antirequisites
No Rules

Course Notes

Fee Statement
This course may have additional fees. See academic unit for details.

Notes

Workflow Information

Workflow Path
Committee approvals

Faculty/AFIW Path(s) for Workflow
Faculty of Environment

Dependencies

Dependent Courses and Programs/Plans

COURSE REQUIREMENTS (NO UNITS)

- Environmental Planning Specialization - Environmental Planning Specialization — View Programs

COURSE REQUIREMENTS (UNITS)

- Ecological Restoration & Rehabilitation Diploma - Diploma in Ecological Restoration and Rehabilitation — View Programs
- Urban Studies Minor - Urban Studies Minor — View Programs

ENVS 474
Special Topics in Environment

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Components
- Effective Term and Year

Effective Date & Career

Career ?
Undergraduate

Important! ?

Quest Course ID
12288

Proposed
Effective Term and Year ?
Fall 2026

Offering Number
1

Existing
Effective Term and Year ?
Fall 2025

Proposal Details

Proposal Type
Change

Academic Unit Approval

Rationale for Change
Add Field component for scheduling flexibility to this Special Topics course. This course is frequently used for one off experiential offerings, or as an interim offering for courses that have not yet been added as a permanent offering.

Related agenda proposals: none

Consultations
n/a

Supporting Documentation

Course Information

Faculty
Faculty of Environment

Academic Unit
Dean of Environment Office

Subject Code
ENVS

Number
474

Course Level
400

Title
Special Topics in Environment

Abbreviated Title
Env Special Topics

Undergraduate Communication Requirement Identifier
No

Description
This course allows for additions to the program on a short-term basis, and for the development of future permanent courses.

Units
0.50

Exceptions to fees or academic progress units

Proposed
Components
LaboratoryLectureProjectSeminarTutorialField Studies

Primary Component
Lecture

Existing
Components
LaboratoryLectureProjectSeminarTutorial

Grading Information

Standard Course Grading
Yes

Cross-Listing Information

Is this course cross-listed?
No

Repeatable Courses

Can this course be repeated for credit?
Yes

Total Completions Allowed
03

Allow Multiple Enrol in a Term
Yes

Enrolment Rules

Consent to Add
Instructor consent required

Consent to Drop
No consent required

Prerequisites
No Rules

Corequisites
No Rules

Antirequisites
No Rules

Course Notes

Fee Statement
This course may have additional fees. See academic unit for details.

Notes

Workflow Information

Workflow Path
Committee approvals

Faculty/AFIW Path(s) for Workflow
Faculty of Environment

Dependencies

Dependent Courses and Programs/Plans
There are no dependencies

Environmental Planning Specialization
Environmental Planning Specialization

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand

Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Additional Constraints
- Course Requirements (no units)
- Effective Term and Year
- Admin Notes

Effective Date and Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2024

Proposal Details

Proposal Type
Change

Academic Unit Approval
01/17/2025

Quality Assurance Designation
Minor Modification

Is there an impact to existing students?
No

Is the credential name changing?
No

Co-operative System of Study and Requirements
Not Applicable

Creating or Changing Invalid Combinations
No

Change to Learning Outcomes
--

Rationale and Background for Change(s)
The Environmental Planning Specialization aims to strengthen student understanding of community sustainability, environmental policy and regulation, the social, economic and environmental outcomes of different land use options, climate change adaptation and mitigation, and biodiversity conservation. Knowledge of Indigenous worldviews and rights are important competencies for these fields of practice. PLAN 442 is explicitly focused on how planning, in general, intersects with Indigenous rights, knowledge and governance systems, and a significant portion of the course focuses on how Indigenous peoples interact with sustainability and conservation planning in rural, non-metropolitan and natural resource-dependent regions. Not adding this course to the Environmental Planning Specialization was a simple oversight during the establishment of the new curriculum, which now needs to be corrected.

Update advisor link in additional constraints note 2.

Related agenda proposals: none

Consultations (Departmental)
N/A

Supporting Documentation

General Program/Plan Information

Faculty
Faculty of Environment

Academic Unit
School of Planning

Field of Study
Planning

Faculty
Faculty of Environment

Undergraduate Credential Type
Specialization

Program/Plan Name
Environmental Planning Specialization

Admissions

Specialization is available for students in the following majors

- H-Planning

Admissions Entry Point
Declare Plan

Declaration Requirements

Requirements Information

Invalid Combinations
No

Average Requirement
Yes

Minimum Average(s) Required

- A minimum cumulative specialization average of 75.0%.

Graduation Requirements

- Complete a total of 2.5 units:
  - 1.0 unit of required courses.
  - 1.5 units of courses from List 1.

Course Requirements (units)

Required Courses

0
Units to Complete

No Rules

Course Requirements (no units)

Required Courses

- Complete all the following:
  - PLAN240 - Environmental Planning and Policy (0.50)
  - PLAN451 - Environmental Planning in Rural and Regional Systems (0.50)

List 1

- Complete all of the following
  - Complete 1.5 units from the courses within this list.
  - Choose any of the following:
    - GEOG453 - Urban Stormwater Management (0.50)
    - PLAN358 - Planning Agricultural Systems (0.50)
    - PLAN414 - Heritage Conservation Planning (0.50)
    - PLAN417 - Aggregate Resources Planning, Development, and Management (0.50)
    - PLAN440 - Urban Services (0.50)
    - **PLAN442 - Indigenous Peoples and Planning (0.50)**
    - PLAN453 - Urban Stormwater Management (0.50)
    - PLAN480 - Planning Theory and Practice Abroad (0.50)
    - PLAN485 - Projects, Problems, and Readings in Planning (0.50)
  - Complete no more than 2 from the following:
    - ENVS401 - Canadian Law, Indigenous Peoples, and Natural Resource Development (0.50)
    - ENVS444 - Ecosystem and Resource Management in Parks/Natural Areas (0.50)
    - ENVS469 - Landscape Ecology, Restoration and Rehabilitation (0.50)
    - ERS316 - Urban Water and Wastewater Systems: Integrated Planning and Management (0.50)
    - ERS372 - First Nations and the Environment (0.50)

Course Lists

Required Courses

No Rules

Are there cross-listed courses listed in requirements?
Yes

Cross-Listings Options
All cross-listings to be displayed

Proposed

Additional Constraints

1. Students may only complete one course from any cross-listed set.
2. PLAN490 (Senior Honours Essay-1.0 unit) topics - if related to the specialization - may be approved as a List 1 course by the Associate Director, Undergraduate Studies, School of Planning.

Existing

Additional Constraints

1. Students may only complete one course from any cross-listed set.
2. PLAN490 (Senior Honours Essay-1.0 unit) topics - if related to the specialization - may be approved as a List 1 course by the associate director, undergraduate studies, School of Planning.

Notes

- See list of academic advisors.

Workflow Information

Workflow Path	Faculty/AFIW Path(s) for Workflow	Senate Workflow
Committee approvals	Faculty of Environment	--

Dependencies

Dependent Courses and Programs/Plans

SPECIALIZATIONS LIST

H-Planning - Planning (Bachelor of Environmental Studies - Honours) View Programs

SUC - 2025-06 - Consent Agenda - Faculty of Mathematics

Meeting Information

Agenda Page Title

SUC - 2025-06 - Consent Agenda - Faculty of Mathematics

Career Level

Undergraduate

Faculty/Unit

Mathematics

Date

06/16/2025

Time

Location

Summary

1. Retired Courses

- WKRPT 3
- WKRPT 4

2. New Courses

No Business.

3. Course Changes

No business.

4. Minor Program/Plan Modifications

- H-Data Science (BCS) - Proposal modified in consultation with department and Calendar Editor to improve readability.
- H-Computer Science (BMath) - Proposal modified in consultation with department and Calendar Editor to improve readability.
- H-Computer Science (BCS) - Proposal modified in consultation with department and Calendar Editor to improve readability.
- JH-Computer Science (BMath) - Proposal modified in consultation with department and Calendar Editor to improve readability.
- JH-Computer Science (BCS) -Proposal modified in consultation with department and Calendar Editor to improve readability.
- Degree Reqs: BMath

Other Business

Attachment(s)

Course Proposals

Course Proposal Details

Courses: Retire

Code	Title	Type	Workflow Step
WKRPT 3	Work-term Report	Course	SUC Subcommittee, SUC Curricular Subcommittee | Under Review
WKRPT 4	Work-term Report	Course	SUC Subcommittee, SUC Curricular Subcommittee | Under Review

Courses: New

No proposals have been added.

Courses: Changes

No proposals have been added.

Programs & Plans Proposals

Programs & Plans Proposal Details

Programs & Plans: Retire

No proposals have been added.

Programs & Plans: Major Modifications

No proposals have been added.

Programs & Plans: Minor Modifications

Code	Title	Type	Workflow Step
H-Data Science (BCS)	Data Science (Bachelor of Computer Science - Honours)	Program	SUC Subcommittee, SUC Curricular Subcommittee | Under Review
H-Computer Science (BMath)	Computer Science (Bachelor of Mathematics - Honours)	Program	SUC Subcommittee, SUC Curricular Subcommittee | Under Review
H-Computer Science (BCS)	Computer Science (Bachelor of Computer Science - Honours)	Program	SUC Subcommittee, SUC Curricular Subcommittee | Under Review
JH-Computer Science (BMath)	Computer Science (Bachelor of Mathematics - Joint Honours)	Program	SUC Subcommittee, SUC Curricular Subcommittee | Under Review
JH-Computer Science (BCS)	Computer Science (Bachelor of Computer Science - Joint Honours)	Program	SUC Subcommittee, SUC Curricular Subcommittee | Under Review
Degree Reqs: BMath	Bachelor of Mathematics Degree Requirements	Program	SUC Subcommittee, SUC Curricular Subcommittee | Under Review

Regulations Proposals

Regulations Proposal Details

Regulations: Retire

No proposals have been added.

Regulations: New

No proposals have been added.

Regulations: Changes

No proposals have been added.

WKRPT 3
Work-term Report

Under Review | Fall 2026

Proposal Information

Status

Changes

~~Active~~**Retired**

Warning: All versions that start after the retired version will be deleted.

Workflow Status

In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲

Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Effective Term and Year

Effective Date & Career

Career
Undergraduate

Important!

Quest Course ID
14274

Proposed

Effective Term and Year
Fall 2026

Offering Number
1

Existing

Effective Term and Year
Fall 2023

Proposal Details

Proposal Type
Retire

Academic Unit Approval

Last Offering of Course
Before 2013

Retired Impact
No

Rationale for Change
The reason for the existence of WKRPT 3 and WKRPT 4 has been lost to us, and there is no foreseeable need for either of them. In the 2013-2025 period, these courses have both been offered 14 times, all to be subsequently closed or finishing without a single student enrolled.

2025-03-17 AD Coop Lori Case in favour of removal

Approved at UAC 20250324
Approved at FC 20250422

Consultations

Supporting Documentation

Course Information

Faculty
Faculty of Mathematics

Academic Unit
Co-operative Education and Centre for Career Action

Subject Code
WKRPT

Number
3

Course Level
00

Title
Work-term Report

Abbreviated Title
Work-term Report

Undergraduate Communication Requirement Identifier
No

Description
A work-term report presenting in detail a technical project, activity, or analysis engaged by the student during the work term.

Units
0.13

Exceptions to fees or academic progress units

Components
Project

Primary Component
Project

Grading Information

Standard Course Grading
No

Special Course Grading
Credit/No Credit

Cross-Listing Information

Is this course cross-listed?
No

Repeatable Courses

Can this course be repeated for credit?
No

Enrolment Rules

Consent to Add
No consent required

Consent to Drop
No consent required

Prerequisites
No Rules

Corequisites
No Rules

Antirequisites
No Rules

Course Notes

Fee Statement

Notes

Workflow Information

Workflow Path
Committee approvals

Faculty/AFIW Path(s) for Workflow
Faculty of Mathematics

Dependencies

Dependent Courses and Programs/Plans
There are no dependencies

WKRPT 4
Work-term Report

Under Review | Fall 2026

Proposal Information

Status

Changes

~~Active~~**Retired**

Warning: All versions that start after the retired version will be deleted.

Workflow Status

In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲

Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Effective Term and Year

Effective Date & Career

Career
Undergraduate

Important!

Quest Course ID
14275

Proposed

Effective Term and Year
Fall 2026

Offering Number
1

Existing

Effective Term and Year
Fall 2023

Proposal Details

Proposal Type
Retire

Academic Unit Approval

Last Offering of Course
Before 2013

Retired Impact
No

Rationale for Change
The reason for the existence of WKRPT 3 and WKRPT 4 has been lost to us, and there is no foreseeable need for either of them. In the 2013-2025 period, these courses have both been offered 14 times, all to be subsequently closed or finishing without a single student enrolled.

2025-03-17 AD Coop Lori Case in favour of removal

Approved at UAC 20250324
Approved at FC 20250422

Consultations

Supporting Documentation

Course Information

Faculty
Faculty of Mathematics

Academic Unit
Co-operative Education and Centre for Career Action

Subject Code
WKRPT

Number
4

Course Level
00

Title
Work-term Report

Abbreviated Title
Work-term Report

Undergraduate Communication Requirement Identifier
No

Description
A work-term report presenting in detail a technical project, activity, or analysis engaged by the student during the work term.

Units
0.13

Exceptions to fees or academic progress units

Components
Project

Primary Component
Project

Grading Information

Standard Course Grading
No

Special Course Grading
Credit/No Credit

Cross-Listing Information

Is this course cross-listed?
No

Repeatable Courses

Can this course be repeated for credit?
No

Enrolment Rules

Consent to Add
No consent required

Consent to Drop
No consent required

Prerequisites
No Rules

Corequisites
No Rules

Antirequisites
No Rules

Course Notes

Fee Statement

Notes

Workflow Information

Workflow Path
Committee approvals

Faculty/AFIW Path(s) for Workflow
Faculty of Mathematics

Dependencies

Dependent Courses and Programs/Plans
There are no dependencies

H-Data Science (BCS)
Data Science (Bachelor of Computer Science - Honours)

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Course Requirements (no units)
- Additional Constraints
- Graduation Requirements
- Effective Term and Year
- Admin Notes

Effective Date and Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2025

Proposal Details

Proposal Type
Change

Academic Unit Approval
03/12/2025

Quality Assurance Designation
Minor Modification

Is there an impact to existing students?
No

Is the credential name changing?
No

Co-operative System of Study and Requirements
No

Creating or Changing Invalid Combinations
No

Change to Learning Outcomes
--

Rationale and Background for Change(s)

Removal of Breadth and Depth Requirement (Approved at UAC on 20240930):

Interpreting, enforcing, and advising about the Breadth and Depth Requirement consumes a large fraction of the School of Computer Science strained advising resources. Despite this, due to loopholes and exceptions, the requirement is perceived to be ineffective at achieving its purpose of ensuring students select a well-rounded set of electives.

The requirement is both too strict and too lax; the requirement has both false positives and false negatives relative to its purpose.

On one hand:

- Some sets of electives that would be considered well-rounded do not meet the letter of the requirement.
- The breadth requirement discourages students who want to focus deeply in a specific area outside of computer science.
- The depth requirement sometimes leads to situations where students require one or a small number of specific courses, which can significantly delay graduation if unforeseen circumstances prevent them from completing that specific course(s).

On the other hand:

- Other departments offer courses related to mathematics and computer science under the subject codes specified by the Breadth and Depth Requirement. Students regularly exploit these courses to satisfy the letter of the requirement without satisfying the spirit of learning about other subject areas.

In response to the last point, the Breadth and Depth Requirement contains the following additional constraint: *Courses with substantial math or computer science content, regardless of subject, do not satisfy the elective breadth or depth requirement.* In practice, the School does not enforce this constraint during degree checks because it is too vague. However, without this constraint, it would be too easy to circumvent the Breadth and Depth Requirement, defeating the purpose of the Requirement.

Addition of Elective Requirement (approved as amended at UAC 20250324):

Universities have a social obligation to graduate well educated people. Students need to know about the larger society and the world they will impact via their profession. Other fields have different ways of asking and answering questions. Students should experience a diversity of other approaches besides those used in mathematics and computer science.

Approved at FC 20250422

Consultations (Departmental)

Removal of Breadth and Depth Requirements (Approved at UAC on 20240930):
Approved at Computer Science Undergraduate Academic Plans Committee (UAPC) June 18, 2024.
Approved at School of Computer Science Council Sept. 11, 2024.

Addition of Elective Requirement (approved as amended at UAC 20250324):
Approved at Computer Science Undergraduate Academic Plans Committee (UAPC) February 20, 2025.
Approved at School of Computer Science Council March 12, 2025.

Supporting Documentation

General Program/Plan Information

Faculty
Faculty of Mathematics

Academic Unit
David R. Cheriton School of Computer Science

Field of Study
Data Science

Faculty
Faculty of Mathematics

Undergraduate Credential Type
Major

Program Type
Honours

Degree
Bachelor of Computer Science

Program/Plan Name
Data Science (Bachelor of Computer Science - Honours)

Systems of Study
Co-operative
Regular

Online Degree/Diploma

Admissions

Admissions Entry Point
Declare Plan

Declaration Requirements

Admission to the Bachelor of Computer Science (Data Science) academic plan, which is a Computer Science major academic plan, normally happens in second year. Students from within the Faculty of Mathematics with advanced standing may apply for admission to the Data Science major if they:

- Have completed at least one term in the Faculty of Mathematics with a typical course load for a Computer Science major.
    - For students taking a first-year CS course: one CS course, two math courses, and two non-math electives.
    - For students taking second-year CS courses: two CS courses, two math courses, and one non-math elective.
- Have credit for CS136 or CS146; and CS136L.
- Have a minimum cumulative math major average of 65% (calculated over all math and computer science courses) and a minimum cumulative CS major average of 70%.

Notes

- The Data Science major is a limited-enrolment academic plan and successful completion of the above conditions will not guarantee admission; applicants without some of these conditions will be considered on an individual basis. Students are normally not considered for admission beyond the 2B level.
- Transfer into the BMath (Data Science) academic plan from other academic plans in the Faculty of Mathematics outside of Computer Science is subject to enrolment limits. Transfer into BMath (Data Science) does not allow a student to then transfer automatically into Computer Science academic plans.
- Before declaring this academic plan, see invalid credential combinations.

Requirements Information

Invalid Combinations

Yes

List of Invalid Combinations

CS-Artificial Intelligence SpecializationStatistics Minor

Average Requirement

Yes

Minimum Average(s) Required

- A minimum cumulative overall average of 60.0%.
- A minimum cumulative major average of 60.0% in two or more of the following courses: CS136, CS138, CS146, all subsequent CS major courses, as well as CS courses numbered 600 and higher, CO487, ECE222, ECE429, SE212, SE240, SE382, SE463, SE464, SE465, and STAT 440.
- A minimum cumulative special major average of 65%: all math courses.

Proposed

Graduation Requirements

- See Bachelor of Computer Science degree-level requirements.
- Complete a minimum of 14.75 units of math courses.
- Complete all the required courses listed below.
- Complete a minimum of 5.0 units of non-math courses.

Existing

Graduation Requirements

- See Bachelor of Computer Science degree-level requirements.
- Complete the Breadth and Depth Requirements
- Complete a minimum of 14.75 units of math courses.
- Complete all the required courses listed below.

Breadth and Depth Requirement

Breadth Requirement

Requirement	Units Required	Subject Codes
Humanities	1.0 unit	CHINA, CLAS, CMW, COMMST, CROAT, DAC, DUTCH, EASIA, ENGL, FINE, FR, GER, GRK, HIST, HUMSC, ITAL, ITALST, JAPAN, JS, KOREA, LAT, MEDVL, MUSIC, PHIL, PORT, REES, RCS, RUSS, SI, SPAN, THPERF, VCULT
Pure Sciences	0.5 unit	BIOL, CHEM, EARTH, PHYS, SCI
Pure and Applied Sciences	0.5 unit	BIOL, CHEM, EARTH, ENVS, ERS, HEALTH, KIN, MNS, PHYS, PLAN, SCI
Social Sciences	1.0 unit	AFM, ANTH, APPLS, ARBUS, BET, BUS, COMM, ECON, ENBUS, GEOG, GSJ, HRM, INDEV, INDG, INTST, LS, MSE, PACS, PSCI, PSYCH, REC, SDS, SRF, SOC, SOCWK, STV

Depth Requirement

- Complete 1 of the following:
  - 1.5 units with the same subject, including at least 0.5 unit at 300-level or higher
  - 1.5 units with the same subject forming a prerequisite chain of length three

Additional Constraints

1. No course can satisfy more than one of the breadth requirements.
2. Courses with substantial math or computer science content, regardless of subject, do not satisfy the elective breadth or depth requirement. Students may wish to consult with the CS academic advisors about specific courses.
3. Courses from the "List 1: First Course" for the Undergraduate Communication Requirement do not satisfy the humanities breadth requirement. Courses found only in the "List 2: Second Course" list can satisfy both the humanities breadth requirement and the Undergraduate Communication Requirement.

Co-operative Education Program Requirements

For students in the co-operative system of study, see Bachelor of Computer Science co-operative education program requirements.

Course Requirements (units)

Required Courses

0
Units to Complete

No Rules

Course Requirements (no units)

Required Courses

- Complete all of the following
  - Complete all the following:
    - CS136L - Tools and Techniques for Software Development (0.25)
    - CS341 - Algorithms (0.50)
    - CS348 - Introduction to Database Management (0.50)
    - CS350 - Operating Systems (0.50)
    - CS451 - Data-Intensive Distributed Computing (0.50)
    - STAT330 - Mathematical Statistics (0.50)
    - STAT331 - Applied Linear Models (0.50)
    - STAT341 - Computational Statistics and Data Analysis (0.50)
  - Complete 1 of the following:
    - CS115 - Introduction to Computer Science 1 (0.50)
    - CS135 - Designing Functional Programs (0.50)
    - CS145 - Designing Functional Programs (Advanced Level) (0.50)
  - Complete 1 of the following:
    - CS136 - Elementary Algorithm Design and Data Abstraction (0.50)
    - CS146 - Elementary Algorithm Design and Data Abstraction (Advanced Level) (0.50)
  - Complete 1 of the following:
    - CS240 - Data Structures and Data Management (0.50)
    - CS240E - Data Structures and Data Management (Enriched) (0.50)
  - Complete 1 of the following:
    - CS241 - Foundations of Sequential Programs (0.50)
    - CS241E - Foundations of Sequential Programs (Enriched) (0.50)
  - Complete 1 of the following:
    - CS245 - Logic and Computation (0.50)
    - CS245E - Logic and Computation (Enriched) (0.50)
  - Complete 1 of the following:
    - CS246 - Object-Oriented Software Development (0.50)
    - CS246E - Object-Oriented Software Development (Enriched) (0.50)
  - Complete 1 of the following:
    - CS251 - Computer Organization and Design (0.50)

- CS251E - Computer Organization and Design (Enriched) (0.50)

- Complete 1 of the following

  - Complete all of the following
    - Complete all the following:
      - CS480 - Introduction to Machine Learning (0.50)
    - Complete 1 of the following:
      - CS448 - Database Systems Implementation (0.50)
      - CS454 - Distributed Systems (0.50)
      - CS484 - Computational Vision (0.50)
      - CS485 - Statistical and Computational Foundations of Machine Learning (0.50)
      - CS486 - Introduction to Artificial Intelligence (0.50)

  - Complete all of the following
    - Complete all the following:
      - CS485 - Statistical and Computational Foundations of Machine Learning (0.50)
    - Complete 1 of the following:
      - CS448 - Database Systems Implementation (0.50)
      - CS454 - Distributed Systems (0.50)
      - CS480 - Introduction to Machine Learning (0.50)
      - CS484 - Computational Vision (0.50)
      - CS486 - Introduction to Artificial Intelligence (0.50)

  - Complete all of the following
    - Complete all the following:
      - CS486 - Introduction to Artificial Intelligence (0.50)
    - Complete 1 of the following:
      - CS448 - Database Systems Implementation (0.50)
      - CS454 - Distributed Systems (0.50)
      - CS480 - Introduction to Machine Learning (0.50)
      - CS484 - Computational Vision (0.50)
      - CS485 - Statistical and Computational Foundations of Machine Learning (0.50)
- Complete 1 of the following:
  - MATH127 - Calculus 1 for the Sciences (0.50)
  - MATH137 - Calculus 1 for Honours Mathematics (0.50)
  - MATH147 - Calculus 1 (Advanced Level) (0.50)
- Complete 1 of the following:
  - MATH128 - Calculus 2 for the Sciences (0.50)
  - MATH138 - Calculus 2 for Honours Mathematics (0.50)
  - MATH148 - Calculus 2 (Advanced Level) (0.50)
- Complete 1 of the following:
  - MATH135 - Algebra for Honours Mathematics (0.50)
  - MATH145 - Algebra (Advanced Level) (0.50)

- Complete 1 of the following:
    - MATH136 - Linear Algebra 1 for Honours Mathematics (0.50)
    - MATH146 - Linear Algebra 1 (Advanced Level) (0.50)
- Complete 1 of the following:
    - MATH235 - Linear Algebra 2 for Honours Mathematics (0.50)
    - MATH245 - Linear Algebra 2 (Advanced Level) (0.50)
- Complete 1 of the following:
    - MATH237 - Calculus 3 for Honours Mathematics (0.50)
    - MATH247 - Calculus 3 (Advanced Level) (0.50)
- Complete 1 of the following:
    - MATH239 - Introduction to Combinatorics (0.50)
    - MATH249 - Introduction to Combinatorics (Advanced Level) (0.50)
- Complete 1 of the following:
    - STAT230 - Probability (0.50)
    - STAT240 - Probability (Advanced Level) (0.50)
- Complete 1 of the following:
    - STAT231 - Statistics (0.50)
    - STAT241 - Statistics (Advanced Level) (0.50)
- Complete 2 of the following:
    - STAT431 - Generalized Linear Models and their Applications (0.50)
    - STAT440 - Computational Inference (0.50)
    - STAT441 - Statistical Learning - Classification (0.50)
    - STAT442 - Data Visualization (0.50)
    - STAT443 - Forecasting (0.50)
    - STAT444 - Statistical Learning - Advanced Regression (0.50)
- Complete 1 additional CS courses chosen from CS340-CS398, CS440-CS489.

- Complete 1 of the following
    - Choose any course from the following: CS440-CS498, any CS course at the 600- or 700-level (see Additional Constraints)
    - Choose any of the following:
        - CO487 - Applied Cryptography (0.50)
        - CS499T - Honours Thesis (0.50)
        - STAT440 - Computational Inference (0.50)
- ~~Complete a total of 5.0 units of non-math courses satisfying the Breadth and Depth Requirement listed under Graduation Requirements~~

Elective Requirement

- **Complete all of the following**
    - **Complete 1.0 unit of courses, in any combination, chosen from the Faculty of Arts, or from the following subject codes: BET, BUS, COMM, STV.**
    - **Complete 1.0 unit of courses, in any combination, chosen from the following faculties: Environment, Health, Science.**
    - **Complete 2.0 additional units of courses, in any combination, chosen from the following options: courses offered by the Faculties of Arts, Environment, Health, Science; courses with**

subject codes BET, BUS, COMM, STV.

Course Lists

Approved Courses List

No Rules

Are there cross-listed courses listed in requirements?
No

Proposed

Additional Constraints

1. No one course may fulfil more than one requirement within the major.
2. Undergraduates are not allowed to enrol in 600-level courses when an equivalent 400-level exists. CS courses at the 700-levels may be taken only when special permission is obtained from the instructor and a CS academic advisor.
3. Elective Requirement:
    1. Any course counted towards the degree-level Undergraduate Communication Requirement cannot also be counted towards the Elective Requirement.
    2. Of the total 4.0 units, a minimum of 1.0 unit must be taken at the 200-level or higher.
    3. A course cross-listed with a math course cannot be counted towards the Elective Requirement.
    4. See Course Subjects Offered for faculty assignment of subject codes.

Existing

Additional Constraints

1. No one course may fulfil more than one requirement within the major.
2. Undergraduates are not allowed to enrol in 600-level courses when an equivalent 400-level exists. CS courses at the 700-levels may be taken only when special permission is obtained from the instructor and a CS academic advisor.

Notes

Specializations

Specializations for this Major
No

Workflow Information

Change to Undergraduate Communication Requirement

No

Workflow Path	Faculty/AFIW Path(s) for Workflow	Senate Workflow
Committee approvals	Faculty of Mathematics	--

Dependencies

Dependent Courses and Programs/Plans

ANTIREQUISITES

- PMATH 330 - Introduction to Mathematical Logic — View Courses
- MATH 106 - Applied Linear Algebra 1 — View Courses
- CS 230 - Introduction to Computers and Computer Systems — View Courses
- CS 231 - Algorithmic Problem Solving — View Courses
- CS 234 - Data Types and Structures — View Courses
- CS 200 - Concepts for Advanced Computer Usage — View Courses
- CS 430 - Applications Software Engineering — View Courses
- CS 335 - Computational Methods in Business and Finance — View Courses
- CS 431 - Data-Intensive Distributed Analytics — View Courses
- CS 338 - Computer Applications in Business: Databases — View Courses
- CS 436 - Networks and Distributed Computer Systems — View Courses
- CS 330 - Management Information Systems — View Courses

PREREQUISITES

- CS 240 - Data Structures and Data Management — View Courses
- CS 240E - Data Structures and Data Management (Enriched) — View Courses
- CS 499R - Readings in Computer Science — View Courses
- CS 497 - Multidisciplinary Studies in Computer Science — View Courses
- CS 494 - Team Project 2 — View Courses
- CS 493 - Team Project 1 — View Courses
- CS 492 - The Social Implications of Computing — View Courses
- CS 490 - Information Systems Management — View Courses
- CS 489 - Advanced Topics in Computer Science — View Courses
- CS 462 - Formal Languages and Parsing — View Courses
- CS 466 - Algorithm Design and Analysis — View Courses
- CS 454 - Distributed Systems — View Courses
- CS 451 - Data-Intensive Distributed Computing — View Courses
- CS 398 - Topics in Computer Science — View Courses
- CS 399 - Readings in Computer Science — View Courses
- CS 346 - Application Development — View Courses
- CS 360 - Introduction to the Theory of Computing — View Courses
- CS 499T - Honours Thesis — View Courses
- CS 488 - Introduction to Computer Graphics — View Courses
- CS 485 - Statistical and Computational Foundations of Machine Learning — View Courses
- CS 484 - Computational Vision — View Courses
- CS 457 - System Performance Evaluation — View Courses
- CS 452 - Real-Time Programming — View Courses
- CS 450 - Computer Architecture — View Courses

- CS 449 - Human-Computer Interaction — View Courses
- CS 448 - Database Systems Implementation — View Courses
- CS 447 - Software Testing, Quality Assurance, and Maintenance — View Courses
- CS 446 - Software Design and Architectures — View Courses
- CS 444 - Compiler Construction — View Courses
- CS 365 - Models of Computation — View Courses
- CS 350 - Operating Systems — View Courses
- CS 349 - User Interfaces — View Courses
- CS 348 - Introduction to Database Management — View Courses
- CS 343 - Concurrent and Parallel Programming — View Courses
- CS 341 - Algorithms — View Courses
- CS 251E - Computer Organization and Design (Enriched) — View Courses
- CS 251 - Computer Organization and Design — View Courses
- CS 241 - Foundations of Sequential Programs — View Courses
- CS 241E - Foundations of Sequential Programs (Enriched) — View Courses
- CS 486 - Introduction to Artificial Intelligence — View Courses
- CS 480 - Introduction to Machine Learning — View Courses
- CS 456 - Computer Networks — View Courses
- CS 442 - Principles of Programming Languages — View Courses
- CS 453 - Software and Systems Security — View Courses
- CS 459 - Privacy, Cryptography, Network and Data Security — View Courses
- ENGL 378 - Professional Communications in Statistics and Actuarial Science — View Courses
- CS 445 - Software Requirements Specification and Analysis — View Courses
- CS 458 - Computer Security and Privacy — View Courses
- MTHEL 300 - Professional Communications in Statistics and Actuarial Science — View Courses

H-Computer Science (BMath)
Computer Science (Bachelor of Mathematics - Honours)

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Effective Term and Year
- Course Requirements (no units)
- Graduation Requirements
- Additional Constraints

Effective Date and Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2025

Proposal Details

Proposal Type
Change

Academic Unit Approval
03/12/2025

Quality Assurance Designation
Minor Modification

Is there an impact to existing students?
No

Is the credential name changing?
No

Co-operative System of Study and Requirements
No

Creating or Changing Invalid Combinations
No

Change to Learning Outcomes
--

Rationale and Background for Change(s)

Removal of Breadth and Depth Requirement (Approved at UAC on 20240930):

Interpreting, enforcing, and advising about the Breadth and Depth Requirement consumes a large fraction of the School of Computer Science strained advising resources. Despite this, due to loopholes and exceptions, the requirement is perceived to be ineffective at achieving its purpose of ensuring students select a well-rounded set of electives.

The requirement is both too strict and too lax; the requirement has both false positives and false negatives relative to its purpose.

On one hand:

- Some sets of electives that would be considered well-rounded do not meet the letter of the requirement.
- The breadth requirement discourages students who want to focus deeply in a specific area outside of computer science.
- The depth requirement sometimes leads to situations where students require one or a small number of specific courses, which can significantly delay graduation if unforeseen circumstances prevent them from completing that specific course(s).

On the other hand:

- Other departments offer courses related to mathematics and computer science under the subject codes specified by the Breadth and Depth Requirement. Students regularly exploit these courses to satisfy the letter of the requirement without satisfying the spirit of learning about other subject areas.

In response to the last point, the Breadth and Depth Requirement contains the following additional constraint: *Courses with substantial math or computer science content, regardless of subject, do not satisfy the elective breadth or depth requirement.* In practice, the School does not enforce this constraint during degree checks because it is too vague. However, without this constraint, it would be too easy to circumvent the Breadth and Depth Requirement, defeating the purpose of the Requirement.

Addition of Elective Requirement (approved as amended at UAC 20250324):

Universities have a social obligation to graduate well educated people. Students need to know about the larger society and the world they will impact via their profession. Other fields have different ways of asking and answering questions. Students should experience a diversity of other approaches besides those used in mathematics and computer science.

Approved at FC 20250422

Consultations (Departmental)

Removal of Breadth and Depth Requirements (Approved at UAC on 20240930):
Approved at Computer Science Undergraduate Academic Plans Committee (UAPC) June 18, 2024.
Approved at School of Computer Science Council Sept. 11, 2024.

Addition of Elective Requirement (approved as amended at UAC 20250324):
Approved at Computer Science Undergraduate Academic Plans Committee (UAPC) February 20, 2025.
Approved at School of Computer Science Council March 12, 2025.

Supporting Documentation

General Program/Plan Information

Faculty
Faculty of Mathematics

Academic Unit
David R. Cheriton School of Computer Science

Field of Study
Computer Science

Faculty
Faculty of Mathematics

Undergraduate Credential Type
Major

Program Type
Honours

Degree
Bachelor of Mathematics

Program/Plan Name
Computer Science (Bachelor of Mathematics - Honours)

Systems of Study
Co-operative
Regular

Online Degree/Diploma

Admissions

Admissions Entry Point
Both

Admission Requirements: Minimum Requirements
Admission to the Computer Science major will normally occur when a student first applies to the Faculty of Mathematics.

Declaration Requirements

Students from within the Faculty of Mathematics with advanced standing may apply for admission to the Computer Science major if they:

- Have completed at least one term in the Faculty of Mathematics with a typical course load for a Computer Science major.
    - For students taking a first-year CS course: one CS course, two math courses, and two non-math electives.
    - For students taking second-year CS courses: two CS courses, two math courses, and one non-math elective.
- Have credit for CS136 or CS146; and CS136L.
- Have a minimum cumulative math major average of 65% (calculated over all math and computer science courses) and a minimum cumulative CS major average of 70%.

The Computer Science major is a limited-enrolment academic plan and successful completion of the above conditions will not guarantee admission; applicants without some of these conditions will be considered on an individual basis. Students are normally not considered for admission beyond the 2B level.
Before declaring this academic plan, see invalid credential combinations.

Requirements Information

Invalid Combinations

Yes

List of Invalid Combinations

H-Computing & Financial ManagementComputing Minor
H-Computer Science (BCS)JH-Computer Science (BCS)
JH-Computer Science (BMath)H-BBA & BCS Double Degree
H-Data Science (BCS)H-Data Science (BMath)
H-Software Engineering

Average Requirement

Yes

Minimum Average(s) Required

- A minimum cumulative overall average of 60.0%.
- A minimum cumulative major average of 60.0% in two or more of the following courses:
    - CS136, CS138, CS146;
    - CS240-299, CS340-399, CS440-499;
    - CS600-699, CS700-799;
    - AMATH242;
    - CO481, CO487;
    - ECE222, ECE451, ECE452, ECE453;
    - FINE383;
    - PHYS467;
    - SE212, SE350, SE463, SE464, SE465;
    - STAT440.

Proposed

Graduation Requirements

- See Bachelor of Mathematics degree-level requirements.
- Complete all the required courses listed below.
- Complete a minimum of 13.75 units of math courses.
- Complete a minimum of 5.0 units of non-math courses.

Existing

Graduation Requirements

- See Bachelor of Mathematics degree-level requirements.
- Complete all the required courses listed below.
- Complete a minimum of 13.75 units of math courses.

Breadth and Depth Requirement

Depth Requirement

Complete 1.5 units with the same subject, including a minimum of 0.5 unit at 300-level or above; or complete 1.5 units with the same subject forming a prerequisite chain of length three.

Breadth Requirement

Requirement	Units Required	Subject Codes
Humanities	1.0 unit	CHINA, CLAS, CMW, COMMST, CROAT, DAC, DUTCH, EASIA, ENGL, FINE, FR, GER, GRK, HIST, HUMSC, ITAL, ITALST, JAPAN, JS, KOREA, LAT, MEDVL, MUSIC, PHIL, PORT, RCS, REES, RUSS, SI, SPAN, THPERF, VCULT
Pure Sciences	0.5 unit	BIOL, CHEM, EARTH, PHYS, SCI
Pure and Applied Sciences	0.5 unit	BIOL, CHEM, EARTH, ENVS, ERS, HEALTH, KIN, MNS, PHYS, PLAN, SCI
Social Sciences	1.0 unit	AFM, ANTH, APPLS, ARBUS, BET, BUS, COMM, ECON, ENBUS, GEOG, GSJ, HRM, INDEV, INDG, INTST, LS, MSE, PACS, PSCI, PSYCH, REC, SDS, SRF, SOC, SOCWK, STV

Additional Constraints

1. No course can satisfy more than one of the breadth requirements.
2. Courses with substantial math or computer science content, regardless of subject, do not satisfy the breadth requirement. Students may wish to consult with the CS academic advisors about specific courses.
3. Undergraduate Communication Requirement's List 1 courses do not satisfy the Humanities breadth requirement. Courses found only in the Undergraduate Communication Requirement's List 2 can satisfy both the breadth requirement and the Undergraduate Communication Requirement.

Co-operative Education Program Requirements

For students in the co-operative system of study, see Bachelor of Mathematics co-operative education program requirements.

Course Requirements (units)

Required Courses

0
Units to Complete

No Rules

Course Requirements (no units)

Required Courses

- Complete all of the following
    - Complete all the following:
        - CS136L - Tools and Techniques for Software Development (0.25)
        - CS341 - Algorithms (0.50)
        - CS350 - Operating Systems (0.50)
    - Complete 1 of the following:
        - AMATH242 - Introduction to Computational Mathematics (0.50)
        - CS370 - Numerical Computation (0.50)
        - CS371 - Introduction to Computational Mathematics (0.50)
    - Complete 1 of the following:
        - CS240 - Data Structures and Data Management (0.50)
        - CS240E - Data Structures and Data Management (Enriched) (0.50)
    - Complete 1 of the following:
        - CS241 - Foundations of Sequential Programs (0.50)
        - CS241E - Foundations of Sequential Programs (Enriched) (0.50)
    - Complete 1 of the following:
        - CS245 - Logic and Computation (0.50)
        - CS245E - Logic and Computation (Enriched) (0.50)
    - Complete 1 of the following:
        - CS246 - Object-Oriented Software Development (0.50)
        - CS246E - Object-Oriented Software Development (Enriched) (0.50)
    - Complete 1 of the following:
        - CS251 - Computer Organization and Design (0.50)
        - CS251E - Computer Organization and Design (Enriched) (0.50)
    - Complete 1 of the following:
        - CS360 - Introduction to the Theory of Computing (0.50)
        - CS365 - Models of Computation (0.50)
    - Complete 1 of the following:
        - MATH237 - Calculus 3 for Honours Mathematics (0.50)
        - MATH247 - Calculus 3 (Advanced Level) (0.50)
    - Complete 1 of the following:
        - MATH239 - Introduction to Combinatorics (0.50)
        - MATH249 - Introduction to Combinatorics (Advanced Level) (0.50)
    - Complete 1 additional CS course chosen from CS340-CS398, CS440-CS489

- Complete 2 additional CS courses chosen from CS440-CS489
- Complete 3 additional courses from: ACTSC, AMATH, CO, PMATH, STAT (see Additional Constraints)
- The following cannot be used towards this academic plan:
    - ACTSC221 - Introductory Financial Mathematics (Non-Specialist Level) (0.50)
    - CO353 - Computational Discrete Optimization (0.50)
    - CO380 - Mathematical Discovery and Invention (0.50)
    - CO480 - History of Mathematics (0.50)
- Complete 1 additional course from the options in List 1
- ~~Complete a total of 5.0 units of non-math courses satisfying the Breadth and Depth Requirement listed under Graduation Requirements~~

Elective Requirement

- **Complete all of the following**
    - **Complete 1.0 unit of courses, in any combination, chosen from the Faculty of Arts, or from the following subject codes: BET, BUS, COMM, STV.**
    - **Complete 1.0 unit of courses, in any combination, chosen from the following faculties: Environment, Health, Science.**
    - **Complete 2.0 additional units of courses, in any combination, chosen from the following options: courses offered by the Faculties of Arts, Environment, Health, Science; courses with subject codes BET, BUS, COMM, STV.**

List 1

- Complete 1 of the following
    - Choose any of the following:
        - CO487 - Applied Cryptography (0.50)
        - CS499T - Honours Thesis (0.50)
        - STAT440 - Computational Inference (0.50)
    - Choose any course from the following: CS440-CS498, any CS course at the 600- or 700-level (see Additional Constraints)

Course Lists

Required Courses

No Rules

Are there cross-listed courses listed in requirements?
No

Proposed

Additional Constraints

1. For the requirement of three courses from math subject codes, the following are excluded:
    1. Courses with requisites normally excluding Honours Computer Science students.
    2. Courses cross-listed with a CS course.
    3. Courses explicitly listed in Computer Science major academic plans as alternatives to CS courses.
    4. Readings and topics courses.
2. List 1: CS courses at the 600- or 700-levels may be taken only if an equivalent 400-level course does not exist and special permission is obtained from the instructor and a CS academic advisor. These courses may be counted as a 0.5 unit CS course.
3. Elective Requirement:
    1. Any course counted towards the degree-level Undergraduate Communication Requirement cannot also be counted towards the Elective Requirement.
    2. Of the total 4.0 units, a minimum of 1.0 unit must be taken at the 200-level or higher.
    3. A course cross-listed with a math course cannot be counted towards the Elective Requirement.
    4. See Course Subjects Offered for faculty assignment of subject codes.

Existing

Additional Constraints

1. For the requirement of three courses from math subject codes, the following are excluded:
    1. Courses with requisites normally excluding Honours Computer Science students.
    2. Courses cross-listed with a CS course.
    3. Courses explicitly listed in Computer Science major academic plans as alternatives to CS courses.
    4. Readings and topics courses.
2. List 1: CS courses at the 600- or 700-levels may be taken only if an equivalent 400-level course does not exist and special permission is obtained from the instructor and a CS academic advisor. These courses may be counted as a 0.5 unit CS course.

Notes

Specializations

Specializations for this Major

Yes - Optional

Specialization Details

Students may choose to focus their elective choices by completing one or more of the eight available specializations.

Specializations List

- CS-Artificial Intelligence Specialization, CS-Bioinformatics Specialization, CS-Business Specialization, CS-Computational Fine Art Specialization, CS-Digital Hardware Specialization, CS-Game Design Specialization, CS-Human-Computer Interaction Specialization, or CS-Software Engineering Specialization

Workflow Information

Change to Undergraduate Communication Requirement

No

Workflow Path	Faculty/AFIW Path(s) for Workflow	Senate Workflow
Committee approvals	Faculty of Mathematics	--

Dependencies

Dependent Courses and Programs/Plans

ANTIREQUISITES

- PMATH 330 - Introduction to Mathematical Logic — View Courses
- MATH 106 - Applied Linear Algebra 1 — View Courses
- CS 230 - Introduction to Computers and Computer Systems — View Courses
- CS 231 - Algorithmic Problem Solving — View Courses
- CS 234 - Data Types and Structures — View Courses
- CS 200 - Concepts for Advanced Computer Usage — View Courses
- CS 430 - Applications Software Engineering — View Courses
- CS 335 - Computational Methods in Business and Finance — View Courses
- CS 431 - Data-Intensive Distributed Analytics — View Courses
- CS 338 - Computer Applications in Business: Databases — View Courses
- CS 436 - Networks and Distributed Computer Systems — View Courses
- CS 330 - Management Information Systems — View Courses

PREREQUISITES

- CS 240 - Data Structures and Data Management — View Courses
- CS 240E - Data Structures and Data Management (Enriched) — View Courses
- CS 499R - Readings in Computer Science — View Courses
- CS 497 - Multidisciplinary Studies in Computer Science — View Courses
- CS 494 - Team Project 2 — View Courses
- CS 493 - Team Project 1 — View Courses
- CS 492 - The Social Implications of Computing — View Courses
- CS 490 - Information Systems Management — View Courses
- CS 489 - Advanced Topics in Computer Science — View Courses
- CS 462 - Formal Languages and Parsing — View Courses
- CS 466 - Algorithm Design and Analysis — View Courses
- CS 454 - Distributed Systems — View Courses
- CS 451 - Data-Intensive Distributed Computing — View Courses
- CS 398 - Topics in Computer Science — View Courses
- CS 399 - Readings in Computer Science — View Courses
- CS 346 - Application Development — View Courses
- CS 360 - Introduction to the Theory of Computing — View Courses
- CS 499T - Honours Thesis — View Courses
- CS 488 - Introduction to Computer Graphics — View Courses
- CS 485 - Statistical and Computational Foundations of Machine Learning — View Courses

- CS 484 - Computational Vision — View Courses
- CS 457 - System Performance Evaluation — View Courses
- CS 452 - Real-Time Programming — View Courses
- CS 450 - Computer Architecture — View Courses
- CS 449 - Human-Computer Interaction — View Courses
- CS 448 - Database Systems Implementation — View Courses
- CS 447 - Software Testing, Quality Assurance, and Maintenance — View Courses
- CS 446 - Software Design and Architectures — View Courses
- CS 444 - Compiler Construction — View Courses
- CS 365 - Models of Computation — View Courses
- CS 350 - Operating Systems — View Courses
- CS 349 - User Interfaces — View Courses
- CS 348 - Introduction to Database Management — View Courses
- CS 343 - Concurrent and Parallel Programming — View Courses
- CS 341 - Algorithms — View Courses
- CS 251E - Computer Organization and Design (Enriched) — View Courses
- CS 251 - Computer Organization and Design — View Courses
- CS 241 - Foundations of Sequential Programs — View Courses
- CS 241E - Foundations of Sequential Programs (Enriched) — View Courses
- CS 486 - Introduction to Artificial Intelligence — View Courses
- CS 480 - Introduction to Machine Learning — View Courses
- CS 456 - Computer Networks — View Courses
- CS 442 - Principles of Programming Languages — View Courses
- CS 453 - Software and Systems Security — View Courses
- CS 459 - Privacy, Cryptography, Network and Data Security — View Courses
- CS 445 - Software Requirements Specification and Analysis — View Courses
- CS 458 - Computer Security and Privacy — View Courses

SPECIALIZATION IS AVAILABLE FOR STUDENTS IN THE FOLLOWING MAJORS

- CS-Bioinformatics Specialization - Bioinformatics Specialization — View Programs
- CS-Digital Hardware Specialization - Digital Hardware Specialization — View Programs
- CS-Software Engineering Specialization - Software Engineering Specialization — View Programs
- CS-Game Design Specialization - Game Design Specialization — View Programs
- CS-Business Specialization - Business Specialization — View Programs
- CS-Computational Fine Art Specialization - Computational Fine Art Specialization — View Programs
- CS-Human-Computer Interaction Specialization - Human-Computer Interaction Specialization — View Programs
- CS-Artificial Intelligence Specialization - Artificial Intelligence Specialization — View Programs

H-Computer Science (BCS)
Computer Science (Bachelor of Computer Science - Honours)

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- Effective Term and Year
- Course Requirements (no units)
- participants
- Graduation Requirements
- Additional Constraints

Effective Date and Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2025

Proposal Details

Proposal Type
Change

Academic Unit Approval
03/12/2025

Quality Assurance Designation
Minor Modification

Is there an impact to existing students?
No

Is the credential name changing?
No

Co-operative System of Study and Requirements
No

Creating or Changing Invalid Combinations
No

Change to Learning Outcomes
--

Rationale and Background for Change(s)

Removal of Breadth and Depth Requirement (Approved at UAC on 20240930):

Interpreting, enforcing, and advising about the Breadth and Depth Requirement consumes a large fraction of the School of Computer Science strained advising resources. Despite this, due to loopholes and exceptions, the requirement is perceived to be ineffective at achieving its purpose of ensuring students select a well-rounded set of electives.

The requirement is both too strict and too lax; the requirement has both false positives and false negatives relative to its purpose.

On one hand:

- Some sets of electives that would be considered well-rounded do not meet the letter of the requirement.
- The breadth requirement discourages students who want to focus deeply in a specific area outside of computer science.
- The depth requirement sometimes leads to situations where students require one or a small number of specific courses, which can significantly delay graduation if unforeseen circumstances prevent them from completing that specific course(s).

On the other hand:

- Other departments offer courses related to mathematics and computer science under the subject codes specified by the Breadth and Depth Requirement. Students regularly exploit these courses to satisfy the letter of the requirement without satisfying the spirit of learning about other subject areas.

In response to the last point, the Breadth and Depth Requirement contains the following additional constraint: *Courses with substantial math or computer science content, regardless of subject, do not satisfy the elective breadth or depth requirement.* In practice, the School does not enforce this constraint during degree checks because it is too vague. However, without this constraint, it would be too easy to circumvent the Breadth and Depth Requirement, defeating the purpose of the Requirement.

Addition of Elective Requirement (approved as amended at UAC 20250324):

Universities have a social obligation to graduate well educated people. Students need to know about the larger society and the world they will impact via their profession. Other fields have different ways of asking and answering questions. Students should experience a diversity of other approaches besides those used in mathematics and computer science.

Approved at FC 20250422

Consultations (Departmental)

Removal of Breadth and Depth Requirements (Approved at UAC on 20240930):
Approved at Computer Science Undergraduate Academic Plans Committee (UAPC) June 18, 2024.
Approved at School of Computer Science Council Sept. 11, 2024.

Addition of Elective Requirement (approved as amended at UAC 20250324):
Approved at Computer Science Undergraduate Academic Plans Committee (UAPC) February 20, 2025.
Approved at School of Computer Science Council March 12, 2025.

Supporting Documentation

General Program/Plan Information

Faculty
Faculty of Mathematics

Academic Unit
David R. Cheriton School of Computer Science

Field of Study
Computer Science

Faculty
Faculty of Mathematics

Undergraduate Credential Type
Major

Program Type
Honours

Degree
Bachelor of Computer Science

Program/Plan Name
Computer Science (Bachelor of Computer Science - Honours)

Systems of Study
Co-operative
Regular

Online Degree/Diploma

Admissions

Admissions Entry Point
Both

Admission Requirements: Minimum Requirements
Admission to the Computer Science major will normally occur when a student first applies to the Faculty of Mathematics.

Declaration Requirements

Students from within the Faculty of Mathematics with advanced standing may apply for admission to the Computer Science major if they:

- Have completed at least one term in the Faculty of Mathematics with a typical course load for a Computer Science major.
    - For students taking a first-year CS course: one CS course, two math courses, and two non-math electives.
    - For students taking second-year CS courses: two CS courses, two math courses, and one non-math elective.
- Have credit for CS136 or CS146; and CS136L.
- Have a minimum cumulative math major average of 65% (calculated over all math and computer science courses) and a minimum cumulative CS major average of 70%.

The Computer Science major is a limited-enrolment academic plan and successful completion of the above conditions will not guarantee admission; applicants without some of these conditions will be considered on an individual basis. Students are normally not considered for admission beyond the 2B level.
Before declaring this academic plan, see invalid credential combinations.

Requirements Information

Invalid Combinations

Yes

List of Invalid Combinations

H-Computing & Financial Management
H-Computer Science (BMath)JH-Computer Science (BCS)
JH-Computer Science (BMath)H-BBA & BCS Double Degree
H-Data Science (BCS)H-Data Science (BMath)
H-Software EngineeringComputing Minor

Average Requirement

Yes

Minimum Average(s) Required

- A minimum cumulative overall average of 60.0%.
- A minimum cumulative major average of 60.0% in two or more of the following courses:
    - CS136, CS138, CS146
    - CS240-299, CS340-399, CS440-499;
    - CS600-699, CS700-799;
    - AMATH242;
    - CO481, CO487;
    - ECE222, ECE451, ECE452, ECE453;
    - FINE383;
    - PHYS467;
    - SE212, SE350, SE463, SE464, SE465;
    - STAT440.

Proposed

Graduation Requirements

- See Bachelor of Computer Science degree-level requirements.
- Complete all the required courses listed below including the 11.25 units of math courses.
- Complete a minimum of 5.0 units of non-math courses.

Existing

Graduation Requirements

- See Bachelor of Computer Science degree-level requirements.
- Complete all the required courses listed below including the 11.25 units of math courses.

Breadth and Depth Requirement

Breadth Requirement

Requirement	Units Required	Subject Codes
Humanities	1.0 unit	CHINA, CLAS, CMW, COMMST, CROAT, DAC, DUTCH, EASIA, ENGL, FINE, FR, GER, GRK, HIST, HUMSC, ITAL, ITALST, JAPAN, JS, KOREA, LAT, MEDVL, MUSIC, PHIL, PORT, RCS, REES, RUSS, SI, SPAN, THPERF, VCULT
Pure Sciences	0.5 unit	BIOL, CHEM, EARTH, PHYS, SCI
Pure and Applied Sciences	0.5 unit	BIOL, CHEM, EARTH, ENVS, ERS, HEALTH, KIN, MNS, PHYS, PLAN, SCI
Social Sciences	1.0 unit	AFM, ANTH, APPLS, ARBUS, BET, BUS, COMM, ECON, ENBUS, GEOG, GSJ, HRM, INDEV, INDG, INTST, LS, MSE, PACS, PSCI, PSYCH, REC, SDS, SRF, SOC, SOCWK, STV

Depth Requirement

- Complete 1 of the following:
  - 1.5 units with the same subject, including at least 0.5 unit at 300-level or higher
  - 1.5 units with the same subject forming a prerequisite chain of length three

Additional Constraints

1. No course can satisfy more than one of the breadth requirements.
2. Courses with substantial math or computer science content, regardless of subject, do not satisfy the elective breadth or depth requirement. Students may wish to consult with the CS academic advisors about specific courses.
3. Undergraduate Communication Requirement's List 1 courses do not satisfy the Humanities breadth requirement. Courses found only in the Undergraduate Communication Requirement's List 2 can satisfy both the breadth requirement and the Undergraduate Communication Requirement.

Co-operative Education Program Requirements

For students in the co-operative system of study, see Bachelor of Computer Science co-operative education program requirements.

Course Requirements (units)

Required Courses

0
Units to Complete

No Rules

Course Requirements (no units)

Required Courses

- Complete all of the following
  - Complete all the following:
    - CS136L - Tools and Techniques for Software Development (0.25)
    - CS341 - Algorithms (0.50)
    - CS350 - Operating Systems (0.50)
  - Complete 1 of the following:
    - CS115 - Introduction to Computer Science 1 (0.50)
    - CS135 - Designing Functional Programs (0.50)
    - CS145 - Designing Functional Programs (Advanced Level) (0.50)
  - Complete 1 of the following:
    - CS136 - Elementary Algorithm Design and Data Abstraction (0.50)
    - CS146 - Elementary Algorithm Design and Data Abstraction (Advanced Level) (0.50)
  - Complete 1 of the following:
    - CS240 - Data Structures and Data Management (0.50)
    - CS240E - Data Structures and Data Management (Enriched) (0.50)
  - Complete 1 of the following:
    - CS241 - Foundations of Sequential Programs (0.50)
    - CS241E - Foundations of Sequential Programs (Enriched) (0.50)
  - Complete 1 of the following:
    - CS245 - Logic and Computation (0.50)
    - CS245E - Logic and Computation (Enriched) (0.50)
  - Complete 1 of the following:
    - CS246 - Object-Oriented Software Development (0.50)
    - CS246E - Object-Oriented Software Development (Enriched) (0.50)
  - Complete 1 of the following:
    - CS251 - Computer Organization and Design (0.50)
    - CS251E - Computer Organization and Design (Enriched) (0.50)
  - Complete 1 of the following:
    - MATH127 - Calculus 1 for the Sciences (0.50)
    - MATH137 - Calculus 1 for Honours Mathematics (0.50)
    - MATH147 - Calculus 1 (Advanced Level) (0.50)
  - Complete 1 of the following:
    - MATH128 - Calculus 2 for the Sciences (0.50)
    - MATH138 - Calculus 2 for Honours Mathematics (0.50)

        - MATH148 - Calculus 2 (Advanced Level) (0.50)
    - Complete 1 of the following:
        - MATH135 - Algebra for Honours Mathematics (0.50)
        - MATH145 - Algebra (Advanced Level) (0.50)
    - Complete 1 of the following:
        - MATH136 - Linear Algebra 1 for Honours Mathematics (0.50)
        - MATH146 - Linear Algebra 1 (Advanced Level) (0.50)
    - Complete 1 of the following:
        - MATH239 - Introduction to Combinatorics (0.50)
        - MATH249 - Introduction to Combinatorics (Advanced Level) (0.50)
    - Complete 1 of the following:
        - STAT230 - Probability (0.50)
        - STAT240 - Probability (Advanced Level) (0.50)
    - Complete 1 of the following:
        - STAT231 - Statistics (0.50)
        - STAT241 - Statistics (Advanced Level) (0.50)
    - Complete 3 additional CS courses chosen from CS340-CS398, CS440-CS489
    - Complete 2 additional CS courses chosen from CS440-CS489

    - Complete 1 of the following
        - Complete 1 course from the following: CS440-CS498, any CS course at the 600- or 700-level (see Additional Constraints)
        - Complete 1 of the following:
            - CO487 - Applied Cryptography (0.50)
            - CS499T - Honours Thesis (0.50)
            - STAT440 - Computational Inference (0.50)
    - ~~Complete a total of 5.0 units of non-math courses satisfying the Breadth and Depth Requirement listed under Graduation Requirements~~

Elective Requirement

- **Complete all of the following**
    - **Complete 1.0 unit of courses, in any combination, chosen from the Faculty of Arts, or from the following subject codes: BET, BUS, COMM, STV.**
    - **Complete 1.0 unit of courses, in any combination, chosen from the following faculties: Environment, Health, Science.**
    - **Complete 2.0 additional units of courses, in any combination, chosen from the following options: courses offered by the Faculties of Arts, Environment, Health, Science; courses with subject codes BET, BUS, COMM, STV.**

Course Lists

Required Courses

No Rules

Are there cross-listed courses listed in requirements?
No

Proposed

Additional Constraints

1. Undergraduates are not allowed to enrol in 600-level courses when an equivalent 400-level exists. CS courses at the 700-level may be taken only when special permission is obtained from the instructor and a CS academic advisor.
2. Elective Requirement:
    1. Any course counted towards the degree-level Undergraduate Communication Requirement cannot also be counted towards the Elective Requirement.
    2. Of the total 4.0 units, a minimum of 1.0 unit must be taken at the 200-level or higher.
    3. A course cross-listed with a math course cannot be counted towards the Elective Requirement.
    4. See Course Subjects Offered for faculty assignment of subject codes.

Existing

Additional Constraints

1. Undergraduates are not allowed to enrol in 600-level courses when an equivalent 400-level exists. CS courses at the 700-level may be taken only when special permission is obtained from the instructor and a CS academic advisor.

Notes

Specializations

Specializations for this Major
Yes - Optional

Specialization Details
Students may choose to focus their elective choices by completing one or more of the eight available specializations.

Specializations List

- CS-Artificial Intelligence Specialization, CS-Bioinformatics Specialization, CS-Business Specialization, CS-Computational Fine Art Specialization, CS-Digital Hardware Specialization, CS-Game Design Specialization, CS-Human-Computer Interaction Specialization, or CS-Software Engineering Specialization

Workflow Information

Change to Undergraduate Communication Requirement
No

Workflow Path	Faculty/AFIW Path(s) for Workflow	Senate Workflow
Committee approvals	Faculty of Mathematics	--

Dependencies

Dependent Courses and Programs/Plans

ANTIREQUISITES

- PMATH 330 - Introduction to Mathematical Logic — View Courses
- MATH 106 - Applied Linear Algebra 1 — View Courses
- CS 230 - Introduction to Computers and Computer Systems — View Courses
- CS 231 - Algorithmic Problem Solving — View Courses
- CS 234 - Data Types and Structures — View Courses
- CS 200 - Concepts for Advanced Computer Usage — View Courses
- CS 430 - Applications Software Engineering — View Courses
- CS 335 - Computational Methods in Business and Finance — View Courses
- CS 431 - Data-Intensive Distributed Analytics — View Courses
- CS 338 - Computer Applications in Business: Databases — View Courses
- CS 436 - Networks and Distributed Computer Systems — View Courses
- CS 330 - Management Information Systems — View Courses

PREREQUISITES

- CS 240 - Data Structures and Data Management — View Courses
- CS 240E - Data Structures and Data Management (Enriched) — View Courses
- CS 499R - Readings in Computer Science — View Courses
- CS 497 - Multidisciplinary Studies in Computer Science — View Courses
- CS 494 - Team Project 2 — View Courses
- CS 493 - Team Project 1 — View Courses
- CS 492 - The Social Implications of Computing — View Courses
- CS 490 - Information Systems Management — View Courses
- CS 489 - Advanced Topics in Computer Science — View Courses
- CS 462 - Formal Languages and Parsing — View Courses
- CS 466 - Algorithm Design and Analysis — View Courses
- CS 454 - Distributed Systems — View Courses
- CS 451 - Data-Intensive Distributed Computing — View Courses
- CS 398 - Topics in Computer Science — View Courses
- CS 399 - Readings in Computer Science — View Courses
- CS 346 - Application Development — View Courses
- CS 360 - Introduction to the Theory of Computing — View Courses
- CS 499T - Honours Thesis — View Courses
- CS 488 - Introduction to Computer Graphics — View Courses
- CS 485 - Statistical and Computational Foundations of Machine Learning — View Courses
- CS 484 - Computational Vision — View Courses
- CS 457 - System Performance Evaluation — View Courses
- CS 452 - Real-Time Programming — View Courses
- CS 450 - Computer Architecture — View Courses
- CS 449 - Human-Computer Interaction — View Courses
- CS 448 - Database Systems Implementation — View Courses
- CS 447 - Software Testing, Quality Assurance, and Maintenance — View Courses

- CS 446 - Software Design and Architectures — View Courses
- CS 444 - Compiler Construction — View Courses
- CS 365 - Models of Computation — View Courses
- CS 350 - Operating Systems — View Courses
- CS 349 - User Interfaces — View Courses
- CS 348 - Introduction to Database Management — View Courses
- CS 343 - Concurrent and Parallel Programming — View Courses
- CS 341 - Algorithms — View Courses
- CS 251E - Computer Organization and Design (Enriched) — View Courses
- CS 251 - Computer Organization and Design — View Courses
- CS 241 - Foundations of Sequential Programs — View Courses
- CS 241E - Foundations of Sequential Programs (Enriched) — View Courses
- CS 486 - Introduction to Artificial Intelligence — View Courses
- CS 480 - Introduction to Machine Learning — View Courses
- CS 456 - Computer Networks — View Courses
- CS 442 - Principles of Programming Languages — View Courses
- CS 453 - Software and Systems Security — View Courses
- CS 459 - Privacy, Cryptography, Network and Data Security — View Courses
- CS 445 - Software Requirements Specification and Analysis — View Courses
- CS 458 - Computer Security and Privacy — View Courses

SPECIALIZATION IS AVAILABLE FOR STUDENTS IN THE FOLLOWING MAJORS

- CS-Bioinformatics Specialization - Bioinformatics Specialization — View Programs
- CS-Digital Hardware Specialization - Digital Hardware Specialization — View Programs
- CS-Software Engineering Specialization - Software Engineering Specialization — View Programs
- CS-Game Design Specialization - Game Design Specialization — View Programs
- CS-Business Specialization - Business Specialization — View Programs
- CS-Computational Fine Art Specialization - Computational Fine Art Specialization — View Programs
- CS-Human-Computer Interaction Specialization - Human-Computer Interaction Specialization — View Programs
- CS-Artificial Intelligence Specialization - Artificial Intelligence Specialization — View Programs

JH-Computer Science (BMath)
Computer Science (Bachelor of Mathematics - Joint Honours)

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- participants
- Graduation Requirements
- Additional Constraints
- Course Requirements (no units)
- Effective Term and Year

Effective Date and Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2025

Proposal Details

Proposal Type
Change

Academic Unit Approval
03/12/2025

Quality Assurance Designation
Minor Modification

Is there an impact to existing students?
No

Is the credential name changing?
No

Co-operative System of Study and Requirements
No

Creating or Changing Invalid Combinations
No

Change to Learning Outcomes
--

Rationale and Background for Change(s)

Removal of Breadth and Depth Requirement (Approved at UAC on 20240930):

Interpreting, enforcing, and advising about the Breadth and Depth Requirement consumes a large fraction of the School of Computer Science strained advising resources. Despite this, due to loopholes and exceptions, the requirement is perceived to be ineffective at achieving its purpose of ensuring students select a well-rounded set of electives.

The requirement is both too strict and too lax; the requirement has both false positives and false negatives relative to its purpose.

On one hand:

- Some sets of electives that would be considered well-rounded do not meet the letter of the requirement.
- The breadth requirement discourages students who want to focus deeply in a specific area outside of computer science.
- The depth requirement sometimes leads to situations where students require one or a small number of specific courses, which can significantly delay graduation if unforeseen circumstances prevent them from completing that specific course(s).

On the other hand:

- Other departments offer courses related to mathematics and computer science under the subject codes specified by the Breadth and Depth Requirement. Students regularly exploit these courses to satisfy the letter of the requirement without satisfying the spirit of learning about other subject areas.

In response to the last point, the Breadth and Depth Requirement contains the following additional constraint: *Courses with substantial math or computer science content, regardless of subject, do not satisfy the elective breadth or depth requirement.* In practice, the School does not enforce this constraint during degree checks because it is too vague. However, without this constraint, it would be too easy to circumvent the Breadth and Depth Requirement, defeating the purpose of the Requirement.

Addition of Elective Requirement (approved as amended at UAC 20250324):

Universities have a social obligation to graduate well educated people. Students need to know about the larger society and the world they will impact via their profession. Other fields have different ways of asking and answering questions. Students should experience a diversity of other approaches besides those used in mathematics and computer science.

Approved at FC 20250422

Consultations (Departmental)

Removal of Breadth and Depth Requirements (Approved at UAC on 20240930):
Approved at Computer Science Undergraduate Academic Plans Committee (UAPC) June 18, 2024.
Approved at School of Computer Science Council Sept. 11, 2024.

Addition of Elective Requirement (approved as amended at UAC 20250324):
Approved at Computer Science Undergraduate Academic Plans Committee (UAPC) February 20, 2025.
Approved at School of Computer Science Council March 12, 2025.

Supporting Documentation

General Program/Plan Information

Faculty
Faculty of Mathematics

Academic Unit
David R. Cheriton School of Computer Science

Field of Study
Computer Science

Faculty
Faculty of Mathematics

Undergraduate Credential Type
Major

Program Type
Joint Honours

Program/Plan Name
Computer Science (Bachelor of Mathematics - Joint Honours)

Systems of Study
Co-operative
Regular

Online Degree/Diploma

Admissions

Admissions Entry Point
Both

Admission Requirements: Minimum Requirements
Admission to the Computer Science major will normally occur when a student first applies to the Faculty of Mathematics.

Declaration Requirements

Students from within the Faculty of Mathematics with advanced standing may apply for admission to the Computer Science major if they:

- Have completed at least one term in the Faculty of Mathematics with a typical course load for a Computer Science major.
    - For students taking a first-year CS course: one CS course, two math courses, and two non-math electives.
    - For students taking second-year CS courses: two CS courses, two math courses, and one non-math elective.
- Have credit for CS136 or CS146; and CS136L.
- Have a minimum cumulative math major average of 65% (calculated over all math and computer science courses) and a minimum cumulative CS major average of 70%.

The Computer Science major is a limited-enrolment academic plan and successful completion of the above conditions will not guarantee admission; applicants without some of these conditions will be considered on an individual basis. Students are normally not considered for admission beyond the 2B level.
Before declaring this academic plan, see invalid credential combinations.

Requirements Information

Invalid Combinations

Yes

List of Invalid Combinations

Bioinformatics OptionH-BBA & BCS Double Degree
Computing MinorH-Computer Science (BCS)
H-Computer Science (BMath)JH-Computer Science (BCS)
H-Data Science (BCS)H-Data Science (BMath)
H-Software EngineeringJH-Statistics
H-Computing & Financial Management

Average Requirement

Yes

Minimum Average(s) Required

- A minimum cumulative overall average of 60.0%.
- A minimum cumulative major average of 60.0% in two or more of the following courses:
    - CS136, CS138, CS146;
    - CS240-299, CS340-399, CS440-499;
    - CS600-699, CS700-799;
    - AMATH242;
    - CO481, CO487;
    - ECE222, ECE451, ECE452, ECE453;
    - FINE383;
    - PHYS467;
    - SE212, SE350, SE463, SE464, SE465;
    - STAT440.

Proposed

Graduation Requirements

- See Bachelor of Mathematics degree-level requirements.
- Complete all the required courses listed below.
- Complete a minimum of 10.75 units of math courses.
- Complete the requirements for at least one other major or joint major.
- Complete a minimum of 5.0 units of non-math courses.

Existing

Graduation Requirements

- See Bachelor of Mathematics degree-level requirements.
- Complete all the required courses listed below.
- Complete a minimum of 10.75 units of math courses.
- Complete the requirements for at least one other major or joint major.

Breadth and Depth Requirement

Breadth Requirement

Requirement	Units Required	Subject Codes
Humanities	1.0 unit	CHINA, CLAS, CMW, COMMST, CROAT, DAC, DUTCH, EASIA, ENGL, FINE, FR, GER, GRK, HIST, HUMSC, ITAL, ITALST, JAPAN, JS, KOREA, LAT, MEDVL, MUSIC, PHIL, PORT, RCS, REES, RUSS, SI, SPAN, THPERF, VCULT
Pure Sciences	0.5 unit	BIOL, CHEM, EARTH, PHYS, SCI
Pure and Applied Sciences	0.5 unit	BIOL, CHEM, EARTH, ENVS, ERS, HEALTH, KIN, MNS, PHYS, PLAN, SCI
Social Sciences	1.0 unit	AFM, ANTH, APPLS, ARBUS, BET, BUS, COMM, ECON, ENBUS, GEOG, GSJ, HRM, INDEV, INDG, INTST, LS, MSE, PACS, PSCI, PSYCH, REC, SDS, SRF, SOC, SOCWK, STV

Depth Requirement

- Complete 1 of the following:
  - 1.5 units with the same subject, including at least 0.5 unit at 300-level or higher
  - 1.5 units with the same subject forming a prerequisite chain of length three

Additional Constraints

1. No course can satisfy more than one of the breadth requirements.
2. Courses with substantial math or computer science content, regardless of subject, do not satisfy the breadth or depth requirement. Students may wish to consult with the CS academic advisors about specific courses.
3. Undergraduate Communication Requirement's List 1 courses do not satisfy the Humanities breadth requirement. Courses found only in the Undergraduate Communication Requirement's List 2 can satisfy both the breadth requirement and the Undergraduate Communication Requirement.

Co-operative Education Program Requirements

For students in the co-operative system of study, see Bachelor of Mathematics co-operative education program requirements.

Course Requirements (units)

Required Courses

0
Units to Complete

No Rules

Course Requirements (no units)

Required Courses

- Complete all of the following
  - Complete all the following:
    - CS136L - Tools and Techniques for Software Development (0.25)
    - CS341 - Algorithms (0.50)
    - CS350 - Operating Systems (0.50)
  - Complete 1 of the following:
    - CS136 - Elementary Algorithm Design and Data Abstraction (0.50)
    - CS146 - Elementary Algorithm Design and Data Abstraction (Advanced Level) (0.50)
  - Complete 1 of the following:
    - CS240 - Data Structures and Data Management (0.50)
    - CS240E - Data Structures and Data Management (Enriched) (0.50)
  - Complete 1 of the following:
    - CS241 - Foundations of Sequential Programs (0.50)
    - CS241E - Foundations of Sequential Programs (Enriched) (0.50)
  - Complete 1 of the following:
    - CS245 - Logic and Computation (0.50)
    - CS245E - Logic and Computation (Enriched) (0.50)
  - Complete 1 of the following:
    - CS246 - Object-Oriented Software Development (0.50)
    - CS246E - Object-Oriented Software Development (Enriched) (0.50)
  - Complete 1 of the following:
    - CS251 - Computer Organization and Design (0.50)
    - CS251E - Computer Organization and Design (Enriched) (0.50)
  - Complete 1 additional CS course chosen from CS340-CS398, CS440-CS489
  - Complete 2 additional CS courses chosen from CS440-CS489, CS499T
  - Complete 1 of the following:
    - MATH239 - Introduction to Combinatorics (0.50)
    - MATH249 - Introduction to Combinatorics (Advanced Level) (0.50)
  - ~~Complete a total of 5.0 units of non-math courses satisfying the Breadth and Depth Requirement listed under Graduation Requirements~~

Elective Requirement

- **Complete all of the following**
  - **Complete 1.0 unit of courses, in any combination, chosen from the Faculty of Arts, or from the following subject codes: BET, BUS, COMM, STV.**
  - **Complete 1.0 unit of courses, in any combination, chosen from the following faculties: Environment, Health, Science.**
  - **Complete 2.0 additional units of courses, in any combination, chosen from the following options: courses offered by the Faculties of Arts, Environment, Health, Science; courses with subject codes BET, BUS, COMM, STV.**

Course Lists

Additional Requirements

No Rules

Are there cross-listed courses listed in requirements?
No

Proposed

Additional Constraints

1. Elective Requirement:
    1. Any course counted towards the degree-level Undergraduate Communication Requirement cannot also be counted towards the Elective Requirement.
    2. Of the total 4.0 units, a minimum of 1.0 unit must be taken at the 200-level or higher.
    3. A course cross-listed with a math course cannot be counted towards the Elective Requirement.
    4. See Course Subjects Offered for faculty assignment of subject codes.

Existing

Additional Constraints

Notes

Specializations

Specializations for this Major
No

Workflow Information

Change to Undergraduate Communication Requirement
No

Workflow Path	Faculty/AFIW Path(s) for Workflow	Senate Workflow
Committee approvals	Faculty of Mathematics	--

Dependencies

Dependent Courses and Programs/Plans

ANTIREQUISITES

- PMATH 330 - Introduction to Mathematical Logic — View Courses
- MATH 106 - Applied Linear Algebra 1 — View Courses
- CS 230 - Introduction to Computers and Computer Systems — View Courses
- CS 231 - Algorithmic Problem Solving — View Courses
- CS 234 - Data Types and Structures — View Courses
- CS 200 - Concepts for Advanced Computer Usage — View Courses
- CS 430 - Applications Software Engineering — View Courses
- CS 335 - Computational Methods in Business and Finance — View Courses
- CS 431 - Data-Intensive Distributed Analytics — View Courses
- CS 338 - Computer Applications in Business: Databases — View Courses
- CS 436 - Networks and Distributed Computer Systems — View Courses
- CS 330 - Management Information Systems — View Courses

PREREQUISITES

- CS 240 - Data Structures and Data Management — View Courses
- CS 240E - Data Structures and Data Management (Enriched) — View Courses
- CS 499R - Readings in Computer Science — View Courses
- CS 497 - Multidisciplinary Studies in Computer Science — View Courses
- CS 493 - Team Project 1 — View Courses
- CS 492 - The Social Implications of Computing — View Courses
- CS 490 - Information Systems Management — View Courses
- CS 489 - Advanced Topics in Computer Science — View Courses
- CS 462 - Formal Languages and Parsing — View Courses
- CS 466 - Algorithm Design and Analysis — View Courses
- CS 454 - Distributed Systems — View Courses
- CS 451 - Data-Intensive Distributed Computing — View Courses
- CS 398 - Topics in Computer Science — View Courses
- CS 399 - Readings in Computer Science — View Courses
- CS 346 - Application Development — View Courses
- CS 360 - Introduction to the Theory of Computing — View Courses
- CS 499T - Honours Thesis — View Courses
- CS 488 - Introduction to Computer Graphics — View Courses
- CS 485 - Statistical and Computational Foundations of Machine Learning — View Courses
- CS 484 - Computational Vision — View Courses
- CS 457 - System Performance Evaluation — View Courses
- CS 452 - Real-Time Programming — View Courses
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- CS 448 - Database Systems Implementation — View Courses
- CS 447 - Software Testing, Quality Assurance, and Maintenance — View Courses
- CS 446 - Software Design and Architectures — View Courses
- CS 444 - Compiler Construction — View Courses
- CS 365 - Models of Computation — View Courses
- CS 350 - Operating Systems — View Courses
- CS 349 - User Interfaces — View Courses
- CS 348 - Introduction to Database Management — View Courses
- CS 343 - Concurrent and Parallel Programming — View Courses
- CS 341 - Algorithms — View Courses
- CS 251E - Computer Organization and Design (Enriched) — View Courses
- CS 251 - Computer Organization and Design — View Courses
- CS 241 - Foundations of Sequential Programs — View Courses

- CS 241E - Foundations of Sequential Programs (Enriched) View Courses
- CS 486 - Introduction to Artificial Intelligence View Courses
- CS 480 - Introduction to Machine Learning View Courses
- CS 456 - Computer Networks View Courses
- CS 442 - Principles of Programming Languages View Courses
- CS 453 - Software and Systems Security View Courses
- CS 459 - Privacy, Cryptography, Network and Data Security View Courses
- CS 445 - Software Requirements Specification and Analysis View Courses
- CS 458 - Computer Security and Privacy View Courses

JH-Computer Science (BCS)
Computer Science (Bachelor of Computer Science - Joint Honours)

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

Tim Weber-Kraljevski
Mike Grivicic
Diana Goncalves
Kuali - Arts
Kuali - Env
Melanie Figueiredo
Kuali - Math
Kuali - Eng
Kuali - Hlth
Ashley Day
Kuali - Science

Changes

- participants
- Graduation Requirements
- Additional Constraints
- Course Requirements (no units)
- Effective Term and Year

Effective Date and Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2025

Proposal Details

Proposal Type
Change

Academic Unit Approval
03/12/2025

Quality Assurance Designation
Minor Modification

Is there an impact to existing students?
No

Is the credential name changing?
No

Co-operative System of Study and Requirements
No

Creating or Changing Invalid Combinations
No

Change to Learning Outcomes
--

Rationale and Background for Change(s)

Removal of Breadth and Depth Requirement (Approved at UAC on 20240930):

Interpreting, enforcing, and advising about the Breadth and Depth Requirement consumes a large fraction of the School of Computer Science strained advising resources. Despite this, due to loopholes and exceptions, the requirement is perceived to be ineffective at achieving its purpose of ensuring students select a well-rounded set of electives.

The requirement is both too strict and too lax; the requirement has both false positives and false negatives relative to its purpose.

On one hand:

- Some sets of electives that would be considered well-rounded do not meet the letter of the requirement.
- The breadth requirement discourages students who want to focus deeply in a specific area outside of computer science.
- The depth requirement sometimes leads to situations where students require one or a small number of specific courses, which can significantly delay graduation if unforeseen circumstances prevent them from completing that specific course(s).

On the other hand:

- Other departments offer courses related to mathematics and computer science under the subject codes specified by the Breadth and Depth Requirement. Students regularly exploit these courses to satisfy the letter of the requirement without satisfying the spirit of learning about other subject areas.

In response to the last point, the Breadth and Depth Requirement contains the following additional constraint: *Courses with substantial math or computer science content, regardless of subject, do not satisfy the elective breadth or depth requirement.* In practice, the School does not enforce this constraint during degree checks because it is too vague. However, without this constraint, it would be too easy to circumvent the Breadth and Depth Requirement, defeating the purpose of the Requirement.

Addition of Elective Requirement (approved as amended at UAC 20250324):

Universities have a social obligation to graduate well educated people. Students need to know about the larger society and the world they will impact via their profession. Other fields have different ways of asking and answering questions. Students should experience a diversity of other approaches besides those used in mathematics and computer science.

Approved at FC 20250422

Consultations (Departmental)

Removal of Breadth and Depth Requirements (Approved at UAC on 20240930):
Approved at Computer Science Undergraduate Academic Plans Committee (UAPC) June 18, 2024.
Approved at School of Computer Science Council Sept. 11, 2024.

Addition of Elective Requirement (approved as amended at UAC 20250324):
Approved at Computer Science Undergraduate Academic Plans Committee (UAPC) February 20, 2025.
Approved at School of Computer Science Council March 12, 2025.

Supporting Documentation

General Program/Plan Information

Faculty
Faculty of Mathematics

Academic Unit
David R. Cheriton School of Computer Science

Field of Study
Computer Science

Faculty
Faculty of Mathematics

Undergraduate Credential Type
Major

Program Type
Joint Honours

Program/Plan Name
Computer Science (Bachelor of Computer Science - Joint Honours)

Systems of Study
Co-operative
Regular

Online Degree/Diploma

Admissions

Admissions Entry Point
Both

Admission Requirements: Minimum Requirements
Admission to the Computer Science major will normally occur when a student first applies to the Faculty of Mathematics.

Declaration Requirements

Students from within the Faculty of Mathematics with advanced standing may apply for admission to the Computer Science major if they:

- Have completed at least one term in the Faculty of Mathematics with a typical course load for a Computer Science major.
    - For students taking a first-year CS course: one CS course, two math courses, and two non-math electives.
    - For students taking second-year CS courses: two CS courses, two math courses, and one non-math elective.
- Have credit for CS136 or CS146; and CS136L.
- Have a minimum cumulative math major average of 65% (calculated over all math and computer science courses) and a minimum cumulative CS major average of 70%.

The Computer Science major is a limited-enrolment academic plan and successful completion of the above conditions will not guarantee admission; applicants without some of these conditions will be considered on an individual basis. Students are normally not considered for admission beyond the 2B level.
Before declaring this academic plan, see invalid credential combinations.

Requirements Information

Invalid Combinations

Yes

List of Invalid Combinations

Bioinformatics Option
H-Computing & Financial ManagementComputing Minor
H-Computer Science (BCS)H-Computer Science (BMath)
JH-Computer Science (BCS)H-BBA & BCS Double Degree
H-Data Science (BCS)H-Data Science (BMath)
Mathematics MinorH-Software EngineeringJH-Statistics

Average Requirement

Yes

Minimum Average(s) Required

- A minimum cumulative overall average of 60.0%.
- A minimum cumulative major average of 60.0% in two or more of the following courses:
    - CS136, CS138, CS146;
    - CS240-299, CS340-399, CS440-499;
    - CS600-699, CS700-799;
    - AMATH242;
    - CO481, CO487;
    - ECE222, ECE451, ECE452, ECE453;
    - FINE383;
    - PHYS467;
    - SE212, SE350, SE463, SE464, SE465;
    - STAT440.

Proposed

Graduation Requirements

- See Bachelor of Computer Science degree-level requirements.
- Complete all the required courses listed below.
- Complete a minimum of 9.75 units of math courses.
- Complete the requirements for at least one other major or joint major.
- Complete a minimum of 5.0 units of non-math courses.

Existing

Graduation Requirements

- See Bachelor of Computer Science degree-level requirements.
- Complete all the required courses listed below.
- Complete a minimum of 9.75 units of math courses.
- Complete the requirements for at least one other major or joint major.

Breadth and Depth Requirement

Breadth Requirement

Requirement	Units Required	Subject Codes
Humanities	1.0 unit	CHINA, CLAS, CMW, COMMST, CROAT, DAC, DUTCH, EASIA, ENGL, FINE, FR, GER, GRK, HIST, HUMSC, ITAL, ITALST, JAPAN, JS, KOREA, LAT, MEDVL, MUSIC, PHIL, PORT, RCS, REES, RUSS, SI, SPAN, THPERF, VCULT
Pure Sciences	0.5 unit	BIOL, CHEM, EARTH, PHYS, SCI
Pure and Applied Sciences	0.5 unit	BIOL, CHEM, EARTH, ENVS, ERS, HEALTH, KIN, MNS, PHYS, PLAN, SCI
Social Sciences	1.0 unit	AFM, ANTH, APPLS, ARBUS, BET, BUS, COMM, ECON, ENBUS, GEOG, GSJ, HRM, INDEV, INDG, INTST, LS, MSE, PACS, PSCI, PSYCH, REC, SDS, SRF, SOC, SOCWK, STV

Depth Requirement

- Complete 1 of the following:
  - 1.5 units with the same subject, including at least 0.5 unit at 300-level or higher
  - 1.5 units with the same subject forming a prerequisite chain of length three

Additional Constraints

1. No course can satisfy more than one of the breadth requirements.
2. Courses with substantial math or computer science content, regardless of subject, do not satisfy the breadth and depth requirement. Students may wish to consult with the CS academic advisors about specific courses.
3. Undergraduate Communication Requirement's List 1 courses do not satisfy the Humanities breadth requirement. Courses found only in the Undergraduate Communication Requirement's List 2 can satisfy both the breadth requirement and the Undergraduate Communication Requirement.

Co-operative Education Program Requirements

For students in the co-operative system of study, see Bachelor of Computer Science co-operative education program requirements.

Course Requirements (units)

Required Courses

0
Units to Complete

No Rules

Course Requirements (no units)

Required Courses

- Complete all of the following
  - Complete all the following:
    - CS136L - Tools and Techniques for Software Development (0.25)
    - CS341 - Algorithms (0.50)
    - CS350 - Operating Systems (0.50)
  - Complete 1 of the following:
    - CS115 - Introduction to Computer Science 1 (0.50)
    - CS135 - Designing Functional Programs (0.50)
    - CS145 - Designing Functional Programs (Advanced Level) (0.50)
  - Complete 1 of the following:
    - CS136 - Elementary Algorithm Design and Data Abstraction (0.50)
    - CS146 - Elementary Algorithm Design and Data Abstraction (Advanced Level) (0.50)
  - Complete 1 of the following:
    - CS240 - Data Structures and Data Management (0.50)
    - CS240E - Data Structures and Data Management (Enriched) (0.50)
  - Complete 1 of the following:
    - CS241 - Foundations of Sequential Programs (0.50)
    - CS241E - Foundations of Sequential Programs (Enriched) (0.50)
  - Complete 1 of the following:
    - CS245 - Logic and Computation (0.50)
    - CS245E - Logic and Computation (Enriched) (0.50)
  - Complete 1 of the following:
    - CS246 - Object-Oriented Software Development (0.50)
    - CS246E - Object-Oriented Software Development (Enriched) (0.50)
  - Complete 1 of the following:
    - CS251 - Computer Organization and Design (0.50)
    - CS251E - Computer Organization and Design (Enriched) (0.50)
  - Complete 1 of the following:
    - MATH127 - Calculus 1 for the Sciences (0.50)
    - MATH137 - Calculus 1 for Honours Mathematics (0.50)

        - MATH147 - Calculus 1 (Advanced Level) (0.50)
    - Complete 1 of the following:
        - MATH128 - Calculus 2 for the Sciences (0.50)
        - MATH138 - Calculus 2 for Honours Mathematics (0.50)
        - MATH148 - Calculus 2 (Advanced Level) (0.50)
    - Complete 1 of the following:
        - MATH135 - Algebra for Honours Mathematics (0.50)
        - MATH145 - Algebra (Advanced Level) (0.50)
    - Complete 1 of the following:
        - MATH136 - Linear Algebra 1 for Honours Mathematics (0.50)
        - MATH146 - Linear Algebra 1 (Advanced Level) (0.50)
    - Complete 1 of the following:
        - MATH239 - Introduction to Combinatorics (0.50)
        - MATH249 - Introduction to Combinatorics (Advanced Level) (0.50)
    - Complete 1 of the following:
        - STAT230 - Probability (0.50)
        - STAT240 - Probability (Advanced Level) (0.50)
    - Complete 1 of the following:
        - STAT231 - Statistics (0.50)
        - STAT241 - Statistics (Advanced Level) (0.50)
    - Complete 1 additional CS course chosen from CS340-CS398, CS440-CS489
    - Complete 2 additional CS courses chosen from CS440-CS489, CS499T
    - ~~Complete a total of 5.0 units of non-math courses satisfying the Breadth and Depth Requirement listed under Graduation Requirements~~

Elective Requirement

- **Complete all of the following**
    - **Complete 1.0 unit of courses, in any combination, chosen from the Faculty of Arts, or from the following subject codes: BET, BUS, COMM, STV.**
    - **Complete 1.0 unit of courses, in any combination, chosen from the following faculties: Environment, Health, Science.**
    - **Complete 2.0 additional units of courses, in any combination, chosen from the following options: courses offered by the Faculties of Arts, Environment, Health, Science; courses with subject codes BET, BUS, COMM, STV.**

Course Lists

Required Courses

No Rules

Are there cross-listed courses listed in requirements?
No

Proposed

Additional Constraints

1. Elective Requirement:
    1. Any course counted towards the degree-level Undergraduate Communication Requirement cannot also be counted towards the Elective Requirement.
    2. Of the total 4.0 units, a minimum of 1.0 unit must be taken at the 200-level or higher.
    3. A course cross-listed with a math course cannot be counted towards the Elective Requirement.
    4. See Course Subjects Offered for faculty assignment of subject codes.

Existing

Additional Constraints

Notes

Specializations

Specializations for this Major

No

Workflow Information

Change to Undergraduate Communication Requirement

No

Workflow Path	Faculty/AFIW Path(s) for Workflow	Senate Workflow
Committee approvals	Faculty of Mathematics	--

Dependencies

Dependent Courses and Programs/Plans

ANTIREQUISITES

- PMATH 330 - Introduction to Mathematical Logic — View Courses
- MATH 106 - Applied Linear Algebra 1 — View Courses
- CS 230 - Introduction to Computers and Computer Systems — View Courses
- CS 231 - Algorithmic Problem Solving — View Courses
- CS 234 - Data Types and Structures — View Courses
- CS 200 - Concepts for Advanced Computer Usage — View Courses
- CS 430 - Applications Software Engineering — View Courses
- CS 335 - Computational Methods in Business and Finance — View Courses
- CS 431 - Data-Intensive Distributed Analytics — View Courses

CS 338 - Computer Applications in Business: Databases View Courses
CS 436 - Networks and Distributed Computer Systems View Courses
CS 330 - Management Information Systems View Courses

PREREQUISITES

CS 240 - Data Structures and Data Management View Courses
CS 240E - Data Structures and Data Management (Enriched) View Courses
CS 499R - Readings in Computer Science View Courses
CS 497 - Multidisciplinary Studies in Computer Science View Courses
CS 494 - Team Project 2 View Courses
CS 493 - Team Project 1 View Courses
CS 492 - The Social Implications of Computing View Courses
CS 490 - Information Systems Management View Courses
CS 489 - Advanced Topics in Computer Science View Courses
CS 462 - Formal Languages and Parsing View Courses
CS 466 - Algorithm Design and Analysis View Courses
CS 454 - Distributed Systems View Courses
CS 451 - Data-Intensive Distributed Computing View Courses
CS 398 - Topics in Computer Science View Courses
CS 399 - Readings in Computer Science View Courses
CS 346 - Application Development View Courses
CS 360 - Introduction to the Theory of Computing View Courses
CS 499T - Honours Thesis View Courses
CS 488 - Introduction to Computer Graphics View Courses
CS 485 - Statistical and Computational Foundations of Machine Learning View Courses
CS 484 - Computational Vision View Courses
CS 457 - System Performance Evaluation View Courses
CS 452 - Real-Time Programming View Courses
CS 450 - Computer Architecture View Courses
CS 449 - Human-Computer Interaction View Courses
CS 448 - Database Systems Implementation View Courses
CS 447 - Software Testing, Quality Assurance, and Maintenance View Courses
CS 446 - Software Design and Architectures View Courses
CS 444 - Compiler Construction View Courses
CS 365 - Models of Computation View Courses
CS 350 - Operating Systems View Courses
CS 349 - User Interfaces View Courses
CS 348 - Introduction to Database Management View Courses
CS 343 - Concurrent and Parallel Programming View Courses
CS 341 - Algorithms View Courses
CS 251E - Computer Organization and Design (Enriched) View Courses
CS 251 - Computer Organization and Design View Courses
CS 241 - Foundations of Sequential Programs View Courses
CS 241E - Foundations of Sequential Programs (Enriched) View Courses
CS 486 - Introduction to Artificial Intelligence View Courses
CS 480 - Introduction to Machine Learning View Courses
CS 456 - Computer Networks View Courses
CS 442 - Principles of Programming Languages View Courses
CS 453 - Software and Systems Security View Courses
CS 459 - Privacy, Cryptography, Network and Data Security View Courses
CS 445 - Software Requirements Specification and Analysis View Courses

Degree Reqs: BMath
Bachelor of Mathematics Degree Requirements

Under Review | Fall 2026

Proposal Information

Status
Active

Workflow Status
In Progress

SUC Subcommittee, SUC Curricular Subcommittee expand ▲
Waiting for Approval | Approval Delegate(s)

- Tim Weber-Kraljevski
- Mike Grivicic
- Diana Goncalves
- Kuali - Arts
- Kuali - Env
- Melanie Figueiredo
- Kuali - Math
- Kuali - Eng
- Kuali - Hlth
- Ashley Day
- Kuali - Science

Changes

- Co-operative Education Program Requirements
- Effective Term and Year

Effective Date and Career

Career
Undergraduate

Important!

Proposed
Effective Term and Year
Fall 2026

Existing
Effective Term and Year
Fall 2025

Proposal Details

Proposal Type
Change

Quality Assurance Designation
Minor Modification

Is there an impact to existing students?
No

Is the credential name changing?
No

Co-operative System of Study and Requirements
Yes

Academic Unit Approval

Co-operative Education Consultation
Lori Case, Associate Dean, Cooperative Education was initially consulted via email in May, 2024 when this change was proposed by the department and again in March, 2025 for the preparation of this submission.

Creating or Changing Invalid Combinations
No

Change to Learning Outcomes
--

Rationale and Background for Change(s)

The only change proposed here is the modification of the coop sequence for the Mathematical Physics plan.

Current:

Plan	S/S	F	W	S	F	W	S	F	W	S	F	W	S	F	W	S
Mathematical Physics		1A	1B	WT	2A	WT	2B	WT	WT	3A	WT	3B	WT	4A	4B	

Proposed:

Plan	S/S	F	W	S	F	W	S	F	W	S	F	W	S	F	W	S
Mathematical Physics		1A	1B	WT	2A	WT	2B	WT	3A	WT	3B	WT	WT	4A	4B	

Few of the 300- and 400-level courses required for Mathematical Physics are offered in the Spring semester, and students often need to adjust their work-study sequences to take courses when offered, or risk delaying graduation. Ensuring that all 3rd and 4th year study terms occur during the fall and winter semesters will make course planning and on-time graduation easier for students in the Mathematical Physics plan.

The new sequence has been advertised on the Faculty of Math webpage since 2024, but the calendar was not updated:
https://uwaterloo.ca/math/co-op/restrictions

Approved at UAC 20250324
Approved at FC 20250422

Consultations (Departmental)

Request initiated by Applied Mathematics on May 13, 2024.

Supporting Documentation

General Program/Plan Information

Faculty
Faculty of Mathematics

Academic Unit
Dean of Mathematics Office

Field of Study
Degree Requirements

Faculty
Faculty of Mathematics

Undergraduate Credential Type
Degree Requirements

Program/Plan Name
Bachelor of Mathematics Degree Requirements

Admissions

Admissions Entry Point
Direct Entry

Admission Requirements: Minimum Requirements

Requirements Information

Invalid Combinations
No

Average Requirement
Yes

Minimum Average(s) Required

- A minimum cumulative overall average of 60.0%.
- See major for required major average (MAV) and/or special major average (SMAV). The minimum number of courses for MAV and SMAV calculation is three courses for all majors, with the exception of Computer Science, which is two courses.

Degree Requirements

Unit Requirements

- General degree: Complete a minimum of 15.0 units.
- Honours degree: Complete a minimum of 20.0 units, exceptions noted below.
    - Students in the double degree academic plan: Minimum of 26.0 units.
    - Students in Mathematics/Chartered Professional Accountancy plan: Minimum of 20.5 units.
- Maximum of unusable attempts: 5.0 units.
- Maximum failed or excluded course units (excluding COOP, PD): 2.0.
    - Students in Mathematical Studies or graduating from the Three-Year General degree are permitted up to 4.0 units.

Additional Course Requirements

All Bachelor of Mathematics students must complete a set of 10 compulsory mathematics courses, as described in List A below. Students in the following majors are exempted from this requirement: Mathematics/Chartered Professional Accountancy and Mathematical Studies.

Additional Constraints and Notes

1. Bachelor of Software Engineering students pursuing a Joint Honours plan are not required to satisfy the List A course requirements.

Undergraduate Communication Requirement

All Bachelor of Mathematics students must meet the Undergraduate Communication Requirement by successfully completing two courses.

- Actuarial Science, Biostatistics, Data Science, Statistics:
    - Complete one course from List 1 below.
    - Complete ENGL378.
- Business Administration and Mathematics double degree students:
    - Complete one course from List 1 below.
    - Complete BUS362W before enrolling in 4A.
- Mathematics/Chartered Professional Accountancy: Complete COMMST111 and AFM111.
- All other academic plans:
    - Complete one of the following options:
        - Complete two courses from List 1.
        - Complete one course from List 1 and one course from List 2.

Additional Constraints and Notes

1. The first List 1 course should be taken on campus and must be completed with a minimum grade of 60% prior to enrolling in the 2A term.
2. With the exception of students in the double degree academic plan, the first List 1 course should be taken during a student's first term of study in the Faculty of Mathematics.
3. COMMST111 will qualify as a List 1 course for students who are transferring from the Bachelor of Accounting and Financial Management to the Mathematics/Chartered Professional Accountancy academic plan.
4. Transfer credits may be used to satisfy the Undergraduate Communication Requirement.
5. Students who do not complete the first List 1 course prior to their 2A term will have a hold placed on their account and will be required to enrol in a List 1 course. Such students will need to seek assistance with enrolment from their academic advisor.

Full-Time Terms

- A minimum of 7 (regular) or 8 (co-operative) full-time terms.

Proposed

Co-operative Education Program Requirements

For Bachelor of Mathematics students.

1. Complete a minimum of five credited work terms:
    1. A minimum of three must be standard work terms.
2. Complete a minimum of five Professional Development (PD) courses:
    1. PD1: Must be taken in an academic term prior to the first work term.
    2. PD11: Must be taken during the first work term.
    3. Three additional PD courses: To be taken during each work term until the requirement is complete.
        1. For Computer Science (BMath) students, one of those PD courses must be PD10.

Additional Constraints and Notes

1. The minimum number of credited work terms is four for students in Business Administration and

Mathematics double degree, Mathematics/Chartered Accountancy, and Mathematics/Teaching academic plans.

2. Students are expected to follow the normal study/work-term sequence appropriate to their plan from admission through to graduation.
    - Students admitted at the 1A level (except for those in Business Administration and Mathematics double degree and Mathematics/Chartered Professional Accountancy), will normally have eight academic terms and six work terms.
3. Students' requests to re-arrange their sequence will normally be approved if all the criteria listed on the Faculty of Mathematics Sequence Change Form are met. Students who alter their sequence without obtaining prior approval may be required to withdraw from the co-op system. It is the student's responsibility to deal with any timetabling difficulties that may arise and to select courses for subsequent terms.
4. Transferring into co-op:
    - Late transfers to the co-operative system are considered once per term. Admission is very competitive and is a function of availability and demonstrated academic performance at the university level.
    - Regular students in the Faculty of Mathematics may apply to transfer to the co-op system of study in their 1B term. To be eligible, at the time of admission to co-op, such students must have successfully completed between 4.0 and 6.0 units, including transfer credits.
    - Non-co-op students from other faculties at the University of Waterloo may apply to transfer to the co-op system in the Faculty of Mathematics at the end of their 1B term, as part of the faculty transfer process.
    - Non-co-op students external to the University of Waterloo are eligible to apply for co-op in the Faculty of Mathematics only if, at the time of admission, they have successfully completed no more than 3.0 units of math transfer credits and between 4.0 and 6.0 transfer credits overall.
    - Applications to transfer to co-op from co-op students external to the University of Waterloo will be considered on a case-by-case basis.

Legend for Study/Work Sequences Chart

Key	Description
S/S	Sequence/Stream
F,W,S	Terms: F=September-December; W=January-April; S=May-August
1,2,3,4 plus A or B	Academic year and term.
WT	Scheduled work term.
off	Neither an academic term nor a work term.
*	In order to access courses in appropriate terms, students in some plans may be required to modify their sequence when admitted to these academic plans after 1B.
#	Sequence 1 is assigned to all Mathematics/Chartered Professional Accountancy (Mathematics/CPA) students at admission. Requests to change sequence in third and fourth year are considered individually following the 2B and 3B terms respectively.
†	Students admitted to Mathematics/Teaching in 2A will have a study/work sequence set at the time of admission. At least two teaching work terms must be part of the sequence.

Study/Work Sequences Chart

Plan	S/S	F	W	S	F	W	S	F	W	S	F	W	S	F	W	S
		1A	1B	WT	2A	WT	2B	3A	WT	3B	4A	4B	WT	5A	5B	

Business Administration and Mathematics (double degree)		1A	1B	WT	2A	WT	2B	3A	WT	3B	WT	4A	4B	WT	5A	5B
		1A	1B	WT	2A	WT	2B	3A	WT	3B	4A	WT	4B	WT	5A	5B
	1	1A	1B	off	2A	WT	2B	WT	3A	3B	WT	4A	WT	4B		
	2	1A	1B	off	2A	WT	2B	WT	3A	3B	4A	WT	WT	4B		
Mathematics/Chartered Professional Accountancy#	3	1A	1B	off	2A	WT	2B	WT	3A	3B	WT	WT	4A	4B		
	4	1A	1B	off	2A	WT	2B	3A	WT	3B	WT	4A	WT	4B		
	5	1A	1B	off	2A	WT	2B	3A	WT	3B	4A	WT	WT	4B		
	6	1A	1B	off	2A	WT	2B	3A	WT	3B	WT	WT	4A	4B		
	1	1A	1B	WT	2A	†	†	†	†	†	†	†	†	†	†	†
	2	1A	1B	WT	2A	†	†	†	†	†	†	†	†	†	†	†
Mathematics/Teaching	3	1A	1B	off	2A	WT	†	†	†	†	†	†	†	†	†	†
	4	1A	1B	2A	WT	†	†	†	†	†	†	†	†	†	†	†
Mathematical Physics		1A	1B	WT	2A	WT	2B	WT	3A	WT	3B	WT	WT	4A	4B	
	1	1A	1B	WT	2A	WT	2B	WT	3A	WT	3B	WT	4A	WT	4B	
*All other majors for the Bachelor of Mathematics	2	1A	1B	WT	2A	2B	WT	3A	WT	3B	WT	4A	WT	WT	4B	
	3	1A	1B	off	2A	WT	2B	WT	3A	WT	3B	WT	4A	WT	WT	4B
	4	1A	1B	2A	WT	2B	WT	3A	WT	3B	WT	4A	WT	WT	4B	

Existing

Co-operative Education Program Requirements

For Bachelor of Mathematics students.

1. Complete a minimum of five credited work terms:
    1. A minimum of three must be standard work terms.
2. Complete a minimum of five Professional Development (PD) courses:
    1. PD1: Must be taken in an academic term prior to the first work term.
    2. PD11: Must be taken during the first work term.
    3. Three additional PD courses: To be taken during each work term until the requirement is complete.
        1. For Computer Science (BMath) students, one of those PD courses must be PD10.

Additional Constraints and Notes

1. The minimum number of credited work terms is four for students in Business Administration and Mathematics double degree, Mathematics/Chartered Accountancy, and Mathematics/Teaching academic plans.
2. Students are expected to follow the normal study/work-term sequence appropriate to their plan from admission through to graduation.
    - Students admitted at the 1A level (except for those in Business Administration and Mathematics double degree and Mathematics/Chartered Professional Accountancy), will normally have eight academic terms and six work terms.
3. Students' requests to re-arrange their sequence will normally be approved if all the criteria listed on the Faculty of Mathematics Sequence Change Form are met. Students who alter their sequence without obtaining prior approval may be required to withdraw from the co-op system. It is the student's responsibility to deal with any timetabling difficulties that may arise and to select courses for subsequent terms.
4. Transferring into co-op:
    - Late transfers to the co-operative system are considered once per term. Admission is very competitive and is a function of availability and demonstrated academic performance at the university level.
    - Regular students in the Faculty of Mathematics may apply to transfer to the co-op system of study in their 1B term. To be eligible, at the time of admission to co-op, such students must have successfully completed between 4.0 and 6.0 units, including transfer credits.
    - Non-co-op students from other faculties at the University of Waterloo may apply to transfer to the co-op system in the Faculty of Mathematics at the end of their 1B term, as part of the faculty transfer process.
    - Non-co-op students external to the University of Waterloo are eligible to apply for co-op in the Faculty of Mathematics only if, at the time of admission, they have successfully completed no more than 3.0 units of math transfer credits and between 4.0 and 6.0 transfer credits overall.
    - Applications to transfer to co-op from co-op students external to the University of Waterloo will be considered on a case-by-case basis.

Legend for Study/Work Sequences Chart

Key	Description
S/S	Sequence/Stream
F,W,S	Terms: F=September-December; W=January-April; S=May-August
1,2,3,4 plus A or B	Academic year and term.
WT	Scheduled work term.
off	Neither an academic term nor a work term.
*	In order to access courses in appropriate terms, students in some plans may be required to modify their sequence when admitted to these academic plans after 1B.
#	Sequence 1 is assigned to all Mathematics/Chartered Professional Accountancy (Mathematics/CPA) students at admission. Requests to change sequence in third and fourth year are considered individually following the 2B and 3B terms respectively.
†	Students admitted to Mathematics/Teaching in 2A will have a study/work sequence set at the time of admission. At least two teaching work terms must be part of the sequence.

Study/Work Sequences Chart

Plan	S/S	F	W	S	F	W	S	F	W	S	F	W	S	F	W	S
		1A	1B	WT	2A	WT	2B	3A	WT	3B	4A	4B	WT	5A	5B	
Business Administration and Mathematics (double degree)		1A	1B	WT	2A	WT	2B	3A	WT	3B	WT	4A	4B	WT	5A	5B
		1A	1B	WT	2A	WT	2B	3A	WT	3B	4A	WT	4B	WT	5A	5B
	1	1A	1B	off	2A	WT	2B	WT	3A	3B	WT	4A	WT	4B		
	2	1A	1B	off	2A	WT	2B	WT	3A	3B	4A	WT	WT	4B		
Mathematics/Chartered Professional Accountancy#	3	1A	1B	off	2A	WT	2B	WT	3A	3B	WT	WT	4A	4B		
	4	1A	1B	off	2A	WT	2B	3A	WT	3B	WT	4A	WT	4B		
	5	1A	1B	off	2A	WT	2B	3A	WT	3B	4A	WT	WT	4B		
	6	1A	1B	off	2A	WT	2B	3A	WT	3B	WT	WT	4A	4B		
	1	1A	1B	WT	2A	†	†	†	†	†	†	†	†	†	†	†
	2	1A	1B	WT	2A	†	†	†	†	†	†	†	†	†	†	†
Mathematics/Teaching	3	1A	1B	off	2A	WT	†	†	†	†	†	†	†	†	†	†
	4	1A	1B	2A	WT	†	†	†	†	†	†	†	†	†	†	†
Mathematical Physics		1A	1B	WT	2A	WT	2B	WT	WT	3A	WT	3B	WT	4A	4B	
	1	1A	1B	WT	2A	WT	2B	WT	3A	WT	3B	WT	4A	WT	4B	
*All other majors for the Bachelor of Mathematics	2	1A	1B	WT	2A	2B	WT	3A	WT	3B	WT	4A	WT	WT	4B	
	3	1A	1B	off	2A	WT	2B	WT	3A	WT	3B	WT	4A	WT	WT	4B
	4	1A	1B	2A	WT	2B	WT	3A	WT	3B	WT	4A	WT	WT	4B	

Course Requirements (units)

Required Courses

0
Units to Complete

No Rules

Course Requirements (no units)

Required Courses

No Rules

Course Lists

Additional Requirements

- All Bachelor of Mathematics students, with the exceptions of Mathematical Studies and Mathematics/Chartered Professional Accountancy, must complete the following List A courses.

List A

- Complete all of the following
  - Complete 1 of the following:
    - CS115 - Introduction to Computer Science 1 (0.50)
    - CS135 - Designing Functional Programs (0.50)
    - CS145 - Designing Functional Programs (Advanced Level) (0.50)
  - Complete 1 of the following:
    - CS116 - Introduction to Computer Science 2 (0.50)
    - CS136 - Elementary Algorithm Design and Data Abstraction (0.50)
    - CS146 - Elementary Algorithm Design and Data Abstraction (Advanced Level) (0.50)
  - Complete 1 of the following:
    - MATH106 - Applied Linear Algebra 1 (0.50)
    - MATH136 - Linear Algebra 1 for Honours Mathematics (0.50)
    - MATH146 - Linear Algebra 1 (Advanced Level) (0.50)
  - Complete 1 of the following:
    - MATH127 - Calculus 1 for the Sciences (0.50)
    - MATH137 - Calculus 1 for Honours Mathematics (0.50)
    - MATH147 - Calculus 1 (Advanced Level) (0.50)
  - Complete 1 of the following:
    - MATH128 - Calculus 2 for the Sciences (0.50)
    - MATH138 - Calculus 2 for Honours Mathematics (0.50)
    - MATH148 - Calculus 2 (Advanced Level) (0.50)
  - Complete 1 of the following:
    - MATH135 - Algebra for Honours Mathematics (0.50)
    - MATH145 - Algebra (Advanced Level) (0.50)
  - Complete 1 of the following:
    - MATH235 - Linear Algebra 2 for Honours Mathematics (0.50)
    - MATH245 - Linear Algebra 2 (Advanced Level) (0.50)
  - Complete 1 of the following:
    - MATH237 - Calculus 3 for Honours Mathematics (0.50)
    - MATH239 - Introduction to Combinatorics (0.50)

        - MATH247 - Calculus 3 (Advanced Level) (0.50)
        - MATH249 - Introduction to Combinatorics (Advanced Level) (0.50)
    - Complete 1 of the following:
        - STAT230 - Probability (0.50)
        - STAT240 - Probability (Advanced Level) (0.50)
    - Complete 1 of the following:
        - STAT231 - Statistics (0.50)
        - STAT241 - Statistics (Advanced Level) (0.50)

Undergraduate Communication Requirement

- The following List 1 and List 2 describe the Undergraduate Communication Requirement.

List 1

- Complete 1 of the following:
    - COMMST100 - Interpersonal Communication (0.50)
    - COMMST223 - Public Speaking (0.50)
    - EMLS101R - Oral Communications for Academic Purposes (0.50)
    - EMLS102R - Clear Communication in English Writing (0.50)
    - EMLS129R - Written Academic English (0.50)
    - ENGL109 - Introduction to Academic Writing (0.50)
    - ENGL129R - Written Academic English (0.50)

List 2

- Complete 1 of the following
    - Complete 1 additional course from List 1.
    - Complete 1 of the following:
        - COMMST225 - Interviewing (0.50)
        - COMMST227 - Leadership (0.50)
        - COMMST228 - Public Communication (0.50)
        - EMLS103R - Effective English Pronunciation (0.50)
        - EMLS104R - Reading and Listening for Academic Purposes (0.50)
        - EMLS110R - Communicating in Canadian Academic Contexts (0.50)
        - ENGL101B - Introduction to Rhetorical Studies (0.50)
        - ENGL108B - Global English Literatures (0.50)
        - ENGL108D - Digital Lives (0.50)
        - ENGL119 - Communications in Mathematics and Computer Science (0.50)
        - ENGL208B - Science Fiction (0.50)
        - ENGL209 - Advanced Academic Writing (0.50)
        - ENGL210E - Genres of Technical Communication (0.50)
        - ENGL210F - Genres of Business Communication (0.50)
        - ENGL378 - Professional Communications in Statistics and Actuarial Science (0.50)

Are there cross-listed courses listed in requirements?
Yes

Cross-Listings Options
All cross-listings to be displayed

Additional Constraints

1. For List A: Students majoring in Computer Science normally start in CS135. Students with strong aptitude may take CS145 followed by CS146. Students starting with CS115 who wish access to CS courses (for students majoring in Computer Science) must take CS136 after CS116.

Notes

Workflow Information

Change to Undergraduate Communication Requirement

No

Workflow Path	Faculty/AFIW Path(s) for Workflow	Senate Workflow
Committee approvals	Faculty of Mathematics	--

Dependencies

Dependent Courses and Programs/Plans

There are no dependencies

External partners and capstone projects: overview

Capstone projects are high impact practices that compel students to apply the knowledge and skills gained through their academic study and work-integrated learning experiences to team-based, solution-oriented design problems. The University of Waterloo currently graduates over 2,000 students annually with a mandatory capstone degree requirement across four faculties: Arts, Environment, Health, and Engineering. Only a small percentage of the 500+ capstone projects completed per year include meaningful connection with an external partner. Increasing the degree to which external partners are part of the capstone ecosystem will improve opportunities for students, support more authentic learning, create spaces for knowledge exchange between the University and its partners, and establish Waterloo as a national leader in the capstone space.

The Faculty of Engineering and Co-operative and Experiential Education (CEE) are already working together to establish centralized systems and processes supporting the interdisciplinary capstone course (i-Capstone) offered in partnership with the Future Cities Institute. This work includes exploring the creation of a financial commitment associated with external partner engagement in capstone projects, an approach with precedent at other Canadian institutions (e.g. McGill charging $4,000 for projects in its Mechanical Engineering and Interdisciplinary capstone).

Administering a similar "management fee" would support Waterloo's operating costs and provide financial support to stakeholders facing barriers to entry regarding capstone engagement. For example, this "management fee" would support cost recovery for students and faculties incurring expenses associated with capstone projects, including materials, licenses, equipment, facilities usage, transportation, and compute. This fee would also mitigate the staff salaries associated with deeper external partner engagement, including business development, relationship management, and centralized supports.

The following is a summary of the work already underway to strengthen the capstone ecosystem at Waterloo, leveraging our expertise in running co-operative education and other work-integrated learning programs at scale:

1. Create a business development "playbook" for the campus community articulating the differences between co-op, capstone projects, sponsored graduate research, and other ways to engage with Waterloo
2. Propose payment standards for external partners interested in supporting capstone projects, ensuring equity for students, programs, and industry/community partners; standards include recommendations around amount, flow of funds, and disbursement
3. Create a centralized project intake form that accommodates the submission of project briefs across capstone projects, community and industry research projects, and other project-based forms of work-integrated learning (e.g. WE Accelerate)
4. Leverage existing systems and processes (e.g. WaterlooWorks) to support external partner engagement in capstone at scale

5. Establish student recruitment strategies to support increased elective participation in capstone courses
6. Explore ways to better track capstone experiences on campus (e.g. course components, course codes, inclusion in degree plans, etc.) to increase institutional understanding and make capstone projects more accessible for students

UNIVERSITY OF WATERLOO | Senate

For Recommendation **Open Session**

To:	Senate Undergraduate Council
From:	Office of the Registrar
Presenter(s):	Jennifer Coghlin Associate Registrar, Enrolment Services & Academic Policy
Date of Meeting:	June 16, 2025
Agenda Item:	**7.1 Academic Calendar Dates for 2026-27**

Recommendation/Motion

To recommend that Senate approve the 2026-2027 academic calendar dates and calendar guidelines for establishing academic dates, as presented.

Summary

The dates lay out major academic milestones throughout the year and provide guidance to units throughout the campus community as they conduct academic planning within their respective areas.

Jurisdictional Information

This item is being submitted to Senate in accordance with Senate Bylaw 2, section 4.03(a): "Make recommendations to Senate with respect to the governance, direction and management of, or any changes in rules, regulations or policies for graduate studies and research in the university." section 5.03(a): "Make recommendations to Senate with respect to rules and regulations for the governance, direction and management of undergraduate studies in the university."

Governance Path

Senate Undergraduate Council approval date: June 16, 2025

Senate Graduate & Research Council approval date: June 16, 2025

Senate: September 22, 2025 [prospective]

OFFICE OF THE REGISTRAR REPORT TO
SENATE UNDERGRADUATE COUNCIL and
SENATE GRADUATE & RESEARCH COUNCIL
June 2025

1. REGULATIONS

1.1 **Academic Calendar Dates for 2026-2027**

1.2 **Guidelines for Determining Academic Calendar of Dates**

Academic Calendar Dates, 2026-2027

	Fall 2026	**Winter 2027**	**Spring 2027**
Co-operative Work Term Begins	Sept. 8 (T)	Jan. 11 (M)	May 10 (M)
Classes Begin	Sept. 9 (W)	Jan. 11 (M)	May 10 (M)
Holidays	Oct. 12 (M) – Thanksgiving	Feb. 15 (M) – Family Day Mar. 26 (F) – Good Friday	May 24 (M) – Victoria Day July 1(R) – Canada Day July 2 (F) – Additional Day Aug. 2 (M) – Civic Holiday
Reading Week	Oct. 10-18 (S-U)	Feb. 13-21 (S-U)	N/A
Convocation	Oct. 23, 24 (F, S)	N/A	June 15-19 (T-S)
Classes End	Dec. 8 (T)	Apr. 12 (M)	Aug. 5 (R)
Make-up Day(s) for in-term holidays	N/A	Apr. 12 (M) for Mar. 26 (F)	Aug. 3 (T) for May 24 (M) Aug. 4 (W) for July 2 (F) Aug. 5 (R) for July 1 (R)
Pre-Examination Study Day(s)	Dec. 9 (W)	Apr. 13, 14 (T, W)	Aug. 6 (F)
Examinations Begin	Dec. 10 (R)	Apr. 15 (R)	Aug. 9 (M)
In-Person Exam Days for Online Courses	Dec. 11 (F) Dec. 12 (S) Dec. 18 (F) Dec. 19 (S)	Apr. 16 (F) Apr. 17 (S) Apr. 23 (F) Apr. 24 (S)	Aug. 13 (F) Aug. 14 (S) Aug. 20 (F)
Examinations on Sunday	Dec. 13 (U)	N/A	N/A
No Exams on the Following Days	Dec. 20 (U)	Apr. 18 (U) Apr. 25 (U)	Aug. 15 (U)
Examinations End (including Emergency Day)	Dec. 23 (W)	Apr. 30 (F)	Aug. 21 (S)
Co-operative Work Term Ends	Dec. 23 (W)	Apr. 30 (F)	Aug. 20 (F)
Teaching weeks/days	60 days	60 days	60 days
Pre-examination Study Day(s)	1	2	1
Examination days	12 + 1 emergency day	13 + 1 emergency day	11 + 1 emergency day

Symbols and abbreviations:
(M) Monday, (T) Tuesday, (W) Wednesday, (R) Thursday, (F) Friday, (S) Saturday, (U) Sunday, N/A – Not Applicable

Guidelines for Determining Academic Calendar of Dates

The following are principles and guidelines either formally agreed upon by Senate or adopted as common practice in determining the dates for the academic year.

1. That the practice of setting dates for each academic year continues to be an annual exercise.

2. That there be no fewer than 60 teaching days in a term. A clear rationale for fewer than 60 teaching days must be communicated to Senate at the time calendar dates are approved. In calculating teaching days in a term, Saturdays, Sundays, and statutory or University holidays are excluded.

3. That attention be given to balancing the number of meets in courses. Where an imbalance may occur because of ~~statutory~~ public holidays, the class schedule for a day different than the calendar day can be used to balance the number of course meets.

4. That fall convocation be the Friday and Saturday that fall in the third full week (beginning Sunday) of October.

5. That spring convocation be the Tuesday to Saturday in the second full week (beginning Sunday) in June.

6. That the Reading Weeks occur in all faculties in the fall and winter terms. They must begin on the Saturday before the public holidays of Thanksgiving Day and Family Day and will end on the following Sunday.

7. That fall term classes in September begin on the Wednesday following the Labour Day holiday. **Exception:** The Fall Term begins on Tuesday, September 8th when Labour Day is September 7th.

8. That the start date for winter term be set as follows:
    - If January 1st is a Sunday, then start of classes is Monday, January 9th.
    - If January 1st is a Monday, then start of classes is Monday, January 8th.
    - If January 1st is a Tuesday, then start of classes is Monday, January 7th.
    - If January 1st is a Wednesday, then start of classes is Monday, January 6th.
    - If January 1st is a Thursday, then start of classes is Monday, January 5th.
    - If January 1st is a Friday, then start of classes is Monday, January 11th.
    - If January 1st is a Saturday, then start of classes is Monday, January 10th.

9. The start date for spring term be set as follows:
    - If May 1st is a Sunday, then start of classes is Monday, May 9th.
    - If May 1st is a Monday, then start of classes is Monday, May 8th.
    - If May 1st is a Tuesday, then start of classes is Monday, May 7th.
    - If May 1st is a Wednesday, then start of classes is Monday, May 6th.
    - If May 1st is a Thursday, then start of classes is Monday, May 5th.
    - If May 1st is a Friday, then start of classes is Monday, May 11th.
    - If May 1st is a Saturday, then start of classes is Monday, May 10th.

10. That there be no fewer than one pre-examination study day and when possible, two pre-examination study days (excluding Saturday, Sunday, and holidays) between the end of classes and the beginning of final examinations. A clear rationale for using fewer than two days or Saturday, Sunday, and holidays as pre-examination study days, must be communicated to Senate at the time calendar dates are approved.

11. That there be no fewer than 13 final examination days in the fall and winter terms, and 11 final examination days in the spring term. In addition, one Emergency Day with no scheduled final examinations is added to the end of the Final Examination Period.

12. In calculating final examination days, Saturdays which fall within the period are included, whereas Sundays and public or University holidays are excluded.
    Exceptions:
    Final examinations will not be scheduled on the Saturday following Good Friday when that day falls within the Final Examination Period or the Saturday of the Civic Day weekend.
    The first Sunday within the Final Examination Period may be used when required to accommodate the prescribed number of final examination days in the fall term.

13. That in the fall term no final examinations be scheduled beyond December 22nd. The Emergency Day cannot be scheduled beyond December 23rd.

14. That final examinations for online courses be scheduled on any Friday evening or Saturday within the Final Examination Period. And that final examinations for courses with both online sections and on-campus sections be scheduled together wherever possible. ~~Online Course Examination Days in each term be the first consecutive Friday and Saturday and the second consecutive Wednesday and Saturday in the examination period.~~

15. Grades due dates for on campus courses that have a scheduled final examination are normally scheduled seven days from the date of the final examination. Grades for online courses that have a scheduled final examination are due on the last day of the grades submission period. Grades for all courses without a scheduled final examination are normally due 14 days after the start of examinations.

16. Co-op work terms are expected to be 16 weeks in duration. Actual start and end dates may vary depending on employer or student requirements in consultation with Co-operative Education.

Rules that Require Exceptions with Rationale:

Rule 7
…That fall term classes in September begin on the Wednesday following the Labour Day holiday.
***Exception**: The Fall Term begins on Tuesday, September 8th when Labour Day is September 7th.*

In order to accommodate the regular Orientation Programming schedule, 2026 fall term classes will begin on Wednesday, September 9, 2026.

Rule 11
…That there be no fewer than 13 final examination days in the fall and winter terms, and 11 final examination days in the spring term. In addition, one Emergency Day with no scheduled final examinations is added to the end of the Final Examination Period.

In order to accommodate the regular Orientation Programming schedule and beginning of classes on Wednesday, September 9, 2026, only 12 final examination days will be scheduled.

Rule 12
… The first Sunday within the examination period may be used when required to accommodate the prescribed number of examination days in the Fall Term.

With 2026 fall term classes beginning September 9, 2026, and the scheduling of only 12 final examination days, the first Sunday within the exam period was required for scheduling exams.

Prepared by:
C. Newell Kelly, Registrar, May 2025

Advisory Group for Course Outline Tool

Terms of Reference

Mandate: The Outline Advisory Group is commissioned by the Senate Undergraduate Committee (SUC) to oversee the requirements and recommendations for course outlines at the University of Waterloo and the appropriate development of the automated Outline tool that implements the requirements. In this role it is:

1) **Authorized by SUC** to approve and implement *minor* and *editorial* changes to content and format. It will report annually on such changes to the Associate Vice-President, Academic (AVPA, who serves as Chair of SUC)
2) Tasked by SUC to consider and, as appropriate, recommend changes to Outline requirements or the functionality of the Outline tool. These recommendations can then be taken forward by the AVPA, as appropriate, and where appropriate in collaboration with the AVP GSPA, for governance approval.
3) Tasked by SUC with ensuring consistency between the Outline tool, the Calendar, and with any Senate approved requirements for course outlines.

Membership

- Lead Developer & Project Manager, Science Computing Office
- Manager, Systems Development & AI Technologies, IST
- Sr. Educational Development, Faculty Programs and Blended Learning, Centre for Teaching Excellence
- Manager, Learning Technologies Analysts Production, Centre for Extended Learning
- Associate Dean, Undergraduate Studies, Faculty of Mathematics
- Associate Dean, Teaching & Student Experience, Faculty of Engineering
- Associate Dean, Undergraduate Studies, Faculty of Environment
- Associate Dean, Undergraduate Programs, Faculty of Arts
- Associate Dean, Undergraduate Studies, Faculty of Science
- Associate Dean, Undergraduate, Faculty of Health
- Special Projects, Communications and Community Engagement Specialist, Office of the Associate Vice-President, Academic
- One ADG, nominated by the AVP GSPA in consultation with the ADGs

Work Plan

The advisory group will work remotely (via a MS Teams Channel) on an ad-hoc basis to discuss, review, and approve proposed updates to the Outline content and format of the Outline tool. Possible bodies for consultation include the Outline Working Group, Senate Undergraduate Council, and the Teaching Fellows.