University of Waterloo
SENATE UNDERGRADUATE COUNCIL
Notice of Meeting

DATE: Tuesday 10 November 2020
TIME: 12:00 noon – 2:00 p.m.
PLACE: Teams – See meeting invitation or contact the secretary

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### Open Session

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*material attached/to be distributed**

“SEN-consent” to be recommended to Senate for approval (consent agenda)
“SEN-regular” to be recommended to Senate for approval (regular agenda)
“UGC” to be approved on behalf of Senate & sent to Senate for information

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Rebecca Wickens
Associate University Secretary

3 November 2020
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 6 October 2020 Meeting  
[in agenda order]

Present: Katherine Acheson, Veronica Austen, Monica Barra, Harleen Bhandal, Rachel Bruce, Kofi Campbell, Benoit Charbonneau, Victoria Chu, Martin Cooke, Daniel Davison, Vivian Dayeh, Abigail De Souza, David DeVidi (chair), Leeanne Ferries, Brendon Larson, Amanda Morin, Jeremy Pittman, Francis Poulin, Reginald Somera, Megan Town, Cristina Vanin, Chris Vigna, Rebecca Wickens (secretary), Richard Wikkerink

Resources: Blair Clarance, Jennifer Coghlin, Danielle Jeanneault, Amanda McKenzie, Alyssa Voigt

Guests: Hans De Sterk, Melissa Holst, Naveen Jandu, Siv Sivaloganathan

Regrets: Cathy Newell Kelly

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

1. DECLARATIONS OF CONFLICTS OF INTEREST

No conflicts of interest were declared.

2. APPROVAL OF THE 15 SEPTEMBER 2020 MINUTES AND BUSINESS ARISING

A change was requested to reflect that Charbonneau commented favourably on the rationale for the digital art specialization (i.e. a compliment to the drafters) not on the proposed changes to the specialization. Subject to that change, the minutes were approved without formal motion. There was no business arising from the minutes.

3. CURRICULAR ITEMS FOR APPROVAL & INFORMATION

Applied Health Sciences. Ferries presented the new courses, course changes and inactivations together. There was a motion to approve the foregoing on behalf of Senate. Ferries and Acheson. Carried.

Ferries presented a new minor in addictions, mental health and policy, noting: this is the first credential covering this area; it is aligned with the recommendations of the president’s advisory committee on student mental health; and it will be interdisciplinary in nature. In response to discussion re: counting thesis courses towards the minor, Ferries said she would inquire and report back. There was a motion to recommend that Senate approve the proposed new plan as presented. Ferries and Cooke. Carried.

Ferries took members through the major modifications, highlighting the name change of the Bachelor of Science, Health Studies to Bachelor of Science, Health Sciences, as well as the change to admission requirements for the Bachelor of Science, Kinesiology. There was a motion to recommend that Senate approve the proposed major modifications. Ferries and Vanin. Carried. Ferries took members through the minor modifications, noting where there was consultation or collaboration with other faculties. There was a motion to approve the minor modifications on behalf of Senate. Ferries and Barra. Carried.

Arts. Following a brief introduction, there was a motion to approve the course changes on behalf of Senate. Acheson and Larson. Carried. Acheson presented the minor modifications, noting: new language subject codes added to the cultural identities minor; two courses added to the literature category of the three-year general English – literature and rhetoric plan. There was a motion to approve the minor modifications on behalf of Senate. Acheson and Campbell. Carried.

Engineering. Davison presented the engineering submission, highlighting: the proposed changes to management sciences plans in response to student feedback, particularly, re: workload; two new options (computing option, computer engineering option) and one revised option (software engineering option) intended to enable engineering students to get a meaningful software credential; other changes of a housekeeping nature. Discussion included:
managing any overlaps between STV 208 and special topics offered under ARTS 490; whether philosophy was consulted re: STV 208; the need to look at different faculties’ offerings related to stochastic modelling and processes, and machine learning; assisting students to navigate the new and revised computing/software options. Following discussion, there was a motion to recommend that Senate approve the new plans, major modifications and regulations, and that council approve the remainder of the submission on behalf of Senate. Davison and Barra. Carried.

Environment. Larson presented the new courses and course changes noting, in particular, the new course on pandemics and the knowledge integration course on interdisciplinary collaboration. Following discussion, GEOG 311 and 411 were removed from the submission pending consultation with economics. There was a motion to approve the remainder of the new courses and course changes on behalf of Senate. Larson and Poulin. Carried.

Larson took members through the plan changes, highlighting: the changes to geography and environmental management specializations (noting the impact of withdrawing the proposed changes to GEOG 311 and 411); adding the knowledge integration breadth requirements to the calendar (requesting a friendly amendment to remove chemistry courses only available to chemistry students); a change to requirements for planning students related to COVID-19; minor changes to the diploma in environmental assessment and the urban studies minor. There was a brief discussion re: mathematics courses to add to the breadth requirements for knowledge integration. Following the discussion, there was a motion to approve the minor modifications on behalf of Senate. Larson and Charbonneau. Carried.

Discussion re: the new 2+2 agreement with Shandong University of Economics and Finance included: questions regarding the contact information in the agreement; whether there was background information available on the partner institution; the possibility of having a standard format for rationales supporting 2+2 agreements. Following discussion, there was a motion to recommend that Senate approve the admissions, progression and other academic requirements in the agreement. Larson and Barra. Carried.

Mathematics. Charbonneau presented the new courses, course changes and inactivations. There was a motion to approve the foregoing on behalf of Senate. Charbonneau and Ferries. Carried.

Charbonneau spoke to the major modifications to the computing and financial management plan (noting a typo in the motion re: the plan name), indicating that the changes are to reflect parallel changes made by the School of Accounting and Finance (SAF) to the accounting and financial management curriculum. There was a motion to recommend that Senate approve the proposed major modification to the computing and financial management plan. Charbonneau and Acheson. Carried.

Charbonneau presented major modifications to the Math/Chartered Professional Accountancy (CPA) plan and Math/CPA – finance specialization plan, noting that the faculty worked with SAF on these amendments. There was a motion to recommend that Senate approve the proposed major modifications to the Math/CPA plan and Math/CPA – finance specialization plan. Charbonneau and Acheson. Carried.

Charbonneau gave an overview of the minor modifications to computer science plans, including: an update to the digital hardware specialization to reflect the inactivation of an electrical and computer engineering course; deletion of text related to Canadian Information Processing Society accreditation; an update to the invalid plan combinations table. There was a motion to approve the proposed minor modifications on behalf of Senate. Charbonneau and Poulin. Carried.

Re: the inactivation of the pure mathematics, teaching plan, members heard that there was low enrolment in this plan and interested individuals can obtain the same credential another way. There was a motion to recommend that Senate approve the plan inactivation and the regulation change re: upgrading a general to an honours degree. Charbonneau and Poulin. Carried.
Science. Barra took members through the new courses, course changes and inactivations in physics and astronomy following a curriculum renewal in that department. There was a motion to approve the foregoing on behalf of Senate. Barra and Larson. Carried. Barra spoke to requests to change previously approved effective dates, one which was circulated with the agenda and one that was circulated on 6 October 2020 as an addendum to the science submission. There was a motion to approve the revised effective dates. Barra and Acheson. Carried. Barra presented the minor modifications to the physics plans and the honours materials and nanosciences plans. Discussion focused on the rationale for removing MATH 114 and introducing PHYS 249. Following discussion, there was a motion to approve the proposed minor modifications to the physics plans and the materials and nanosciences plans on behalf of Senate. Barra and Town. Carried. Barra presented the minor modifications to the medical physiology minor, which parallel those presented by applied health sciences under that faculty’s submission. There was a motion to approve the minor modification on behalf of Senate. Barra and Ferries. Carried.

Software Engineering. Davison highlighted changes to the awards section to align with different criteria in mathematics and engineering, addition of courses, and other housekeeping changes. There was a motion to approve the minor modifications on behalf of Senate. Davison and Charbonneau. Carried.

4. REGISTRAR’S OFFICE
Preferred Name Guideline. Coghlin provided an overview of the proposed guideline on recording students’ names. Discussion included: whether adding headings and reorganizing the text could improve readability of the guideline; concerns that the systems cannot accommodate accents and special characters; clarification about the law governing use of preferred names; where it is necessary and useful to have access to a student’s legal name (e.g. disciplinary matters). Following discussion there was a motion to recommend that Senate approve the propose guideline on recording students’ names. Charbonneau and Larson. Carried with three abstentions and two against.

Academic Calendar Dates. Coghlin presented the calendar dates for 2021-2022, explaining the change noted in red. There was a motion to recommend that Senate approve the academic dates for 2021-2022. Charbonneau and Ferries. Carried.

5. ACADEMIC PROGRAM REVIEWS
Items a and b were received for information.

Two-Year Report – Applied Math, C&O, Computational Math, Pure Math. Discussion included: issues encountered with the review; challenges external reviewers have understanding the faculty of mathematics given its size and complexity; the need for more context for reviewers, particularly where the organizational structure or operational model diverges from other universities; the benefit of involving the associate deans, undergraduate and graduate in the reviews (more recent step in the process). Following discussion, there was a motion to approve the report on behalf of Senate. Town and Acheson. Carried. Charbonneau and Poulin abstained from the vote.

6. STRATEGIC PLAN IMPLEMENTATION
This item was deferred due to time constraints.

7. OTHER BUSINESS.
There was no other business.

8. NEXT MEETING
The next meeting is 10 November 2020, 12:00 noon – 2:00 p.m. via Teams.

3 November 2020
Rebecca Wickens
Associate University Secretary
TO: Rebecca Wickens, Associate University Secretary, Secretariat
FROM: Dan Davison, Associate Dean, Undergraduate Studies, Faculty of Engineering
SUBJECT: Items for Approval at November 10, 2020 Senate Undergraduate Council

1. Course Changes
   1.1. Management Engineering – MSCI 401 and MSCI 402  [For Approval]

   **Effective Date:**
   MSCI 401 - September 1, 2024
   MSCI 402 – September 1, 2025

   **Background and Rationale:**
   Change the effective dates for MSCI 401 and MSCI 402 from September 1, 2021 to the dates listed above to correct an oversight from the October 9, 2020 SUC meeting.

   1.2 Mechatronics Engineering – MTE 321  [For Approval]

   **Effective Date:**
   September 1, 2021

   **Background and Rationale:**
   Correct a typographical error in the catalogue report for new course, MTE 321 which had been approved at the SUC meeting held on October 9, 2020. One of the prerequisites was listed as MTE 210, and it should have been MTE 219. If not corrected, some students will be prevented from enrolling in MTE 321 in Winter 2022.
2. Minor Plan Modifications
   
   2.1. Management Engineering  
   
   **Effective Date:** September 1, 2021
   
   **Background and Rationale:**
   
   The Faculty of Engineering’s submission to SUC for the meeting held on October 9, 2020 contained a phrase on page 97 of the agenda that Engineering would like to be stricken. It reads,
   
   “Students following the 2020/2021 Calendar requirements are being given the opportunity to take advantage of these modifications. The changes do not affect the 1A or 1B curriculum, so the transition from the 2020/2021 Calendar requirements to the 2021/2022 requirements can be done seamlessly, with the first impact occurring in 2A (Fall 2021).”
   
   Management Sciences has decided not to give current 1A students the opportunity to following the 2021/2022 Calendar requirements due to a lack of resources. When consulted, not all current 1A students supported the change, and the department does not have the resources to mount both curricula to the F2020 class. This statement was merely a comment on effective dates, and does not affect the calendar.

   2.2. Temporary Calendar Deviations due to the Pandemic  
   
   **Background:**
   
   The following table summarizes all temporary Calendar deviations that programs made in S2020 to deal with conditions caused by the COVID-19 pandemic. The Faculty and University want an official record of the changes that are significant enough that they impact what is written in the calendar.

   **S2020 FINAL LIST OF CALENDAR DEVIATIONS AFFECTING PROGRAMS IN FACULTY OF ENGINEERING**

<table>
<thead>
<tr>
<th>Plan</th>
<th>S2020 Calendar Deviations</th>
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<tbody>
<tr>
<td>Architectural Engineering</td>
<td>AE125: Physical model building component of the course was removed</td>
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<tr>
<td>Course</td>
<td>Change</td>
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<td>-------------------------------</td>
<td>------------------------------------------------------------------------</td>
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<tr>
<td>AE105: “Introduction to fluid statics”</td>
<td>moved to AE280</td>
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<tr>
<td>Architecture</td>
<td>ARCH293: Field trip cancelled</td>
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<tr>
<td>Biomedical Engineering</td>
<td>BME284L: Physiology half of the lab was cancelled because it couldn’t be effectively offered online.</td>
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<tr>
<td>Chemical Engineering</td>
<td>WKRPT200/300/400: Students may submit a reflective report in lieu of a technical report.</td>
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<td>Civil Engineering</td>
<td>WKRPT400: deferred from 4A to 4B term (W2021)</td>
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<td>Electrical Engineering and Computer Engineering</td>
<td>ECE298: Moved from 2B to 3A since it is a hands-on course. Students were given the option to move an elective from 3A to 2B.</td>
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<td></td>
<td>ECE455: lab was cancelled</td>
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<td></td>
<td>ECE462: lab was cancelled</td>
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<tr>
<td>Environmental Engineering</td>
<td>CIVE105: “Introduction to fluid statics” moved to ENVE280</td>
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<td></td>
<td>WKRPT300: deferred from 3A to 3B term (W2021)</td>
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<td>ENVE330: swapped with ENVE383 (normally ENVE330 is in 3A and ENVE383 is in 3B) since ENVE330 has as full lab and field work that cannot be done online.</td>
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<tr>
<td>Geological Engineering</td>
<td>CIVE105: “Introduction to fluid statics” moved to GEOE280</td>
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<tr>
<td></td>
<td>WKRPT300: deferred from 3A to 3B term (W2021)</td>
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<tr>
<td>Management Engineering</td>
<td>No deviations</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>No deviations</td>
</tr>
<tr>
<td>Mechatronics Engineering</td>
<td>No deviations</td>
</tr>
<tr>
<td>Nanotechnology Engineering</td>
<td>NE320L: Lab content that could not be done virtually was moved to NE330L (3B, F2020), and some content from NE330L that could be done online was moved into NE320L.</td>
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<td>NE250: Course was graded CR/NCR instead of numerically.</td>
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<tr>
<td>Software Engineering</td>
<td>No deviations</td>
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<tr>
<td>Systems Design Engineering</td>
<td>No deviations</td>
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The Conrad School of Entrepreneurship and Business (responsible for BETxxx courses) reported no calendar deviations.
Senate Undergrad Council
Faculty of Environment
November 10, 2020

Approval agenda:
  1. Course Changes (attachment 1)
COURSE CHANGES (for approval)

Geography & Environmental Management

Current Catalog Information

GEOG 311 (0.50) LEC, TUT Local Development in a Global Context

The course examines the ability of local communities to influence their development trajectory. The roles and potential for collaboration among public, private, and third sector partners are explored. Social, environmental, and economic goals are interconnected within a sustainable development framework.

No Special Consent Required

Requisites: Prereq: GEOG 202 or GEOG 203 or Level at least 2B Faculty of Environment students only.

Effective 01-SEP-2021

Title Change: Economic Geography and Society

Description Change: This lecture and discussion course covers topics of importance for understanding economic geography today including the spatial, social, cultural, and economic dimensions of economic development, the 2007/2008 sub-prime mortgage crisis, debt and finance, deindustrialization, the role of work and unions, economic justice, and the role of the state.

Requisite Change: Prereq: GEOG 202 or GEOG 203 or Level at least 3A.

Rationale: This course is being changed to bring it in line with the new focus for the Economy and Society specialization, to better match how the course has been taught in recent offerings, and to account for personnel changes in the department. As the Specialization is being recast to be less narrowly focused, the goal is to broaden the remit to make it more appealing to a wider range of students, and to allow more people to teach it. Students with a wide range of backgrounds who are interested in the subject matter can be expected to succeed in this course. The Department of Economics has been consulted.

Current Catalog Information

GEOG 411 (0.50) LEC, SEM Entrepreneurship and Startup Economies

A lecture, reading, and discussion-based class that explores the spatial, social, cultural, and economic dimensions of entrepreneurship and startup economies to explore their relationship to: (1) entrepreneurial forms of work in the global economy, (2) entrepreneurship as a gendered phenomenon, (3) regional startup economies (in particular in the San Francisco and Kitchener-Waterloo contexts), and (4) the relationship between startup economies and gentrification.

No Special Consent Required

Requisites: Prereq: Level at least 3A; Geography and Environmental Management, Geomatics, Geography and Aviation, Environment and Business, or Planning
Effective 01-SEP-2021

Title Change: The Digital Economy

Description Change: This course explores the spatial, social, cultural, and economic impacts of digital and social media on society from the perspective of economic geography. Content will cover contemporary issues about digital media and economic spaces that create spatial patterns (including international differences) of digital media access and use, social media economies, the sharing economy, influencer and streamer economies, and global online work platforms.

Requisite Change:
Prereq: GEOG 202 or GEOG 203 or Level at least 3A.
Antireq: GEOG 474 001 F17, GEOG 474 001 S18

Rationale: This course is being changed to bring it in line with the new focus for the Economy and Society specialization, to broaden the content, to better match how the course has been taught in recent offerings, and to make it easier for other faculty to teach. The content will remain broadly similar, but with a focus on the digital economy rather than on entrepreneurship. Students with a wide range of backgrounds who are interested in the subject matter can be expected to succeed in this course. The Department of Economics has been consulted.

INTEG 240 Bullshit, Bias and Bad Arguments

Effective date: September 1, 2021

Effective date Change: January 1, 2021

Rationale: This course was approved by SUC at the May 12, 2020 meeting. Knowledge Integration decided to offer the course for Winter 2021. Instead of offering it as a topics course the Registrar's Office approved to the change of the effective date to January 1, 2021, for scheduling purposes. This course is not core for any academic plans and the change to the effective dates alleviates the need for the addition of an antireq, if it was offered as a topics course for Winter 2021.
Introduction
Waterloo’s Senate Undergraduate Council (SUC) and Senate Graduate and Research Council (SGRC) have a duty to consider all aspects relating to the academic quality of undergraduate studies and graduate studies within the University. As described in Waterloo’s Institutional Quality Assurance Process (IQAP), documentation emerging from the cyclical program review process includes:

- **Final Assessment Report**, which summarizes the self-study, external reviewers’ report, program response, and implementation plan, and
- **Two-Year Progress Report**, which reports on progress related to the implementation plan.

Final Assessment Reports (FARs), require two SUC or SGRC members to review the report, whereas, Two-Year Progress Reports only require one SUC or SGRC member, although at the SUC/SGRC Chair’s discretion, a second reviewer may be sought. In order to ensure that student representatives have the opportunity to review each report, the WUSA VP, Education and GSA President receive these documents in advance for information. Any questions or concerns they might have can be raised and addressed, if needed, prior to the report being approved at SUC/SGRC. This review process is coordinated by the Quality Assurance (QA) Office.

To promote transparency and foster integrity in the review process, reviewers should not be members of the Faculty or Affiliated and Federated Institutions of Waterloo (AFIW) from which the report originates.

Assessment
Reviewers will consider a series of guiding questions (see below) in arriving at their recommendation for revision or approval to SUC or SGRC. Before reporting to SUC or SGRC, reviewers will ask questions and share their observations, as well as any concerns they have identified with the report, to the Quality Assurance Office, who will then connect with the Chair or Director of the program. The FEDS and GSA representative will also receive these reports for information prior to submission to SUC/SGRC.

The Quality Assurance Office will ensure that any revisions to the reports are completed by the Chair or Director of the program, prior to the QA Office submitting the report for approval at a SUC or SGRC.

**Does the Final Assessment Report:**

1) Include a credible implementation plan that not only addresses the substantive issues identified from the program review process but also identifies clearly:

   - What actions will follow from specific recommendations?
   - Who will be responsible for acting on those recommendations?
   - Who will be responsible for providing resources?
   - Priorities for implementation and realistic timelines for initiating and monitoring actions?

2) Provide a rationale as to why a recommendation(s) will not be pursued?
Does the Two-Year Progress Report:

1) Clearly describe progress achieved on the various action items in the implementation plan?

2) Explain convincingly any circumstances that would have altered the original implementation plan?

3) For items that are behind schedule, propose an amended implementation schedule that is reasonable and credible?

4) Address significant developments or initiatives that have arisen since the program review process, or that were not contemplated by the program review process?

The program Chair or Director (or their chosen delegate) will attend the SUC or SGRC meeting to address any questions or concerns that might arise during SUC/SGRC.

SUC’s and SGRC’s responsibility will be to focus on the overall credibility and feasibility of the report and the proposed plan of action – seeking to uncover, for example, unexplained disjunctions between the reviewers’ recommendations and the program’s response – as opposed to the minutiae of course content and curriculum structure.

A Final Assessment Report or Two-Year Progress Report that is approved by a majority vote of SUC/SGRC will be submitted to Senate for information. Should the discussion at SUC or SGRC reveal issues of concern that require revision, the Quality Assurance Office will work with the program Chair or Director to address the concern(s). If minor revisions are needed, the report will be edited and then it will proceed to Senate for information without re-approval from SUC/SGRC; however, any major revisions will require SUC/SGRC review and approval.

Status of Reports under Review

A summary of the status of all reports under review, including reports for which the QA Office is seeking reviewers, can be found at the following link:

https://uwaterloo.ca/academic-program-reviews/status-reports-under-review
Two-Year Progress Report
Chemistry (BSc)
June 2020

Background
The Undergraduate Chemistry program was reviewed in 2016-17, following the procedures described in the University Institutional Quality Assurance Process, with a self-study document submitted in September 2016, a site visit by two external reviewers with an internal reviewer accompanying them in January 2017, and a final assessment report was completed in May 2017.

The external reviewers’ report indicated that the University of Waterloo offers its students a range of accredited Chemistry programs that is unmatched by any Canadian university. Recent curriculum review and planning processes, coupled with the open and effective leadership within the Department of Chemistry, have strategically positioned the Department to face the future in an increasingly competitive environment.

The Department of Chemistry at Waterloo is one of the most research-active chemistry departments in Canada. Students benefit from learning in a research intensive environment in multiple ways: they gain hands-on research experience by completing fourth-year research projects; they can join a research group as part of a work term in the co-op program; they can work or volunteer in the research groups (e.g., NSERC Undergraduate Student Research Awards); and, finally, they have the opportunity to learn from the Department’s faculty and to select upper year (year 3 and 4) courses that align with their interests.

Progress on Implementation Plan

Recommendations

1. Self-study reports should contain the detailed program requirements for all degree programs under review.

   Status – complete
   Completed by Quality Assurance Office

2. The Dean of Science and the senior administration should ensure that the upgrades of Building C2, in particular the ventilation system upgrade, are to be completed as soon as possible.
Status – complete
After extensive review and engineering consulting, a contractor was retained and rehabilitation of the ventilation system was completed in summer 2019.

3. The Department should review the existing laboratory facilities and develop a plan for space management and upgrade, to align with ongoing equipment/infrastructure renewal.

Status – complete
Space planning and renovations are now part of the new annual budget planning process. Currently no renovations are planned, but will be undertaken with faculty renewal as needed. The Faculty is working on a modernization plan for the oldest buildings that may commence in the next 3-5 years.

4. The future plans of the Department of Chemistry should include a dedicated study space/resource center for Chemistry students.

Status – complete
Student space within the Department is available through the ChemClub room in C2. The Department judges that this as well as the large amount of study and student life space now available in the STC building is sufficient.

5. The Department of Chemistry should review its safety procedures at regular intervals.

Status – ongoing
This is and has always been reviewed annually under Policy 34 by the Chair and Safety Committee. An online system of safety inspection monitoring has been in place for several years.

6. The Department should review the coordination of multi-section courses. Course coordinators (if applicable) and instructors should place a high priority on following an agreed-upon timeline for delivering the course content, as students are distressed when sections are out of sync.

Status – complete
Course coordinators, in place for multi-section courses in first year, are responsible for ensuring sequencing and timing of courses is consistent. This team-based approach to multisection courses has removed any issues with syncing of course content.

7. The Department should review the coordination and grading of CHEM 494 projects. Reminders with respect to the expectations for the time devoted to the project should be
widely circulated, information about projects and the course should be circulated to students in a timely manner, and a greater emphasis on grading by reviewers should be considered.

**Status – complete**
The Chem 494 Coordinator has implemented orientation sessions for all students at the beginning of each term. 60% of the final grade is completed by faculty reviewers. A LEARN site has been created for students to access information, be informed of timelines, and submit reports throughout their projects.

8. The Department should review the coordination of joint programs.

**Status – complete**
Coordinating committees are now in place for each of our joint programs: Biochemistry, Materials and Nanosciences, and Nanotechnology Engineering.

9. The Department should review the list of required courses for the Materials and Nanoscience program to ensure that required core courses meet the students’ needs and that pre-requisites adequately prepare students for upcoming courses.

**Status - ongoing**
Program changes have been completed and approved, and implementation is underway. Issues around sequencing of courses were addressed first, then progressive and related learning outcomes applied to each course and its content.

10. The Department should continue to support initiatives that strengthen the library-department relationship.

**Status – complete**
The Chemistry Liaison Librarian is invited annually to department meetings to provide updates and receive feedback. Instructors are reminded of the availability of the library to enhance the program and courses delivered. Upper year courses and the fourth year research project now include library tools and often visits from the liaison librarian.

11. The Department should review placement information to ensure that co-op students receive a breadth of experiences throughout their co-op program.

**Status – complete**
A Co-op liaison has been appointed with the specific aim of educating co-op students on the placement process and helpful tips to ensure success with placements. This provides
a point of contact to students as well as consistent communication from Coop Education and the Faculty of Science on changes and supports for coop programs.

12. We recommend that the Department develop a long-term plan for the sustainability of the 2+2 and 2+1+1 initiatives and that the issue of resources and support be discussed with the Faculty of Science and the University.

**Status – complete**
Coordination of the program with external partners was formalized, and a sustainable teaching plan for the additional courses was devised. Out of that plan, a full-time lecturer with specific responsibility for the MNS program and teaching in Beijing was appointed in May 2018.

13. The Department should consider discontinuing programs with chronic low enrolments, such as geochemistry and chemical physics.

**Status – complete**
The Chemical Physics program and Materials specialization of the Chemistry program have been inactivated, effective September 1, 2020 and September 1, 2019 respectively. Geochemistry is awaiting action from the Department of Earth and Environmental Science, which currently holds administrative leadership of the program.

14. We recommend that the Department continue to assess its programs, ensuring that all accredited programs provide outstanding training in chemistry while, at the same time, balancing workload and accommodating diverse student interests.

**Status – ongoing**
The Department, through its Undergraduate Affairs Committee, will continue to review its programs. Since the curriculum has undergone significant changes over the last three years, student success and outcomes will be monitored annually over the next five years to identify any ongoing or new weaknesses. Continued investment in the lab components will remain a high priority. A full assessment will be presented as part of our next program review.

15. The Department should consider the implementation of annual Department-level review of the suite of experiments for the labs, with the goal of identifying issues with current experiments and selecting potential new experiments. The external reviewers
recommended that the Department explore means, such as assistance from students, to support the lab instructors in updating and developing experiments.

**Status – ongoing**
The Chair, along with the Dean and Undergraduate Affairs Committee will plan to adjust workloads so instructors have time for lab updates and development. Revisions to terms of offering has permitted more lab development time for instructors to update lab curriculum. In addition, replacement of some aging lab equipment has permitted new experiments and better student experience.

16. The Department should review its website to ensure that potential students can easily identify the many programs offered.

**Status – complete**
The Faculty of Science has undertaken a reorganization of all web information on Science programs to ensure information is available in a coherent and accessible manner.

17. The Department should review its mechanisms for communicating with successful graduates.

**Status – ongoing**
The Department will continue to run its exit survey of graduating students and will work with the Science Alumni Office to facilitate ongoing communication with them. Special events to invite alumni back to campus for Chemistry focused activities have occurred, such as the unveiling of our Timeline of the Elements in October 2019, and more are planned but unfortunately these have been delayed due to the pandemic.

18. The Department should explore opportunities for including student members on committees.

**Status – complete**
Students are regularly invited to faculty interviews which now include teaching seminars and asked to provide feedback with our latest faculty hires. The Undergraduate Affairs committee now includes as non-voting members one CHEM undergraduate and one BIOCHEM undergraduate as student representatives.

19. The Department should explore opportunities to include more discussion and group work into the curriculum.
Status – ongoing
Second (254), third (360) and fourth year (430) courses have added group activities to their curriculum, particularly team-based learning exercises where students first work alone on a problem, then come together in groups to solve a related but more involved problem. In addition, peer review has been introduced, including coaching on how to give constructive feedback in Chem 430. Compilation of the many efforts involving group work is ongoing and will be shared throughout the Department for information.
**Implementation Plan:**

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Proposed Actions</th>
<th>Responsibility for Leading and Resourcing (if applicable) the Actions</th>
<th>Timeline for addressing Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-study reports should contain the detailed program requirements for all degree programs under review.</td>
<td>Include program requirements in future templates and instructions</td>
<td>Quality Assurance Office</td>
<td>Report templates updated in Fall 2017</td>
</tr>
<tr>
<td>2. The Dean of Science and the senior administration should ensure that the upgrades of Building C2, in particular the ventilation system upgrade, are completed as soon as possible.</td>
<td>Upgrade of ventilation system to extend life of equipment by ten years.</td>
<td>Dean’s Office</td>
<td>Upgrades completed summer 2019</td>
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<td>3. The Department should review the existing laboratory facilities and develop a plan for space management and upgrade, to align with ongoing equipment/infrastructure renewal.</td>
<td>Space planning and renovations will be part of new annual budget planning process</td>
<td>Department Executive Committee and Chair</td>
<td>Space needs and renovations reviewed annually during budget planning. Modernization plans for older buildings received in 2019.</td>
</tr>
<tr>
<td>4. The future plans of the Department of Chemistry should include a dedicated study space/resource center for Chemistry students.</td>
<td>Short-term: make seminar room available for students</td>
<td>Chair</td>
<td>ChemClub space available since 2017; STC study space an additional resource.</td>
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<tr>
<td>5. The Department of Chemistry should review its safety procedures at regular intervals.</td>
<td>Review at least annually under Policy 34</td>
<td>Chair and Safety Committee</td>
<td>Reviewed annually</td>
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<tr>
<td>6. The Department should review the coordination of multi-section courses. Course coordinators (if applicable) and instructors should place a high priority on following an agreed-upon timeline for</td>
<td>Review with course coordinators in CHEM 120 &amp; 123</td>
<td>First-year Coordinator, UG Affairs Committee and Associate Chair, UG programs</td>
<td>Completed Fall 2017 – focus in all upcoming offerings.</td>
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<td>delivering the course content, as students are distressed when sections are out of sync.</td>
<td>Additional Orientation with 494 students; Highlight website; New LEARN site as student resource</td>
<td>CHEM 494 coordinator (Chair)</td>
<td></td>
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<tr>
<td>7. The Department should review the coordination and grading of CHEM 494 projects. Reminders with respect to the expectations for the time devoted to the project should be widely circulated, information about projects and the course should be circulated to students in a timely manner, and a greater emphasis on grading by reviewers should be considered.</td>
<td>Establish Coordinating Committees for joint programs</td>
<td>Chair and Chairs of Biology and Physics and Astronomy</td>
<td></td>
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<tr>
<td>8. The Department should review the coordination of joint programs.</td>
<td>Course changes and sequencing to be reviewed</td>
<td>MNS Coordinating Committee</td>
<td></td>
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<tr>
<td>9. The Department should review the list of required courses for the Materials and Nanoscience program to ensure that required core courses meet the students’ needs and that pre-requisites adequately prepare students for upcoming courses.</td>
<td>Explore opportunities to include library in courses and programs within the department.</td>
<td>UG Affairs Committee</td>
<td></td>
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<tr>
<td>10. The Department should continue to support initiatives that strengthen the library-department relationship.</td>
<td>Hold information sessions for students, Co-op Coordinator, Chair, instructors.</td>
<td>Librarian involved in course and department meetings annually. New course CHEM 200 and existing CHEM 494 and many upper year CHEM courses now involve librarian.</td>
<td></td>
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<tr>
<td>11. The Department should review placement information to ensure that co-op students</td>
<td></td>
<td>Coop liaisons established, information regularly shared</td>
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May 2019
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<tr>
<td>receive a breadth of experiences throughout their co-op program.</td>
<td>establish coop liaison responsibilities and mentoring by second year instructors</td>
<td>with students particularly as they approach first work term process</td>
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<td><strong>12.</strong> The Department should develop a long-term plan for the sustainability of the 2+2 and 2+1+1 initiatives and that the issue of resources and support be discussed with the Faculty of Science and the University.</td>
<td>Develop a plan with the Dean’s Office. Consult with Department. New dedicated faculty lecturer position to be filled</td>
<td>Chair, Associate Chair (UG programs) and Dean; Chemistry Executive Committee, Department of Physics &amp; Astronomy</td>
<td>Sustainable teaching plan developed Fall 2017. Dedicated lecturer hired in May 2018.</td>
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<tr>
<td><strong>13.</strong> The Department should consider discontinuing programs with chronic low enrolments, including geochemistry, chemical physics and materials specialization in Chemistry.</td>
<td>Review enrolments and sustainability of specializations.</td>
<td>UG Affairs Committee</td>
<td>Geochemistry – referred to EES department; Chemical Physics and Materials Specialization in Chemistry inactivated in Winter 2019</td>
</tr>
<tr>
<td><strong>14.</strong> We recommend that the Department continue to assess its programs, ensuring that all accredited programs provide outstanding training in chemistry while, at the same time, balancing workload and accommodating diverse student interests.</td>
<td>Additional plan flexibility to be introduced as part of new curriculum beginning September 2019.</td>
<td>UG Affairs Committee</td>
<td>Complete Sept 2019, success and adjustments made as necessary as students move through new plan.</td>
</tr>
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<td><strong>15.</strong> The Department should consider the implementation of annual Department-level review of the suite of experiments for the labs, with the goal of identifying issues with current experiments and selecting potential new experiments. We recommend that the Department explore means, such as assistance</td>
<td>Plan to adjust workloads so instructors have some time for lab updates and development</td>
<td>Chair with Dean on resources; UG Affairs Committee on priorities and implementation.</td>
<td>2018 and annually as part of teaching schedule planning.</td>
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from students, to support the lab instructors in updating and developing experiments.

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<td>16.</td>
<td>The Department should review its website to ensure that potential students can easily identify the many programs offered.</td>
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<tr>
<td></td>
<td>Reorganize information regarding programs in partnership with the Science Undergraduate Office website changes</td>
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<td></td>
<td>UG Affairs Committee, Associate Chair (UG programs), and Dean’s Office</td>
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<td></td>
<td>Website has been revised, completed Summer 2017</td>
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<td>17.</td>
<td>The Department should review its mechanisms for communicating with successful graduates.</td>
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<td>Alumni events to be held</td>
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<td></td>
<td>UG Affairs and Grad Affairs Committees and Science Alumni Office</td>
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<td></td>
<td>Alumni events now held regularly, recent graduates celebrated at each convocation</td>
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<td>18.</td>
<td>The Department should explore opportunities for including student members on committees.</td>
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<tr>
<td></td>
<td>To be added as additional members when appropriate</td>
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<td></td>
<td>Chair and Executive Committee</td>
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<td>Summer 2017 for current and future hiring committees and ongoing with curriculum changes</td>
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<td>19.</td>
<td>The Department should explore opportunities to include more discussion and group work into the curriculum.</td>
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<tr>
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<td>To investigate, implement and share different approaches to incorporating group work into curriculum</td>
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<td>UG Affairs Committee, Teaching Fellow</td>
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<td></td>
<td>Second (254), third (360) and fourth year (430) courses have added group activities to their curriculum, completed 2017. Further incorporation ongoing</td>
</tr>
</tbody>
</table>

The Department Chair/Director, in consultation with the Dean of the Faculty shall be responsible for monitoring the Implementation Plan.
Date of next program review: 

2023-24

Date

Signatures of Approval:

Chair/Director 

Date

AFIW Administrative Dean/Head (For AFIW programs only) 

Date

Faculty Dean 

Date

Note: AFIW programs fall under the Faculty of ARTS; however, the Dean does not have fiscal control nor authority over staffing and administration of the program.

February 11, 2020

Associate Vice-President, Academic 
(For undergraduate and augmented programs) 

Date

Associate Vice-President, Graduate Studies and Postdoctoral Affairs 
(For graduate and augmented programs) 

Date

May 2019
Checklist for SUC/SGRC Reviewer Feedback
Quality Assurance Office

Two-Year Progress Report: Chemistry BSc

Name of Reviewer: Martin Cooke

Date: 10/8/2020

Does the Two-Year Progress Report:

1. Clearly describe progress achieved on the various action items in the implementation plan?  ☒ Yes  ☐ No

2. Explain convincingly any circumstances that would have altered the original implementation plan?  ☒ Yes  ☐ No

3. For items that are behind schedule, propose an amended implementation schedule that is reasonable and credible?  ☒ Yes  ☐ No

4. Address significant developments or initiatives that have arisen since the program review process, or that were not contemplated by the program review process?  ☒ Yes  ☐ No

General Comments

Overall, the review was very positive. The 2-year report clearly presents actions taken to address the reviewers’ suggestions.