AGENDA 2:30 p.m. Thursday, June 18, 2020

<u>Please note the following steps for the June 18th meeting:</u>

- Thursday June 18th from 2:30 4:30 pm: during this previously-scheduled Council meeting time, Council members will have the opportunity to ask questions about the agenda items, and make motions consistent with Council bylaws. These can be submitted via email to: <u>michelle.kjargaard@usask.ca</u>. The Council chair and University Secretary will be assisting with sending these questions to the appropriate committee chair or proponent for response, and handling motions through subsequent electronic discussion and vote.
- Between Thursday June 18th 4:30 pm Friday, June 19th: An email with a link to an electronic ballot via survey monkey will be circulated to Council members for voting on decision items.
- Wednesday June 24th 5:00 pm: Electronic voting will close.
- Attendance and quorum will be determined by voting via the survey monkey electronic ballot.

In 1995, the **University of Saskatchewan Act** established a representative Council for the University of Saskatchewan, conferring on Council responsibility and authority "for overseeing and directing the university's academic affairs." The 2019/20 academic year marks the 25th year of the representative Council.

As Council gathers, we acknowledge that we are on Treaty 6 Territory and the Homeland of the Métis. We pay our respect to the First Nations and Métis ancestors of our gathering place and reaffirm our relationship with one another.

niyanān onīkānēwak kā māmawi apiyāhk, nikiskēhtiyinān ōma nikotwāsik kihci tipahamātowin askiy ēkwa mīna ēta āpihtowikosānak kā wīkicik. nikihcēyimānānak kahkiyaw iyiniwak ēkwa āpihtawikosānak osci ōta askīhk ēkwa kāwi ta kiskēhtamahk kiwahkohtowiniwa.

Kaa maashakoonitoochik li koonsay, ni kishkayhtaynaan aen ayaahk sur li tayrayn di li traytii sis pi iita kaa wiikichik lii Michif. Li rispay ni miiyaanaanik lii Praamyayr Naasyoon pi ni waahkoomaakanuk lii Michif iita kaa maashakoonitooyaahk pi ni shoohkamoonihtaanaan ka ishi waakoohtooyaahk.

- 1. Call to Order at 2:30pm Thursday, June 18, 2020
- 2. Tributes (None)
- 3. Adoption of the agenda by consensus (unless edits are received via email to michelle.kjargaard@usask.ca by 2:30pm Thursday, June 18, 2020)
- 4. Chair's Opening remarks
- 5. Approval of Minutes of the meeting of May 21, 2020 by consensus (unless edits are received via email to michelle.kjargaard@usask.ca by 2:30pm Thursday, June 18, 2020)
- Business Arising from the Minutes items must be received via email to <u>michelle.kjargaard@usask.ca</u> by 8:30am Thursday, June 18, 2020
 - 6.1 Council Question Response Question About Late Payment Penalty
- 7. Report of the President
- 8. Report of the Provost

9. Student Societies

- 9.1 Report from the USSU
- 9.2 Report from the GSA

10. Academic Programs Committee

10.1 Request for Decision: Revisions to Academic Courses Policy

(DETMER/BROOK) It is recommended that Council approve the changes to the Academic Courses Policy, effective July 1, 2020.

10.2 Request for Decision: Nomenclature Report

(DETMER/BROOK) It is recommended that Council approve the change to the Nomenclature Report, effective July 1, 2020.

10.3 Request for Decision: College of Engineering – Replacement program for the Bachelor of Science in Engineering (B.E.) program

(DETMER/BROOK) It is recommended that Council approve the replacement program for the Bachelor of Science in Engineering (B.E.) program, effective May 2021.

10.4 Report for Information: Bachelor of Science (Biomedical Science) in Interdisciplinary Biomedical Science

11. Governance Committee

11.1 Request for Decision: Principles for federation and affiliation with the University of Saskatchewan (USask)

(URQUHART/MOUSSEAU) It is recommended that Council approve the principles for federation and affiliation with USask as Part III Section X.3 of the Council Bylaws as attached, effective June 30, 2020, and recommend to the Board of Governors and Senate the adoption of these principles.

11.2 Request for Decision: Revisions to Council Bylaws

(URQUHART/MOUSSEAU) It is recommended that Council approve the changes to standing committees' terms of reference, the removal of gendered language, and typographical, formatting, and organizational refinements in the Council Bylaws as attached, effective June 30, 2020.

11.3 Request for Decision: Revisions to Council Bylaws – Governance Committee

(URQUHART/MOUSSEAU) It is recommended that Council approve the changes to the Governance Committee's terms of reference effective June 30, 2020.

11.4 Request for Decision: Nominations for the nominations committee of Council for 2020/21

(URQUHART/MOUSSEAU) It is recommended that Council approve the nomination of Keith Walker to the nominations committee of Council, effective July 1, 2020 to June 30, 2021, as attached.

- 11.5 Report for Information: Governance Committee Annual Report to Council
- 11.6 Report for Information: Number of student appeals from 2019-20

12. Planning and Priorities Committee

12.1 Request for Decision: Acceptance of the Indigenous Engagement Strategy

(OTTMANN/MOUSSEAU) It is recommended that Council accept the "Indigenous Strategy."

12.2 Report for Information: Planning and Priorities Committee Annual Report to Council for 2019-20

13. Nominations Committee

13.1 Request for Decision: Collective Agreement Committee Nominations for 2020/21

(SQUIRES/JONES) It is recommended that Council approve the outstanding nominations to the slate of Collective Agreement committees for 2020/21, as outlined in the attached list.

13.2 Request for Decision: Nomination for the Teaching, Learning and Academic Resources Committee (TLARC) of Council for 2020/21

(SQUIRES/JONES) It is recommended that Council approve the nomination of Christian Willenborg to TLARC effective July 1, 2020 to June 30, 2021, as attached.

13.3 Report for Information: Annual Committee Report

14. Research, Scholarly and Artistic Work Committee

14.1 Report for Information: Research, Scholarly, and Artistic Work Committee Annual Report

15. Joint Committee on Chairs and Professorships

15.1 Request for Decision: Van Vliet Term Professorship in Agricultural Economics

(SARTY/DE BOER) It is recommended that Council approve the Van Vliet Term Professorship in Agricultural Economics and recommend to the Board of Governors authorization of this professorship's establishment.

15.2 Request for Decision: Co-operative Retailing System (CRS) Chair in Co-operative Governance

(SARTY/DE BOER) It is recommended that Council approve the Federated Co-operatives Chair (Co-operative Retailing System Chair) in Co-operative Governance and recommend to the Board of Governors authorization of this chair's establishment.

15.3 Report for Information: JCCP 2019-2020 Annual Report

16. Other business

- 16.1 University Council Chair Announcement
- 16.2 University Council Membership 2020-21
- 17. Question period adjourned at 4:30pm
- **18.** Adjournment by consensus as of close of voting at 5:00pm on Wednesday, June 24, 2020.

Next Council meeting is September 17, 2020 – Please send regrets to michelle.kjargaard@usask.ca. Deadline for submission of motions to the coordinating committee: to be communicated



Chair's Opening Remarks to University Council – June 18, 2020

We acknowledge that Council meets on Treaty 6 Territory and the Homeland of the Métis. We pay our respects to the First Nations and Métis ancestors of our gathering place and reaffirm our relationship with one another.

As this is our last meeting with the current group of Council Chairs, I want to begin by thanking all of them for the excellent work they have undertaken in the past year. It is important that they be recognized for the untold hours of leadership and their ability to respond to ever-changing situations. They do so much behind the scenes and how they are able to maintain the focus of their work always amazes me. I have the pleasure of engaging with the group often, and in some circumstances daily or weekly, and I can assure members of Council that in these interactions the group of Chairs has always done their best to represent the interests of the University and its Council.

I also want to extend a thank-you to the members of Council for their engagement and participation in the past year. We are unable to function as a body without your commitment. Standing for nomination, accepting a position, and participating in meetings, both electronically and in person, signals to the rest of the university your dedication to the University of Saskatchewan. Without your commitment we, as a Council, do not function.

In terms of business there is information about the Research Scholarly and Artistic Works and Teaching Learning and Academic Resource Committees that I wish to share. Due to annual turnover and resignations, memberships gaps on both committees were filled with individuals whose terms extend past the needs of the committees. What this means is that we have one extra elected RSAW and one extra elected TLARC member. Council approved adding these members, even though the bylaws state that only nine for RSAW and eleven for TLARC are required. The Coordinating Committee is suggesting to keep the extra members on as "other voting members" for the year. I felt it was important to share these developments in my chair's remarks for the sake of transparency.

The June 10 PEC/Council Chairs "virtual" breakfast meeting was focused on the plan to transition to Fall 2020. We welcomed AVP Research, Darcy Marciniuk, to discuss the work of the Pandemic Response and Recovery Team, specifically the "Fall 2020 Hybrid Scenario Implementation Plan". The conversation was focused on a number of aspects of the plan important to faculty and to University Council. The meeting was so valued that both groups have agreed to a follow-up meeting to further discuss the plan.

I am so pleased with the work we have undertaken as a Council this past year and what we have accomplished together. What started out as a seemingly regular year (as if such a thing exists) transitioned into one of the biggest challenges we have faced as an institution. Council's ability to continue the necessary governance work during the COVID -19 Pandemic is an accomplishment that each one of us may share with great pride.

In conclusion, I thank the individuals who at a foundational level make our University Council such a success. The support from Secretary Chelsea Willness, Jacquie Thomarat, Michelle Kjargaard, and Amanda Storey permits me to engage fully in my role as Council Chair. They are dedicated, constant, and open-minded individuals with whom I am privileged to serve.

Regards, Jay Wilson, Council Chair



Due to the COVID-19 pandemic, the May 21, 2020 Council meeting took place electronically.

Attendance and quorum were determined by voting. Voting took place through SurveyMonkey, which is also partly how the attendance list was generated (see appendix).

On April 30, 2020, the Coordinating Committee agreed that the University Council meeting would take place asynchronously, electronically using the same procedures at the April 16, 2020 meeting. The following is a summary of the procedures that were used.

Council's March 2020 Electronic Meeting Procedures

The meeting was "opened" electronically at 2:30pm on May 21, 2020 for questions regarding any of the reports or motions provided in the agenda materials. Questions and comments could be directed to Michelle Kjargaard during the regularly scheduled meeting time, i.e. from 2:30-4:30pm, at <u>Michelle.Kjargaard@usask.ca</u>.

A working group was behind the scenes via WebEx and email during the Council meeting time, receiving questions and distributing to/receiving responses from the appropriate proponents. This group was comprised of the Council Chair, Jay Wilson; University Secretary and Chief Governance Officer, Chelsea Willness; Associate Secretary, Academic Governance, Jacquie Thomarat; Student Appeals/Academic Programs Coordinator, Amanda Storey; and OUS Administrative Assistant, Michelle Kjargaard. Council chairs were also on standby to receive questions or solicit responses from proponents of requests for decisions or items for information.

The Q&A proceedings were compiled and posted on the Secretariat website on May 22, 2020 and are available here: <u>https://secretariat.usask.ca/documents/council/agenda/2019-</u>2020/may-2020/council-meeting-q-and-a-may-21-2020-updated-june-1-2020.pdf.

Voting on decision items was opened just after 11:45am, May 22, 2020 to May 27, 2020 at 5:00pm via Survey Monkey. Following the close of the vote, a memo was sent to Council members and non-member participants with a link to the Secretariat website to communicate the results: <u>https://secretariat.usask.ca/documents/council/agenda/2019-2020/may-2020/council-meeting-may-21-2020-decision-items-voting-results.pdf</u>.

Quorum was met. 67 members were in attendance. 64 members voted. The meeting was "closed" by consensus at the close of voting at 5:00pm on Wednesday, May 27, 2020.

Minutes

1. Call to Order

The meeting was "opened" electronically at 2:30pm for questions regarding any of the reports or motions provided in the agenda materials.

2. Tributes

None.

3. Adoption of the Agenda

The agenda was circulated electronically on May 15, 2020. No edits were received by Michelle Kjargaard prior to 2:30pm, Thursday, May 21, 2020.

The agenda was adopted by consensus.

4. **Opening remarks**

Chair's remarks are available at this link, and were included with the agenda materials: https://secretariat.usask.ca/documents/council/agenda/2019-2020/may-2020/4.0-2020-05-21chairs-opening-remarks-to-university-council.pdf. The chair thanked the outgoing representatives of the USSU and GSA, and welcomed the new members. He noted that the coordinating committee had agreed that the meetings of Council would continue asynchronously and electronically until the end of the year. He also reported on the topics of the May 13, 2020 Council chair and President's Executive Committee breakfast.

5. Approval of Minutes of the meeting of April 16, 2020

No edits were received by Michelle Kjargaard prior to 2:30pm Thursday, May 21, 2020.

The minutes of April 16, 2020 were adopted by consensus.

CARRIED.

CARRIED.

6. Business Arising from the Minutes

None.

7. Report of the President

A written report was provided by the President. There were no questions received for the President.

8. Report of the Provost

A written report was provided by the Provost. There was one general question directed to the Provost.

A Council member asked "I am concerned with the limited and slow communication coming from central administrative bodies regarding faculty and graduate student research. While I recognize that hard decisions had to be made quickly in March and April, we are now well into the summer field research season with little indication as to what will be permitted. This is frustrating as we are in a situation where people can go golfing and to the hairdresser, but apparently we cannot safely design a protocol to use research lab. Why can we not get timely and rapid communication and decision making from central administration on this subject?"

The Office of the Vice-President Research responded, "Thank you for sharing your thoughts and concerns regarding our university's approach to transitioning towards conducting research remotely during COVID-19.

... when the University suspended most on-campus research activity on March 24, we provided an automatic exemption for any research related to COVID-19, research that was part of essential clinical care activities, and research that was already ongoing involving animals, plants and living organisms. We also invited researchers (who in many cases included their graduate students) whose activities were not already exempt from the suspension and who thought they had exceptional circumstances requiring on-campus or field activity to seek special approval using the Exceptional Circumstances Request Form. We also recently prepared a Field Work Decision Tree and Expectations Guide to help communicate our protocol and what is permitted to researchers and graduate students. We have continually reviewed and approved such requests, on a case-by-case basis, considering the consequences of suspending, delaying or modifying the work as well as the ability to limit potential exposure of research team members to COVID-19, as per provincial health orders.

We have been regularly engaging with Deans and Associate Deans of Research to discuss the path forward. They have regularly brought forward the perspectives of faculty members within their respective colleges or schools. We have also participated in several forums hosted by units, in which we have heard those perspectives directly.

... in the very near future, we anticipate being in a position to allow more time-sensitive research activity to continue on campus for our researchers as well as our graduate students. Several stakeholders, including our college leadership teams, will play an active role in this process given the breadth, depth, and unique nature of research activity across our campus. In the interim, we have been working hard to lay the groundwork for this, including preparing a COVID-19 Pandemic Supplement for the Lab Safety Manual, preparing a short online COVID-19 health and safety course, ensuring the availability of the necessary personal protective equipment, other supplies, and ancillary services and support staff to support the increased activity and meet enhanced requirements (e.g., for cleaning and sanitizing). As I'm sure you can appreciate, the decision and subsequent actions to shift our campus to teaching, learning, researching, and working remotely was not easy. The decision and

preparations that allow for a gradual increase on-campus activities must be done in a way that ensures and prioritizes the health and safety of our students, faculty, staff, and researchers.

I hope this information helps and look forward to providing an update in the near future."

9. Student Societies

9.1 Report from the USSU

A written report was provided in the agenda and materials. There were no questions received on this agenda item.

9.2 Report from the GSA

A written report was provided in the agenda and materials. There were no questions received on this agenda item.

10. Governance Committee

10.1 Request for Decision: Nominations for the nominations committee of Council for 2020/21

(URQUHART/MOUSSEAU) It is recommended that Council approve the slate of nominations to the nominations committee of Council, and the chair, effective July 1, 2020, as attached.

There was one question on this item. "Why do we need 3 current Associate Deans on this committee? There is already one current Associate Dean and at least one former Associate Dean. Why do we need two more?"

The chair of the Governance Committee responded. "Under the bylaws of University Council, the Nominations Committee of Council is to be composed of 9 elected members of Council. All of the individuals nominated by the Governance committee are duly elected members of Council, and thus meet the eligibility requirements of Council's bylaws.

As in any nomination process, the governance committee considered the merit and qualities of the individuals asked to serve. It is perhaps no surprise that the qualities that led these individuals to the attention of the Governance Committee also drew these individuals to service as academic leaders.

Academic governance is shared governance, which means shared by academic administrators and faculty. It would be improper – and at its core, uncollegial – to arbitrarily exclude properly elected members of Council from full participation in the activities of Council."

Voting results: 63 yes; 1 no; 0 abstentions.

CARRIED.

10.2 Request for Decision: College of Nursing Faculty Council Membership

(URQUHART/MOUSSEAU) It is recommended that Council approve the membership changes to the Faculty Council of the College of Nursing as shown in attachment a, effective May 21, 2020.

There was a question on this item. "Governance Committee has provided no rationale for recommending that Council approve the significant Nursing Faculty Council membership changes. All that is being shared is procedural information and the chronology of events leading up to this motion, with no background about what necessitated the proposed changes, what rationale was provided by Nursing – and considered by the committee – and why the Governance Committee found it to be compelling. College of Nursing Faculty Council Bylaws are shared for information, but they don't appear to offer any insights either.

Unless Council is meant to be a rubber-stamping body, its members cannot be expected to make an informed decision when all they are presented with is the Governance Committee's completely unsupported recommendation. Why is this appropriate?"

The chair of the Governance Committee responded. "The procedural and chronological information provided outlines the due diligence exercised by Governance Committee in preparing its recommendation to Council that the membership changes be approved. The fact that the Governance Committee is presenting this motion for approval by Council speaks to the committee's view that these changes are appropriate. Under the bylaws of University Council, only changes to Faculty Council membership are approved by Council. I also note that the proposed changes are unremarkable.

A notice of motion (presented at the April meeting of Council) provided Council members with an earlier opportunity to raise matters regarding this motion. While I understand the member's concerns with the motion cover page, I do not read a specific issue with the content of the motion or the revisions to the membership go the College of Nursing Faculty Council."

Voting results: 60 yes; 3 no; 1 abstention.

CARRIED.

10.3 Request for Decision: College of Dentistry Faculty Council Membership

(URQUHART/MOUSSEAU) It is recommended that Council approve the membership changes to the Faculty Council of the College of Dentistry as shown in attachments a and b, effective immediately.

Voting results: 61 yes; 2 no; 1 abstention.

CARRIED.

10.4 Notice of Motion: Principles for federation and affiliation with the University of Saskatchewan (USask)

It is recommended that Council approve the principles for federation and affiliation with USask as Part III Section X.3 of the Council Bylaws as attached, effective June 30, 2020, and recommend to the Board of Governors and Senate the adoption of these principles.

10.5 Notice of Motion: Revisions to Council Bylaws

It is recommended that Council approve the changes to standing committees' terms of reference, the removal of gendered language, and typographical, formatting, and organizational refinements in the Council Bylaws as attached, effective June 30, 2020.

There was a question from the GSA President, Humaira Inam, on this item. "The GSA Executives would like to request further clarification and reasoning behind the exclusion of voting status of student representatives on the Governance Committee of Council. The Governance Committee took to asking all Council Committees to redefine and restructure their Terms of Reference to incorporate best practices (shared governance and action-oriented ToR); and while all Council Committees allow for voting status for student representatives (other than Coordinating and Nominations), the Governance Committee concluded that because of its "unique" work, there would not be a need to change the voting status. Truthfully, this is not a rational for moving forward. In fact, in doing so, we continually push ourselves backwards and insinuate to students that their voice and their decision-making capabilities are not welcome in University governance. We have made genuine steps in ensuring shared governance and in ensuring status to have voting status on the Governance Committee demonstrates our unwillingness to change for the better.

Further, it was requested that this item be discussed on a platform where University Council could meet in a more meaningful and effective manner, in which discussions concerning such important topics could be debated openly and with transparency. The USSU and GSA Executives have sent a letter requesting to have voting rights on the Governance Committee of Council, however we have not received any response. The GSA Executives ask that this item be postponed until such a time when meaningful conversations can take place, so this fairly reflects the different perspectives openly."

The chair of the Governance Committee, Dr. Stephen Urquhart, responded. "I would like to thank the GSA president for their thoughtful comments and their request.

Undergraduate and graduate student representatives have been active and effective participants on the Governance Committee of Council, and have superbly represented the interests of students in this role. Through exercise of their active voice and participation on this committee, student representatives have effective advocated for the best interests of the University. In considering possible modifications to the terms of reference, the Governance committee reflected on the effective role and impact that student representatives made to the governance committee.

For context, USSU and GSA representatives were formally added as non-voting members of the Governance Committee of Council in November 2018. This notice of motion does not propose any changes to the membership of the Governance committee, but rather confirms the continued role of students on the committee. The phrase 'unique' succinctly captures the spirit and tenor of the discussion of the Governance and the Coordinating Committee of Council, and I regret that I am unable to expand beyond this description.

I respectfully disagree with the claim that the USSU and GSA did not receive a response to their letter of April 29, 2020. On behalf of the Governance Committee, I wrote to acknowledge and respond to this letter on May 7, 2020. In this letter, I noted that changes to University Council bylaws would be presented as a Notice of Motion at the May meeting of Council, so that Governance Committee could receive feedback from Council as a whole, before a motion for decision would be presented to University Council. Members of Council are referred to a copy of the joint letter from the USSU and GSA, which was included in the agenda package for this meeting.

The current mechanism of running Council meetings is an imperfect response to the Covid-19 pandemic. However, the GSA's written submission shows how critical topics can be raised and addressed at University Council, without a reliance on synchronous debate. I personally miss the floor of Council, but at the same time appreciate how these written submissions allow members to carefully craft questions, comments and replies.

In presenting this notice of motion, the Governance Committee seeks feedback from University Council as a whole, on the suitability and merit for all of the proposed changes to the bylaws. Council members are asked to send any comments to <Jacquie Thomarat> by Thursday, June 4. The governance committee will consider this input – including these comments from the GSA – at its next meeting."

11. Nominations Committee

11.1 Request for Decision: Council and Collective Agreement Committee Nominations for 2020/21

(SQUIRES/JONES) It is recommended that Council approve the nominations to University Council committees, and Collective Agreement committees for 2020/21, as outlined in the attached list.

Voting results: 62 yes; 1 no; 1 abstained.

CARRIED.

11.2 Request for Decision: Nomination of the Vice-Chair of University Council for 2020-2022

(SQUIRES/JONES) It is recommended that Council reappoint Dr. Pamela Downe to the position of Vice-Chair of University Council for 2020-22, effective July 1, 2020 to June 30, 2022.

Voting results: 60 yes; 2 no; 2 abstained.

CARRIED.

12. Planning and Priorities Committee

12.1 Request for Decision: "Native" Law Centre name change

(MOUSSEAU/BEDARD-HAUGHN) It is recommended that Council approve the name change of the "Native" Law Centre in the College of Law to the "Indigenous" Law Centre effective immediately.

Voting results: 62 yes; 0 no; 2 abstained.

CARRIED.

12.2 Notice of Motion: Acceptance of the Indigenous Engagement Strategy

(OTTMANN/MOUSSEAU) It is recommended that Council accept the "Indigenous Strategy: Honouring Seven Generations."

13. Academic Programs Committee

13.1 Request for Input: Revisions to Academic Courses Policy

No discussion.

13.2 Request for Input: Nomenclature Report

No discussion.

13.3 Report for Information: Annual Report to Council for 2019-20

No discussion.

13.4 Report for Information: Admissions Templates 2020-21

No discussion.

14. Teaching, Learning, and Academic Resources Committee

14.1 Report for Information: Annual Report to Council-Teaching, Learning and Academic Resources Committee Annual Report

No discussion.

15. Scholarship and Awards Committee

15.1 Report for Information: Annual Report to Council -Undergraduate and Graduate Scholarships and Awards

No discussion.

16. Other business

None.

17. Question period

A Council member asked "I recently reserved a campground spot on-line at a 7 am opening time. Thousands of others did the same. The government server did not crash because they had an automated system that put people into a queue to wait until the system could take a reservation. The wait was short and computers did not crash. Can the University get such a system to support timed exams for the coming on-line fall term?"

The Vice-Provost, Teaching, Learning and Student Experience, Patti McDougall, responded "We are indeed looking at technological approaches and options to address the concerns that have emerged with regard to exams that utilize the BlackBoard test tool? This is a high priority as we plan for the fall."

Another Council member asked the following questions.

"i) The pandemic has had several academic implications, requiring important decisions to be made about academic matters. University Council is the body responsible for making academic decisions at the University of Saskatchewan. However, it appears that other than the March 13th emergency decision on syllabi made by the coordination committee and the March 18th and April 9th decisions made by the APC --all without involving University Council members -there have been no decisions made by Council on any matters related to the university's response to COVID-19.On some matters, notably the proposal to offer a Pass/Fail grading option to students, Council leadership has allowed College administrations to make decisions. Why is that?

ii) The spirit of Kerr and King requires full participation of members in decision-making. A key component of participation in a meeting is the ability to observe and join a discussion. The offline format that University Council continues to opt for precludes such participation entirely. Questions are asked and answered through private email, with no opportunity for others to join the discussion. While other bodies on campus --Graduate Council, faculty councils, etc. --are addressing this inadequacy by using technology to support online meetings, University Council is not. Why?

iii) Is it acceptable for council committees to bring forward recommendations without sharing any rationale or compelling evidence? I refer to my question about 10.2. How are Council

members expected to make informed decisions without any relevant information? Is it the express intent of the committees to ask Council members to simply trust them and vote as they say, rather than expect compelling rationale to be shared? Are committees not subject to any standards in the quality of their deliberations and recommendations?

iv) Although it may be appropriate to count the number of votes to determine quorum, it is not clear to me that it is a correct implementation of the in-person process to consider those who do not explicitly vote as being absent. In-person meetings of Council allow members to sign in their attendance even if they subsequently choose not to vote on particular motions. This is not being correctly implemented electronically. Also, the opportunity to send regrets to the non-meeting was never announced, resulting in everyone who did not vote being counted as absent. This should be addressed.

v) There is a possible discrepancy between the number of people marked present in the attendance sheet (62), and the total number of counted votes (61) for the April meeting, especially considering the fact that one is counted as being present based on whether one votes. It is, however, possible that different individuals chose not to vote on the two motions."

The chair of Council responded to each of the questions as follows.

i): In response to your questions with the work of Council we have made an effort to ensure that the regular processes continue of approval and opportunities to have input and dialogue exist. Outside of the one urgent decision about syllabi no delegation of decision making has taken place.

ii): All materials of the meeting including the agenda, questions from the meeting, and responses to the questions are shared with Council. There is the opportunity to observe and participate in all aspects of the meeting. Paragraph 109 in Kerr and King specifically addresses virtual meetings and our approach is well within their recommended options in exceptional circumstances. The coordinating committee of Council has discussed the possibility of an expanded technological presence as I have noted in my Chair's remarks in the past two meetings. At this time we feel that the process is effective and we are staying with the electronic meeting format for the end of the year. To make the change may appear easy on the outside but the logistics of making the change for a complex meeting such as Council is not an easy option.

iii): The committees are tasked with a difficult job of delivering informed motions to Council for decisions throughout the year. Each decision comes forward as a notice of motion that provides members of Council access to the same materials as the Committee. Each Council member has the opportunity to read and ask questions. There is no attempt to hide or exclude members of Council from any of the processes. We put our trust in the committees to make informed decisions but any member of Council is invited to weigh in on these decisions. Year-end reports of each committee provide a clear overview of the detailed work undertaken and the countless hours of review that go into delivering informed motions to Council.

iv): We have modified our initial system to count the members who sign in to determine quorum not who votes. There is a notation on the bottom of the agenda for every meeting for Council members to send regrets, if any regrets were sent in to us, they have been noted.

v): The Council Chair, Council Committee Chairs, the President and Provost are noted as being present due to being available to answer the questions as they are being put forward and some members of this group can't or did not vote."

A GSA representative posed a question as follows. "I have a question regarding the financial help available for students during this COVID pandemic. The Government of Saskatchewan announced in April 9th that they were releasing \$1.5 million destined to help both domestic and international students who were experiencing financial stress due to this pandemic. All the info is here: <u>https://www.saskatchewan.ca/government/news-and-media/2020/april/09/aid-available-for-ps-students</u>.

However, when you go to he USask Crisis Financial Aid <u>https://students.usask.ca/money/other-loans.php</u>, I cannot find any details about these bursaries and/or how to apply for them. How do students know when they are applying for the USask Crisis Financial Aid whether they are receiving a loan or a bursary? Thank you very much."

Patti McDougall responded. "In April, the Government of Saskatchewan's announcement did not mention that what they did was ask institutions to redeploy funding that we had already received in the annual budget for the Saskatchewan Innovation and Opportunities Scholarships. The University reviewed the annual allocation for Saskatchewan Innovation and Opportunities Scholarships, which already puts funding directly into the hands of students, and was able to pull back \$300,000 of this allocation to put into emergency student aid. The \$300,000 was spent within a matter of less than a few weeks and helped a lot of students (graduate and undergraduate, international and domestic). No funding remains from this source. When the funding was available – the information was listed on the website. At present, information is still on the University's website to reference this initiative:

<u>https://updates.usask.ca/info/current/money.php#Crisisfinancialaid</u>. This website also includes other information about federal support programs for students.

In addition to the reallocated SIOS funding, the University expended over \$800,000 in emergency student aid from the middle of March until about the middle of May. There has been a deluge of applications and the application process was extremely straightforward.

Our sources of funding for providing bursaries and grants to students is now virtually depleted and information to this effect has been updated and is available on the university's website in the same location as indicated above. We are hopeful that in the weeks and months ahead we may be able to raise other funds that could be used to provide emergency funding to students. One such initiative has come in the form of allowing colleagues to reassign DSAE or APEF funding to support emergency aid for students.

Any inquiry regarding financial aid for students can be addressed by writing to Student Central at <u>askus@usask.ca</u> or phoning Student Central at 306-966-1212. Student Central services are fully available and will remain so throughout this period of working remotely."

18. Adjournment

Adjournment was by consensus as of close of voting at 5:00pm on May 27, 2020.

Attachments

1. Appendix A – Attendance from the meeting of May 21, 2020

Next Council meeting is September 17, 2020 – Please send regrets to Michelle.Kjargaard@usask.ca.

ATTACHMENT: APPENDIX A

COUNCIL ATTENDANCE 2019-2020

Attendance Summary - Votin	g Participan	ts									
Name											
	Sept 19	Oct 17						-	-	June 18	
March 19, 2020 - Due to the meeting bein operated as such to maintain integrity and								gh the PAWS	process is crea	ted and	
April 16, 2020 - Due to the meeting being		the ettende			min od hu uoti				recent 'D' hu w	the weter	
April 16, 2020 - Due to the meeting being	neid electronicali	y, the attenua	nce and quoru	m were deter	mined by votil	ig. As a result	, we have not	eu who was p	resent P by w	no voted.	
Aitken, Alec	R	Р	Р	Р	Р	Р		Р	Р		
Alcorn, Jane	A	A	A	A	A	P		A	А		
Bell, Scott	n/a	n/a	n/a	Р	Р	P		P	Р		
Berry, Lois	R	P	R	Р	Р	R		Р	n/a	n/a	Completed Interim Dean, Nursing
Blakley, Jill	R	Р	R	Р	Р	Α		А	A		
Boland, Mark	Р	Р	Р	Р	Р	Α		Α	Р		
Bonham-Smith, Peta	Р	Р	Р	Р	R	Р		Р	Р		
Brook, Ryan	Р	Р	Р	R	Α	Р		Р	Р		
Brothwell, Doug	R	Р	Р	R	Р	Р		Р	Р		
Bruni-Bossio, Vince	Α	Р	R	Р	Р	Р		Р	Р		
Buhr, Mary	Р	R	R	Р	Α	Р		А	Р		
Burgess, David	Р	Р	Р	Р	R	R		Р	Р		
Card, Claire	Р	Р	Р	Р	Р	Р		А	А		
Carter, Mark	Р	Р	Р	А	А	Α		А	А		
Chernoff, Egan	А	А	А	А	А	А		А	А		
Chibbar, Ravindra	Р	R	Р	Р	Р	R		Р	Р		
Crowe, Trever	Р	Р	Р	Р	Р	Р		Р	А		
D'Eon, Marcel	Р	Р	Α	Р	Α	Р		А	resigned as	of Apr 30, 20	20
Dawson, DeDe	Р	Р	Р	R	Р	Р		Р	Р		Sabbatical (Jan-Jun 2020) will atte
de Boer, Dirk	Р	Р	R	Р	R	Р		Р	Р		
Delbaere, Marjorie	Р	R	R	Р	Р	R		А	Р		
Deters, Ralph	Р	Р	Р	Р	Α	Р		А	Р		
Detmer, Susan	Р	Р	Р	Р	Р	R		Р	Р		
Dick, Rainer	Р	Р	Р	Р	Р	Р		А	Р		
Dobson, Roy	Р	R	Р	Р	Р	R		Р	Р		
Downe, Pamela	Р	Р	R	Р	R	Р		Р	Р		
Elias, Lorin	Р	Р	Р	R	Р	R		Α	Р		
Engler-Stringer, Rachel	Р	R	Р	Р	Р	R		Р	Р		
Eskiw, Christopher	А	Α	Α	А	Α	Α		Α	А		
Flynn, Kevin	Р	Р	R	Р	Р	Р		Р	Р		
Fonseca, Alejandra	Р	Р	Р	Р	Α	Р		Р	n/a	n/a	Outgoing student member Apr 30
Foley, Sarah	Р	R	Р	Р	R	R	R	R	R	R	Regrets for Feb-Jun meetings-may
Fotohui, Reza	R	Р	R	Р	Р	Α		А	Α		
Freeman, Doug	R	R	Р	Р	R	R		Α	A		
Gabriel, Andrew	А	Р	А	Р	Р	Α		А	Р		
Gillis, Glen	Р	Р	Р	Р	N/A	N/A		Р	Р		Sabbatical (Jan-Jun 2020)
Gjevre, John	Р	R	R	Р	Р	Р		Α	Р		
Harrison, William	Α	Α	Α	Р	Α	Р		Α	A		
Henry, Carol	R	Α	Р	Α	Р	R		Α	A		
Illing, Kate	Α	R	Α	Α	Α	Α		Α	n/a	n/a	Outgoing student member Apr 30
Jamali, Nadeem	Р	Р	Р	Р	R	R		Α	Р		
Jensen, Gordon	Р	R	A	Р	R	R		Р	Р	ļ	
Jones, Paul	R	Р	Р	Р	Р	R		Р	Р		
Just, Melissa	R	R	Р	Р	Р	R		Р	Р		Interim Provost May 1, 2020 - De
Kalra, Jay	Р	A	Р	R	R	R		Р	Р		
Kelly, Timothy	Р	Р	Р	Р	Р	Р		A	A		
Khandelwal, Ramji	Р	R	Р	Р	R	Р		Р	P	,	
Klassen, Lauren	А	A	A	A	Р	A		A	n/a	n/a	Outgoing student member Apr 30
Ko, Seok-Bum	Р	Р	R	R	R	A		Р	Р		
Kresta, Suzanne	Р	R	A	A	R	Р		Р	A	ļ	
Kumaran, Arul	Р	A	Р	A	A	R		A	A	ļ	
Lamb, Eric	Р	Р	Р	Р	Р	R		Р	Р	ļ	
Lane, Jeffrey	Р	A	Р	Р	Р	R		A	A	ļ	
Langhorst, Barbara	R	R	R	Р	R	R		Р	Р		

Name											
Nume	Sept 19	Oct 17	Nov 21	Dec 19	Jan 16	Feb 20	Mar 19	Apr 16	May 21	June 18	
Lanovaz, Joel	Р	Р	Р	Р	Р	R		Α	Р		
Lindenschmidt, Karl	Р	Р	Α	Р	Р	Р		Р	Р		
London, Chad	Р	Р	Р	Р	R	Р		Р	Р		
Luke, lain	R	Α	R	R	R	Α		Α	A		
Macfarlane, Cal	Α	R	Α	Α	Α	Α		Α	Α		
MacLean, Jason	R	Α	Α	R	Α	Α		Α	Α		
Manley-Tannis, Richard	Р	R	Р	Α	Р	R		Р	Р		
Markham, Taylor	Α	Α	Α	Α	Α	Α		Α	n/a	n/a	Outgoing student member Apr 30
Marquez, Carmen	n/a	n/a	n/a	n/a	n/a	n/a		n/a	Р		Incoming student member May 1,
McEwen, Alexa	Α	R	R	Р	R	Α		Α	n/a	n/a	Outgoing student member Apr 30
Mousseau, Darrell	Р	Р	Р	Р	Р	Р		Р	Р		
Murphy, JoAnn	Р	Р	Р	Р	Р	R		Р	Р		
Neufeld, Matthew	Р	Р	Р	Р	Р	Р		Р	Р		
Papagerakis, Petros	Α	Α	Р	Р	Р	Р		Р	Р		
Peternelj-Taylor, Cindy	n/a	n/a	n/a	n/a	n/a	n/a		n/a	Α		Interim Dean, Nursing May 1, 202
Phillipson, Martin	Р	Р	Р	Р	А	Р		Α	Α		
Pocha, Sheila	Р	Α	Α	А	Α	Α		Р	Р		
Poettcker, Grant	Α	Α	Α	А	Α	Α		Α	Α		
Power, Sarah	Α	Α	Α	А	Α	Α		Α	n/a	n/a	Outgoing student member Apr 30
Prytula, Michelle	Р	R	Р	Р	R	R		Р	Α		
Racine, Louise	R	R	R	R	R	Α		Р	Р		
Reaser, Isaac	Α	Α	n/a-resigne	d as of Nov 2	019 and rep	laced by Cel	este Robillar	d			
Risling, Tracie	Р	Р	R	R	Р	Р		Р	Р		
Robillard, Celeste	n/a	n/a	А	R	Р	Α		Р	n/a	n/a	Outgoing student member Apr 30
Sarty, Gordon	P	P	Р	Р	Р	R		Р	Р		
Saxena, Anurag	Α	Р	А	Р	R	Α		Α	Α		
Shevyakov, Alexey	Р	Α	Р	R	Р	Р		Р	Р		
Shin, Hyunjung	Р	Р	Р	R	Р	R		Р	R		
Singh, Jaswant	Α	Р	Р	Р	Р	R		Р	Р		
Smith, Charles	Р	Α	А	А	Α	Α		Α	А		
Smith, Preston	R	Α	Р	R	Р	Р		Α	Α		
Smith, Martha	Р	Р	Р	Р	Р	Р		Р	Р		
Soltan, Jafar	Р	Р	Р	Р	Р	Р		Р	Р		
Somerville, Kara	Р	R	Р	R	Р	Α		Α	Р		
Sorensen, Charlene	n/a	n/a	n/a	na/	n/a	n/a		n/a	Р		Acting Dean, Library May 1, 2020-
Spurr, Shelley	Р	Р	Р	Р	R	R		Р	Р		
Squires, Vicki	Р	Α	Р	Р	R	Р		Р	Р		
Stoicheff, Peter	Р	R	Р	Р	Р	Р		Р	Р		
Stuart, Glenn	Р	Р	А	Р	Р	Р		Р	Р		
Swidrovich, Jaris	Р	R	Р	R	Р	R		Р	Р		
Urquhart, Stephen	Р	Р	Р	Р	Р	Р		Р	Р		
Vannelli, Tony	Р	Р	Р	Р	Р	Р		Р	Р		Resign Provost as of June 30, 2020
Waldner, Cheryl	Р	Р	Р	Р	R	R		Р	Р		
Walker, Keith	Р	R	Р	Р	R	Р		Р	Р		
Willenborg, Christian	Р	R	R	Р	Р	Р		Р	Р		
Willness, Chelsea	Р	Р	n	a-resigned a	s of Oct 31,	2019 and wi	ll be part of r	non-voting a	s of Jan 1, 20	20	
Willoughby, Keith	Р	Р	Р	Р	Р	R		Р	Р		
Wilson, Jay	Р	Р	Р	Р	Р	R		Р	Р		
Wilson, Lee	P	A	P	P	P	P		A	А		
Woods, Phil	Р	Р	Р	Р	Р	P		Р	Α		
Wotherspoon, Terry	Р	Р	Р	Р	Р	R		Р	Р		
Yao, Yansun	-	abbatical (Se			A	P		P	А		1
Zello, Gordon	R	R	R	Р	A	P		A	Р		
Zhang, Chris	P	P	P	P	P	P		P	P		1
										1	1

COUNCIL ATTENDANCE 2019-2020

Name											
	Sept 19	Oct 17	Nov 21	Dec 19	Jan 16	Feb 20	Mar 19	Apr 16	May 21	June 18	
March 19, 2020 - Due to the meeting bei operated as such to maintain integrity an								gh the PAWS	process is crea	ted and	
April 16, 2020 - Due to the meeting being	g held electronically	, the attendan	ce and quorur	n were deterr	nined by voti	ng. As a resul	t, we have not	ted who was p	oresent 'P' by w	/ho voted.	
Bilson, Beth	Р	Р	Р	Р	Jan 2020-B.	Bilson has r	noved from	the OUS Dep	t		1
Chad, Karen	Р	Р	Р	Р	Р	А		А	А]
Doig, Anne	n/a	n/a	Р	Р	Р	Р		Р	Р		
Ezekwesili, Chiamaka	n/a	n/a	Α	А	А	А		Α	n/a	n/a	Outgoing VP External GSA Apr 30, 2020
Fowler, Greg	А	Р	Α	Α	Р	А		Α	Α		
Gill, Qasim	n/a	n/a	n/a	n/a	n/a	n/a		n/a	Α		Incoming VP External GSA May 1, 2020
Inam, Humaira	n/a	n/a	n/a	n/a	n/a	n/a		n/a	Р		Incoming GSA President May 1, 2020
Isinger, Russell	Р	Р	Р	Р	Р	Α		Α	Α		
LaRose-Smith, Autumn	n/a	n/a	n/a	n/a	n/a	n/a		n/a	Α		Incoming USSU President May 1, 2020
McDougall, Patricia	Р	Α	Р	Р	R	Α		Р	Α		
Mendoza, Mery	Р	Р	Р	R	Р	Р		Α	n/a	n/a	Outgoing GSA President Apr 30, 2020
Morrison, Karen	R	Р	Р	Р	Р	Р		Α	Α		
Munoz Pimentel, Carlos	Р	Р	Р	R	Р	Р		Α	n/a	n/a	Outgoing VP Academic Affairs USSU Apr 30, 202
Osburn, Debra Pozega	Р	Р	R	Р	Р	Р		А	А		
Ottmann, Jacqueline	Р	А	Α	Α	Α	Р		Α	А		
Ratt-Misponas, Regan	Р	А	Р	Р	R	А		А	n/a	n/a	Outgoing USSU President Apr 30, 2020
Roberts, Keifer	n/a	n/a	n/a	n/a	n/a	n/a		n/a	А		Incoming VP Academic Affairs USSU May 1, 202
Still, Carl	Р	R	R	Р	Р	R		Α	А]
Willness, Chelsea	n/a-C. Willness started with OUS Jan 1, 2020			Р	Р		Р	Р]	





University Registrar's Office Teaching, Learning and Student Experience E1 - 105 Administration Place Saskatoon SK S7N 5A2 Canada Telephone: 306-966-6723 Fax: 306-966-6730

RE:	Question About Late Payment Penalty .
DATE:	June 12, 2020
FROM:	Russell Isinger, University Registrar
TO:	University Council

A Council member inquired as to tuition fee penalties. He requested that the University not levy penalties on late tuition payments; moreover, he suggested that we should advertise that we are a university that does not.

Russell Isinger, University Registrar responded that his office reviews such policies regularly. Penalties encourage payment and are not out of step with other universities. He committed to further examining the financial and historic reasons for penalties on late tuition payments at USask and reporting back to Council [Table 1. Action 2].

Council may not be aware that the Student Accounts functions moved from Financial Services to the Registrar's Office in 2015 are now managed by Student Finance and Awards, University Registrar's Office, Teaching, Learning, and Student Experience.

As I mentioned at the Council meeting where this question was raised, late payment penalties exist to encourage payment by the stated deadlines to ensure a predictable flow of tuition and fees essential to the finances of this institution, and to support organizations within the university who depend on payment of fee revenue for their operations (for example, Recreation and Athletics, Student Wellness and Services, students' unions, The Sheaf, etc.). We also operate under instructions from the Board of Governors to keep bad debt at a reasonable level. It is unrealistic that any institution or organization wanting to ensure a predictable flow of revenue would do away with late payment penalties entirely.

Considering the current COVID-19 pandemic, the U of S suspended as of April 2020 the late payment penalty on all student accounts for the time being. The decision regarding whether we will again charge a late payment penalty in the fall is under



consideration. In addition, and with a longer-term view, Student Finance and Awards is currently reviewing the late payment penalty interest rate to determine whether it should be changed to a different model as part of a broader review of our financial policies related to student accounts. It is important to note that we also have the practice of waiving the late payment penalty under certain circumstances (e.g., delays in receiving financial aid that is beyond a student's control).

Yours respectfully,

Russell Isinger

Russell Isinger, University Registrar

AGENDA ITEM NO: 6.1.1

UNIVERSITY COUNCIL

FOR INFORMATION

PRESENTED BY:	Gordon Sarty, Council Member, Professor, Psychology Department Head, Interim Chair of Biomedical Engineering
DATE OF MEETING:	June 18, 2020
SUBJECT:	Comment on Council Question Response on Late Payment Penalty

DISCUSSION SUMMARY:

Thank you to Russell Isinger for the response to my question about late fees for tuition and for suspending them during the current COVID-19 crisis.

In your response both at the meeting where I asked the question and in your letter response, you mentioned that the late fees provide an incentive to pay. I would like to point out that students cannot see their final mark or register for classes if they have not paid up. I think those measures are more than enough incentive for paying up.



PRESIDENT'S REPORT TO UNIVERSITY COUNCIL June 2020

As my final report to university council for the 2019/2020 academic year, I wanted to reflect on the very successful year we have had as an academy and institution, despite the challenges we have faced in responding to a global pandemic. The last few months have been far from easy and so I want to extend a sincere thank you to all council members for their continued support and understanding in these trying times.

I also want to thank Dr. Tony Vannelli, who leaves us as Provost and Vice-President Academic. He served the university extremely well in the role, and I and my President's Executive Committee colleagues were extremely fortunate to be able to work alongside him for the last three years. I wish him all the best in his new role as Provost and VP Academic at Sir WIIfrid Laurier University.

USask statement on anti-racism

I have been working with many campus community partners to develop a statement and actions to address anti-racism. This statement will be released on Wednesday, June 17th.

USask COVID-19 Update

Over the recent weeks, institutional planning in response to COVID-19 has moved from crisis response to recovery, focusing on the gradual increase in activity on campus and developing an implementation plan for the Fall 2020 term. In May, it was determined by the President's Executive Committee (PEC) that USask would plan for a primarily remote approach to program delivery this fall. It is a 'hybrid delivery model' and it will combine primarily remote online learning, with limited classroom, laboratory, clinical, and physical instruction (only where warranted and where circumstances permit) in consultation with public health and Saskatchewan's Chief Medical Health Officer. This direction reflects comprehensive analysis and planning work done at the university over the weeks since the emergence of COVID-19, and is based on current pandemic knowledge and projections.

To follow through with developing an initial plan for delivery of academic programming and research in September, a Pandemic Recovery Team (PRT) and Advisory Hub were formed with the mandate to lead this planning. The draft Fall Term Hybrid Implementation Plan was recently submitted to the PEC and we are now requesting feedback from stakeholders. The PRT has been busy meeting with various campus community stakeholders, including Dean's Council, Faculty Council Chairs and student leaders. I encourage members of Faculty Council to review this plan at the USask COVID-19 site and provide feedback through the online channel.



Another development over the course of the last month was the decision to hold tuition at current rates for the 2020/2021 academic year. Given the many issues students are facing due to COVID-19, we felt that maintaining current tuition rates was the right thing to do. An additional initiative to help support students during COVID-19 has included the invitation to USask staff and faculty to reallocate unneeded funds from their Accountable Professional Expense Fund (APEF) or Department and Senior Administrator Expense (DSAE) account to emergency student grants or to a graduate employment initiative. The call went out on May 8 and has since been a resounding success, with \$180,000 having been contributed by staff and faculty towards students. I want to thank all faculty who have given to this fundraising effort.

Pride at USask

USask has planned and will be involved in a number of events to mark Pride Week including the pride flag raising on the Saskatoon campus via social media, the Spark Your Pride panel discussion co-sponsored by the University Library on June 16, and virtual Saskatoon Pride Parade on June 20. Earlier this month, to observe Pride, we lit the Peter MacKinnon Building and the President's Residence with rainbow lights, and refreshed the Pride walkway between the Arts and Murray Library buildings—an annual occurrence made even more important this year due to vandalism. The shop USask online store has new USask pride shirts and tote bags available and a portion of the proceeds will go towards the university's queer housing initiative.

Huskies' first term seasons cancelled

Last week, it was announced that the USask Huskies' first term seasons for football, and men's and women's soccer will be cancelled. This decision follows the recommendation of the Canada West (CW) board. The 17 members of the CW conference voted for the cancellation of first term competition team sports due to the ongoing COVID-19 pandemic. Nationally, U SPORTS also announced the cancellation of all U SPORTS first term national championships. It is important to make this decision now to give Huskie student-athletes certainty as they begin to plan for the fall, including whether they plan to relocate based on the delivery model of their respective colleges. All Huskie student-athletes will continue to receive the supports necessary for their success even without the fall season, including physiotherapy, nutrition, strength and conditioning, mental health supports, access to training facilities as well as academic and coaching supports.

Another major milestone reached in VIDO-InterVac vaccine development

A COVID-19 vaccine candidate developed by USask's VIDO-InterVac has cleared another major milestone in moving towards human clinical trials. The novel vaccine has proven highly effective in ferrets, one of the commonly used animal models for COVID-19. To evaluate the



effectiveness of the vaccine, the ferrets received two immunizations prior to being exposed to SARS-CoV-2, the virus that causes COVID-19. The vaccine induced a strong immune response and decreased viral infection in the upper respiratory tract to almost undetectable levels. VIDO-InterVac's vaccine was developed using the team's expertise, gained from research on other coronaviruses including SARS and MERS. The vaccine was formulated with a combination adjuvant (a component that helps vaccines work better) previously created in partnership with Dalhousie University, the University of British Columbia, and the South Korean-based International Vaccine Institute, with funding from the Bill and Melinda Gates Foundation. Several additional trials are planned over the next few months, including safety studies to prepare for human clinical trials this fall. The organization is also completing a vaccine manufacturing facility that will be GMP (Good Manufacturing Practice) certified to support vaccine production capacity in Canada.

USask donates Emma Lake Kenderdine Campus cabins

Over the spring, USask responded to an urgent request from an Indigenous community in central Saskatchewan in need of additional housing during the COVID-19 pandemic by providing 22 cabins to be relocated from the currently shuttered Emma Lake Kenderdine Campus site. We were able to work with the Montreal Lake Cree Nation to move some of the buildings on-site to support their urgent need for additional housing. This quick move allowed the university to donate the cabins, which we had already been marked to remove. Montreal Lake Cree Nation, which has closed its borders to reduce the spread of COVID-19, inquired about obtaining the buildings in late March, with the USask Board of Governors approving the request on March 30. The cabins moved exclude any buildings on the campus of historical interest to the university, and do not have permanent foundations, making them easier to move and retrofit to meet urgent basic housing needs in the Indigenous community, during the pandemic. Cabin removal began in May and site cleanup and restoration will continue through June. With the plan to fully consider opportunities for a revitalized ELKC, the university remains firmly committed to engaging key stakeholders in its future. Plans for moving into the next phase of consultation in spring 2020 were put on hold due to COVID-19. When it is safe to do so, the university will continue to move forward with public consultation.

Provost's Report to Council

June 2020

GENERAL REMARKS

The university continues to respond to the Covid-19 pandemic for the Spring and Summer terms and planning is continuing for the delivery of a Fall academic term that will be primarily delivered remotely due to the ongoing health and safety concerns our students, faculty and staff at the UofS. A new Pandemic Response Team (PRT) has drafted guidelines to assure that academic and scholarly (research) activities are managed in an effective and safe way as the campus begins to re-open under the guidelines set by government.

Deans, vice-presidents and other senior leaders continue to communicate on the delivery of the Fall term as it emerges for different academic programs. We appreciate your patience as we continue to work through the delivery of the Fall term given the current difficult health and safety realities.

This is my last report to University Council. I am pleased that beginning July 1, 2020, Dr. Melissa Just will become the Interim Provost and Vice-President (Academic) until a permanent provost is appointed. Melissa has been working with myself and other senior leaders to transition into this role and will be well prepared stepping into this role. I wish her much success as she assumes these responsibilities. The university is fortunate to have Melissa taking on this role at this time.

Finally, I want to thank all the members of University Council for the wonderful experience that I have had being the provost for the past three years. It has been an honour to serve you and work with many of you individually and collectively on committees of Council as well as Council itself. The broad discussions that have evolved at Council as the University Plan 2025 was discussed to shape the direction of the university for the next 5 years was a rich example of this Council's impact. This university has such a continued bright future ahead of it and this body will form a big part of shaping that destiny. The very best to each of you on the current and incoming Council.

INSTITUTIONAL PLANNING AND ASSESSMENT

Over the last three months, our campus community has been focused on responding to our current realities related to the COVID-19 pandemic. While we continue to adapt to our changing environment, it is important that we rely on our strategic plans to guide us through these challenging times. IPA continues to support colleges, school and units with their strategic plans and progressing towards goals. Information will be gathered from colleges, schools and units over the next few months and our annual planning process will continue throughout the summer and into the fall.

Room 110, 1 Campus Drive University of Saskatchewan Saskatoon, Saskatchewan S7N 5A3



Telephone: (306) 966-6960 Fax: (306) 966-6978 E-mail: contactus@ussu.ca Website: www.ussu.ca

Thursday, June 11th 2020

As May came to an end and June finally brought the April showers, the University of Saskatchewan Students' Union executive began strategizing for their term. As a reminder, the USSU executive came into their new roles in May and began transitioning into their positions, as well as adapting to the new "virtual reality". We have decided to continue and further the work of The Path Forward, the strategic plan developed by the 2019-2020 executive and will be releasing an updated version in the upcoming months that further outline our goals for 2020-2021. Meanwhile, our newly elected Vice-President of Student Affairs, Jory McKay, has been busy working with the University of Saskatchewan and community partners to plan Pride celebrations for the month of June. Our Vice-President of Academic Affairs, Kiefer Roberts has been busy dealing with an increase of academic grievances since moving online during the final weeks of the 2020 winter term. Jamie Bell, the Vice- President of Operations and Finance has developed and implemented the new Campus Groups Policy which will provide students with greater support and funding. We are grateful for all the hard work that our senior managers have been doing to ensure the sustainability of this organization, and we look forward to a day where we can work in person. On May 25th, the world witnessed the traumatic murder of George Floyd and saw protests taking place on a local and global level for the Black Lives Matter movement. The USSU responded with a statement and promise to do the following:

- 1. Work alongside students and staff to develop anti-racism policies for the University of Saskatchewan Students' Union.
- 2. Dedicate funds towards anti-racism initiatives and partnerships with student groups.
- 3. Continue to provide and strengthen anti-racism training for our USSU staff and volunteers.

As an organization, we strive to build a safe, healthy, and empowering student experience. With close to 20,000 undergraduate students at the University of Saskatchewan, we must hold ourselves accountable to ensure that this is possible. We have begun working with U of S senior leadership on this matter and will continue to advocate on behalf of students. We challenge the University Council members to reflect on the roles they have in regards to the wellbeing of students.

With respect, Jamie Bell Kiefer Roberts Jory Mckay Autumn LaRose-Smith



University of Saskatchewan Graduate Students' Association

University Council Report - June 2020

Dear members of University Council,

The executives of the Graduate Student's Association (GSA) had a very busy month continuing the previous initiatives left to us and familiarizing ourselves with the policies and bylaws of the university, which is critical for the continuity of the work we do to benefit our graduate students. We continue our efforts to find new ways to prepare our graduate students to become the future leaders and benefactors of our society during these unprecedented times. Moreover, the GSA continues its efforts to engage partners, both on campus and outside the university, in discussions on creating and developing new initiatives that we can provide to students on an online platform due to the impact of COVID-19. Furthermore, in this report you will find some steps the GSA executives have taken to achieve the following goals:

1. Strengthening our student relationships and engaging our professional partners around campus

We want to maintain collaborations for research, learning, and networking among members of our university and our community as a whole. As such, we have met with the staff members of the International Student and Study Abroad Centre (ISSAC) to discuss future initiatives that address food insecurity for all students on campus. Food security is a critical issue for many students; therefore, we are working towards implementing a program that will benefit all future University of Saskatchewan students. We will be working on the details of this initiative in collaboration with other stakeholders and we will be providing updates as it progresses.

The GSA executives also had an informative meeting with PSAC, where we discussed the concerns that graduates students have regarding their health and safety if/when returning to work on campus for the fall session. We have also met with the Director of Student Affairs and Services, to discuss virtual events that will engage graduate students during the spring/summer terms. The GSA will be collaborating with the USSU executives and with the Director of Student Affairs and Services' team in creating interactive online platforms for new students who will be starting in the fall. We are looking forward to working with senior administration on this and other initiatives and forming a strong partnership that will ultimately benefit our graduate students.

2. Looking for opportunities towards better research and life experiences The GSA will continue developing new initiatives and activities that will ensure that our graduate students will continue having a good student experience while growing both academically and socially. The GSA has opened applications for 2020 spring/summer bursaries for our students who are in need and are facing financial difficulties that influence their academic performance and life in general. We will continue to work on planning future events for our graduate students as well as supporting them to enhance our graduate students' experience here at the University of Saskatchewan.

Overall, we will strive to promote the health and wellbeing of our graduate student population as a well as support them through these difficult times. We hope to work closely with our partners around campus and continue our discussions on what supports we can provide and how we can engage our graduate students.

Humaira Inam

President, Graduate Students' Association

AGENDA ITEM NO: 10.1

UNIVERSITY COUNCIL ACADEMIC PROGRAMS COMMITTE REQUEST FOR DECISION

PRESENTED BY:	Susan Detmer, chair, academic programs committee
DATE OF MEETING:	June 18, 2020
SUBJECT:	Revisions to Academic Courses Policy

DECISION REQUESTED:

It is recommended: That Council approve the changes to the Academic Courses Policy, effective July 1, 2020

PURPOSE:

University Council has the authority to approve changes to academic policies.

CONTEXT AND BACKGROUND:

Revisions to the Academic Courses Policy was last approved by Council at its June 2017 meeting to clarify aspects of the section dealing with Grading Systems, including a clarification of grading deadlines, as well as the addition of a definition of "N-grades" to the section dealing with student assessment issues and special circumstances.

The revisions being sought at this time further clarify definitions and deadlines around grading and retroactive withdrawal and ensure consistency between this policy and *The Learning Charter*.

CONSULTATION AND FEEDBACK:

In its meeting of May 4, 2020, the academic programs committee agreed that the Academic Courses Policy is an important document for instructors and students. The committee recommended changes to remove gendered language.

Since changes to the policy impact all instructional staff, APC determined to present the proposed revisions to Council for input prior to requesting approval, which was done at the May 21, 2020 meeting. No further feedback was received on the proposed changes.

FURTHER ACTION REQUIRED:

If approved, the updated Academic Courses Policy will be posted to USask policies website (policies.usask.ca).

ATTACHMENTS:

- 1. Academic Courses Policy (mark-up)
- 2. Academic Courses Policy (clean)

Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning

Responsibility: University Registrar **Authorization:** University Council **Approval Date:** May 19, 2011; reapproved June 18, 2015; reapproved June 22, 2017; reapproved

Revisions

Permit the first day of final examinations to be one day after the last day of lectures (<u>January 2012</u>) Delete the Withdraw Fail grade effective May 1, 2012 (<u>March 2012</u>) Revise Course Syllabus section; additional section on Class Recordings (<u>March 2013</u>) Revise Grading System section; clarification of grading deadlines (May 2017) Revise Student Assessment Issues and Special Circumstances section; addition of "N-Grades" definition (May 2017)

Updates

Incorporate terminology used in the University Council policy on <u>Student Appeals of Evaluation</u>, <u>Grading and Academic Standing</u> and the Procedures for Student Appeals in Academic Matters (December 2012)

Incorporate Academic and Curricular Nomenclature terminology on courses and classes (June 2016)

Purpose

The purpose of the Academic Courses Policy is to prescribe university-level requirements for delivery of academic courses; and the assessment of student learning including conduct of examinations.

Principles

One of the primary purposes of a university is to optimize learning opportunities for students. The University of Saskatchewan encourages and celebrates innovation in class delivery and student assessment.

Assessment of student learning should be an effective, fair and transparent process which follows university, college, and department regulations so that students across the institution are treated respectfully and impartially. This includes accommodation for students with disabilities, in accordance with university policies and provincial legislation.

As articulated in the University Learning Charter, students will be provided with a clear indication of what is expected in a course or learning activity, and what is required to be successful in achieving the expected learning outcomes as defined in the course outline. Students must therefore receive prompt and constructive feedback on their learning progress at regular intervals throughout the course. Educators will ensure that assessments of learning are transparent, applied consistently and are congruent with learning outcomes. Feedback will be designed to both assess and enable student learning. With these goals in mind, educators will solicit and reflect on feedback from students and peers and commit to

Commented [SW1]: Per the Learning Charter, "Educator Commitment 3: Assess Fairly"

building knowledge and skill in teaching practice for the purposes of continuous enhancement. of what is expected in the class, and what they can do to be successful in achieving the learning objectives of the course. Assessments of student learning will be transparent, applied consistently, and congruent with course objectives. Students will receive prompt and constructive feedback on their learning progress regularly throughout the class.

Scope of this Policy

This document incorporates all of the policies, regulations, and procedures relating to class delivery and student assessment which have been previously approved by University Council in various policy documents and reports.

It supersedes the following documents previously approved by University Council: April, 2009 Academic Programs Committee <u>Examination Regulations</u> April, 2001 Academic Programs Committee <u>Policies for Reporting Final Grades</u> January, 2001 Academic Programs Committee Retroactive Withdrawal Policy September, 1986 – University of Saskatchewan Grading Policy

It complements and maintains the principles expressed in the following documents:

June, 1999 <u>Guidelines for Academic Conduct</u> June, 2007 Teaching and Learning Committee <u>Student Evaluation of Instructors/Courses</u> December, 2009 <u>Use of Materials Protected by Copyright</u> June, 2010 University <u>Learning Charter</u> June 2011 <u>Nomenclature Report</u> January, 2012 <u>Academic Accommodation and Access for Students with Disabilities</u> Vice-Provost Teaching and Learning portfolio <u>Instructors and Staff Handbook</u> Information and Communications Technology Lecture Capture

All regulations covering class delivery, student assessment, and examinations have been developed into a framework with three levels of authority and responsibility: university, college, and department. Within the framework of this policy, departments and colleges may develop additional regulations and procedures for class delivery and student assessment. For example, colleges and departments may develop their own template for the syllabus to be used by their instructors.

In colleges where there is an alternate approved Academic Calendar, regulations covering student assessment and examinations shall be developed by the college in a manner consistent with these university regulations.

All references to "department heads" and "deans in non-departmentalized colleges" in this document would also equally apply to their delegates. All references to "departments" and "colleges" would also equally apply to schools.

Policy

The University of Saskatchewan Academic Courses Policy on Class Delivery, Examinations and

Assessment of Student Learning covers policies, regulations, and procedures governing the following aspects of class delivery and student assessment, including the conduct of examinations-

Section I. Class Delivery

1 Class Syllabus

- 1.1 Content of the syllabus
- 1.2 Changes to the syllabus after distribution
- 1.3 Change of final examination date
- 2 Contact Hours and Availability of Instructors
- 2.1 Availability of instructor
- 3 Student Attendance
- 3.1 Permission to attend and participate in classes
- 3.2 No credit unless registered
- 4 Class Evaluation by Students
- 5 Class Recordings
- 5.1 Privacy, permission, and consent
- 5.2 Intellectual property and copyright
- 5.3 Accommodation for students with disabilities
- 5.4 Definitions
- 5.5 Responsibilities of instructors and presenters
- 5.6 Responsibilities of students
- 5.7 Restrictions on use of classroom recordings
- 5.8 Storage and archiving
- 5.9 Special circumstances: clinics, training, art classes

Section II. Assessment of Students

- 6 Grading System
- 6.1 Fairness in evaluation
- 6.2 Weighting in class grades
- 6.3 Grade descriptors
- 6.4 Academic grading standards
- 6.5 Average calculations
- 6.6 Grading deadlines
- 7 Examinations
- 7.1 Methods and types of examinations
- 7.2 Mid-term examinations
- 7.3 Final examinations

- a. Modification of requirement to hold a final examination
- b. Final examination period and scheduling
- 7.4 Conduct and invigilation of examinations
- a. Invigilation
- b. 30 minute rule
- c. Identification
- 7.5 Access to materials in the examination room
- 7.6 Permission to leave the examination room
- 7.7 Food and beverages
- 7.8 Protocols for an academic misconduct breach
- 7.9 Retention and accessibility of examination papers
- 7.10 Retention of the exam materials during the examination
- 7.11 Additional invigilation standards
- 8 Student Assessment Issues and Special Circumstances
- 8.1 Final grade alternatives and comments
- 8.2 Withdrawal
- 8.3 Retroactive withdrawal
- 8.4 Incomplete class work (assignments and examinations) and Incomplete Fail (INF)
- 8.5 No Credit (N) grade alternative and grade comment
- 8.6 Deferred final examinations
- 8.7 Supplemental final examinations
- 8.8 Aegrotat standing
- 8.9 Special accommodations for disability, pregnancy, religious, and other reasons
- 9 Procedures for Grade Disputes
- 9.1 Grade dispute between instructor and department head or dean
- 9.2 Grade dispute between instructor and student

Authority and Responsibility

Under the Bylaws of University Council (Section 3, VIII, 2), all matters respecting the subjects, time, and mode of the examinations and respecting the degrees and distinctions to be conferred by the University of Saskatchewan shall be provided for by University Council regulations.

Academic regulations at all levels shall be publicly accessible to all members of the university community. If a college or department has additional regulations, these must be made available to students through publicly accessible websites. Additionally, it must be communicated to students that additional regulations exist. There should also be provisions at each level of authority for periodic review and amendment of these regulations.

University

University regulations will prevail in the absence of other college or departmental regulations. In the case of a discrepancy between university regulations and college or departmental regulations, university regulations will take precedence. Any college requesting an exception, change, or addition to these

regulations is to submit a proposal to the Academic Programs Committee of University Council for approval.

Colleges and Departments

University Council, while retaining the final authority over assessment of student learning, delegates to colleges the responsibility of establishing general policies concerning the methods and types of assessment which may be employed by the departments of that college, and each department should establish any further instructions and policies for its members as necessary.

Instructors and Departments

It is the responsibility of the instructor and department head, or dean in non-departmentalized college, or those delegated such responsibility by them, to report final grades to the registrar in accordance with the regulations outlined here. Instructors will use prescribed grade descriptors or grade comments if required.

The final grade report, prepared by the instructor, must be submitted to and approved by the department head, or dean in non-departmentalized colleges.

Section I. Class Delivery

The-Our University Learning Charter encourages a multitude of educational experiences that contribute to growth in essential learning pursuits and the personal and professional interests of university community members. To accomplish this, educators need to be aware of the range of instructional methods and assessment strategies, and select and utilize teaching methods that are effective in helping students achieve the learning outcomes of a course or learning activity. Additionally, teaching practice will support students in different ways of knowing and learning, including independently, experientially, and collaboratively, encourages alternative approaches to class delivery such as improved information ecommunication technologies, experiential learning opportunities, and self learning strategies. Regardless of methodology, there are universal elements of class delivery that ensure appropriate learning opportunities are provided to the students of the university.

1. Class Syllabus

Department heads, and deans in non-departmentalized colleges, are accountable for the maintenance of academic standards and relevancy of programs of their department and college.

The syllabus is a public document that provides details about a particular class for both potential and enrolled students. It is useful for recruiting prospective students and sharing information about university classes with the broader community (for example, for the purposes of transfer credit evaluation). Instructor syllabi must be submitted to department heads, or deans in non-departmentalized colleges, prior to the start of a class.

It is recommended that students also have online access to syllabi prior to the beginning of the class. After submission to the department head, or dean in non-departmentalized colleges, syllabi should

Commented [SW2]: Per the highlights of "Our Learning Pursuits" in the Learning Charter

be posted on the Blackboard Open Courseware site and/or publically accessible departmental or other websites. Instructors who post their syllabus on publically accessible websites may wish to redact certain information that is not related to the core instruction of the class (e.g. personal contact information, names and contact information for teaching assistants, material protected under copyright, etc.).

1.1 Content of the syllabus

Instructors shall review the contents of the class syllabus with their students at the beginning of the class. The syllabus shall include the following:

- type and schedule of class activities;
- if the class is offered online, through distance learning, or off-campus, any additional or different expectations around any class activities and requirements;
- expected learning outcomes or objectives for the class;
- method of evaluation, specifically final grade mode (eg. Numeric, Pass/Fail, or Completed Requirements)
- the type and schedule of term assignments;
- the type and schedule of mid-term or like examinations;
- notice if any mid-term examinations or other required class activities are scheduled outside of
 usual class times (with college permission) and how student time conflicts will be
 accommodated should they arise because of this change, with college permission;
- the length of the final examination in hours as well as its mode of delivery;
- relative marking weight of all assignments and examinations;
- consequences related to missed or late assignments or examinations;
- whether any or all of the work assigned in a class including any assignment and examination, or final examination, is mandatory for passing the class, or whether there are any other college-level regulations that specify requirements for passing the class
- attendance expectations if applicable, the means by which attendance will be monitored, the consequences of not meeting attendance expectations, and their contribution to the assessment process;
- participation expectations if applicable, the means by which participation will be monitored and evaluated, the consequences of not meeting participation expectations, and their contribution to the assessment process;
- whether there are any approved class-specific fees being charged in addition to tuition (such as materials fees, mandatory or optional excursions and the fees associated with these activities, etc.).
- whether there are mandatory or optional excursions and the fees associated with these activities
 whether there are any class specific fees being charged in addition to tuition
- experiential learning expectations if applicable, the means by which experiential learning will be monitored and evaluated, the consequences of not meeting experiential learning expectations, and their contribution to the assessment process;
- contact information and consultation availability;

- course or class website URL, if used;
- notice of whether the instructor intends to record lectures and whether students are permitted to record lectures
- explanation of copyright where it relates to class materials prepared and distributed by the instructor
- location of the Academic Courses Policy as well as the regulations and guidelines for both academic and non-academic misconduct and appeal procedure;
- information regarding support services that are available to students through the <u>Vice Provest</u> <u>Teaching and Learning portfolio</u> <u>Teaching, Learning and Student Experience (TLSE) portfolio</u>, Student Learning Services at the University Library, and colleges-

Instructors are encouraged to use the <u>University of Saskatchewan Syllabus Template and Guide</u> to assist with satisfying the above requirements.

1.2 Changes to the syllabus after distribution

After distribution, a syllabus may only be changed if no student in the class objects to such changes and the department head, or dean in non-departmentalized colleges, is notified. Otherwise, methods and modes of assessment for all assignments and examinations must remain as stated in the syllabus: no major graded assignment or examination is to be newly assigned in a class and no changes to already set dates or the stated grade weighting of graded assignments or examinations is permitted.

1.3 Change of final examination date

Once the registrar has scheduled final examinations for a term, instructors wanting to change the date and/or time of their final examination must obtain the consent of all students in the class according to procedures established by the registrar, as well as authorization from the department head, or dean in non-departmentalized colleges.

2. Contact Hours and Availability of Instructors

As per <u>Nomenclature</u>, a "traditional" three credit unit lecture course involves approximately 3<u>30</u>-39 direct lecture hours, and a course can involve a further equivalent contact time in student consultations and/or tutorial or laboratory sessions.

2.1 Availability of instructor

Instructors should make it known to the students through the class syllabus how they can be contacted to arrange for one-on-one consultation about class material. These need not be face-to-face meetings but can include, for instance, responses to queries through email or other electronic media. Instructors should inform students about how quickly they can expect an email response to any enquiry.

It is recognized that there is a growing trend to develop and deliver non-traditional courses, including practicum laboratories, capstone design, community-service learning, and internet-based courses. For equivalent credit units, it is expected that both the instructors and students of these classes will regard the interaction, instructor availability and class workload to be equivalent to that of a traditional lecture class.

3. Student Attendance

Regular and punctual attendance in their classes is expected of all students (including lectures, seminars, laboratories, tutorials, etc.).

Attendance expectations apply equally to classes offered in a physical classroom, online, or through distance learning, though the practical requirements of attendance may be defined differently in each instance.

Any attendance requirement that may result in grade penalties or other consequences must be explicitly stated in the syllabus.

3.1 Permission to attend and participate in classes

No person may gain the full benefit of instruction in a class without being duly registered in the class either as a credit or audit student. Instructors must advise students who are not on their class list that they need to be registered for their class, either as a credit or audit student

Instructors may invite visitors to attend a class for pedagogical and other reasons related to the delivery of the class (for example, guest lecturers, professional observers or mentors, teaching or marking assistants, laboratory or tutorial assistants, and so forth).

Instructors of an online class may, at their discretion, open their class to a broader set of participants (including those not registered as students) provided that non-registered participants are not using software or materials limited by license for use by students. Instructors shall not grade any work of such non-registered participants in these online courses. Retroactive registration or credit challenge by such non-registered participants will not be permitted.

3.2 No credit unless registered

Only students who are registered in a class can receive credit for a class.

4. Class evaluation by students

Improvement of class delivery is an on-going responsibility of all instructors. Student feedback is an important source of information to help guide instructors in their search for improved delivery mechanisms.

At the university, all classes will be evaluated by students on a regular basis using an approved evaluation tool. All instructors have the responsibility to ensure that students have access to such an evaluation tool.

Department heads, or deans in non-departmentalized colleges, shall ensure that a process exists for instructors to receive student evaluations on a regular basis, and for arranging an opportunity for constructive discussion of the evaluation as required. This discussion should centre on the importance of maximizing the educational experience through continual class delivery improvement.

5. Class Recordings

The university is committed to providing accessibility and flexibility for student learning and seeks to foster knowledge creation and innovation. Recording of lectures and other classroom activities can contribute to these goals.

Classes at the university may be recorded for learning or research purposes, subject to the regulations and procedures stated in this policy.

With permission of instructors, presenters, and students, and following the procedures listed below, the university supports and encourages the audio and video recording of lectures and other learning activities for purposes of teaching, learning and research.

5.1 Privacy, permission, and consent

The classroom is considered to be a private space accessible only by members of a class, where student and instructor alike can expect to interact in a safe and supportive environment. Recording of lectures or other classroom activities should not infringe on privacy rights of individuals.

5.2 Intellectual property and copyright

Class recordings are normally the intellectual property of the person who has made the presentation in the class. Ordinarily, this person would be the instructor. Copyright provides presenters with the legal right to control the use of their own creations. Class recordings may not be copied, reproduced, redistributed, or edited by anyone without permission of the presenter except as allowed under law.

5.3 Accommodation for students with disabilities

When an accommodation for recording lectures or classroom activities is authorized by <u>Access and</u> <u>Equity Services</u>, an instructor must permit an authorized student to record classroom activity; only the student with the accommodation would have access to this recording.

5.4 Definitions

Definition of "presenter"

For the purposes of this section, a presenter is defined as any individual who by arrangement of the class instructor will provide instruction to students in the class. In addition to the class instructor, presenters might include guest lecturers, students, tutorial leaders, laboratory instructors, clinical supervisors, teacher trainers, and so forth.

Definition of "classroom"

For the purposes of this section, a classroom is defined as any room or virtual location where students are directed to meet as part of class requirements. This includes tutorials, laboratories and web-conferences which are required elements of a class, but does not include study groups and other voluntary student activities.

Definition of "learning activities"

For the purposes of this section, a learning activity is any gathering of students and instructors which is required as part of the class requirements, such as a laboratory, seminar, tutorial, and so forth.

5.5 Responsibilities of instructors and presenters

For purposes of teaching, research or evaluation, instructors may record lectures and other learning activities in courses with permission from the presenters.

Notification of intent to record classroom sessions should be included in the class syllabus and, where possible, in the catalogue description of the course. If not so noted, permission from students will be obtained prior to making recordings for teaching or research where a student's image or voice may be recorded.

If such permission is refused by a student, the instructor will arrange for that student's image or voice not to be included in the recording.

5.6 Responsibilities of students

Student use of personal recording devices of any type during lectures or other classroom learning activities requires consent of the instructor

A student may record lectures without such permission only if the <u>Access and Equity Services O</u>office has approved this accommodation for the student. The instructor will be notified of this accommodation. Such recordings would not be shared, and would be deleted at the conclusion of the class.

5.7 Restrictions on use of classroom recordings

The use of recordings of classroom activities is restricted to use for teaching, learning, and research.

Students may not distribute classroom recordings to anyone outside the class without permission of the instructor.

Instructors may use recordings for purposes of research, teaching evaluation, student evaluation, and other activities related to teaching, learning, and research. With permission of the instructor, presenters may also use recordings for such purposes.

Recordings of classroom sessions may not be used in the formal evaluation of an instructor's teaching.

5.8 Storage, archiving, and permission to use

Permission for any use of a recording of class and other learning activities remains with the instructor after the class term is ended. In a case where the instructor is no longer available to give permission for use of a recording, the department head, or dean in non-departmentalized colleges, can authorize such use only for purposes of teaching, learning, and research.

Students may retain recordings of classes and other learning activities solely for personal review and not for redistribution.

5.9 Special circumstances: clinics, training, art classes

Recordings of learning activities such as clinical or training experiences involving patients and/or professional staff outside of university classrooms will be based on professional standards and on the

policies of the clinical institution. In art classes, written permission of models is also required before any video recording by instructors or students takes place.

Section II. Assessment of Students

6. Grading System

6.1 Fairness

Students need to be assured of fairness and transparency in grading.

University

The University of Saskatchewan shall periodically review methods of student assessment, and shall include student consultation when doing so.

College

Each college will set out regulations and guidelines governing methods of assessment permitted, final or any other examination requirements, including whether a student may obtain credit for a class even if <u>they have not written or passed</u> the final examination is not written or if they have not passed the final examination or any other term work.

Each college should establish adequate procedures for setting these guidelines and assessing applications for exceptions.

Department

Departments and non-departmentalized colleges shall periodically discuss grading patterns and trends and reach a common understanding about what appropriate grades at all levels of their discipline should be. It is the responsibility of the department head, or dean in non-departmentalized colleges, to ensure that grading is fair and transparent.

Appeal

A student who is dissatisfied with the assessment of their work or performance in any aspect of class work, including a mid-term or final examination, shall follow the procedures set out in the University Council policy on <u>Student Appeals of Evaluation, Grading and Academic Standing</u> and the <u>Procedures</u> for <u>Student Appeals in Academic Matters</u>.

6.2 Weighting in class grades

Timely feedback is an important part of the educational experience. Assignments will be assessed and returned to students in a timely manner.

Each assignment and examination will be scheduled according to information provided in the class syllabus unless otherwise agreed by the instructor and students.

The relevant weight of assignments and examinations in determining the final grades will be specified on the class syllabus. The weighting of individual questions on any examination also needs to be specified as part of the examination. The class syllabus will specify whether any or all of the assignments and examinations are mandatory for obtaining a passing final grade in the class.

6.3 Grade descriptors

The university's implementation of the percentage system for reporting final grades was approved by University Council in 1986. University grade descriptors and the percentage system apply unless separate approved college regulations exist. Exceptions to the grade descriptors below require council approval:

Definitions

Percentage assessment for undergraduate courses is based on the literal descriptors, below, to provide consistency in grading among colleges.

The university-wide relationship between literal descriptors and percentage scores for undergraduate courses is as follows:

90-100 Exceptional

A superior performance with consistent strong evidence of

- a comprehensive, incisive grasp of the subject matter;
- an ability to make insightful critical evaluation of the material given;
- an exceptional capacity for original, creative, and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

80-89 Excellent

An excellent performance with strong evidence of

- a comprehensive grasp of the subject matter;
- an ability to make sound critical evaluation of the material given;
- a very good capacity for original, creative, and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

70-79 Good

A good performance with evidence of

- a substantial knowledge of the subject matter;
- a good understanding of the relevant issues and a good familiarity with the relevant literature and techniques;
- some capacity for original, creative, and/or logical thinking;
- a good ability to organize, to analyze, and to examine the subject material in a critical and constructive manner.

60-69 Satisfactory

A generally satisfactory and intellectually adequate performance with evidence of

- an acceptable basic grasp of the subject material;
- a fair understanding of the relevant issues;
- a general familiarity with the relevant literature and techniques;
- an ability to develop solutions to moderately difficult problems related to the subject material;
- a moderate ability to examine the material in a critical and analytical manner.

50-59 Minimal Pass

A barely acceptable performance with evidence of

- a familiarity with the subject material;
- some evidence that analytical skills have been developed;
- some understanding of relevant issues;
- some familiarity with the relevant literature and techniques;
- attempts to solve moderately difficult problems related to the subject material and to examine the material in a critical and analytical manner which are only partially successful.

<50 Failure

An unacceptable performance.

College of Dentistry

In January 2017, separate literal descriptors were approved by University Council for the grading of classes in the Doctor of Dental Medicine (D.M.D.) program in the <u>College of Dentistry</u>.

College of Graduate and Postdoctoral Studies

In May 1996, separate literal descriptors were approved by University Council for the grading of classes in the <u>College of Graduate and Postdoctoral Studies</u>.

College of Medicine

In January 2017, separate literal descriptors were approved by University Council for the grading of classes in the Doctor of Medicine (M.D.) program in the <u>College of Medicine</u>.

University

The registrar will record and report final grades in all classes according to the grade descriptors outlined above, unless an exception has been approved by University Council.

All student grades in all classes must be reported in a timely manner, according to procedures established by the registrar.

College

Each college has the responsibility for ensuring, at the beginning of each class, that students are familiar

with the assessment procedures and their application to the literal descriptors. Grade modes must not change once registration in a particular class has begun.

Unless approved by the college, all sections of a given course must adhere to the same system of assessment, either a percentage grading system or a pass-fail assessment system.

Exceptions

University Council will receive and evaluate requests from colleges desiring exceptions to the above grade descriptors.

6.4 Academic grading standards

College

College regulations govern grading, promotion, and graduation standards. Students should refer to the appropriate college sections of the <u>Course and Program Catalogue</u> for specific requirements.

6.5 Average calculations

Each college is responsible for assigning credit values to courses within its academic jurisdiction, in consultation with the registrar, to ensure that consistency is maintained across the program catalogue.

Calculation

To distinguish whether these averages have been computed for the work performed by the student in a session, or in a year, or for <u>theirhis/her</u> total program, the terms sessional weighted average, annual weighted average, and cumulative weighted average are frequently used.

Sessional weighted averages are calculated from classes taken in Fall Term and Winter Term, annual weighted averages are calculated from all classes taken in a year, and cumulative weighted averages are calculated from all classes taken at the University of Saskatchewan.

Weighted averages are calculated by multiplying the grade achieved in each class by the number of credit units in the class. The sum of the individual calculations is then divided by the total number of credit units to produce the weighted average. Students should consult with their college for policies on repeating classes and non-numeric grade conversion.

Example of calculation of a student average:

Grade	Credit Units	Weighted Marks
83	3	249
87	3	261
97	3	291
98	3	294
92	3	276
	83 87 97 98	83 3 87 3 97 3 98 3

Commented [SW3]: Replaces the old example below.

Total		30	2715
ASTR 113.3	91	3	273
CHEM 112.3	87	3	261
CREE 101.3	96	3	288
WGST 112.3	93	3	279
BIOL 120.3	81	3	243

Weighted Average (2715/30) = 90.5% Example of calculation of a student average: Grade Credit Units Weighted Marks Class 498.00 ENG 110.6 83 -6 PSY 120.3 70 234.00 PSY 121.3 70 237.00 POLS 111.3 20 267.00 POLS 112.3 ۵2 276.00 BIOL 120.3 71 213.00 BIOL 121.3 73 219.00 **CREE 101.6** 480.00 20 TOTAL 30 2424.00

Weighted Average (2424/30) = 80.80%

6.6 Grading deadlines

Final grades should be released to students in a timely way, both for the benefit of the students and to assist university business processes such as Convocation.

Final grades will be submitted and approved according to procedures established by the registrar. For the purposes of identifying and advising first-year students experiencing academic difficulty, midyear grades in 100-level six credit-unit classes held over the Fall Term and Winter Terms are also reported to the registrar and released to students.

Final grades in all classes are to be submitted and approved:

- no later than the end of the final examination period for standard term classes in a given term with no final examination, and for mid-year examinations in 100-level, two-term classes offered over the Fall Term and Winter Term; or
- within five business days after the date of the final examination (not including weekends or holidays), for those classes with final examinations including final grades resulting from deferred, special deferred, supplemental, and special supplemental final examinations; or
- five days after the end of the class for open learning classes without a final examination.

If for any reason the above deadlines cannot be met, the instructor should discuss the reason for the delay with their department head, or dean in non-departmentalized colleges. The instructor will also notify both registrar and the students in the class as to the anticipated date of submission.

Colleges which use additional or different grade approval procedures, such as using a board of examiners, should arrange a grading deadline in consultation with the registrar.

The registrar shall notify colleges of any final grades not submitted by the grading deadlines.

Students shall be notified of delays related to grade changes related to any other process involving grades, including those delays related to grade disputes between a student and an instructor or between an instructor and a department head, or dean in non-departmentalized college.

University

Only the registrar may release official final grades. The registrar will post final grades electronically as they are received.

The registrar will communicate with instructors who have not met the above deadlines but who have not notified the registrar.

Department

Responsibility for submission of the final grade report is shared between the instructor, who submits the final grades, and the department head, or dean in non-departmentalized colleges, who approves the final grades.

If instructors wish to release or post any final grades unofficially, they should do so confidentially. Grades should not be posted with public access.

When final grades are approved by the department head, or dean in non-departmentalized colleges, they will be submitted electronically according to procedures established by the registrar.

Once submitted and approved, final grades may still be changed by the instructor. Grade changes are also approved by the department head, or dean in non-departmentalized colleges.

For off campus and distributed learning courses where the final examinations are submitted to the instructor through the mail, the five business day standard will be waived upon consultation with the registrar.

7. Examinations

Students will be examined and assessed, either during the term or during the final examination, on knowledge and skills taught either directly or indirectly (such as through class reading assignments) on class materials covered during class presentations.

There will be alignment between class learning objectives and outcomes, instruction and the assessment plan for the class, of which examinations may be a significant element.

7.1 Methods and types of examinations

College

University Council, while retaining the final authority over assessment of student achievement, delegates to colleges the responsibility of establishing general policies concerning the methods and types of examinations which may be employed by the college and the departments of that college.

It should be noted, however, that web-based classes must conduct web-based examinations, unless approved by the registrar as an exception.

Department

Each department should establish any further instructions and policies for its members. Each department will establish, within the regulations and guidelines set out by the college, examination methods and the relative weighting of final examinations. These department limitations must be approved by the college.

Cross-college and interdisciplinary courses

In courses provided by a department of one college for students of another college, the examination regulations of the teaching department will have precedence unless alternative arrangements have been negotiated between the teaching department, its own college and the other college. In the case of an interdisciplinary program, the appropriate designated authority over the program shall approve any program regulations.

7.2 Mid-term examinations and assignments

Scheduling

Mid-term examinations and other required class activities shall not be scheduled outside of regularly scheduled class times, including during the final examination period, except with the approval of the college. For graduate classes, the College of Graduate and Postdoctoral Studies is the approving authority.

Any scheduling of mid-term examinations and other required class activities outside of regularly scheduled class times requires college approval and must be needs to be noted in the class syllabus, so that students have fair warning of such scheduling.

Any resultant conflicts with other-mid-term examinations for other classes, other required-registered class activities, or any other scheduled university--related business that a student may be involved in will be accommodated at an alternative time. The instructor responsible for the conflict, or this instructor's home college, -must facilitate the accommodation, through consultation with the student. through consultation between an the instructor of the course causing the conflict and a student. Denials of such accommodation may be appealed to the dean's office of the college authorizing the non-standard such

scheduling, in consultation with the student's college (if in a different college from that of the class) if necessary.

Number of examinations

Students who have more than three mid-term examinations on the same day will be dealt with as special cases by their college. Colleges may establish additional regulations regarding the number of mid-term examinations a student can sit in any given period to time.

7.3 Final examinations

a. Modification of requirement to hold a final examination

Colleges determine whether students will be permitted to pass a class if they have not written the final examination. Colleges may allow instructors to determine whether students can pass a class if they have not written the final examination. Any requirement that a student must write and/or pass the final examination in order to pass the class must be stipulated in the class syllabus.

With the approval of the college and the department, the final examination in a class may be replaced by an approved alternative form of assessment that provides a percentage assessment consistent with the literal descriptors. The registrar must be notified of all examination exemptions for classes scheduled by the registrar prior to the beginning of a term so that final examinations are not scheduled for such classes and examination rooms are not assigned.

b. Final examination period and scheduling of final examinations

Scheduling

The registrar schedules all final examinations. <u>This includes take-home final examinations, as well as</u>, including deferred and supplemental examinations. The registrar will post the schedules of final examinations as early in a term as possible.

<u>Classes identified as having a primary schedule type of LAB (Laboratory) or TUT (Tutorial) will not be</u> scheduled for a final examination and willshould not appear on the transcript.

The registrar may delegate authority to schedule final examinations to colleges where classes do not conform to the university's <u>Academic Calendar</u>, or for deferred and supplemental examinations, in such cases where colleges want to schedule and invigilate their own.

Change of final examination date

Once the registrar has scheduled final examinations for a term, instructors wanting to change the date and/or time of their final examination must obtain the consent of all students in the class according to procedures established by the registrar, as well as authorization from the department head, or dean in non-departmentalized colleges.

Examination period

For the Fall Term and Winter Term, the final examination period shall commence on the day following the last day of lectures for that term.

Final examinations in evening classes will normally occur in a night examination slot one or two weeks from the last day of lectures in that class except in the event of common examinations between two or more evening classes. Common examinations between day and night classes can only be accommodated in a night examination slot or on a Saturday.

For Spring Term and Summer Term, the final examination period shall consist of two to three days immediately following the last day of lectures for a class.

Final examinations must be scheduled during the final examination period for final examinations scheduled by the registrar in that term. In very unusual circumstances, the registrar may schedule a final examination outside the examination period on the recommendation of the instructor and department head, or dean in a non-departmentalized college.

Duration

Writing periods for final examinations usually start at 9 am, 2 pm, and 7 pm. Six credit-unit classes will normally have final examinations of three hours duration. Classes of fewer than six credit units will normally have final examinations of two to three hours.

However, it is recognized that colleges may authorize final examinations of different duration for classes if deemed necessary for pedagogical or other similar justifiable reasons. Such departures from the approved time duration should be done in consultation with the registrar.

Weekends and evenings

Final examinations may be scheduled during the day or evening on any day during the final examination period except Sundays or holidays. No final examinations are scheduled on the Saturday following Good Friday.

Final examinations for day classes can be scheduled in the evening. In the case of common examinations between day classes and evening classes, the final examination will be scheduled <u>either</u> in the evening <u>or</u> <u>on a Saturday</u>.

24-hour rule

The registrar will arrange the schedule so that no student writes more than two final examinations in one 24 hour period.

For example, if a student has final examinations scheduled in three consecutive examination periods - such as on day one at 2 pm and 7 pm, and on day two at 9 am - the registrar will move one of the examinations.

If a student has examinations scheduled only on two consecutive examination periods, with at least one period between examination groups - such as on day one at 2 pm and 7 pm, and on day two at 2 pm and 7 pm – the registrar will not move any of the examinations.

Conflicts for common examinations

Any student conflicts created by scheduling common final examinations between two or more classes will be accommodated by the instructors of those classes.

Warning about other commitments

Final examinations may be scheduled at any time during examination periods; until the schedule has been finalized and posted, students and instructors should avoid making travel or other professional or personal commitments for this period.

Warning about withdrawal

Students cannot withdraw from a class after the withdrawal deadline for that class.

7.4 Conduct and invigilation of examinations

All regulations for the invigilation of final examinations can apply to the invigilation of mid-term examinations. It is expected that invigilators will be present while students are sitting for examinations, readily available to answer questions from students, and will monitor and report any instances of academic or non-academic misconduct according to the <u>Regulations on Student Academic</u> <u>Misconduct</u> and the <u>Standard of Student Conduct in Non-Academic Matters</u>. Invigilators shall familiarize themselves with all related regulations and policies.

Invigilation

Normally, the class instructor of record is expected to invigilate their examinations. If the instructor is not available, in so much that it is possible it is the responsibility of the instructor and the department head, or dean in non-departmentalized colleges, to ensure the examination is invigilated by a qualified replacement that is familiar with the subject of the examination. The process by which backup or additional invigilation is provided should be established by the department head or dean.

It is recommended that a department, or non-departmentalized college, supply a sufficient number of invigilators as is appropriate for the size of the class, depending on the nature of the examination.

Invigilators may use a seating plan for their examinations which requires students to sit at a particular desk or table. In addition, invigilators may move any student to another desk or table in the examination room at any time before or during an examination.

Proctors provided by the registrar in gymnasiums, for deferred and supplemental examinations, for examinations accommodated by <u>Access and Equity Services</u>, for religious accommodation, or by any other academic or administrative unit for any similar examination invigilation situation exercise the same authority to enforce these regulations as the instructor of the class. However, in such invigilation circumstances, proctors cannot be expected to provide answers to questions specific to the examination in the same manner as the class instructor.

30-minute rule

Students should not be allowed to leave the examination room until 30 minutes after the start of the examination. The invigilator may also deny entrance to a student if they arrive later than 30 minutes after the start of the examination. A student denied admission to the examination under this regulation may apply to their college for a deferred final examination; such application will be subject to consideration under the usual criteria for that college.

With the exception of use of the washroom, invigilators can, at their discretion, deny students leave of the examination room for a period of time prior to the end of the examination. Students who are finished during this time should remain seated at their desk or table until the invigilator informs the class that the examination is over and they can leave.

Identification

Students sitting for examinations are required to confirm their identities by providing their student <u>identification</u> (ID) numbers and names on their examination papers, and by presenting their universityissued student ID cards during the examination and upon signing the tally sheet when leaving the examination, or both.

During the examination, invigilators can require students to place their student ID card on the desk or table where the student is writing the examination, in plain view for invigilators to check. Invigilators may ask for additional <u>government-issued</u> photographic ID if the student does not have a student ID card or if they deem the student ID card insufficient to confirm a student's identity.

Students who do not present a student ID card, or other acceptable photographic identification, during an examination will be permitted to finish sitting the examination, but only upon completing and signing a *Failure to Produce Proper Identification at an Examination* form. The form indicates that there is no guarantee that the examination paper will be graded if any discrepancies in identification are discovered upon investigation. Students will then have to present themselves with a student ID card or other acceptable government-issued photographic identification to the invigilator within two working days of the examination at a time and place mutually agreeable to the invigilator and the student. Such students may also be asked to provide a sample of their handwriting. Failure to provide acceptable identification within two working days will result in an academic misconduct charge under the <u>Regulations on Student</u> <u>Academic Misconduct</u>.

If a student refuses to produce a student ID, or other acceptable photographic identification, and refuses to complete and sign the *Failure to Produce Proper Identification at an Examination* form, the invigilator will permit them to continue writing. However, the student shall be informed that charges will be laid under the <u>Regulations on Student Academic Misconduct</u> and that there is no guarantee that the examination paper will be graded if any discrepancies in identification are discovered upon investigation

Invigilators need not require identification if the student's identity can be vouched for by the instructor.

To assist with identification, students wearing caps, hats, or similar head-coverings of a non-religious or cultural nature can be asked to remove them.

Invigilators are permitted to take a photograph of any student if there is any question about the student's identity. Invigilators should take a photo in such a manner as to not cause a disruption in the examination room and respects the religious/cultural beliefs of the student. The registrar will arrange for

any photographs taken by invigilators to be compared to student ID photos of record. Photographs will only be used for the purposes of verifying the identity of the student and will not be used or disclosed for any other purposes, and will be retained in a secure manner for a limited period of time period.

Invigilators are also permitted to take the student ID card of any student whose identity is in question.

7.5 Access to materials in the examination room

Students should bring only essential items into an examination room. Personal belongings such as book bags<u>or</u> handbags, purses, laptop cases, and the like may be left, closed, on the floor beneath a student's chair or table or in an area designated by the invigilator; coats, jackets, and the like may be placed similarly or on the back of a student's chair. Students should not access any such personal belongings except with the permission of and under the supervision of the invigilator. Students should not collect their personal belongings until after they have handed in their examination. The university assumes no responsibility for personal possessions lost in an examination room.

Students also shall not have in their possession during an examination any books, papers, dictionaries (print or electronic), instruments, calculators, electronic devices capable of data storage and retrieval or photography (computers, tablets, cell phones, personal music devices, etc.), or any other materials except as indicated on the examination paper or by permission of the invigilator. Students also may not take anything with them if they are granted permission to leave the room by the invigilator.

For examinations requiring the use of a calculator, unless otherwise specified by the invigilator, only non-programmable, non-data storing calculators are permitted.

For examinations requiring the use of a computer and specific software, unless otherwise specified by the invigilator students may not access any other software or hardware.

No unauthorized assistance

Students shall have no communication of any kind with anyone other than the invigilator while the examination is in progress. This includes not leaving their examination paper exposed to view by any other student.

7.6 Permission to leave the examination room

Students who need to leave the examination room for any reason require the permission of the invigilator. Invigilators may also use a sign-out/sign-in sheet for students who are given permission to leave the examination room and may record the amount of time a student spends outside of the examination room, frequency of requests to leave, etc. Students must leave their examination paper, examination booklets, and any other examination or personal materials either in the custody of the invigilator for retrieval upon their return, or at the desk or table they were writing at, as per the invigilator.

Normally, only one student should be permitted to leave the room at one time. This prevents a student from discussing the examination with other students and enables invigilators to be aware of the whereabouts of their students.

Invigilators may choose to escort students to and from washrooms at their discretion, and can check washrooms for indications of academic misconduct (e.g., hidden notes or materials, books, or other papers, etc.). Invigilators may designate a nearby washroom for use by the students during the examination. However, invigilators may not deny students access to washrooms.

Students who have completed their examination are not permitted to leave the examination room until they have signed out and provided their student ID number on a university tally sheet confirming their attendance at the examination and their submission of the examination paper, examination booklets, and any other examination materials.

Emergency evacuation of an examination

If the examination is interrupted by fire alarm, power outage, or similar emergency requiring evacuation, the invigilator should lead the students out of the examination room in an orderly fashion and keep the students together as much as is possible. The invigilator should, to the extent that this is possible, advise the students not to communicate with each other about the examination and supervise the students until the resumption of the examination. If the situation requires cancellation of the examination, it will be rescheduled by the registrar at the earliest practical date and time.

7.7 Food and beverages

It is at the discretion of the invigilator whether or not food or beverages are permitted in an examination room, unless required for a medical purpose.

7.8 Protocols for an academic misconduct breach

Where there are reasonable grounds for an invigilator believing that a violation of the <u>Regulations on</u> <u>Student Academic Misconduct</u> has occurred, the invigilator has the authority to:

- remove anything on the desk or table not authorized for use in the examination.
- ask to examine any book bags or handbags, purses, laptop cases, dictionaries (print or electronic), instruments, calculators, electronic devices capable of data storage and retrieval or photography (computers, tablets, cell phones, personal music devices, etc.), and any other personal belongings if there is a reasonable suspicion that they contain evidence of academic misconduct. If allowed by the student, any such searches must be done in the presence of the student; the presence of another invigilator as a witness is recommended but not necessary.
- once examined, any personal belongings (e.g. cell phones, text books, and book bags) shall be
 returned to the student to be put back under the student's desk, with, in so much as it is possible,
 the evidence retained by the invigilator. Notes or similar unauthorized materials will be
 confiscated and attached to the incident report to be evaluated by the instructor for possible
 academic misconduct procedures. If the student requires a photocopy of any evidence
 discovered, a copy will be provided as soon as is reasonably possible with the original to be
 retained by the invigilator.
- the invigilator may also take photographs or video recordings of any evidence. Photographs or video recordings will only be used in support of a charge under the <u>Regulations on Student</u> <u>Academic Misconduct</u> and will not be used or disclosed for any other purposes, and will be retained in a secure manner for a limited period of time period.
- require the student to move to a seat where the invigilator can more easily monitor the student.
- ask a student to produce evidence where the invigilator believes that student has hidden it on their person. If the student refuses, respect the refusal but note it when reporting. Under no circumstances can the student be touched or physically searched.
- if thought considered reasonably necessary, invigilators may take a photograph of the student.
- if the student refuses to cooperate with any request of the invigilator, note the refusal when reporting.

In all the above cases, the student is allowed to finish sitting the examination. Any interaction with the student should be as discrete and quiet as is possible, so as to avoid disruption to the examination room;

if practical, any conversation with the student should take place outside of the examination room. If the student is disruptive, the invigilator can require them to leave the examination room.

As soon as possible, either during or following the conclusion of the examination, the invigilator is expected to:

- make a note of the time and details of the violation, the student's behaviour, and, if a student's identity is in question, their appearance (age, height, weight, hair and eye colour, eyeglasses, identifying features, etc.)
- explain to the student that the status of their examination is in question, that the incident will be
 reported, and that possible charges under the <u>Regulations on Student Academic Misconduct</u>
 <u>Regulations</u> could be forthcoming
- identify the student's examination paper, examination booklets, and any other examination materials and set them aside
- inform the instructor (if the invigilator is not <u>the</u> same) of the circumstances and turn over all of the evidence available. In the event that the instructor is not available, the invigilator will inform the appropriate dean.

7.9 Retention and accessibility of examination materials and class syllabus

All marked final examination papers, together with the university tally sheets, shall be retained in the department, or college in non-departmentalized colleges, for a period of at least one year following the examination period in which the final examination was held in case of student appeals under university policy.

It is recommended that examples of all final examination questions for a class, along with the class syllabus, shall be retained in the department, or college in non-departmentalized colleges, for a period of at least ten years following the end of the class. Retention supports the evaluation of transfer credit for students.

For details regarding accessibility of examination papers please refer to the policy on <u>Student Appeals</u> of <u>Evaluation, Grading and Academic Standing</u> and the <u>Procedures for Student Appeals in Academic</u> <u>Matters</u>.

7.10 Retention of examination materials during the examination

Students are not permitted to leave the examination room with the examination paper, examination booklets, or any other examination materials unless permitted to do so by the invigilator. It is also the responsibility of an invigilator to ensure that no such examination materials are left unattended in an examination room before, during or after an examination.

7.11 Additional invigilation standards

It is recognized that departments and colleges may want additional invigilation standards for their instructors or may require them to meet professional or accreditation standards, and that invigilation may be provided differently for online, distributed learning, or off-campus classes. University Council therefore delegates to each college and department the responsibility and authority for setting additional standards for invigilation appropriate to their college or department and in compliance with university policy and federal and provincial legislation.

8. Student Assessment Issues and Special Circumstances

8.1 Final grade alternatives and comments

Definition:

Course Grade Modes

- Pass/Fail/In Progress (P/F/IP)
- Percentage/Numeric/In Progress (0-100/IP)
- Completed Requirements/In Progress/Not Completed Requirements (CR/IP/F)

The following final grading alternatives within certain grade modes also exist:

- Audit (AU)
- No Credit (N)
- Not Applicable (NA)
- Withdrawal (W)
- Withdrawal from Audit (WAU)
- Aegrotat Standing (AEG)
- In Progress (IP)
- <u>No Grade Reported (NGR)</u>

Final grades recorded as percentage units may be accompanied by the following additional grade comments as warranted:

- Incomplete Failure (INF)
- Deferred Final Examination Granted (DEFG)
- Special Deferred Final Examination Granted (SPECDEFG)
- Supplemental Final Examination Granted (SUPPG)
- Supplemental Final Examination Written (SUPP)
- Special Supplemental Final Examination Granted (SPECSPG)
- Special Supplemental Final Examination Written (SPECSUP)

8.2 Withdrawal

If a student withdraws from the class after the add-drop deadline but before the withdrawal deadline for that class, the class remains on their transcript and is shown as a withdrawal.

Withdrawal is a grading status alternative which appears permanently on a student's transcript as a W.

Withdrawal has no academic standing and does not impact the calculation of a student's average. If a student withdraws from a class before the add-drop deadline for a term, the listing of the class is deleted from their transcript.

8.3 Retroactive withdrawal

A retroactive withdrawal from a class can be granted by the college when a student has received a failing grade in a class due to serious personal circumstances. It does not matter whether or not the student completed class work, including the final examination, for the class in such situations. As well, a retroactive withdrawal can be granted in situations where the student, or the university, has made a verifiable error in registration.

A retroactive withdrawal from a class can be placed on an academic record by the registrar, provided the student has applied for this change to the college in which they are registered, and the college approves this appeal. Changing a failing mark to a withdrawal removes these failures from the student's average.

Such a change in an academic record can be justified only on serious personal circumstances (<u>normally</u> <u>medical or compassionate grounds</u>, such as a mental or physical illness or condition, <u>the</u> death of someone close, or similar reasons beyond the student's control which <u>prevented successful</u> <u>completioncontributed to the failure in of</u> the class) rather than academic grounds.

Other procedures already exist for academic appeals, as described in the University Council policy on <u>Student Appeals of Evaluation, Grading and Academic Standing</u> and the <u>Procedures for Student</u> <u>Appeals in Academic Matters</u>.

8.4 Incomplete class work (assignments and/or examinations) and Incomplete Failure (INF) When a student has not completed the required class work, which includes any assignment or examination including the final examination, by the time of submission of the final grades, they may be granted an extension to permit completion of an assignment, or granted a deferred examination in the case of absence from a final examination.

Extensions past the final examination date for the completion of assignments must be approved by the department head, or dean in non-departmentalized colleges, and may exceed thirty days only in unusual circumstances. The student must apply to the instructor for such an extension and furnish satisfactory reasons for the deficiency. Deferred final examinations are granted as per college policy.

In the interim, the instructor will submit a computed percentage grade for the class which factors in the incomplete class work as a zero, along with a grade comment of INF (Incomplete Failure) if a failing grade. The INF grade comment can only be used with a failing grade.

In the case where the student has a passing percentage grade but the instructor has indicated in the class syllabus that incomplete required class work will result in failure in the class, a final grade of 49% will be submitted along with a grade comment of INF (Incomplete Failure).

If an extension is granted and the required assignment is submitted within the allotted time, or if a deferred examination is granted and written in the case of absence from the final examination, the instructor will submit a revised assigned final percentage grade. The grade change will replace the previous grade and any grade comment of INF (Incomplete Failure) will be removed.

A student can pass a class on the basis of work completed in the class provided that any incomplete class work has not been deemed mandatory by the instructor in the class syllabus as per college regulations for achieving a passing grade.

College of Graduate and Postdoctoral Studies

The College of Graduate and Postdoctoral Studies, which has higher passing grade thresholds for its programs than do undergraduate courses, will designate a final failing grade of 59 % to be assigned along with a grade comment of INF (Incomplete Failure) if the student could otherwise pass the class.

8.5 No credit (N) grade alternative and grade comment

The No Credit (N) or "N-Grade" can be listed on a student's transcript as <u>either</u> a grade <u>alternative or a</u> <u>grade comment</u>. The N grade <u>comment N</u> (No Credit) is listed <u>next to the percentage grade</u> to show that

a student has a passing grade, but has not earned credit. These must be distinguished from failing grades in that a student will not have failed the class for which the N-Grade has been issued. For example, a college may issue a grade comment of N when a student has not mastered an "essential component" in a class. In the event that an essential component is failed, but the final grade results in a passing mark, a grade comment of N (No Credit) will be added to the percentage grade on the transcript (eg. 72N). Essential components must always be identified as such on course syllabi. College promotion standards determine whether or not a student must successfully repeat the course.

8.6 Deferred final examinations

A deferred or special deferred final examination may be granted to a student.

Examination period

The deferred and supplemental examination periods are <u>approximately</u> as follows:

- Fall Term classes, the four business days of the February midterm break;
- Fall and Winter two-term classes and Winter Term classes, the five business days following the second Thursday in June;
- Spring Term and Summer Term classes, the first or second Saturday following the start of classes in September.

The registrar may delegate authority to schedule final examinations to colleges where classes do not conform to the university's <u>Academic Calendar</u>, or in such cases where colleges want to schedule and invigilate their own deferred, special deferred, and supplemental examinations.

Students granted a deferred, special deferred, or supplemental examination will be assessed the approved fee for such an examination.

College

The college must consider all requests for deferred examinations and notify the student, the instructor, and, in the case of approval, the registrar of its decision within ten business days of the close of the final examination period, and within ten business days of receipt of the application for special deferred examinations. The college, in consultation with the student and the instructor, is responsible for arrangements for special deferred examinations.

A student who has sat for and handed in a final examination for marking and signed the tally sheet will not be granted a deferred examination but may apply for a retroactive withdrawal or a supplemental examination, subject to individual college policy and procedures.

Barring exceptional circumstances, deferred examinations may be granted provided the following conditions are met:

- a student who is absent from a final examination for valid reasons such as medical or compassionate reasons may apply to their college for a deferred examination.
- a student who becomes ill during a final examination or who cannot complete the final examination for other valid reasons must notify the invigilator immediately of their inability to finish. The student may then apply for a deferred examination.
- a special deferred examination may be granted to a student who, for valid reasons such as medical or compassionate reasons is unable to write during the deferred examination period. An

additional fee is charged for special deferred examinations; otherwise, they are subject to the same regulations as deferred examinations.

• a student must submit their application for a regular or special deferred examination, along with satisfactory supporting documentary evidence, to their college within three business days of the missed or interrupted final examination.

Instructors must provide deferred examinations to the registrar at least five business days prior to the start of the deferred examination period. <u>Failure to do so may result in the instructor</u>, department or college being responsible for invigilating the exam.

Once the examination is written, the instructor will assign a revised final percentage grade. The grade comment of DEFG (Deferred Final Examination Granted) or SPECDEFG (Special Deferred Final Examination Granted) will be removed from a student's official record. If the examination is not written, the original grade/grade comment submitted by the instructor will stand.

A deferred or special deferred examination shall be accorded the same weight as the regular final examination in the computation of the student's final grade.

Exceptions

With the approval of the department head, or dean in non-departmentalized colleges, and the consent of the student, the instructor of a class is allowed some flexibility about the nature of the examination to accommodate the particular circumstances which created the need for the deferred examination. The registrar must be notified of any departures from the regular form of examination.

The registrar may arrange for deferred and special deferred examinations to be written at centres other than Saskatoon.

Appeal

In the case of a disputed final grade, a student is entitled to an Informal Consultation on a deferred or special deferred examination. A Formal Reassessment (re-read) will be granted upon receipt of the appropriate application. For more information about Informal Consultation or Formal Reassessments including deadlines, please see the University Council policy on <u>Student Appeals of Evaluation</u>, <u>Grading and Academic Standing</u> and the <u>Procedures for Student Appeals in Academic Matters</u>.

8.7 Supplemental final examinations

A student who is assigned a failing grade in a class as a penalty for an academic offence is not eligible to be granted a supplemental examination in that class.

Examination period

The supplemental examination periods coincide with the deferred examination periods. Supplemental examinations resulting from deferred examinations will be specially accommodated.

College

Supplemental final examinations may be granted only according to the following conditions:

• in consultation with the department concerned, a college may grant a supplemental or special supplemental examination to a student registered in the college. Within the limits defined in this

section, the college shall determine the grounds for granting supplemental and special supplemental examinations and the criteria for eligibility. This applies to all students regardless of year.

- factors to be taken into consideration for granting a supplemental or special supplemental examination include but are not limited to: the subsequent availability of the course or an appropriate substitute; the grades obtained by the student in term work; the weighting of the final examination in determining the final grade; the class schedule of the student in the subsequent session.
- supplemental final examinations may be granted under regulations established at the college level except that any student who is otherwise eligible to graduate and who fails one class in their graduating year shall be granted a supplemental examination, provided that a final examination was held in that class. A student who fails more than one class in the graduating year may be considered for supplemental examinations according to the regulations established by the student's college.
- the student must make formal application for a supplemental examination to their college by the stated deadline of the college.
- a special supplemental examination may be granted to a student who, for medical, compassionate or other valid reason, is unable to write during the supplemental examination period. An additional fee is charged for special supplemental examinations; otherwise, they are subject to the same regulations as supplemental examinations.

Once the examination is written, the instructor will assign a revised final percentage grade. The grade comment of SUPPG (Supplemental Final Examination Granted) or SPECSPG (Special Supplemental Final Examination Granted) will be replaced with a grade comment of SUPP (Supplemental Final Examination Written) or SPECSUP (Special Supplemental Final Examination Written) on a student's official record. If the supplemental examination is not written, the original grade submitted by the instructor will stand.

Supplemental examinations shall be accorded the same weight as the original final examination in the computation of the student's final grade. However, college regulations may affect how grades based on supplemental examinations are calculated.

Instructors must provide supplemental examinations to the registrar at least five business days prior to the start of the supplemental examination period.

Exceptions

The registrar may arrange for supplemental and special supplemental examinations to be written at centres other than Saskatoon.

Appeal

A student is entitled to an Informal Consultation on a supplemental or special supplemental examination. A Formal Reassessment (re-read) will be granted upon receipt of the appropriate application. For more information about Informal Consultations and Formal Reassessments including

deadlines, please see University Council policy on <u>Student Appeals of Evaluation, Grading and</u> <u>Academic Standing</u> and the <u>Procedures for Student Appeals in Academic Matters</u>.

8.8 Aegrotat standing (AEG)-

In exceptional circumstances, in consultation with the registrar, a student may be offered Aegrotat Standing (AEG) in lieu of writing the deferred or special deferred final examination, or in lieu of a final grade.

Aegrotat standing can be considered provided the student has obtained a grade of at least 65 percent in term work in the class(es) in question (where such assessment is possible); or, if there is no means of assessing term work, the student's overall academic performance has otherwise been satisfactory; the instructor of the class, along with the department head, or dean in a non-departmentalized college, recommends offering Aegrotat standing, and the student's college approves the award.

8.9 Special accommodation for disability, pregnancy, religious, and other reasons

a. Students registered with <u>Access and Equity Services</u> may be granted special accommodation with regard to attendance, availability of study materials, and assessment requirements (including mid-term and final examinations) as per the <u>Academic Accommodation and Access for Students with</u> <u>Disabilities policy</u>.

Students must arrange such special accommodations according to stated procedures and deadlines established by <u>Access and Equity Services</u>. Instructors must provide mid-term and final examinations for students who are being specially accommodated according to the processes and deadlines established by <u>Access and Equity Services</u>.

b. Students may also request special accommodation with regard to attendance, availability of study materials, and assessment requirements (including mid-term and final examinations) for reasons related to pregnancy.

The University of Saskatchewan has a general duty to provide special accommodation related to the academic obligations of a class to students who are pregnant, and students whose spouses or partners may be pregnant. Students who are experiencing medical issues resulting from pregnancy may be able to arrange accommodation through <u>Access and Equity Services</u>. Students can also arrange such special accommodations in consultation with their instructor, and can be asked to provide medical or other supporting documentation (for example, regarding prenatal or postnatal medical appointments, date of delivery, or confirmation of birth). Denials of special accommodation by an instructor may be appealed to the dean's office of the college of instruction.

c. Students may also request special accommodation with regard to attendance, availability of study materials, and assessment requirements (including of mid-term and final examinations) for religious reasons.

Students must arrange such special accommodations according to stated procedures and deadlines established by the registrar. Instructors must provide mid-term and final examinations for students who are being specially accommodated for religious reasons according to the processes and deadlines established by the registrar.

d. Students who are reservists in the Canadian Armed Forces and are required to attend training courses or military exercises, or deploy for full-time service either domestically or internationally, may be granted special accommodation with regard to attendance, availability of study materials, and assessment requirements (including mid-term and final examinations).

Student must arrange such special accommodations in consultation with their instructor. A signed <u>Student Permission to Travel for University Business</u> form shall be presented in support of any request for special accommodation. Denials of special accommodation may be appealed to the dean's office of the instructor's college.

e. Students shall be granted special accommodation due to participation in activities deemed to be official university business. Such activities are considered an important part of student development and include participation in Huskie Athletics, university fine or performing arts groups, participation at academic conferences, workshops or seminars related to the student's academic work, or like activities. Travel time to and from such activities is also considered official university business.

In the event that such activities create a conflict with class work students shall be granted special accommodation with regard to attendance, availability of study materials, and assessment requirements (including mid-term and final examinations).

Student must arrange such special accommodations in consultation with their instructor. A signed <u>Student Permission to Travel for University Business</u> form shall be presented in support of any request for special accommodation. Denials of special accommodation may be appealed to the dean's office of the instructor's college.

8.10 No Grade Reported (NGR)

In the event that a final grade is not reported by the instructor after an extended period of time, the registrar may assign a placeholder notification of No Grade Reported (NGR) in placelieu of a grade. NGR can be listed on a transcript to signify that the class status has changed from to move the class on the transcript from. In Progress' to 'Completed,' but with no grade reported. This placeholder grade assigns no credit unit weight, final grade status, or average calculator, but is simply a stand-in used by the Registrar until a real-final grade has been submitted and approved.

9. Procedures for Grade Disputes

9.1 Grade dispute between instructor and department head or dean

In the absence of any other approved mechanism to resolve grade disputes between an instructor and

department head, or dean in a non-departmentalized college, the following steps, to be completed in a maximum of twelve business days, shall be followed.

a. Members of each department or college shall agree ahead of time on a conciliation mechanism that the department or non-departmentalized college will follow in the event of a grade dispute.

b. If five business days following the last day of examinations pass and the department head or dean has not approved the grade report for a class due to a dispute with the instructor, the department or nondepartmentalized college shall immediately commence the conciliation procedure. The department or college has five business days to complete this conciliation process.

c. If, after five business days the conciliation procedure does not resolve the dispute, the matter shall be immediately referred to the dean, or the provost and vice president (academic) in the case of non-departmentalized colleges, who will set up an arbitration committee within two business days. The committee shall consist of three members: one member nominated by the instructor, one member nominated by the department head, or dean in non-departmentalized colleges, and a chairperson. In the event that one of the parties does not nominate a member, the dean or provost and vice-president (academic) shall do so. All appointees to the arbitration committee should be members of the General Academic Assembly. The chairperson shall be appointed by the mutual agreement of the nominees for the instructor and the department head or, if the two nominees cannot agree, by the dean. In non-departmentalized colleges, the chair will be appointed by the provost and vice-president (academic) if the dean and the instructor cannot agree.

d. Also within two business days of the failure of the conciliation process, the department head, or dean in a non-departmentalized college, must list in writing what material was considered in conciliation. A copy of this list shall be sent to the instructor who must immediately report in writing to the dean, or provost and vice-president (academic) for non-departmentalized colleges, as to the accuracy of the list. Within the same two business days, the department head, or dean in non-departmentalized colleges, and the instructor shall forward written submissions with supporting documents to the dean, or provost and vice-president (academic) in non-departmentalized colleges.

e. Written submissions and all supporting documentation considered in the conciliation (including the list drawn up by the department head, or dean in non-departmentalized colleges), and the response of the instructor, are to be forwarded to the arbitration committee. The committee shall consider only written submissions and all supporting documentation forwarded during their deliberations. To the extent possible, the arbitration committee will use the same relative weighting of final examination and class work as was used by the instructor in arriving at the final grades.

f. The arbitration committee shall be given a maximum of three business days to complete its deliberations and reach a final decision about the disputed marks. The committee can either uphold the disputed marks or assign new marks. Once the committee reaches a final decision a written report which explicitly outlines the rationale for the decision shall immediately be submitted to the registrar, with copies to the dean, department head (if applicable), and instructor. Any grade changes required by the

decision shall be submitted by the instructor and approved by the department head, or dean in a nondepartmentalized college.

g. If after three business days the arbitration committee has not submitted a final decision about the disputed marks, the dean or provost and vice-president (academic) will be notified as to the reasons for the impasse and the arbitration committee will be have two business days to resolve their differences and come to a final decision.

h. If, after two additional business days, an arbitration committee cannot come to a final decision, the dean, or the provost and vice president (academic) in the case of non-departmentalized colleges, will reach a final decision about the disputed marks based upon the written submissions and supporting documents. The dean, or the provost and vice-president (academic) shall immediately submit a written report which explicitly outlines the rationale for the decision to the registrar, with copies to the dean, department head (if applicable) and instructor. Any grade changes required by the decision shall be submitted by the instructor and approved by the department head, or dean in a non-departmentalized college

i. Once this process is completed, affected students who previously ordered a transcript can contact the registrar whereupon corrected transcripts will be issued free of charge.

9.2 Grade dispute between instructor and student

Students who are dissatisfied with the assessment of their class work or performance in any aspect of class work, including a midterm or final examination, should consult the University Council policy titled <u>Student Appeals or Evaluation, Grading and Academic Standing</u> and the <u>Procedures for Student Appeals in Academic Matters</u>.

The policies describe the process to be followed in appealing the assessment. Appeals based on academic judgment follow a step-by-step process including consultation with the instructor and rereading of written work or re-assessment of non-written work.

Contact Information Contact Person: University Registrar **Phone:** 306-966-6723

Attachment 2

Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning

Responsibility: University Registrar **Authorization:** University Council **Approval Date:** May 19, 2011; reapproved June 18, 2015; reapproved June 22, 2017; reapproved

Revisions

Permit the first day of final examinations to be one day after the last day of lectures (January 2012) Delete the Withdraw Fail grade effective May 1, 2012 (March 2012) Revise Course Syllabus section; additional section on Class Recordings (March 2013) Revise Grading System section; clarification of grading deadlines (May 2017) Revise Student Assessment Issues and Special Circumstances section; addition of "N-Grades" definition (May 2017)

Updates

Incorporate terminology used in the University Council policy on <u>Student Appeals of Evaluation</u>, <u>Grading and Academic Standing</u> and the Procedures for Student Appeals in Academic Matters (December 2012)

Incorporate Academic and Curricular Nomenclature terminology on courses and classes (June 2016)

Purpose

The purpose of the Academic Courses Policy is to prescribe university-level requirements for delivery of academic courses and the assessment of student learning including conduct of examinations.

Principles

One of the primary purposes of a university is to optimize learning opportunities for students. The University of Saskatchewan encourages and celebrates innovation in class delivery and student assessment.

Assessment of student learning should be an effective, fair and transparent process which follows university, college, and department regulations so that students across the institution are treated respectfully and impartially. This includes accommodation for students with disabilities, in accordance with university policies and provincial legislation.

As articulated in the University <u>Learning Charter</u>, students will be provided with a clear indication of what is expected in a course or learning activity, and what is required to be successful in achieving the expected learning outcomes as defined in the course outline. Students must therefore receive prompt and constructive feedback on their learning progress at regular intervals throughout the course. Educators will ensure that assessments of learning are transparent, applied consistently and are congruent with learning outcomes. Feedback will be designed to both assess and enable student learning, With these

goals in mind, educators will solicit and reflect on feedback from students and peers and commit to building knowledge and skill in teaching practice for the purposes of continuous enhancement.

Scope of this Policy

This document incorporates all of the policies, regulations, and procedures relating to class delivery and student assessment which have been previously approved by University Council in various policy documents and reports.

It supersedes the following documents previously approved by University Council: April, 2009 Academic Programs Committee <u>Examination Regulations</u> April, 2001 Academic Programs Committee <u>Policies for Reporting Final Grades</u> January, 2001 Academic Programs Committee Retroactive Withdrawal Policy September, 1986 – University of Saskatchewan Grading Policy

It complements and maintains the principles expressed in the following documents:

June, 1999 <u>Guidelines for Academic Conduct</u> June, 2007 Teaching and Learning Committee <u>Student Evaluation of Instructors/Courses</u> December, 2009 <u>Use of Materials Protected by Copyright</u> June, 2010 University <u>Learning Charter</u> June 2011 <u>Nomenclature Report</u> January, 2012 <u>Academic Accommodation and Access for Students with Disabilities</u> Vice-Provost Teaching and Learning portfolio <u>Instructors and Staff Handbook</u> Information and Communications Technology <u>Lecture Capture</u>

All regulations covering class delivery, student assessment, and examinations have been developed into a framework with three levels of authority and responsibility: university, college, and department. Within the framework of this policy, departments and colleges may develop additional regulations and procedures for class delivery and student assessment. For example, colleges and departments may develop their own template for the syllabus to be used by their instructors.

In colleges where there is an alternate approved Academic Calendar, regulations covering student assessment and examinations shall be developed by the college in a manner consistent with these university regulations.

All references to "department heads" and "deans in non-departmentalized colleges" in this document would also equally apply to their delegates. All references to "departments" and "colleges" would also equally apply to schools.

Policy

The University of Saskatchewan Academic Courses Policy on Class Delivery, Examinations and Assessment of Student Learning covers policies, regulations, and procedures governing the following aspects of class delivery and student assessment, including the conduct of examinations

Section I. Class Delivery

1 Class Syllabus

- 1.1 Content of the syllabus
- 1.2 Changes to the syllabus after distribution
- 1.3 Change of final examination date
- 2 Contact Hours and Availability of Instructors
- 2.1 Availability of instructor
- 3 Student Attendance
- 3.1 Permission to attend and participate in classes
- 3.2 No credit unless registered

4 Class Evaluation by Students

- 5 Class Recordings
- 5.1 Privacy, permission, and consent
- 5.2 Intellectual property and copyright
- 5.3 Accommodation for students with disabilities
- 5.4 Definitions
- 5.5 Responsibilities of instructors and presenters
- 5.6 Responsibilities of students
- 5.7 Restrictions on use of classroom recordings
- 5.8 Storage and archiving
- 5.9 Special circumstances: clinics, training, art classes

Section II. Assessment of Students

- 6 Grading System
- 6.1 Fairness in evaluation
- 6.2 Weighting in class grades
- 6.3 Grade descriptors
- 6.4 Academic grading standards
- 6.5 Average calculations
- 6.6 Grading deadlines
- 7 Examinations
- 7.1 Methods and types of examinations
- 7.2 Mid-term examinations
- 7.3 Final examinations
- a. Modification of requirement to hold a final examination
- b. Final examination period and scheduling
- 7.4 Conduct and invigilation of examinations

- a. Invigilation
- b. 30 minute rule
- c. Identification
- 7.5 Access to materials in the examination room
- 7.6 Permission to leave the examination room
- 7.7 Food and beverages
- 7.8 Protocols for an academic misconduct breach
- 7.9 Retention and accessibility of examination papers
- 7.10 Retention of the exam materials during the examination
- 7.11 Additional invigilation standards

8 Student Assessment Issues and Special Circumstances

- 8.1 Final grade alternatives and comments
- 8.2 Withdrawal
- 8.3 Retroactive withdrawal
- 8.4 Incomplete class work (assignments and examinations) and Incomplete Fail (INF)
- 8.5 No Credit (N) grade alternative and grade comment
- 8.6 Deferred final examinations
- 8.7 Supplemental final examinations
- 8.8 Aegrotat standing
- 8.9 Special accommodations for disability, pregnancy, religious, and other reasons
- 9 Procedures for Grade Disputes
- 9.1 Grade dispute between instructor and department head or dean
- 9.2 Grade dispute between instructor and student

Authority and Responsibility

Under the Bylaws of University Council (Section 3, VIII, 2), all matters respecting the subjects, time, and mode of the examinations and respecting the degrees and distinctions to be conferred by the University of Saskatchewan shall be provided for by University Council regulations.

Academic regulations at all levels shall be publicly accessible to all members of the university community. If a college or department has additional regulations, these must be made available to students through publicly accessible websites. Additionally, it must be communicated to students that additional regulations exist. There should also be provisions at each level of authority for periodic review and amendment of these regulations.

University

University regulations will prevail in the absence of other college or departmental regulations. In the case of a discrepancy between university regulations and college or departmental regulations, university regulations will take precedence. Any college requesting an exception, change, or addition to these regulations is to submit a proposal to the Academic Programs Committee of University Council for approval.

Colleges and Departments

University Council, while retaining the final authority over assessment of student learning, delegates to colleges the responsibility of establishing general policies concerning the methods and types of assessment which may be employed by the departments of that college, and each department should establish any further instructions and policies for its members as necessary.

Instructors and Departments

It is the responsibility of the instructor and department head, or dean in non-departmentalized college, or those delegated such responsibility by them, to report final grades to the registrar in accordance with the regulations outlined here. Instructors will use prescribed grade descriptors or grade comments if required.

The final grade report, prepared by the instructor, must be submitted to and approved by the department head, or dean in non-departmentalized colleges.

Section I. Class Delivery

Our University Learning Charter encourages a multitude of educational experiences that contribute to growth in essential learning pursuits and the personal and professional interests of university community members. To accomplish this, educators need to be aware of the range of instructional methods and assessment strategies, and select and utilize teaching methods that are effective in helping students achieve the learning outcomes of a course or learning activity. Additionally, teaching practice will support students in different ways of knowing and learning, including independently, experientially, and collaboratively. Regardless of methodology, there are universal elements of class delivery that ensure appropriate learning opportunities are provided to the students of the university.

1. Class Syllabus

Department heads, and deans in non-departmentalized colleges, are accountable for the maintenance of academic standards and relevancy of programs of their department and college.

The syllabus is a public document that provides details about a particular class for both potential and enrolled students. It is useful for recruiting prospective students and sharing information about university classes with the broader community (for example, for the purposes of transfer credit evaluation). Instructor syllabi must be submitted to department heads, or deans in non-departmentalized colleges, prior to the start of a class.

It is recommended that students also have online access to syllabi prior to the beginning of the class. After submission to the department head, or dean in non-departmentalized colleges, syllabi should be posted on the Blackboard Open Courseware site and/or publically accessible departmental or other websites. Instructors who post their syllabus on publically accessible websites may wish to redact certain information that is not related to the core instruction of the class (e.g. personal contact information, names and contact information for teaching assistants, material protected under copyright, etc.).

1.1 Content of the syllabus

Instructors shall review the contents of the class syllabus with their students at the beginning of the class. The syllabus shall include the following:

- type and schedule of class activities
- if the class is offered online, through distance learning, or off-campus, any additional or different expectations around any class activities and requirements
- expected learning outcomes or objectives for the class
- method of evaluation, specifically final grade mode (eg. Numeric, Pass/Fail, or Completed Requirements)
- the type and schedule of term assignments
- the type and schedule of mid-term or like examinations
- notice if any mid-term examinations or other required class activities are scheduled outside of usual class times (with college permission) and how student time conflicts will be accommodated should they arise because of this change
- the length of the final examination in hours as well as its mode of delivery
- relative marking weight of all assignments and examinations
- consequences related to missed or late assignments or examinations
- whether any or all of the work assigned in a class including any assignment and examination, or final examination, is mandatory for passing the class, or whether there are any other college-level regulations that specify requirements for passing the class
- attendance expectations if applicable, the means by which attendance will be monitored, the consequences of not meeting attendance expectations, and their contribution to the assessment process
- participation expectations if applicable, the means by which participation will be monitored and evaluated, the consequences of not meeting participation expectations, and their contribution to the assessment process
- whether there are any approved class-specific fees being charged in addition to tuition (such as materials fees, mandatory or optional excursions and the fees associated with these activities, etc.).
- experiential learning expectations if applicable, the means by which experiential learning will be monitored and evaluated, the consequences of not meeting experiential learning expectations, and their contribution to the assessment process
- contact information and consultation availability
- course or class website URL, if used
- notice of whether the instructor intends to record lectures and whether students are permitted to record lectures
- explanation of copyright where it relates to class materials prepared and distributed by the instructor
- location of the *Academic Courses Policy* as well as the regulations and guidelines for both academic and non-academic misconduct and appeal procedure

• information regarding support services that are available to students through the Teaching, Learning and Student Experience (TLSE) portfolio, Student Learning Services at the University Library, and colleges

Instructors are encouraged to use the <u>University of Saskatchewan Syllabus Template and Guide</u> to assist with satisfying the above requirements.

1.2 Changes to the syllabus after distribution

After distribution, a syllabus may only be changed if no student in the class objects to such changes and the department head, or dean in non-departmentalized colleges, is notified. Otherwise, methods and modes of assessment for all assignments and examinations must remain as stated in the syllabus: no major graded assignment or examination is to be newly assigned in a class and no changes to already set dates or the stated grade weighting of graded assignments or examinations is permitted.

1.3 Change of final examination date

Once the registrar has scheduled final examinations for a term, instructors wanting to change the date and/or time of their final examination must obtain the consent of all students in the class according to procedures established by the registrar, as well as authorization from the department head, or dean in non-departmentalized colleges.

2. Contact Hours and Availability of Instructors

As per <u>Nomenclature</u>, a "traditional" three credit unit lecture course involves approximately 30-39 direct lecture hours, and a course can involve a further equivalent contact time in student consultations and/or tutorial or laboratory sessions.

2.1 Availability of instructor

Instructors should make it known to the students through the class syllabus how they can be contacted to arrange for one-on-one consultation about class material. These need not be face-to-face meetings but can include, for instance, responses to queries through email or other electronic media. Instructors should inform students about how quickly they can expect an email response to any enquiry.

It is recognized that there is a growing trend to develop and deliver non-traditional courses, including practicum laboratories, capstone design, community-service learning, and internet-based courses. For equivalent credit units, it is expected that both the instructors and students of these classes will regard the interaction, instructor availability and class workload to be equivalent to that of a traditional lecture class.

3. Student Attendance

Regular and punctual attendance in their classes is expected of all students (including lectures, seminars, laboratories, tutorials, etc.).

Attendance expectations apply equally to classes offered in a physical classroom, online, or through distance learning, though the practical requirements of attendance may be defined differently in each instance.

Any attendance requirement that may result in grade penalties or other consequences must be explicitly stated in the syllabus.

3.1 Permission to attend and participate in classes

No person may gain the full benefit of instruction in a class without being duly registered in the class either as a credit or audit student. Instructors must advise students who are not on their class list that they need to be registered for their class, either as a credit or audit student

Instructors may invite visitors to attend a class for pedagogical and other reasons related to the delivery of the class (for example, guest lecturers, professional observers or mentors, teaching or marking assistants, laboratory or tutorial assistants, and so forth).

Instructors of an online class may, at their discretion, open their class to a broader set of participants (including those not registered as students) provided that non-registered participants are not using software or materials limited by license for use by students. Instructors shall not grade any work of such non-registered participants in these online courses. Retroactive registration or credit challenge by such non-registered participants will not be permitted.

3.2 No credit unless registered

Only students who are registered in a class can receive credit for a class.

4. Class evaluation by students

Improvement of class delivery is an on-going responsibility of all instructors. Student feedback is an important source of information to help guide instructors in their search for improved delivery mechanisms.

At the university, all classes will be evaluated by students on a regular basis using an approved evaluation tool. All instructors have the responsibility to ensure that students have access to such an evaluation tool.

Department heads, or deans in non-departmentalized colleges, shall ensure that a process exists for instructors to receive student evaluations on a regular basis, and for arranging an opportunity for constructive discussion of the evaluation as required. This discussion should centre on the importance of maximizing the educational experience through continual class delivery improvement.

5. Class Recordings

The university is committed to providing accessibility and flexibility for student learning and seeks to foster knowledge creation and innovation. Recording of lectures and other classroom activities can contribute to these goals.

Classes at the university may be recorded for learning or research purposes, subject to the regulations and procedures stated in this policy.

With permission of instructors, presenters, and students, and following the procedures listed below, the university supports and encourages the audio and video recording of lectures and other learning activities for purposes of teaching, learning and research.

5.1 Privacy, permission, and consent

The classroom is considered to be a private space accessible only by members of a class, where student and instructor alike can expect to interact in a safe and supportive environment. Recording of lectures or other classroom activities should not infringe on privacy rights of individuals.

5.2 Intellectual property and copyright

Class recordings are normally the intellectual property of the person who has made the presentation in the class. Ordinarily, this person would be the instructor. Copyright provides presenters with the legal right to control the use of their own creations. Class recordings may not be copied, reproduced, redistributed, or edited by anyone without permission of the presenter except as allowed under law.

5.3 Accommodation for students with disabilities

When an accommodation for recording lectures or classroom activities is authorized by Access and Equity Services, an instructor must permit an authorized student to record classroom activity; only the student with the accommodation would have access to this recording.

5.4 Definitions

Definition of "presenter"

For the purposes of this section, a presenter is defined as any individual who by arrangement of the class instructor will provide instruction to students in the class. In addition to the class instructor, presenters might include guest lecturers, students, tutorial leaders, laboratory instructors, clinical supervisors, teacher trainers, and so forth.

Definition of "classroom"

For the purposes of this section, a classroom is defined as any room or virtual location where students are directed to meet as part of class requirements. This includes tutorials, laboratories and web-conferences which are required elements of a class, but does not include study groups and other voluntary student activities.

Definition of "learning activities"

For the purposes of this section, a learning activity is any gathering of students and instructors which is required as part of the class requirements, such as a laboratory, seminar, tutorial, and so forth.

5.5 Responsibilities of instructors and presenters

For purposes of teaching, research or evaluation, instructors may record lectures and other learning activities in courses with permission from the presenters.

Notification of intent to record classroom sessions should be included in the class syllabus and, where possible, in the catalogue description of the course. If not so noted, permission from students will be

obtained prior to making recordings for teaching or research where a student's image or voice may be recorded.

If such permission is refused by a student, the instructor will arrange for that student's image or voice not to be included in the recording.

5.6 Responsibilities of students

Student use of personal recording devices of any type during lectures or other classroom learning activities requires consent of the instructor

A student may record lectures without such permission only if the Access and Equity Services Office has approved this accommodation for the student. The instructor will be notified of this accommodation. Such recordings would not be shared, and would be deleted at the conclusion of the class.

5.7 Restrictions on use of classroom recordings

The use of recordings of classroom activities is restricted to use for teaching, learning, and research.

Students may not distribute classroom recordings to anyone outside the class without permission of the instructor.

Instructors may use recordings for purposes of research, teaching evaluation, student evaluation, and other activities related to teaching, learning, and research. With permission of the instructor, presenters may also use recordings for such purposes.

Recordings of classroom sessions may not be used in the formal evaluation of an instructor's teaching.

5.8 Storage, archiving, and permission to use

Permission for any use of a recording of class and other learning activities remains with the instructor after the class term is ended. In a case where the instructor is no longer available to give permission for use of a recording, the department head, or dean in non-departmentalized colleges, can authorize such use only for purposes of teaching, learning, and research.

Students may retain recordings of classes and other learning activities solely for personal review and not for redistribution.

5.9 Special circumstances: clinics, training, art classes

Recordings of learning activities such as clinical or training experiences involving patients and/or professional staff outside of university classrooms will be based on professional standards and on the policies of the clinical institution. In art classes, written permission of models is also required before any video recording by instructors or students takes place.

Section II. Assessment of Students

6. Grading System

6.1 Fairness

Students need to be assured of fairness and transparency in grading.

University

The University of Saskatchewan shall periodically review methods of student assessment, and shall include student consultation when doing so.

College

Each college will set out regulations and guidelines governing methods of assessment permitted, final or any other examination requirements, including whether a student may obtain credit for a class even if they have not written or passed the final examination, and any limits on the relative weighting of final examinations or any other term work.

Each college should establish adequate procedures for setting these guidelines and assessing applications for exceptions.

Department

Departments and non-departmentalized colleges shall periodically discuss grading patterns and trends and reach a common understanding about what appropriate grades at all levels of their discipline should be. It is the responsibility of the department head, or dean in non-departmentalized colleges, to ensure that grading is fair and transparent.

Appeal

A student who is dissatisfied with the assessment of their work or performance in any aspect of class work, including a mid-term or final examination, shall follow the procedures set out in the University Council policy on <u>Student Appeals of Evaluation, Grading and Academic Standing</u> and the <u>Procedures</u> for <u>Student Appeals in Academic Matters</u>.

6.2 Weighting in class grades

Timely feedback is an important part of the educational experience. Assignments will be assessed and returned to students in a timely manner.

Each assignment and examination will be scheduled according to information provided in the class syllabus unless otherwise agreed by the instructor and students.

The relevant weight of assignments and examinations in determining the final grades will be specified on the class syllabus. The weighting of individual questions on any examination also needs to be specified as part of the examination.

The class syllabus will specify whether any or all of the assignments and examinations are mandatory for obtaining a passing final grade in the class.

6.3 Grade descriptors

The university's implementation of the percentage system for reporting final grades was approved by University Council in 1986. University grade descriptors and the percentage system apply unless

separate approved college regulations exist. Exceptions to the grade descriptors below require council approval:

Definitions

Percentage assessment for undergraduate courses is based on the literal descriptors, below, to provide consistency in grading among colleges.

The university-wide relationship between literal descriptors and percentage scores for undergraduate courses is as follows:

90-100 Exceptional

A superior performance with consistent strong evidence of

- a comprehensive, incisive grasp of the subject matter;
- an ability to make insightful critical evaluation of the material given;
- an exceptional capacity for original, creative, and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

80-89 Excellent

An excellent performance with strong evidence of

- a comprehensive grasp of the subject matter;
- an ability to make sound critical evaluation of the material given;
- a very good capacity for original, creative, and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

70-79 Good

A good performance with evidence of

- a substantial knowledge of the subject matter;
- a good understanding of the relevant issues and a good familiarity with the relevant literature and techniques;
- some capacity for original, creative, and/or logical thinking;
- a good ability to organize, to analyze, and to examine the subject material in a critical and constructive manner.

60-69 Satisfactory

A generally satisfactory and intellectually adequate performance with evidence of

- an acceptable basic grasp of the subject material;
- a fair understanding of the relevant issues;
- a general familiarity with the relevant literature and techniques;

- an ability to develop solutions to moderately difficult problems related to the subject material;
- a moderate ability to examine the material in a critical and analytical manner.

50-59 Minimal Pass

A barely acceptable performance with evidence of

- a familiarity with the subject material;
- some evidence that analytical skills have been developed;
- some understanding of relevant issues;
- some familiarity with the relevant literature and techniques;
- attempts to solve moderately difficult problems related to the subject material and to examine the material in a critical and analytical manner which are only partially successful.

<50 Failure

An unacceptable performance.

College of Dentistry

In January 2017, separate literal descriptors were approved by University Council for the grading of classes in the Doctor of Dental Medicine (D.M.D.) program in the <u>College of Dentistry</u>.

College of Graduate and Postdoctoral Studies

In May 1996, separate literal descriptors were approved by University Council for the grading of classes in the <u>College of Graduate and Postdoctoral Studies</u>.

College of Medicine

In January 2017, separate literal descriptors were approved by University Council for the grading of classes in the Doctor of Medicine (M.D.) program in the <u>College of Medicine</u>.

University

The registrar will record and report final grades in all classes according to the grade descriptors outlined above, unless an exception has been approved by University Council.

All student grades in all classes must be reported in a timely manner, according to procedures established by the registrar.

College

Each college has the responsibility for ensuring, at the beginning of each class, that students are familiar with the assessment procedures and their application to the literal descriptors. Grade modes must not change once registration in a particular class has begun.

Unless approved by the college, all sections of a given course must adhere to the same system of assessment, either a percentage grading system or a pass-fail assessment system.

Exceptions

University Council will receive and evaluate requests from colleges desiring exceptions to the above grade descriptors.

6.4 Academic grading standards

College

College regulations govern grading, promotion, and graduation standards. Students should refer to the appropriate college sections of the *Course and Program Catalogue* for specific requirements.

6.5 Average calculations

Each college is responsible for assigning credit values to courses within its academic jurisdiction, in consultation with the registrar, to ensure that consistency is maintained across the program catalogue.

Calculation

To distinguish whether these averages have been computed for the work performed by the student in a session, or in a year, or for their total program, the terms sessional weighted average, annual weighted average, and cumulative weighted average are frequently used.

Sessional weighted averages are calculated from classes taken in Fall Term and Winter Term, annual weighted averages are calculated from all classes taken in a year, and cumulative weighted averages are calculated from all classes taken at the University of Saskatchewan.

Weighted averages are calculated by multiplying the grade achieved in each class by the number of credit units in the class. The sum of the individual calculations is then divided by the total number of credit units to produce the weighted average. Students should consult with their college for policies on repeating classes and non-numeric grade conversion.

Example of calculation of a student average:

Class	Grade	Credit Units	Weighted Marks
ENG 111.3	83	3	249
MATH 110.3	87	3	261
PSY 121.3	97	3	291
POLS 111.3	98	3	294
INDG 107.3	92	3	276
BIOL 120.3	81	3	243
WGST 112.3	93	3	279
CREE 101.3	96	3	288
CHEM 112.3	87	3	261
ASTR 113.3	91	3	273

Total

Weighted Average (2715/30) = 90.5%

6.6 Grading deadlines

Final grades should be released to students in a timely way, both for the benefit of the students and to assist university business processes such as Convocation.

Final grades will be submitted and approved according to procedures established by the registrar. For the purposes of identifying and advising first-year students experiencing academic difficulty, midyear grades in 100-level six credit-unit classes held over the Fall Term and Winter Terms are also reported to the registrar and released to students.

Final grades in all classes are to be submitted and approved:

- no later than the end of the final examination period for standard term classes in a given term with no final examination, and for mid-year examinations in 100-level, two-term classes offered over the Fall Term and Winter Term; or
- within five business days after the date of the final examination (not including weekends or holidays), for those classes with final examinations including final grades resulting from deferred, special deferred, supplemental, and special supplemental final examinations; or
- five days after the end of the class for open learning classes without a final examination.

If for any reason the above deadlines cannot be met, the instructor should discuss the reason for the delay with their department head, or dean in non-departmentalized colleges. The instructor will also notify both registrar and the students in the class as to the anticipated date of submission.

Colleges which use additional or different grade approval procedures, such as using a board of examiners, should arrange a grading deadline in consultation with the registrar.

The registrar shall notify colleges of any final grades not submitted by the grading deadlines.

Students shall be notified of delays related to grade changes related to any other process involving grades, including those delays related to grade disputes between a student and an instructor or between an instructor and a department head, or dean in non-departmentalized college.

University

Only the registrar may release official final grades. The registrar will post final grades electronically as they are received.

The registrar will communicate with instructors who have not met the above deadlines but who have not notified the registrar.

Department

Responsibility for submission of the final grade report is shared between the instructor, who submits the final grades, and the department head, or dean in non-departmentalized colleges, who approves the final grades.

If instructors wish to release or post any final grades unofficially, they should do so confidentially. Grades should not be posted with public access.

When final grades are approved by the department head, or dean in non-departmentalized colleges, they will be submitted electronically according to procedures established by the registrar.

Once submitted and approved, final grades may still be changed by the instructor. Grade changes are also approved by the department head, or dean in non-departmentalized colleges.

For off campus and distributed learning courses where the final examinations are submitted to the instructor through the mail, the five business day standard will be waived upon consultation with the registrar.

7. Examinations

Students will be examined and assessed, either during the term or during the final examination, on knowledge and skills taught either directly or indirectly (such as through class reading assignments) on class materials covered during class presentations.

There will be alignment between class learning objectives and outcomes, instruction and the assessment plan for the class, of which examinations may be a significant element.

7.1 Methods and types of examinations

College

University Council, while retaining the final authority over assessment of student achievement, delegates to colleges the responsibility of establishing general policies concerning the methods and types of examinations which may be employed by the college and the departments of that college.

It should be noted, however, that web-based classes must conduct web-based examinations, unless approved by the registrar as an exception.

Department

Each department should establish any further instructions and policies for its members. Each department will establish, within the regulations and guidelines set out by the college, examination methods and the relative weighting of final examinations. These department limitations must be approved by the college.

Cross-college and interdisciplinary courses

In courses provided by a department of one college for students of another college, the examination regulations of the teaching department will have precedence unless alternative arrangements have been

negotiated between the teaching department, its own college and the other college. In the case of an interdisciplinary program, the appropriate designated authority over the program shall approve any program regulations.

7.2 Mid-term examinations and assignments

Scheduling

Mid-term examinations and other required class activities shall not be scheduled outside of regularly scheduled class times, including during the final examination period, except with the approval of the college. For graduate classes, the College of Graduate and Postdoctoral Studies is the approving authority.

Any scheduling of mid-term examinations and other required class activities outside of regularly scheduled class times requires college approval and must be noted in the class syllabus, so that students have fair warning of such scheduling.

Any resultant conflicts with mid-term examinations for other classes, other registered class activities, or any other scheduled university-related business that a student may be involved in will be accommodated at an alternative time. The instructor responsible for the conflict, or this instructor's home college, must facilitate the accommodation, through consultation with the student. Denials of such accommodation may be appealed to the dean's office of the college authorizing the non-standard scheduling, in consultation with the student's college (if in a different college from that of the class) if necessary.

Number of examinations

Students who have more than three mid-term examinations on the same day will be dealt with as special cases by their college. Colleges may establish additional regulations regarding the number of mid-term examinations a student can sit in any given period to time.

7.3 Final examinations

a. Modification of requirement to hold a final examination

Colleges determine whether students will be permitted to pass a class if they have not written the final examination. Colleges may allow instructors to determine whether students can pass a class if they have not written the final examination. Any requirement that a student must write and/or pass the final examination in order to pass the class must be stipulated in the class syllabus.

With the approval of the college and the department, the final examination in a class may be replaced by an approved alternative form of assessment that provides a percentage assessment consistent with the literal descriptors. The registrar must be notified of all examination exemptions for classes scheduled by the registrar prior to the beginning of a term so that final examinations are not scheduled for such classes and examination rooms are not assigned.

b. Final examination period and scheduling of final examinations

Scheduling

The registrar schedules all final examinations. This includes take-home final examinations, as well as, deferred and supplemental examinations. The registrar will post the schedules of final examinations as early in a term as possible.

Classes identified as having a primary schedule type of LAB (Laboratory) or TUT (Tutorial) will not be scheduled for a final examination and will not appear on the transcript.

The registrar may delegate authority to schedule final examinations to colleges where classes do not conform to the university's <u>Academic Calendar</u>, or for deferred and supplemental examinations, in such cases where colleges want to schedule and invigilate their own.

Change of final examination date

Once the registrar has scheduled final examinations for a term, instructors wanting to change the date and/or time of their final examination must obtain the consent of all students in the class according to procedures established by the registrar, as well as authorization from the department head, or dean in non-departmentalized colleges.

Examination period

For the Fall Term and Winter Term, the final examination period shall commence on the day following the last day of lectures for that term.

Final examinations in evening classes will normally occur in a night examination slot one or two weeks from the last day of lectures in that class except in the event of common examinations between two or more evening classes. Common examinations between day and night classes can only be accommodated in a night examination slot or on a Saturday.

For Spring Term and Summer Term, the final examination period shall consist of two to three days immediately following the last day of lectures for a class.

Final examinations must be scheduled during the final examination period for final examinations scheduled by the registrar in that term. In very unusual circumstances, the registrar may schedule a final examination outside the examination period on the recommendation of the instructor and department head, or dean in a non-departmentalized college.

Duration

Writing periods for final examinations usually start at 9 am, 2 pm, and 7 pm. Six credit-unit classes will normally have final examinations of three hours duration. Classes of fewer than six credit units will normally have final examinations of two to three hours.

However, it is recognized that colleges may authorize final examinations of different duration for classes if deemed necessary for pedagogical or other similar justifiable reasons. Such departures from the approved time duration should be done in consultation with the registrar.

Weekends and evenings

Final examinations may be scheduled during the day or evening on any day during the final examination period except Sundays or holidays. No final examinations are scheduled on the Saturday following Good Friday.

Final examinations for day classes can be scheduled in the evening. In the case of common examinations between day classes and evening classes, the final examination will be scheduled either in the evening or on a Saturday.

24-hour rule

The registrar will arrange the schedule so that no student writes more than two final examinations in one 24 hour period.

For example, if a student has final examinations scheduled in three consecutive examination periods - such as on day one at 2 pm and 7 pm, and on day two at 9 am - the registrar will move one of the examinations.

If a student has examinations scheduled only on two consecutive examination periods, with at least one period between examination groups - such as on day one at 2 pm and 7 pm, and on day two at 2 pm and 7 pm – the registrar will not move any of the examinations.

Conflicts for common examinations

Any student conflicts created by scheduling common final examinations between two or more classes will be accommodated by the instructors of those classes.

Warning about other commitments

Final examinations may be scheduled at any time during examination periods; until the schedule has been finalized and posted, students and instructors should avoid making travel or other professional or personal commitments for this period.

Warning about withdrawal

Students cannot withdraw from a class after the withdrawal deadline for that class.

7.4 Conduct and invigilation of examinations

All regulations for the invigilation of final examinations can apply to the invigilation of mid-term examinations. It is expected that invigilators will be present while students are sitting for examinations, readily available to answer questions from students, and will monitor and report any instances of academic or non-academic misconduct according to the *Regulations on Student Academic Misconduct* and the *Standard of Student Conduct in Non-Academic Matters*. Invigilators shall familiarize themselves with all related regulations and policies.

Invigilation

Normally, the class instructor of record is expected to invigilate their examinations. If the instructor is not available, in so much that it is possible it is the responsibility of the instructor and the department

head, or dean in non-departmentalized colleges, to ensure the examination is invigilated by a qualified replacement that is familiar with the subject of the examination. The process by which backup or additional invigilation is provided should be established by the department head or dean.

It is recommended that a department, or non-departmentalized college, supply a sufficient number of invigilators as is appropriate for the size of the class, depending on the nature of the examination.

Invigilators may use a seating plan for their examinations which requires students to sit at a particular desk or table. In addition, invigilators may move any student to another desk or table in the examination room at any time before or during an examination.

Proctors provided by the registrar in gymnasiums, for deferred and supplemental examinations, for examinations accommodated by Access and Equity Services, for religious accommodation, or by any other academic or administrative unit for any similar examination invigilation situation exercise the same authority to enforce these regulations as the instructor of the class. However, in such invigilation circumstances, proctors cannot be expected to provide answers to questions specific to the examination in the same manner as the class instructor.

30-minute rule

Students should not be allowed to leave the examination room until 30 minutes after the start of the examination. The invigilator may also deny entrance to a student if they arrive later than 30 minutes after the start of the examination. A student denied admission to the examination under this regulation may apply to their college for a deferred final examination; such application will be subject to consideration under the usual criteria for that college.

With the exception of use of the washroom, invigilators can, at their discretion, deny students leave of the examination room for a period of time prior to the end of the examination. Students who are finished during this time should remain seated at their desk or table until the invigilator informs the class that the examination is over and they can leave.

Identification

Students sitting for examinations are required to confirm their identities by providing their student identification (ID) numbers and names on their examination papers, and by presenting their university-issued student ID cards during the examination and upon signing the tally sheet when leaving the examination, or both.

During the examination, invigilators can require students to place their student ID card on the desk or table where the student is writing the examination, in plain view for invigilators to check. Invigilators may ask for additional government-issued photographic ID if the student does not have a student ID card or if they deem the student ID card insufficient to confirm a student's identity.

Students who do not present a student ID card, or other acceptable photographic identification, during an examination will be permitted to finish sitting the examination, but only upon completing and signing a *Failure to Produce Proper Identification at an Examination* form. The form indicates that there is no guarantee that the examination paper will be graded if any discrepancies in identification are discovered upon investigation. Students will then have to present themselves with a student ID card or other acceptable government-issued photographic identification to the invigilator within two working days of the examination at a time and place mutually agreeable to the invigilator and the student. Such students may also be asked to provide a sample of their handwriting. Failure to provide acceptable identification

within two working days will result in an academic misconduct charge under the <u>Regulations on Student</u> <u>Academic Misconduct</u>.

If a student refuses to produce a student ID, or other acceptable photographic identification, and refuses to complete and sign the *Failure to Produce Proper Identification at an Examination* form, the invigilator will permit them to continue writing. However, the student shall be informed that charges will be laid under the <u>Regulations on Student Academic Misconduct</u> and that there is no guarantee that the examination paper will be graded if any discrepancies in identification are discovered upon investigation

Invigilators need not require identification if the student's identity can be vouched for by the instructor.

To assist with identification, students wearing caps, hats, or similar head-coverings of a non-religious or cultural nature can be asked to remove them.

Invigilators are permitted to take a photograph of any student if there is any question about the student's identity. Invigilators should take a photo in such a manner as to not cause a disruption in the examination room and respects the religious/cultural beliefs of the student. The registrar will arrange for any photographs taken by invigilators to be compared to student ID photos of record. Photographs will only be used for the purposes of verifying the identity of the student and will not be used or disclosed for any other purposes, and will be retained in a secure manner for a limited period of time.

Invigilators are also permitted to take the student ID card of any student whose identity is in question.

7.5 Access to materials in the examination room

Students should bring only essential items into an examination room. Personal belongings such as book bags, handbags, purses, laptop cases, and the like may be left, closed, on the floor beneath a student's chair or table or in an area designated by the invigilator; coats, jackets, and the like may be placed similarly or on the back of a student's chair. Students should not access any such personal belongings except with the permission of and under the supervision of the invigilator. Students should not collect their personal belongings until after they have handed in their examination. The university assumes no responsibility for personal possessions lost in an examination room.

Students shall not have in their possession during an examination any books, papers, dictionaries (print or electronic), instruments, calculators, electronic devices capable of data storage and retrieval or photography (computers, tablets, cell phones, personal music devices, etc.), or any other materials except as indicated on the examination paper or by permission of the invigilator. Students may not take anything with them if they are granted permission to leave the room by the invigilator.

For examinations requiring the use of a calculator, unless otherwise specified by the invigilator, only non-programmable, non-data storing calculators are permitted.

For examinations requiring the use of a computer and specific software, unless otherwise specified by the invigilator students may not access any other software or hardware.

No unauthorized assistance

Students shall have no communication of any kind with anyone other than the invigilator while the examination is in progress. This includes not leaving their examination paper exposed to view by any other student.

7.6 Permission to leave the examination room

Students who need to leave the examination room for any reason require the permission of the invigilator. Invigilators may use a sign-out/sign-in sheet for students who are given permission to leave the examination room and may record the amount of time a student spends outside of the examination room, frequency of requests to leave, etc. Students must leave their examination paper, examination booklets, and any other examination or personal materials either in the custody of the invigilator for retrieval upon their return, or at the desk or table they were writing at, as per the invigilator.

Normally, only one student should be permitted to leave the room at one time. This prevents a student from discussing the examination with other students and enables invigilators to be aware of the whereabouts of their students.

Invigilators may choose to escort students to and from washrooms at their discretion, and can check washrooms for indications of academic misconduct (e.g., hidden notes or materials, books, or other papers, etc.). Invigilators may designate a nearby washroom for use by the students during the examination. However, invigilators may not deny students access to washrooms.

Students who have completed their examination are not permitted to leave the examination room until they have signed out and provided their student ID number on a university tally sheet confirming their attendance at the examination and their submission of the examination paper, examination booklets, and any other examination materials.

Emergency evacuation of an examination

If the examination is interrupted by fire alarm, power outage, or similar emergency requiring evacuation, the invigilator should lead the students out of the examination room in an orderly fashion and keep the students together as much as is possible. The invigilator should, to the extent that this is possible, advise the students not to communicate with each other about the examination and supervise the students until the resumption of the examination. If the situation requires cancellation of the examination, it will be rescheduled by the registrar at the earliest practical date and time.

7.7 Food and beverages

It is at the discretion of the invigilator whether or not food or beverages are permitted in an examination room, unless required for a medical purpose.

7.8 Protocols for an academic misconduct breach

Where there are reasonable grounds for an invigilator believing that a violation of the <u>Regulations on</u> <u>Student Academic Misconduct</u> has occurred, the invigilator has the authority to:

- remove anything on the desk or table not authorized for use in the examination.
- ask to examine any book bags or handbags, purses, laptop cases, dictionaries (print or electronic), instruments, calculators, electronic devices capable of data storage and retrieval or photography (computers, tablets, cell phones, personal music devices, etc.), and any other personal belongings if there is a reasonable suspicion that they contain evidence of academic misconduct. If allowed by the student, any such searches must be done in the presence of the student; the presence of another invigilator as a witness is recommended but not necessary.
- once examined, any personal belongings (e.g. cell phones, text books, and book bags) shall be returned to the student to be put back under the student's desk, with, in so much as it is possible, the evidence retained by the invigilator. Notes or similar unauthorized materials will be confiscated and attached to the incident report to be evaluated by the instructor for possible

academic misconduct procedures. If the student requires a photocopy of any evidence discovered, a copy will be provided as soon as is reasonably possible with the original to be retained by the invigilator.

- the invigilator may take photographs or video recordings of any evidence. Photographs or video recordings will only be used in support of a charge under the <u>Regulations on Student Academic</u> <u>Misconduct</u> and will not be used or disclosed for any other purposes, and will be retained in a secure manner for a limited period of time period.
- require the student to move to a seat where the invigilator can more easily monitor the student.
- ask a student to produce evidence where the invigilator believes that student has hidden it on their person. If the student refuses, respect the refusal but note it when reporting. Under no circumstances can the student be touched or physically searched.
- if considered reasonably necessary, invigilators may take a photograph of the student.
- if the student refuses to cooperate with any request of the invigilator, note the refusal when reporting.

In all the above cases, the student is allowed to finish sitting the examination. Any interaction with the student should be as discrete and quiet as is possible, so as to avoid disruption to the examination room; if practical, any conversation with the student should take place outside of the examination room. If the student is disruptive, the invigilator can require them to leave the examination room.

As soon as possible, either during or following the conclusion of the examination, the invigilator is expected to:

- make a note of the time and details of the violation, the student's behaviour, and, if a student's identity is in question, their appearance (age, height, weight, hair and eye colour, eyeglasses, identifying features, etc.)
- explain to the student that the status of their examination is in question, that the incident will be reported, and that possible charges under the <u>Student Academic Misconduct Regulations</u> could be forthcoming
- identify the student's examination paper, examination booklets, and any other examination materials and set them aside
- inform the instructor (if the invigilator is not the same) of the circumstances and turn over all of the evidence available. In the event that the instructor is not available, the invigilator will inform the appropriate dean.

7.9 Retention and accessibility of examination materials and class syllabus

All marked final examination papers, together with the university tally sheets, shall be retained in the department, or college in non-departmentalized colleges, for a period of at least one year following the examination period in which the final examination was held in case of student appeals under university policy.

It is recommended that examples of all final examination questions for a class, along with the class syllabus, shall be retained in the department, or college in non-departmentalized colleges, for a period of at least ten years following the end of the class. Retention supports the evaluation of transfer credit for students.

For details regarding accessibility of examination papers please refer to the policy on <u>Student Appeals</u> of <u>Evaluation, Grading and Academic Standing</u> and the <u>Procedures for Student Appeals in Academic Matters</u>.

7.10 Retention of examination materials during the examination

Students are not permitted to leave the examination room with the examination paper, examination booklets, or any other examination materials unless permitted to do so by the invigilator. It is also the responsibility of an invigilator to ensure that no such examination materials are left unattended in an examination room before, during or after an examination.

7.11 Additional invigilation standards

It is recognized that departments and colleges may want additional invigilation standards for their instructors or may require them to meet professional or accreditation standards, and that invigilation may be provided differently for online, distributed learning, or off-campus classes. University Council therefore delegates to each college and department the responsibility and authority for setting additional standards for invigilation appropriate to their college or department and in compliance with university policy and federal and provincial legislation.

8. Student Assessment Issues and Special Circumstances

8.1 Final grade alternatives and comments

Definition:

Course Grade Modes

- Pass/Fail/In Progress (P/F/IP)
- Percentage/Numeric/In Progress (0-100/IP)
- Completed Requirements/In Progress/Not Completed Requirements (CR/IP/F)

The following final grading alternatives within certain grade modes also exist:

- Audit (AU)
- No Credit (N)
- Not Applicable (NA)
- Withdrawal (W)
- Withdrawal from Audit (WAU
- Aegrotat Standing (AEG)
- In Progress (IP)
- No Grade Reported (NGR)

Final grades recorded as percentage units may be accompanied by the following additional grade comments as warranted:

- Incomplete Failure (INF)
- Deferred Final Examination Granted (DEFG)
- Special Deferred Final Examination Granted (SPECDEFG)
- Supplemental Final Examination Granted (SUPPG)
- Supplemental Final Examination Written (SUPP)
- Special Supplemental Final Examination Granted (SPECSPG)
- Special Supplemental Final Examination Written (SPECSUP)

8.2 Withdrawal

If a student withdraws from the class after the add-drop deadline but before the withdrawal deadline for that class, the class remains on their transcript and is shown as a withdrawal.

Withdrawal is a grading status alternative which appears permanently on a student's transcript as a W.

Withdrawal has no academic standing and does not impact the calculation of a student's average. If a student withdraws from a class before the add-drop deadline for a term, the listing of the class is deleted from their transcript.

8.3 Retroactive withdrawal

A retroactive withdrawal from a class can be granted by the college when a student has received a failing grade in a class due to serious personal circumstances. It does not matter whether or not the student completed class work, including the final examination, for the class in such situations. As well, a retroactive withdrawal can be granted in situations where the student, or the university, has made a verifiable error in registration.

A retroactive withdrawal from a class can be placed on an academic record by the registrar, provided the student has applied for this change to the college in which they are registered, and the college approves this appeal. Changing a failing mark to a withdrawal removes these failures from the student's average.

Such a change in an academic record can be justified only on serious personal circumstances (normally medical or compassionate grounds, such as a mental or physical illness or condition, the death of someone close, or similar reasons beyond the student's control which contributed to the failure in the class) rather than academic grounds.

Other procedures already exist for academic appeals, as described in the University Council policy on <u>Student Appeals of Evaluation, Grading and Academic Standing</u> and the <u>Procedures for Student</u> <u>Appeals in Academic Matters</u>.

8.4 Incomplete class work (assignments and/or examinations) and Incomplete Failure (INF) When a student has not completed the required class work, which includes any assignment or examination including the final examination, by the time of submission of the final grades, they may be granted an extension to permit completion of an assignment, or granted a deferred examination in the case of absence from a final examination.

Extensions past the final examination date for the completion of assignments must be approved by the department head, or dean in non-departmentalized colleges, and may exceed thirty days only in unusual circumstances. The student must apply to the instructor for such an extension and furnish satisfactory reasons for the deficiency. Deferred final examinations are granted as per college policy.

In the interim, the instructor will submit a computed percentage grade for the class which factors in the incomplete class work as a zero, along with a grade comment of INF (Incomplete Failure) if a failing grade. The INF grade comment can only be used with a failing grade.

In the case where the student has a passing percentage grade but the instructor has indicated in the class syllabus that incomplete required class work will result in failure in the class, a final grade of 49% will be submitted along with a grade comment of INF (Incomplete Failure).

If an extension is granted and the required assignment is submitted within the allotted time, or if a deferred examination is granted and written in the case of absence from the final examination, the instructor will submit a revised assigned final percentage grade. The grade change will replace the previous grade and any grade comment of INF (Incomplete Failure) will be removed.

A student can pass a class on the basis of work completed in the class provided that any incomplete class work has not been deemed mandatory by the instructor in the class syllabus as per college regulations for achieving a passing grade.

College of Graduate and Postdoctoral Studies

The College of Graduate and Postdoctoral Studies, which has higher passing grade thresholds for its programs than do undergraduate courses, will designate a final failing grade of 59 % to be assigned along with a grade comment of INF (Incomplete Failure) if the student could otherwise pass the class.

8.5 No credit (N) grade alternative and grade comment

The No Credit (N) or "N-Grade" can be listed on a student's transcript as a grade. The N grade (No Credit) is listed next to the percentage grade to show that a student has a passing grade, but has not earned credit. These must be distinguished from failing grades in that a student will not have failed the class for which the N-Grade has been issued. For example, a college may issue a grade of N when a student has not mastered an "essential component" in a class. In the event that an essential component is failed, but the final grade results in a passing mark, a grade of N (No Credit) will be added to the percentage grade on the transcript (eg. 72N). Essential components must always be identified as such on course syllabi. College promotion standards determine whether or not a student must successfully repeat the course.

8.6 Deferred final examinations

A deferred or special deferred final examination may be granted to a student.

Examination period

The deferred and supplemental examination periods are approximately as follows:

- Fall Term classes, the four business days of the February midterm break;
- Fall and Winter two-term classes and Winter Term classes, the five business days following the second Thursday in June;
- Spring Term and Summer Term classes, the first or second Saturday following the start of classes in September.

The registrar may delegate authority to schedule final examinations to colleges where classes do not conform to the university's <u>Academic Calendar</u>, or in such cases where colleges want to schedule and invigilate their own deferred, special deferred, and supplemental examinations.

Students granted a deferred, special deferred, or supplemental examination will be assessed the approved fee for such an examination.

College

The college must consider all requests for deferred examinations and notify the student, the instructor, and, in the case of approval, the registrar of its decision within ten business days of the close of the final

examination period, and within ten business days of receipt of the application for special deferred examinations. The college, in consultation with the student and the instructor, is responsible for arrangements for special deferred examinations.

A student who has sat for and handed in a final examination for marking and signed the tally sheet will not be granted a deferred examination but may apply for a retroactive withdrawal or a supplemental examination, subject to individual college policy and procedures.

Barring exceptional circumstances, deferred examinations may be granted provided the following conditions are met:

- a student who is absent from a final examination for valid reasons such as medical or compassionate reasons may apply to their college for a deferred examination.
- a student who becomes ill during a final examination or who cannot complete the final examination for other valid reasons must notify the invigilator immediately of their inability to finish. The student may then apply for a deferred examination.
- a special deferred examination may be granted to a student who, for valid reasons such as medical or compassionate reasons is unable to write during the deferred examination period. An additional fee is charged for special deferred examinations; otherwise, they are subject to the same regulations as deferred examinations.
- a student must submit their application for a regular or special deferred examination, along with satisfactory supporting documentary evidence, to their college within three business days of the missed or interrupted final examination.

Instructors must provide deferred examinations to the registrar at least five business days prior to the start of the deferred examination period. Failure to do so may result in the instructor, department or college being responsible for invigilating the exam.

Once the examination is written, the instructor will assign a revised final percentage grade. The grade comment of DEFG (Deferred Final Examination Granted) or SPECDEFG (Special Deferred Final Examination Granted) will be removed from a student's official record. If the examination is not written, the original grade/grade comment submitted by the instructor will stand.

A deferred or special deferred examination shall be accorded the same weight as the regular final examination in the computation of the student's final grade.

Exceptions

With the approval of the department head, or dean in non-departmentalized colleges, and the consent of the student, the instructor of a class is allowed some flexibility about the nature of the examination to accommodate the particular circumstances which created the need for the deferred examination. The registrar must be notified of any departures from the regular form of examination.

The registrar may arrange for deferred and special deferred examinations to be written at centres other than Saskatoon.

Appeal

In the case of a disputed final grade, a student is entitled to an Informal Consultation on a deferred or special deferred examination. A Formal Reassessment (re-read) will be granted upon receipt of the

appropriate application. For more information about Informal Consultation or Formal Reassessments including deadlines, please see the University Council policy on <u>Student Appeals of Evaluation</u>, <u>Grading and Academic Standing</u> and the <u>Procedures for Student Appeals in Academic Matters</u>.

8.7 Supplemental final examinations

A student who is assigned a failing grade in a class as a penalty for an academic offence is not eligible to be granted a supplemental examination in that class.

Examination period

The supplemental examination periods coincide with the deferred examination periods. Supplemental examinations resulting from deferred examinations will be specially accommodated.

College

Supplemental final examinations may be granted only according to the following conditions:

- in consultation with the department concerned, a college may grant a supplemental or special supplemental examination to a student registered in the college. Within the limits defined in this section, the college shall determine the grounds for granting supplemental and special supplemental examinations and the criteria for eligibility. This applies to all students regardless of year.
- factors to be taken into consideration for granting a supplemental or special supplemental examination include but are not limited to: the subsequent availability of the course or an appropriate substitute; the grades obtained by the student in term work; the weighting of the final examination in determining the final grade; the class schedule of the student in the subsequent session.
- supplemental final examinations may be granted under regulations established at the college level except that any student who is otherwise eligible to graduate and who fails one class in their graduating year shall be granted a supplemental examination, provided that a final examination was held in that class. A student who fails more than one class in the graduating year may be considered for supplemental examinations according to the regulations established by the student's college.
- the student must make formal application for a supplemental examination to their college by the stated deadline of the college.
- a special supplemental examination may be granted to a student who, for medical, compassionate or other valid reason, is unable to write during the supplemental examination period. An additional fee is charged for special supplemental examinations; otherwise, they are subject to the same regulations as supplemental examinations.

Once the examination is written, the instructor will assign a revised final percentage grade. The grade comment of SUPPG (Supplemental Final Examination Granted) or SPECSPG (Special Supplemental Final Examination Granted) will be replaced with a grade comment of SUPP (Supplemental Final Examination Written) or SPECSUP (Special Supplemental Final Examination Written) on a student's

official record. If the supplemental examination is not written, the original grade submitted by the instructor will stand.

Supplemental examinations shall be accorded the same weight as the original final examination in the computation of the student's final grade. However, college regulations may affect how grades based on supplemental examinations are calculated.

Instructors must provide supplemental examinations to the registrar at least five business days prior to the start of the supplemental examination period.

Exceptions

The registrar may arrange for supplemental and special supplemental examinations to be written at centres other than Saskatoon.

Appeal

A student is entitled to an Informal Consultation on a supplemental or special supplemental examination. A Formal Reassessment (re-read) will be granted upon receipt of the appropriate application. For more information about Informal Consultations and Formal Reassessments including deadlines, please see University Council policy on <u>Student Appeals of Evaluation, Grading and Academic Standing</u> and the <u>Procedures for Student Appeals in Academic Matters</u>.

8.8 Aegrotat standing (AEG)

In exceptional circumstances, in consultation with the registrar, a student may be offered Aegrotat Standing (AEG) in lieu of writing the deferred or special deferred final examination, or in lieu of a final grade.

Aegrotat standing can be considered provided the student has obtained a grade of at least 65 percent in term work in the class(es) in question (where such assessment is possible); or, if there is no means of assessing term work, the student's overall academic performance has otherwise been satisfactory; the instructor of the class, along with the department head, or dean in a non-departmentalized college, recommends offering Aegrotat standing, and the student's college approves the award.

8.9 Special accommodation for disability, pregnancy, religious, and other reasons

a. Students registered with Access and Equity Services may be granted special accommodation with regard to attendance, availability of study materials, and assessment requirements (including mid-term and final examinations) as per the <u>Academic Accommodation and Access for Students with</u> <u>Disabilities policy</u>.

Students must arrange such special accommodations according to stated procedures and deadlines established by Access and Equity Services. Instructors must provide mid-term and final examinations for students who are being specially accommodated according to the processes and deadlines established by Access and Equity Services.

b. Students may also request special accommodation with regard to attendance, availability of study materials, and assessment requirements (including mid-term and final examinations) for reasons related to pregnancy.

The University of Saskatchewan has a general duty to provide special accommodation related to the academic obligations of a class to students who are pregnant, and students whose spouses or partners may be pregnant. Students who are experiencing medical issues resulting from pregnancy may be able to arrange accommodation through Access and Equity Services. Students can also arrange such special accommodations in consultation with their instructor, and can be asked to provide medical or other supporting documentation (for example, regarding prenatal or postnatal medical appointments, date of delivery, or confirmation of birth). Denials of special accommodation by an instructor may be appealed to the dean's office of the college of instruction.

c. Students may also request special accommodation with regard to attendance, availability of study materials, and assessment requirements (including of mid-term and final examinations) for religious reasons.

Students must arrange such special accommodations according to stated procedures and deadlines established by the registrar. Instructors must provide mid-term and final examinations for students who are being specially accommodated for religious reasons according to the processes and deadlines established by the registrar.

d. Students who are reservists in the Canadian Armed Forces and are required to attend training courses or military exercises, or deploy for full-time service either domestically or internationally, may be granted special accommodation with regard to attendance, availability of study materials, and assessment requirements (including mid-term and final examinations).

Student must arrange such special accommodations in consultation with their instructor. A signed <u>Student Permission to Travel for University Business</u> form shall be presented in support of any request for special accommodation. Denials of special accommodation may be appealed to the dean's office of the instructor's college.

e. Students shall be granted special accommodation due to participation in activities deemed to be official university business. Such activities are considered an important part of student development and include participation in Huskie Athletics, university fine or performing arts groups, participation at academic conferences, workshops or seminars related to the student's academic work, or like activities. Travel time to and from such activities is also considered official university business.

In the event that such activities create a conflict with class work students shall be granted special accommodation with regard to attendance, availability of study materials, and assessment requirements (including mid-term and final examinations).

Student must arrange such special accommodations in consultation with their instructor. A signed *Student Permission to Travel for University Business* form shall be presented in support of any

request for special accommodation. Denials of special accommodation may be appealed to the dean's office of the instructor's college.

8.10 No Grade Reported (NGR)

In the event that a final grade is not reported by the instructor after an extended period of time, the registrar may assign a placeholder notification of No Grade Reported (NGR) in lieu of a grade. NGR can be listed on a transcript to signify that the class status has changed from 'In Progress' to 'Completed,' but with no grade reported. This placeholder assigns no credit unit weight, final grade status, or average calculator, but is simply a stand-in used by the Registrar until a final grade has been submitted and approved.

9. Procedures for Grade Disputes

9.1 Grade dispute between instructor and department head or dean

In the absence of any other approved mechanism to resolve grade disputes between an instructor and department head, or dean in a non-departmentalized college, the following steps, to be completed in a maximum of twelve business days, shall be followed.

a. Members of each department or college shall agree ahead of time on a conciliation mechanism that the department or non-departmentalized college will follow in the event of a grade dispute.

b. If five business days following the last day of examinations pass and the department head or dean has not approved the grade report for a class due to a dispute with the instructor, the department or non-departmentalized college shall immediately commence the conciliation procedure. The department or college has five business days to complete this conciliation process.

c. If, after five business days the conciliation procedure does not resolve the dispute, the matter shall be immediately referred to the dean, or the provost and vice president (academic) in the case of non-departmentalized colleges, who will set up an arbitration committee within two business days. The committee shall consist of three members: one member nominated by the instructor, one member nominated by the department head, or dean in non-departmentalized colleges, and a chairperson. In the event that one of the parties does not nominate a member, the dean or provost and vice-president (academic) shall do so. All appointees to the arbitration committee should be members of the General Academic Assembly. The chairperson shall be appointed by the mutual agreement of the nominees for the instructor and the department head or, if the two nominees cannot agree, by the dean. In non-departmentalized colleges, the chair will be appointed by the provost and vice-president (academic) if the dean and the instructor cannot agree.

d. Also within two business days of the failure of the conciliation process, the department head, or dean in a non-departmentalized college, must list in writing what material was considered in conciliation. A copy of this list shall be sent to the instructor who must immediately report in writing to the dean, or provost and vice-president (academic) for non-departmentalized colleges, as to the accuracy of the list. Within the same two business days, the department head, or dean in non-departmentalized colleges, and the instructor shall forward written submissions with supporting documents to the dean, or provost and vice-president (academic) in non-departmentalized colleges.

e. Written submissions and all supporting documentation considered in the conciliation (including the list drawn up by the department head, or dean in non-departmentalized colleges), and the response of the instructor, are to be forwarded to the arbitration committee. The committee shall consider only written submissions and all supporting documentation forwarded during their deliberations. To the extent possible, the arbitration committee will use the same relative weighting of final examination and class work as was used by the instructor in arriving at the final grades.

f. The arbitration committee shall be given a maximum of three business days to complete its deliberations and reach a final decision about the disputed marks. The committee can either uphold the disputed marks or assign new marks. Once the committee reaches a final decision a written report which explicitly outlines the rationale for the decision shall immediately be submitted to the registrar, with copies to the dean, department head (if applicable), and instructor. Any grade changes required by the decision shall be submitted by the instructor and approved by the department head, or dean in a non-departmentalized college.

g. If after three business days the arbitration committee has not submitted a final decision about the disputed marks, the dean or provost and vice-president (academic) will be notified as to the reasons for the impasse and the arbitration committee will be have two business days to resolve their differences and come to a final decision.

h. If, after two additional business days, an arbitration committee cannot come to a final decision, the dean, or the provost and vice president (academic) in the case of non-departmentalized colleges, will reach a final decision about the disputed marks based upon the written submissions and supporting documents. The dean, or the provost and vice-president (academic) shall immediately submit a written report which explicitly outlines the rationale for the decision to the registrar, with copies to the dean, department head (if applicable) and instructor. Any grade changes required by the decision shall be submitted by the instructor and approved by the department head, or dean in a non-departmentalized college

i. Once this process is completed, affected students who previously ordered a transcript can contact the registrar whereupon corrected transcripts will be issued free of charge.

9.2 Grade dispute between instructor and student

Students who are dissatisfied with the assessment of their class work or performance in any aspect of class work, including a midterm or final examination, should consult the University Council policy titled <u>Student Appeals or Evaluation</u>, <u>Grading and Academic Standing</u> and the <u>Procedures for Student</u> <u>Appeals in Academic Matters</u>.

The policies describe the process to be followed in appealing the assessment. Appeals based on academic judgment follow a step-by-step process including consultation with the instructor and rereading of written work or re-assessment of non-written work. **Contact Information Contact Person:** University Registrar **Phone:** 306-966-6723

AGENDA ITEM NO: 10.2

UNIVERSITY COUNCIL ACADEMIC PROGRAMS COMMITTEE

REQUEST FOR DECISION

SUBJECT:	Nomenclature Report
DATE OF MEETING:	June 18, 2020
PRESENTED BY:	Susan Detmer; chair, academic programs committee

DECISION REQUESTED:

It is recommended: That Council approve the change to the Nomenclature Report, effective July 1, 2020

PURPOSE:

University Council has the authority to approve changes to academic policies.

CONTEXT AND BACKGROUND:

The Nomenclature Report aims to provide consistent and cohesive language and framework for students, instructors, and administrators to discuss academic programming at all levels throughout the institution. Last revised with Council approval in June 2017, revisions are now being introduced to ensure the Nomenclature Report accurately captures current usage at USask, to ensure current unit names are represented, and to introduce some formatting updates.

Aside from formatting and name changes, the following sections and definitions have been added or changed in the Nomenclature report:

- Section III Student definitions
- Section IV Program definitions
- Section V Course definitions
- Section VI Class definitions
- Section VII Modes of Instruction
- Section XII- Student Record Definitions
- Section XIII Time-period Definitions

CONSULTATION:

The Nomenclature Report was discussed at APC on May 6, 2016 and APC recommended it go to Council for input at its May 21, 2020 meeting. No feedback was received following the May 21, 2010 Council meeting.

FURTHER ACTION REQUIRED:

The Nomenclature Report is a living document that, while offering consistent language relating to academic programming, is adaptable to changing and developing practices and program options at Usask. As changes and innovations occur, the Registrar's office will continue to review and revise this document so that it adequately captures current practice at the institution.

The final Nomenclature Report will be posted on the University of Saskatchewan Policies website (<u>http://policies.usask.ca)</u>.

ATTACHMENTS:

- 1. Nomenclature Report (in mark-up)
- 2. Nomenclature Report (clean)

Attachment 1



Academic and Curricular Nomenclature

Responsibility: University Registrar

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Supplementary Material: Academic Programs Committee at the University of Saskatchewan

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Academic and Curricular Nomenclature

Purpose

The purpose of the University of Saskatchewan Academic and Curricular Nomenclature is to provide a consistent and cohesive language and framework for students, instructors, and administrators to discuss academic programming at all levels throughout the university. Nomenclature defines terms contained in other duly approved University of Saskatchewan policies and procedures and commonly used administrative practices and processes.

Principles

Shared language makes collaboration possible and our nomenclature needs to evolve and be flexible enough to encourage the changes in academic programming that are developing throughout campus. In particular, there is a need to offer compelling, engaging, and challenging academic programs which are creatively designed, are grounded in both global and Indigenous perspectives, utilize new methodologies and approaches, provide future-oriented professional education, and address areas of societal need. Therefore, the terminology in this document has been developed with a focus on facilitating change and creativity in curricular development, providing structure only to ensure quality and fairness. The guiding philosophy of nomenclature is that we can improve our academic programs by clarifying and revising the language we use to communicate across campus.

Authority and Responsibility

Under the bylaws of university council, council prescribes curricula, programs of study, and courses of instruction, and authorizes the establishment of colleges and departments. This responsibility includes the authorization of policies related to curriculum, programs, courses, and academic administrative structures. The <u>Academic Programs Committee of Council</u> is responsible for recommending to council classifications and conventions for instructional programs.

The registrar is responsible for management of registration and student information systems so that academic programs may be administered in an orderly manner. This responsibility includes the development and implementation of definitions for academic and curricular terminology, including coordinating with other university offices to establish common terminology.

Additional definitions relating to university governance and the administration of nomenclature, students and faculty can be found in <u>The University of Saskatchewan Act (1995)</u>, the <u>University Council bylaws</u>, and the USFA <u>Collective Agreement</u>.

SECTION I: ORGANIZATIONAL DEFINITIONS

Academic Unit

The term "academic unit" is used to describe authority over academic programs and student progression. Primarily, these refer to departments, schools, and colleges, but for specific programs the academic authority could be an academic division, a research centre or an interdisciplinary administrative committee. Regardless of the name, it is the structure and purpose of the academic or administrative unit that determines the nomenclature that applies.

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Affiliated College

An educational institution recognized by the University of Saskatchewan as carrying on work of a university level. As described in the bylaws of council, the aim of affiliation is to associate with the university for the purposes of promoting the general advancement of higher education in the province, those institutions which are carrying on work recognized by council as of university grade, where such association is of mutual benefit to the university and the institution seeking affiliation. The colleges affiliated with the University of Saskatchewan are Horizon College and Seminary, Saskatoon; College of Emmanuel and St. Chad, Saskatoon; Gabriel Dumont College, Saskatoon and Prince Albert; Lutheran Theological Seminary, Saskatoon; St. Andrew's College, Saskatoon; St. Peter's College, Muenster; and Briercrest College and Seminary, Caronport, SK.

Board of Governors

A governing unit of the university, with duties and authority described in The University of Saskatchewan Act 1995. The board is responsible for overseeing and directing all matters involving the management, administration and control of the university's property, revenues and financial affairs.

Centre

The university currently hosts a variety of centres, variously known as centres, institutes, units, organizations, <u>or</u> networks, <u>or programs</u>, including incorporated entities. For purposes of this policy, a centre is a formally structured organization which is not a division, department, school or college, but which is established within or in conjunction with the university, for the pursuit or support of: scholarly, artistic, scientific, or technological objectives; teaching; or outreach.

- *Type A Centres* are those that are organizationally part of one college, and report to a dean. These centres involve activities that complement and enhance the work of primarily one college, and could involve multi-disciplinary and multi-faculty work. The activities of the centre should be congruent with approved college plans and would be established with the dean's endorsement and council approval. Responsibility for funding of these centres rests with the college.
- *Type B Centres* are those that involve activities beyond the scope of a single college and/or involve significant resources and will require the endorsement of the deans involved, the appropriate vice-president (usually the vice-president research) and Provost's Committee on Integrated Planning (PCIP)-Advisory Committee (PAC) before seeking the approval of council. These centres are organizationally part of the university and are subject to university management and control, reporting to a designated dean, an executive director that reports to the vice-provost, or an appropriate vice-president (usually the vice-president research).
- *Type C Centres* are incorporated and legally distinct from the university, and which have academic/research implications for the university. These centres must have the authorization of the vice-presidents and secure council approval before being recommended to the Board of Governors. These centres may be either a cooperative relationship involving the sharing of resources, or a landlord-tenant relationship, reflecting the academic interest of the university in

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the centre's activities and recognizing the university's community obligation to promote the greatest community use of its faculties and resources. These centres will report on their academic and research activities to a dean to the extent possible, and/or to an appropriate vice-president. A financial report must also be provided to the vice-president (finance and resources) for the board, and all legal requirements of incorporated entities met.

Type D Centres are legally incorporated entities, established to support the activities of the
university, but which have no academic focus. Such centres may be proposed by a college or
administrative unit, and their establishment would require the approval of the vice-president
finance and resources, <u>PCIPPAC</u>, and the Board of Governors. Type D centres would report on
an annual basis to the vice-president finance and resources and through that office to the board.

Chancellor and Senate

The duties and authority of the chancellor and senate are described in The University of Saskatchewan Act 1995. In general, the chancellor presides at meetings of convocation and senate, and confers degrees. In general, senate is responsible for non-academic student discipline, examination for professional societies, grants honorary degrees, and confirms the decisions of council in the areas of admission requirements, quotas, the disestablishment of departments and colleges, and the dissolution of affiliations.

College

An organizational unit of the university, the faculty council of which is assigned the general responsibility for the development and delivery of programs and courses leading to degrees, certificates, diplomas and other forms of recognition approved by the university and for matters of scholarship and discipline relating to the students enrolled therein.

The dean of a college is an officer of the university with duties and authority described in The University of Saskatchewan Act (1995). The dean is responsible for general supervision over and direction of the work of the college and of the teaching and training of the students of the college. In a non-departmentalized college, the college is also responsible for instruction, research and scholarly work, as described for departments.

Department

An organizational unit of a college, the faculty of which is responsible for the development and delivery of instruction and for carrying out research and scholarly work in a particular subject and/or related subjects.

The head of a department is an officer of the university with duties and authority described in The University of Saskatchewan Act (1995). The department head has general supervision over and direction of the work of the department and shall assign teaching duties to the members of the department following consultation with the department as a whole. The head is also responsible to the dean for the satisfactory performance of the work of the department.

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Division

A division may be an academic division or an administrative division. **Academic divisions** are under the authority of University Council, Senate, and the Board of Governors, and operate much like departments, defining the unit's disciplinary or interdisciplinary approach towards program delivery and research, scholarly and artistic work. Examples of academic divisions include the Division of Nutrition in the College of Pharmacy and Nutrition and the Biomedical Engineering Division in the College of Graduate Studies and Research. Academic divisions operate under the direction of a dean and are often governed by an interdisciplinary committee of faculty members. In contrast to academic divisions, **administrative divisions** do not require oversight by University Council, Senate, or the Board of Governors. These units are organized to facilitate administration of a group of departments, programs, or other specific activity in order to achieve administrative efficiencies.

Faculty

A faculty member is defined in The University of Saskatchewan Act (1995) as a person who serves as a professor, associate professor, assistant professor, lecturer, special lecturer, instructor, or librarian. The act requires full-time employment. However, the bylaws of university council defines as members of a college or school faculty, those professors, associate professors, assistant professors, and full-time lecturers, who are members of departments which, for administrative purposes, are assigned to the dean of that college or the head of that school.

Federated College

An educational institution authorized by the university to offer for university credit, courses in certain subject areas. As described in the bylaws of university council, a federated college must be authorized by the university to give courses recognized for credit toward a Bachelor of Arts degree in the subjects of at least four departments of the College of Arts and Science. The members of the federated college teaching staff, must possess qualifications sufficiently high to be recognized as members of the Faculty of Arts and Science and shall be so recognized, and the college must be situated on or adjacent to the campus at Saskatoon. St. Thomas More College, Saskatoon, is the university's only federated college.

Off-Campus

- *Off-Campus Site* a regional college or other educational institution where students may be admitted to the University of Saskatchewan for one or more years of study. Sites designated are reviewed at regular intervals under a policy that requires, among other things that the site offer classes in humanities, social sciences and sciences so that students can complete at least the first year of studies.
- Off-Campus Class the administration of the class is not through the main university campus (e.g. through a regional college), if the class is not taught in Saskatoon, or if permitted by the registrar. This definition is used in the determination of student fees.
 See also <u>"Off-Campus Class" under Course Definitions.</u>
- Off-Campus Activity refers to university-affiliated activities involving faculty, staff, or students which occurs off of the main university campus. This includes academic activities,

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including fieldwork and all off-campus modes of instruction, and non-academic activities, such as ratified student group events.

• **Off-Campus Graduate Student** – students completing thesis and project requirements are considered to be on-campus unless specifically designated by the registrar for program purposes.

See also "Off-Campus Class" under Course Definitions.

Officers of the University

The authority and duties of the following are described in The University of Saskatchewan Act 1995: president, vice-president and acting president, deans, heads of departments, secretary, and controller. The president is responsible for supervising and directing the academic work of the university, its faculty and student body, and the business affairs of the university.

School

A school may be a university-level or a college-level school. Differences between colleges and university-level schools exist relative to representation on University Council, the appointment of faculty, and the collegial review processes and career progression of faculty within the school.

- The **university-level school** is governed by a faculty council and carries a status that is similar to a college, with the head of the school having a status similar to a Dean. The head of the university-level school is responsible for the school's curriculum, financial affairs and human resource requirements and reports to the Provost and vice-president academic. Faculty associated with the school are assigned through a variety of appointments and are responsible for the general responsibilities assigned to colleges, which include outreach activity, service, research, and the delivery of programs. These programs are most often graduate programs that are interdisciplinary in nature. Examples include: the Johnson-Shoyama Graduate School of Public Policy, the School of Environment and Sustainability, and the School of Public Health.
- The **college-level school** is an academic unit focused on the delivery of programs and courses within a college. These programs may be accredited and prepare their students for particular professional designations. The college-level school carries a status that is similar to a department, with the head of the school reporting to the dean of the associated college. The college-level school may be governed by a faculty council. Examples of college-level schools are the <u>School of Physical TherapySchool of Rehabilitation Science</u> in the College of Medicine, which offers the Master of Physical Therapy and the School of Professional Development in the College of Engineering, which offers the Certificate in Professional Communication.

University Council

A governing unit of the university, with duties and authority described in The University of Saskatchewan Act 1995. In general, council is responsible for overseeing and directing the university's academic affairs. This includes establishment of departments, colleges and programs; affiliations; student discipline for academic offences; admission standards and quotas: scholarships and bursaries;

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examinations; library policies; and advising the board on physical and budgetary plans.

SECTION II: ADMISSION DEFINITIONS

Admission Category

A way to differentiate and compare applicants with similar qualifications (i.e. regular admission, special admission).

Admission Qualifications

These are the credentials that an applicant must present in order to establish eligibility for admission. They include but are not restricted to objective qualifications such as high school subjects, secondary or post-secondary standing, minimum averages, English proficiency, and minimum scores on standardized tests. Qualifications may vary for some admission categories. Colleges may make recommendations to University Council concerning the qualifications for admission to programs offered by the college.

Admission Requirements

These consist of all admission qualifications, selection criteria and administrative processes (such as completion of application form, payment of application fee, adhering to application deadlines) that an applicant must present or complete to be considered.

Provisional Admission

Available to applicants who have attempted less than 18 credit units and are currently in grade 12 or wish to take a course for interest only.

Regular Admission

Applicants who have completed grade 12 and those who are in attendance at, or have attended, other post-secondary institutions.

- *Early Admission* applicants currently completing high school considered based on preliminary high school marks and are admitted with conditions that must be fulfilled by a specified date.
- **Conditional Admission** applicants who have completed grade 12 and those who are in attendance at, or have attended, other post-secondary institutions are considered for admission with partial or incomplete documentation. All conditions must be fulfilled by a specified date.

Residency Regulations for Admission

The required length of residency in Saskatchewan and/or Canada is program specific and is determined by each college, with final approval being conferred by University Senate.

Selection Criteria

These are the means by which a college assesses and ranks its applicants for admission. They include but are not restricted to admission test scores, cut-off averages, interview scores, departmental recommendations, auditions, portfolios, letters of reference, admission essays, definitions of essential

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abilities for professional practice, and the relative weighting to be given to the various requirements. Selection criteria may vary for some admission categories. Colleges may establish specific selection criteria for admission to programs administered by the college, subject to the general qualifications for admission to the university.

Special (Mature) Admission

Available to applicants who do not qualify for regular admission. Most direct-entry colleges consider applicants for special (mature) admission. Applicants must be 21 years of age or older.

SECTION III: STUDENT DEFINITIONS

Audit Student

An individual who is admitted to the University of Saskatchewan in order to sit in a particular course but do not wish to take the course for credit. Audit students are not entitled to have assignments corrected or to write any examinations.

Continuing Student

An individual who is currently registered and not yet graduating in a college or program at the University of Saskatchewan.

Exchange Student

- **Inbound exchange student:** an individual who is admitted to the University of Saskatchewan on the basis of an exchange agreement which enables the student to pay tuition to their home institution, and to register and study at the University of Saskatchewan, with credit transferred back to their home institution.
- **Outbound exchange student:** an individual who is admitted to a host partner institution on the basis of an exchange agreement which enables to student to pay tuition to the University of Saskatchewan, and to register and study at the host institution, with credit transferred back to the University of Saskatchewan.

Full Time Student

A student is defined as being full time if:

- An undergraduate student who registers for 9 or more CUs (Operational and/or Academic CUs) during a regular term or 4 or more CUs in a spring or summer term.
- <u>A non-degree student who registers for 9 or more **non-degree level** CUs (Operational and/or Academic CUs) during a regular term or 4 or more CUs in a spring or summer term.</u>
- A graduate student who registers for 6 or more CUs (Operational and/or Academic CUs) during a regular term or spring and summer term; or who is designated as having full time status by the College of Graduate Studies and Research.

Commented [SW1]: Per the College of Agriculture and Bioresources. All of our non-degree programs use the same number of out to define full and part-time status. The only difference is that non-degree programs utilize non-degree cu.

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• A student who does not meet the above requirements but is deemed to be full time by the university secretary or registrar. Examples include certain <u>Access and EquityDSS</u> students, elected USSU representatives or the editor of the Sheaf.

Graduate Student

An individual who has been admitted to the College of Graduate Studies and Research.

Internal Transfer Student

An individual who is currently studying or who most recently attended the University of Saskatchewan and wants to apply to a different college or program within the University of Saskatchewan. An internal transfer student may apply part way through their studies or they may have already graduated. Applicants who have attended another post-secondary institution after the University of Saskatchewan would then be designated as transfer students.

New Student

An individual that has never attended any post-secondary institution prior to attending the University of Saskatchewan.

Non-Degree Certificate/Diploma Student

An individual who is enrolled in <u>non-degree level</u> courses, <u>eg. courses that are</u> not accepted for credit in a degree program. The topics covered by these students may be similar to topics covered by degree students but the distinguishing features are normally differences in the breadth and depth of understanding required for successful completion.

Part-Time Student

Any student who does not meet the criteria of full time student as defined above.

Postdoctoral Fellow (PDF)

An individual with a doctoral degree (PhD or equivalent) completing defined research mentored by a faculty member over a specified time period.

Probationary Student

An individual who has not met the required minimum admission average or has been required to discontinue multiple times. Admission is at the discretion of the college.

Student in Good Standing

The term "good standing" describes a student who has met the requirements of their program, as defined in the Course and Program Catalogue, and who may proceed in their course of study. A student is considered in good standing if they are not currently the subject of a suspension, an expulsion, or a faculty action, such as being required to discontinue (RTD).

Provisional Student

An individual who has attempted less than 18 credit units and is currently in grade 12 or wishes to take a

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course for interest only. Provisional admission is valid for one academic year and allows the completion of a maximum of 12 credit units.

Returning Student

An individual who has previously studied at the University of Saskatchewan and is applying to return to the same college they last attended, without having attending another recognized post-secondary institution during that time. Students may re-apply after an absence from their studies or they may have already graduated.

Special (Mature) Student

An individual who is 21 years of age or older, has attempted less than 18 credit units of post-secondary studies and does not meet the requirements for regular admission.

Transfer Student

An individual who has studied at another post-secondary institution prior to studying at the University of Saskatchewan. A transfer student may apply part way through studies at a post-secondary institution, or they may have already graduated.

Undergraduate Student

An individual who is registered in a degree level course(s) offered by a school or college other than the College of Graduate Studies and Research.

Visiting Student

An individual who is admitted to the University of Saskatchewan, with the purpose of receiving credit <u>for course work or research</u> at their home institute. Visiting students <u>are normally assessed tuition and</u> <u>student fees</u>, may be undergraduate or graduate, and they may be here through an established agreement or through a letter of permission.

Visiting Research Student

An individual who has been admitted to the University of Saskatchewan as an undergraduate or graduate student for the purpose of engaging in an approved plan of research with a faculty supervisor. Visiting research students are not assessed tuition, will not be enrolled in any credit course work, and are registered at the university for a period not exceeding six12 months in anyper 1218 month period.

Year in Program

This designation is attached to a student record for individuals working toward a degree-level <u>qualification eertification</u>. It signifies the progress a student has made towards the program requirements and has an effect on administrative process (e.g. assigned registration windows).

SECTION IV: PROGRAM DEFINITIONS

Academic Program Type

A prescribed set of requirements related to fields of study within a program.

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Commented [WS2]: Per University Council October 19, 2017 and Senate October 21, 2017

Certificates and Diplomas

The terminology of "certificate" and "diploma" is used both for degree-level (undergraduate and graduate) programs and for non-degree-level programs.

• **Degree Level Certificate** Under the authority of council and the Academic Programs Committee, these certificates signify the completion of a recognized program of degree-level courses and imply the attainment of a degree-level standard of proficiency, achievement, or promotion. <u>These programs are entirely comprised of degree-level courses, numbered from 100 – 999. See Appendix One below for details on course level numbering.-Undergraduate programs in this category include certificates, post-degree certificates, post-degree specialization certificates; graduate programs in this category include certificates. These programs may be completed alongside a degree program, or as a stand-alone program.</u>

Undergraduate Programs

- Certificates
- Post-Degree Certificates
- Post-Degree Specialization Certificates

Graduate Programs

- o <u>Graduate</u> Certificates
- Postgraduate Specialization Certificates
- **Degree Level Diploma** Under the authority of council and the Academic Programs Committee, these programs include are entirely comprised of degree-level courses, and completion implies the attainment of a university-level standard of achievement which is fully transferable into certain undergraduate degree-level programs. See Appendix One below for details on course level numbering
- Non-Degree Level Certificate These programs are approved by the vice-president academic & provost following consultation with the registrar and the Academic Programs Committee. This term is used to signify the successful completion of a course or program of courses appropriate for post-secondary training but not classified as degree-level courses. <u>Generally, these programs are entirely comprised of non-degree level courses numbered from 010-099</u>. The topics covered in these courses may be similar to topics covered in degree-level courses, but the distinguishing features are normally differences in the breadth and depth of understanding required for successful completion. Implies the attainment of a standard of proficiency, achievement or promotion appropriate for post-secondary training. Non-degree level certificates not under the authority of a college shall fall under the authority of an identified administrative unit.
- *Community Level Certificate* These programs are approved by the vice-provost, teaching and learning or the dean of a college, after consultation with the provost & vice-president (academic). This term is used to certify satisfactory attendance at a community-level, non-academic course or

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program of courses sponsored by vice-provost, teaching and learning or a college at the university. It does not imply attainment of a standard of proficiency, achievement or promotion, and these programs are entirely comprised of non-academic courses numbered 001-009.

Combined Degree

The terms "combined degree" or "second degree" are used by colleges to describe two degree programs containing courses which may be counted toward the requirements of both degrees, so that a student can achieve both degrees in less time than if the programs were taken separately. This can involve the awarding of more than one degree or the creation of a new degree entity.

Community Level Program

These programs lead to community level certificates which are available to the general public. They are comprised of a single course or program of courses, usually numbered 001 to 009, which are non-academic, not accepted for credit toward any certificate or degree, and not listed on transcripts.

Degree Level Program

Approved by council, these programs lead to a specific academic credential, such as a degree, diploma, or degree level certificate at this university.

- Undergraduate Level Program a program of courses numbered 100 to 699 and other educational experiences intended for students at the university undergraduate level, for example, <u>a-(bachelor degree). Undergraduate level programs are also described in the following ways:</u>
 - *Direct-Entry*: undergraduate programs which admit students with high-school level preparation.
 - *Non-Direct Entry*: undergraduate programs which admit students only after one or more years of university-level preparation.
 - ← Professional: programs which are designed to ensure that students will qualify to receive professional certification from a professional body or association in addition to their degree. Professional certification bodies usually specify course requirements and graduation standards expected. The U of S offers the following professional doctorates at the undergraduate level: Doctor of Dental Medicine (D.M.D.); Doctor of Medicine (M.D.); Juris Doctor (J.D.); Doctor of Pharmacy (Pharm.D.); Doctor of Veterinary Medicine (D.V.M.).
- Graduate Level Program a program of courses numbered 700 to 999 and educational experiences intended for students at the graduate level (post-graduate diploma, for example, a master's degree and or a Ph.D. degree). Graduate level programs are also described in the following ways:
 - Direct-Entry <u>Ph.D.</u>: direct-entry Ph.D. programs at the graduate level allow students to be admitted to a Ph.D. program without having been admitted to a master's program.

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- <u>Non-Direct Entry Ph.D.</u>: non-direct entry Ph.D. programs require completion of a master's degree before admission.
- **Professional Doctorate**: a professionally-focused doctoral program at the graduate level designed for working professionals and oriented toward practice and leadership, for example, the Doctor of Education (Ed.D.) in Educational Leadership.

Depth of Study

In undergraduate programs, several depths of study in a field of study are recognized.

- Minor (18-24 CUs) is a depth of study which prescribes a minimum number of courses in one or more related fields of study and which may require the student to maintain a specific scholastic standing in these courses. In contrast to degree-level certificates, a minor may or may not include the completion of a capstone course. Cross-college minors are governed by policies and procedures outlined in the "Adoption and Oversight of Cross College Minors" document, approved by University Council in 2007. Cross-college minors are comprised of courses from more than one college. Authority for cross-college minors is distributed as follows:
 - *Adopting College* the college responsible for the degree program to which the minor is attached.
 - *Resource Unit* may be a college, department, school or interdisciplinary group, which provides the majority of resources for the cross-college minor and is the academic unit with primary expertise for a field of study.
 - *Resource College* the resource unit, in the event that it is a department or interdisciplinary group, will reside within an identified resource college.
- *Major* (>24CUs) is a depth of study which prescribes a significant number of courses in one or more related fields of study and usually requires the student to maintain a specific scholastic standing in these courses. Colleges offering majors with less than 24 credit units must complete the Consultation with the Registrar Form and obtain Academic Programs Committee approval. Exceptions outside of the credit unit values can be approved only by the Academic Programs Committee.
- *Honours* (>42CUs) is a depth of study which prescribes a high number of courses in one or more related fields of study and which always requires the student to maintain a high scholastic standing in these courses (double honours is also permitted as a type of honours program.)
- *Concentration* is a depth of study which prescribes a suite of courses that provides students additional expertise and specialized training in one aspect of their major within a degree program. <u>Concentrations may not be paired with certificates and diplomas</u>. Typically, a concentration will be similar in requirement to a minor, but the majority of coursework will

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occur within the student's major field of study rather than outside of it. A concentration cannot be completed as a stand-alone program, independent of the student's major field of study. Other formats of concentration are possible such as, for example, the Business Cooperative Education Program.

Colleges have developed a variety of terms for concentrations (*option, specialization within a major, themes, streams, focus,* etc.). It is possible (within technical limitations) to have the concentrations appear on the transcript, but these terms collectively are referred to and displayed as "concentrations". While the connotation of "option" varies across academic units, it is necessary to have a single term to describe this level of study, and concentration is the simplest and most descriptive at the university/information systems level.

The first three depths of study within a field of study always appear on university transcripts. Concentrations may also appear on the transcript, provided that the proposed concentration is consistent with Canadian university general practices and/or acknowledged and desirable for professional organizations and accreditation and is feasible within the technical limitations of the transcript's reporting system. Consultation with the registrar and Academic Programs Committee must be performed for new concentrations to appear on transcripts.

Discipline

Academic areas of study, research and scholarly work are described at many universities as "disciplines" and terms like "disciplinary", "interdisciplinary" and so forth are used worldwide. In considering descriptive terminology for programs and curriculum at the U of S, however, the term "field of study", as defined below, is a more inclusive term to describe student programs.

Dual Degree Program

A program where a student pursues a degree both at the University of Saskatchewan and another postsecondary institution with whom an agreement is established, with the student receiving two degrees at the end of the program, one from the U of S and one from the partner institution. The U of S parchment and transcript reflects the dual nature of the program. The degree can be at the undergraduate or graduate level.

• **Cotutelle Program:** A Cotutelle program is a type of dual degree program, where a doctoral student is jointly supervised by two supervisors, each from a different university, and, the student alternates time between the two universities. The student writes one thesis, under the supervision of an advisory committee comprised of members from both universities, and if successful, the student receives two degrees, each recognized by both universities. However, while the dual degree program is an agreement between two programs at two institutions, a Cotutelle program is an agreement tailored to an individual student studying at two institutions.

Field of Study

A field of study requires completion of a number of prescribed courses in a specific subject or discipline. Programs may permit several fields of study. The number of fields of study identified for a student may be limited by policy or practical considerations. In colleges with many fields of study, it is often convenient to group them by program type. For example, the College of Arts and Science defines three

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program types within the Bachelor of Arts programs and one program type within the Bachelor of Science program; the College of Education types its programs as secondary, and elementary/middle years. Within a program or program type, the student usually is required to complete a particular field of study. See also "Teaching Areas".

Interdisciplinary Program

An interdisciplinary program is a field of study which permits students to study beyond the boundaries of traditional disciplines, to explore the relationships among disciplines in depth, and to integrate knowledge gained into a central theme. It may be cross-departmental or cross-college in nature.

Joint Degree Program

A student pursues a degree<u>-level program</u> at both the University of Saskatchewan and another postsecondary institution with whom an agreement is established. The student will receive only one degree at the end of the program jointly awarded by both institutions, with the parchment issued either from the University of Saskatchewan or from the partner institution. The parchment and transcript reflect the joint nature of the program. The <u>degreeprogram</u> can be at the undergraduate or graduate level.

Non-Degree Programs

These programs lead to non-degree level certificates. These programs consist of courses which are generally numbered between 010 and 099. In some degree-level programs, these courses are treated as cognate courses or can be used towards the completion of a degree-level program

Program

A generally defined set of courses and other requirements described in the catalogue, which the student must successfully complete to obtain a specific degree, certificate or diploma or other recognized qualification. Programs are offered at four educational levels: community, non-degree level, undergraduate, and graduate levels. See also Appendix: Course level numbering.

Program Options

Within the general requirements of a particular program, many colleges provide one or more program options, which identify a specific set of courses and other requirements. Program options may be identified by program type, field of study, depth of study, thesis/non-thesis, and work experience. In graduate programs, a program may have a research option (thesis or project) or a non-research option (course based). Work experience is a program option used to identify a prescribed course or group of courses and associated requirements that provide university-recognized work experience (e.g. Business Co-operative Education Program, internship) in a program.

Residency Regulations for Degree Completion

Residency regulations for degree completion are determined by each college. In some cases, residency refers to a certain number of University of Saskatchewan credit units to be completed toward a program of study. These credit units may be completed online, by distance, or in-person, but must be awarded by the University of Saskatchewan. In other cases, residency refers specifically to the length of time a student must be physically present at the University of Saskatchewan while completing <u>their his/her</u> program of study.

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Teaching Areas

Similar to fields of study, teaching areas require the completion of a number of prescribed courses in a specific subject or discipline. Teaching areas, however, are specific to the Bachelor of Education (B.Ed.) and the Bachelor of Music (B.Mus.(Mus.Ed.)) degree programs. As defined by University Course Challenge (September 2011), teaching areas represent disciplinary fields developed by the Saskatchewan Ministry of Education in order to align with the Saskatchewan pre-kindergarten to grade twelve curriculum areas.

Work Experience Program Options

- **Professional Internship Program** is a supervised, <u>paid</u> practical training period for a student, usually endorsed by a professional association or accreditation body.
- <u>Cooperative Education Program</u> is a program which allows a student to combine academic study with work experience by combining terms on campus with terms working full-time in a job related to the field of study. <u>Students in cCo-operative programs are generally paid.</u>
- **Practicum Programs** are designed to give students supervised practical application of previously studied theory. These are generally extensions of a particular course and are generally not paid.

SECTION V: COURSE DEFINITIONS

Course

A unit of study in a subject area defined by a course description, title, and number in the Course and Program Catalogue. This unit of subject material is normally presented over a term to students in one or more registered classes. The smallest formally recognized academic unit of the curriculum is the course - a unit of study in a subject area identified by a description of activities.

Course Authority

Each course label is normally under the administrative authority of one academic unit. Control and management of course labels are delegated to the registrar, but authority for label association with specific courses remains with APC/council. Three types of authority can be defined for each course:

- *Resource authority*: provision of teaching resources for the course
- *Content authority*: determining what should be taught in the course. This is the authority that will be listed in the student information system. It is often referred to as academic authority. This authority includes such areas as grade approval.
- *Administrative authority*: administration of the course when it is taught, including such areas as times and location of classes, class maintenance and dealing with student complaints.

For most courses, all three types of authority are held within a single department or college (in the case of non-departmentalized colleges). For interdisciplinary courses the three types of authority can be spread over several departments, colleges, or other units.

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A course label is a subject area identifier (four alphabetic characters) and the course number (numeric). An academic department or college or interdisciplinary program may offer courses titled with several course labels. Each course label should be under the administrative authority of one academic unit or an identified administrative unit for courses in non-degree level certificates not under the authority of a college.

Cognate Courses

The practice of allowing students credit for a course from another department. For example, biology allows students to take several agriculture courses for credit towards a major in biology.

Corequisite Courses

A course or other requirement that must be taken at the same time as the course being described.

Course and Class Titles

Effective communication should be the primary consideration when determining appropriate titles. Course titles appear in the Course and Program Catalogue and class titles are listed on transcripts. As such, titles should reflect educational content and should not include administrative details like credit units, etc. Short titles must be limited to 30 characters in length so they can reasonably appear on transcripts and in the student information system and long titles should be no longer than 100 characters.

Course Numbers

Course numbers are used according to the conventional practices established by the university for course numbering, as adapted by each college within the academic structure of its programs.

Consistent with the usual university practice, colleges and departments may develop their own numbering schemes in consultation with the registrar for new and revised courses, based on numbers available, the level of study required, and on the order in which they want to have their courses appear in the catalogue. Frequent renumbering should be avoided if possible, as it causes administrative complexity and results in confusion for students. Please see Appendix: Course Level Numbering.

Course numbering will usually follow the conventional practice as described below and shown in the course levels chart.

- *Community level courses*: The numbers 01-09 are used for tracking membership in community-level classes and are not used for university credit towards a degree, diploma, or certificate.
- *Non-Degree courses*: The numbers 010-099 are used for courses developed for non-degree level programs.
- Undergraduate courses: The numbers 100-109 are used for general introductory courses which are not usually acceptable as a preparation for more advanced work in the subject area. In some specialized cases, 200-level courses may be considered introductory courses.

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Commented [WS3]: Renumbering within the same level has becoming very time-consuming for RS, SIS, and the colleges. Frequent number changes can make it harder for students to follow catalogue requirements, and can make registration more complex.

The numbers 110-199 are used for courses that introduce a subject area and which could serve as prerequisite to senior-level courses in that subject. These are often referred to as junior undergraduate courses. Usually these are taught in direct-entry programs.

Courses numbered 200-699 are also referred to as senior undergraduate courses, including courses in the first year of a non-direct-entry program. These numbers are used for courses that offer advanced study in a subject area. Some post-baccalaureate certificates requirements are comprised of 500 level courses (e.g. Special Education Certificate). 200-level courses usually have 100-level prerequisites, while 300-level and 400-level courses often have 200-level prerequisites. While 300- and 400-level courses are usually taken in the third and fourth years of a program, they need not be numbered according to the year-in-program in which the student completes them.

• *Graduate courses*: The numbers from 700 to 999 are used for graduate-level courses. The 800 series is usually for senior graduate courses which require undergraduate degree completion. The 900 series has been reserved for graduate research and seminar courses.

Consistent with the above scheme, colleges and departments may develop their own numbering schemes in consultation with the registrar for new and revised courses, based on numbers available and on the order in which they want to have their courses appear in the catalogue. The numbers x98 and x99 are reserved by the university for special topics courses, 990 for graduate level seminar requirements, 992 for masters level project-based program requirements, 994 for masters level thesis-based program requirements, and 996 for PhD level thesis requirements. After a course is deleted, that course number cannot be reused for a different course for a minimum of ten years. This avoids confusion for students in registration and transcripts.

Double-Counting or Multiple-Counting of Courses

Applying credit from one course toward more than one degree requirement.

Double-Listing or Cross-Listing of Courses in the Catalogue

The terms "double-listing" and "cross-listing" have been used to describe a variety of academic course delivery methods, but in this document, they are defined as following:

Academic Cross-Listing

Components of two different courses of different levels (often 400 and 800) which are taught by the same instructor in the same location at the same time. For example, sometimes two courses will be scheduled to share lectures, laboratories, or seminars. In this circumstance, the course requirements for completion of each course are different.

Administrative Cross-Listing

Refers to the practice of creating multiple sections for one class in order to facilitate reserved seating for two or more groups of students or other administrative purposes. For example, a class may require a certain number of seats to be allocated to students in several different colleges. This can be accomplished by creating several different sections and administratively cross-listing the sections back into a single class.

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Commented [WS4]: This is a repeat of above

• Double-Listing

The practice of offering a single course under two different course labels with the course requirements for successful completion being the same for all enrolled students. <u>This involves</u> <u>the two course labels using the same grading mode</u>. Typically, double listing is reserved for circumstances involving professional accreditation. The practice relies upon the coordination of multiple offices and is therefore more complex and time-consuming to administer. Historically, double-listing has hindered registration and it should continue to be used as a last resort. Please refer to the policy section for guidelines in the use of double-listing of courses. Proposed double-listings should be circulated through the Course Challenge Process and submitted to Academic Programs Committee for approval.

The following guidelines apply to double listings:

- Once a student has completed the course then that course label is the one for which they receive credit. However, equivalencies for double listed courses would apply in the event of program changes.
- The course must be delivered with the same credit units and level for both course labels. Double-listing of an undergraduate-level course with a graduate-level course is not allowed.
- It must be explicitly stated in the Course and Program Catalogue and on the syllabus that it is a double listed course.
- Content resource and administrative authority for the double listed course should be clearly explained and each authority must track back to a single unit. By default these authorities would reside with the unit of the faculty member who is delivering that section of the course.

Elective Courses

An elective course is one chosen by a student from a number of courses in a curriculum, as opposed to a required course which the student must take.

Equivalent Courses

Courses that are deemed to possess equivalent content such that they are considered to be interchangeable across all programs, and students may receive credit for only one of the courses. Equivalent status must be honoured by both or all colleges involved.

Moribund Courses

A moribund course is one that has not been taught in the previous 48 months. Moribund courses will be retained in the course archive for an additional 48 months and then will be deleted. A moribund course does not appear in the catalogue but can still be activated for registration.

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Mutually-Exclusive Course

Courses that are not entirely equivalent to each other, but possess similar or overlapping content. Students may receive credit for only one of the courses deemed to be mutually-exclusive. However, in contrast to the status of equivalent courses, the mutually-exclusive status is program-dependent and therefore does not automatically apply across all programs. Mutually-exclusive status must be honoured by both or all colleges involved.

Placeholder Course

Placeholder courses are <u>normally</u> created for administrative purposes, <u>normally-often</u> to allow students access to university services such as the library and the Physical Activity Complex. These courses may be listed on transcripts, but they do not signify the attainment of academic credit. Placeholder subject codes normally begin with the letter "X." Final authority for the technical setup or adjustment of placeholder courses rests with the Registrar.

Practicum Courses

At the University of Saskatchewan, a practicum is usually a course in which a student works part-time in a workplace for a specified number of hours per week. However, the term is used widely in undergraduate and graduate education to describe all kinds of work-based learning experiences from single courses to lengthy clinical practice experience. <u>Practicum courses are generally unpaid</u>.

Prerequisite Courses

A course or other requirement that must be satisfactorily completed before enrolment will be permitted into an advanced or succeeding course.

Required Courses

A course that all students following a particular program of studies are required to take.

Selected Topics Courses

Regular course offerings approved by University Course Challenge that allow for the subject of offering to change at the discretion of the Instructor. Typically, these courses are approved with a general topic area, for example, "Topics in Literary and Cultural Theory".

Special Topics Courses

These courses are offered on a special case basis, to allow colleges and schools some latitude in course offerings in special circumstances. These courses must be approved by the faculty of the college responsible for the course, forwarded to APC and the Registrar's Office for information, and should be numbered 298, 398, 498, 598, 898 or 299, 399, 499, 599, or 899. Special Topics courses are not normally used to substitute for required courses in a program. Please see the Special Topics Policy for further information.

Subject Codes

A code that most accurately and comprehensively represents the subject matter being taught in the course(s). Most subject codes consist of 4 characters. Courses are identified on transcripts and the Course and Program Catalogue by subject codes, so effective communication should be the primary

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consideration when determining subject codes. After a subject code has been expired, it cannot be repurposed for different subject matter. This ensures the integrity of academic history records.

Interdisciplinary use of Subject Codes

New subject codes are initiated by colleges and approved by the registrar. Approval involves assigning authority for each subject code to a specific department or academic unit within the college of ownership. After approval by the registrar, the college and academic unit/departmental ownership is recorded in the student information system. A college may permit the use of a subject code under its authority by another academic unit for a specific course or courses, with the secondary unit then having administrative, content and/or resource authority for this specific course. This arrangement requires the agreement of the college authority and is contingent upon consultation with the registrar and the approval of APC via the course challenge process. This arrangement would allow for specific classes to be delivered and administered by faculty from another academic unit (a different resource authority), which is important and desirable for both inter- and multi-disciplinary programs. This would mirror the cross-college minor system where both colleges must agree to the minor for it to be delivered.

SECTION VI: CLASS DEFINITIONS

Class

While "course" is used to identify subject matter, "class" is used to refer to the offering of a course to one or more students within a term for a specific period of time.

Class Scheduling for Common Components

Components of two different courses can be taught in common – for example, sometimes two courses will be scheduled to share lectures, laboratories, or seminars. In this circumstance, the course requirements for completion of each course are different.

Registered Class

When a group of one or more students register in a course under the general direction of a particular instructor(s) at a given time. Each class requires an assigned academic instructor. A registered class may consist of one or more instructional units. Registered classes are defined by the label of the course under study and a registered class section number <u>or and</u> by the term and course reference number attached to the class.

Off-Campus Class

Classes are defined as on-campus or off-campus for various reasons, including <u>for the</u> assessment of fees. An off-campus class is usually a class offered though a Regional College, at a Saskatchewan Polytechnic campus, or by an affiliated college such as Gabriel Dumont College. Off-campus classes are those offered completely, or almost completely, outside of Saskatoon city limits; those not held at the University of Saskatchewan Prince Albert campus; those designated as web-based; those offered through another institution that assesses its own student fees (eg. Saskatchewan Polytechnic or a regional or affiliated college), or those as designated by the Registrar. See also "off-campus" under organizational definitions. All web based classes are considered off-campus. Occasionally, if an

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affiliated college is offering a class at the Saskatoon campus, these would still be considered as "offeampus" classes for the purposes of student fee assessment. Such classes are offered at a number of locations throughout the province. They are taught by instructors approved by the university's academic departments. See also "Off-campus" under organizational definitions.

Section Numbers

1

1

Classes are identified by section numbers which may contain a prefix indicating the delivery mode or other information. Prefix codes are as follows:

Α	Taught as a mixture of delivery modes at off campus sites (multi-mode)
С	Taught in person at off-campus sites
Е	Taught through or for a contracting agency
G	Sponsored by a government agency
L	Laboratory
Ν	College of Nursing class
Р	Practicum
R	Taught in Regina (used by JSGS)
S	Seminar
Т	Tutorial
U	University sponsored classes not taught through U of S
V	Television deliver mode at off-campus sites
W	Online or web-based deliver mode
Х	Independent Studies deliver mode

Section number without delivery mode codes are 2 characters in length (eg: Section 21 or Section 03). Section number with embedded delivery mode codes are 3 characters in length (eg: Section L01 or Section W21). Certain number ranges also are reserved to help identify various administrative functions of the class:

01-29	General Use – On Campus
30-49	General Use – Off Campus
50-59	*Reserved
60-67	STM Classes
68-69	*NORTEPReserved
70-75	Outbound Exchange
76-79	USLC Classes
80-83	SUNTEP (Saskatoon)
84-85	SUNTEP (PA)
86-87	ITEP (Elementary)
88-89	ITEP (Secondary)
90	*Reserved

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91-95	Aboriginal Student Achievement Program
96-99	St Peter's College

SECTION VII: MODES OF INSTRUCTION

Schedule Types

The following types of instruction are offered in various classes (all schedule types are gradable and appear on transcripts unless otherwise noted).

- Clinical Service (CL) and Teacher Supervision (SUP) an instructional unit in which the students are required to meet with instructors for scheduled instructional periods to perform a professional service while receiving instruction. Examples are clinical classes in the Health Sciences and Student Teaching in Education. Instruction is typically provided on a one-to-one basis or to very small groups of students.
- <u>Co-op Work Experience/Internship</u> (COO, IN1, IN2, IN3) the portion of an instructional unit which comprises the counseling and on-going monitoring contact in a paid-work experience class. Only the number of instructor hours for the scheduled supervision by a campus instructor should be reported. See Work Experience Program options.
- Internship (IN1, IN2, IN3) the portion of an instructional unit which comprises the counseling and on-going monitoring contact in a paid work experience class. Only the number of instructor hours for the scheduled supervision by a campus instructor should be reported. See Work Experience Program options.
- **Field Study (FST)** Field study/fieldwork refers to activities conducted for the purpose of research, teaching, or study, and are undertaken by students of the university at any "off-campus" workplace where the standard operating procedures of the university would not apply.
- **Independent Studies (IND)** A class offered by a department utilizing non-face to face and non-web based methods of instruction.
- Individual Research/Reading (RES or RDG) included in this category are individual research, reading and other studies or projects in which each student works independently under the direction and supervision of an assigned instructor(s). The student and instructor usually meet on an "as required" basis. Since the number of hours spent by the student and the number of hours of instruction given by the instructor cannot be determined, only the number of students enrolled in the activity are recorded.
- Laboratory (LAB) an instructional unit in which the instructor is responsible for instructing, preparing and supervising student investigations, experiments, practicum experiences, etc., usually requiring the use of special equipment or facilities (non-gradable). Laboratory examinations are not centrally scheduled, nor are they gradable or listed on transcripts.

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- Lecture (LEC) an instructional unit in which the instructor is responsible for preparing and presenting the course material.
- **Multimode (MM)** an instructional unit in which the instructor uses a combination of instruction types in a way which makes a breakdown by specific instruction type difficult.
- **Practicum (PRA)** an instructional unit in which the instructor is responsible for instructing, preparing and supervising student investigations, experiments, practicum experiences, etc., usually requiring the use of special equipment or facilities. <u>Practicums are generally unpaid. See Work Experience Program options.</u>
- Seminar (SEM) an instructional unit in which the students usually share some of the responsibility for preparing and presenting course topics. It may include more discussion types of interaction between instructor and students.
- Supervised Self-Instruction (SSI) an instructional unit in which instructors are scheduled to be available for instruction and supervision of a group of students engaged in solving problem assignments; in using programmed or automated instructional materials; or in other supervised activities. A room or facility may be scheduled for this activity. However, the extent to which the individual student takes advantage of the facility or opportunity to meet with the instructor is not known. Problem labs are an example of SSI. The number of students attending each class may vary; therefore assign maximum enrolment limits as an average number in attendance (can be both gradable and non-gradable).
- **Tutorial (TUT)** a mechanism to review in class materials and content with greater student interaction between instructor and students outside of the central lecture <u>(non-gradable)</u>. <u>Tutorial</u> examinations are not centrally scheduled, nor are they gradable or listed on transcripts.
- Web-Based (WEB) A class where either the entire class or a <u>significant</u> majority of the class is presented to students with a web tool.

Instructional Activity Codes

Abbreviations are used to describe instruction type and modes of delivery.

IND	Independent Studies
LIVE	Live Face to Face
MULTI	Multimode
PRINT	Print Based
TELE	Televised
WEB	Web Based
XHIGH	High School (Admin Only)
XINA	Instructional Mode Not Applicable

SECTION VIII: CREDIT UNITS AND BILLING HOURS

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Academic Credit Units

Academic credit units (CU) define the amount of credit awarded for successful completion of a course and are displayed on the transcript or, in the case of transfer credit, of study elsewhere. A frequent criterion used in judging credit units would be the expected student effort in the course. Hours of instruction are also a component of this value with a course requiring approximately 330-39 instructional course hours of lecture per 3 credit units. Courses may be offered with any whole number of credit units. The use of fractional credit units is discouraged, due to administrative complexity.

Courses offered to meet requirements for a non-degree level diploma or certificate will have courses with <u>non-degree level</u> credit units at the non-degree level, in contrast to degree-level classes with degree-level credit units, attached to them. Non-degree level credit units are attached to courses appropriate for post-secondary training but not classified as degree-level courses. Non-degree level courses are numbered 010 - 099. The value of these non-degree level credit units compared to degree-level credit units is established by the college concerned.

Operational Credit Units

For administrative purposes, courses often carry "operational" credit units, rather than academic credit units. While the course <u>may will</u> be listed on transcripts with 0 credit units, the operational credit unit weight of the class are used to determine a student's full or part time status; control the number of classes a student may register in for a term (maximum credit units); determine a student's loan eligibility; determine eligibility for full or part time months for T2202A processing.

Billing Hour Units

The billing hour (BH) unit applied to a class is used in the calculation of tuition and student fees.

SECTION IX: TRANSFER CREDIT DEFINITIONS

Articulation

A process by which institutions assess learning acquired elsewhere in order that credit toward their own credential may be provided. Articulation is based on faculty decisions and established institutional principles, policies and procedures. It acknowledges the missions of different types of institutions and the quality and integrity of their programs. Transfer credit is the result of the articulation process.

Block Transfer

The process of granting of credit for a group of completed courses from one institution to another without requiring course-by-course assessment. An example would be granting a block of 30 to 60 transfer credits for a completed postsecondary diploma at a recognized institution. Block transfer credit assessments establish and recognize that certificate, diploma, and other program graduates possess the knowledge, skills and abilities necessary to succeed in upper-year courses at the receiving institution.

Course-by-Course Transfer

The process of granting credit for a course (or courses) from one institution to another by completing a comparison of course content and learning outcomes for each individual course. Credit may be awarded

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for a specific U of S course (or courses), non-specific credit for a subject area, or an elective at the junior-level, senior-level, or unspecified-level.

Laddering

Seamless movement of a student between certificate, diploma, and degree studies with no or limited loss of coursework. Typically a student would complete two years in a diploma program and then move into a degree program, completing their studies in an additional two years.

Learning Outcomes

The knowledge, skills, competencies, and abilities that a student has attained and is able to demonstrate as a result of successfully completing a particular set of educational experiences.

Learning Pathways

Different routes that individuals choose to progress into, within, and out of the post-secondary education system. Learning pathways are used to describe the recognized mobility options available to different learners.

Mobility

The ability to move freely from one jurisdiction to another and to gain entry into an academic institution, trade or profession or to participate in a learning experience without undue obstacles or hindrances.

Recognized Post-Secondary Institution

A public or private institution that has been given authority to grant degrees, diplomas, certificates, and other formal credentials by competent authorities within the country or that is widely accepted by other institutions and organizations inside and/or outside the country. Examples that designate an institution as such include a public or private act of the provincial/territorial legislature, a government-mandated quality assurance mechanism, or a national accrediting body.

Transfer Credit (Credit Transfer)

Transfer credit refers to a course or courses taken at one post-secondary institution (the sending institution) that are transferred to another postsecondary institution for credit (the receiving institution). Transfer credit is sometimes also called credit transfer or advanced standing. The U of S accepts, for transfer of credit, courses from accredited institutions in Canada and internationally. The purpose of transfer credit is to give students fair and reasonable credit for academic work which has been completed at another institution and to reduce the likelihood of a student repeating academic work for which there has already been a demonstrated competence.

SECTION X: STUDY ABROAD DEFINITIONS

Cotutelle Agreement

The agreement required to establish a Cotutelle program. Please see "Cotutelle program" under program definitions.

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Dual Degree Program

Please see "dual degree program" under program definitions.

Independent Study Abroad

A credit-based education abroad activity initiated and arranged by the student with the home institution, and recognized by establishing an independent leaning course or the granting of transfer credit.

Internship Abroad Program

A supervised work-placement abroad where the primary motivation is educational. Internships may be credit or non-credit, and paid-or unpaid.and are usually paid.

Joint Degree Program

The agreement required to establish a joint degree program. Please see "joint degree program" under program definitions.

Student Exchange Program

A Student Exchange is a program of study whereby partner institutions establish a reciprocal agreement which enables students to pay tuition at their home institution and to register and study at the host partner institution, with credit transferred back to the home institution. <u>Student fees are collected by the host institution</u>. The typical duration of an exchange is one or two terms.

Taught Abroad Course/Program

A short-term credit-based activity, involving a group of students taking one or two University of Saskatchewan courses abroad, under the supervision of a University of Saskatchewan faculty member.

Term Abroad Program

A one term group program abroad with a prescribed course of study offered by an institution such that the student obtains home-institution credit.

Visiting Student Program

A program of study either formally established through an agreement or through a letter of permission, enabling a student to attend the University of Saskatchewan, with credit transferred back to their home institution. Tuition and student fees are is paid to the University of Saskatchewan.

Visiting Research Student Program

A program of study whereby an undergraduate or graduate student is admitted to the University of Saskatchewan for the purpose of engaging in an approved plan of research with a faculty supervisor. Visiting research students are not assessed tuition, and are registered at the university for a period not exceeding <u>twelvesix</u>-months.

SECTION XI: MOBILITY AGREEMENT DEFINITIONS

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Block Transfer Agreements

A type of block transfer credit agreement between the U of S and another academic institution which allows a student to complete 1, 2 or 3 years at the sending institution and the balance of coursework at the U of S. This type of agreement goes beyond a basic transfer credit agreement because it specifies that the completion of specific courses, or completion of a specific credential, will fulfill the requirements of a particular program at the U of S. Students would receive their final credential from the U of S. Some examples of these agreements include, but are not limited to: 2+2, 1+3 and 3+1.

Consortium

A network to which the university is a member, along with other universities or institutions with the objective of facilitating student mobility (eg. TASSEP, CALDO, MICEFA).

Dual Degree Agreement

The agreement required to establish a dual degree program. The agreement required to establish a Dual Degree Program.

Home Institution

The institution in which a student is formally enrolled and is expected to graduate from.

Host Institution

The institution which has agreed to accept a student from the home institution for a limited period of study.

Joint Degree Agreement

The agreement required to establish a Joint Degree Program.

MOU (Memorandum of Understanding)

A non-legally binding umbrella agreement that provides a framework for collaborative activities between international partners. This agreement has also commonly been referred to as a "handshake agreement" or "parent agreement." This agreement is often the beginning of a formal relationship between two institutions.

Student Exchange Agreement

A reciprocal agreement which allows for the exchange of students where students pay tuition at their home institution and study at the host partner institution, with credit transferred back to the home institution. These agreements can be university wide or restricted to specific colleges, departments or levels of study.

Transfer Credit Agreement (Articulation Agreement)

An agreement between two institutions that authorizes studies completed at one institution to be credited toward studies taken at another institution. Transfer credit agreements can be bilateral (with each institution agreeing to recognize the other's courses) or unilateral. Transfer credit can be recognized course-by-course or as a block transfer credit.

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Academic and Curricular Nomenclature

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Visiting Student Agreement

An agreement established between two universities that allows students from the home institution to attend the host institution as a visiting student.

STUDENT XII: STUDENT RECORD DEFINITIONS

Student Record

The student record holds the program and course information related to a specific student. It will typically contain information related to the specific classes, sections, and sessionsterms.

Qualification

The qualification is the degree, diploma, or certificate awarded to the student, which may be accompanied by an indication of distinction (Distinction, Great Distinction, Honors, or High Honours).

Transcript

The transcript is the official and unabridged version of a student's educational record at the University of Saskatchewan provided to the student and at the student's request to third parties. <u>Transcripts are a complete listing of a student's educational record up until the day the transcript is produced</u>. The transcript shows the label, title, class, term and result for each course in which a student was registered past the add/drop deadline. It also records such information as faculty actions, suspensions, expulsions, transfer credits, and qualifications and distinctions. The nature, extent and format of information that appears on the transcript are determined by the registrar in accordance with national and international professional standards, normal practice in higher education, and practical systems. An official transcript is one issued directly to another agency or institution and bearing the seal of the University of Saskatchewan and the signature of the registrar. The seal and the signature may be in electronic form in accordance with the university's signing policy.

The nature, extent and format of information that appears on the transcript are determined by the registrar and university secretary in accordance with national and international professional standards, normal practice in higher education, and practical systems.

Co-Curricular Record

The Co-Curricular Record (CCR) is a personalized and official record of university-approved and facilitated activities in which students have been involved outside of regular academic course work. This document can be used to further employment and educational goals.

Parchment

The parchment is a legal document issued by the University of Saskatchewan, that confirms the recipient has successfully completed a specific program and confers an academic qualification. The parchment displays the University of Saskatchewan seal, at minimum the signatures of the university president, university chancellor, university secretary, dean of the college with academic authority for the program,

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and the date, degree, and major (or program in the case of the College of Graduate Studies and Research) where appropriate.

The nature, extent and format of information that appears on the <u>transcript the parchment</u> are determined by the registrar and university secretary in accordance with national and international professional standards, normal practice in higher education, and practical systems.

SECTION XIII: TIME-PERIOD DEFINITIONS

Academic Calendar

A listing of the dates of major academic events or deadlines for the academic calendar year.

Academic Calendar Catalogue Year

A twelve month time period beginning May 1st of each year around which admission procedures and curricular changes are organized. Students are generally expected to complete the program requirements approved for the academic calendar year in which they were admitted. As such, program changes and new programs are typically implemented with an effective date of May 1st. The degree audit system evaluates each student's progress toward program completion based upon <u>their his/her</u> designated academic calendar year.

Academic Year

A twelve-month period beginning on July 1st of each year. This is the usual time period used for academic appointments in the hiring and promotion of faculty.

Final Exam Period Definitions

Fall term: The examination period begins on the first day following the last day of instruction and goes no later than December 23^{rd} .

Winter term: The examination period begins the first day following the last day of instruction and goes no later than April 30th.

Spring & summer: The examination periods for spring and summer include the two days following the last day of instruction after each quarter and the 3 days following the last day of instruction after each term.

- **Deferred examinations**: A deferred examination is the sitting of a final examination at a time other than the scheduled time and date <u>of the final examination</u>. A deferred examination may be granted to a student who is not able to complete a final examination through no fault of <u>their</u> <u>his/her</u> own, for <u>medical</u>, <u>compassionate</u>, <u>or other valid reasonsserious personal circumstances</u>. These examinations are <u>granted-approved and granted</u> under regulations established by the college and subject to the Academic Courses Policy.
- Supplemental examinations: A supplemental examination is the re-writing of a final examination. These examinations are approved and granted under regulations established by the college A student may be granted a supplemental examination under regulations established by

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the college and subject to the Academic Courses Policy.

• Special deferred and special supplemental examinations: the college may, under extenuating circumstances, <u>approve and grant</u> a special deferred or supplemental examination to a student who submits satisfactory evidence of inability to be present at the <u>scheduled</u> deferred or supplemental examination under regulations established <u>by the college and</u> the Academic Courses Policy_and the college.

Fiscal Year

The fiscal year for the university runs from May 1 to April 30 as defined in The University Act (1995).

Instructional cycle and instructional periods

For fall and winter term standard day period lecture classes:

- 50 minute instructional periods starting half-past the hour, on the instructional cycle every Monday, Wednesday and Friday; or 75 minute instructional periods starting at 0830, 1000, 1130, 1300 or 1430, on the instructional cycle every Tuesday and Thursday;
- Edwards School of Business (ESB) offers Monday/Wednesday classes on a 75 minute instructional period AND the current instruction period and instruction cycle does not capture the delivery of MBA and MPAce classes

For fall and winter term standard evening period lecture classes:

• 150 minute instructional periods, on the instructional cycle of one evening per week;

For fall and winter term standard Saturday lecture classes: • 150 minute instructional period starting at 0900 or 13000

For spring and summer terms lecture classes:

• Presently these are usually taught for about two instructional hours per day (110 minutes), five days per week, but this can vary depending on the course requirements.

Classes can be offered in any day or night standard instructional period except Sundays.

Instructional period

A scheduled period of time in which a group of students participate in a particular type of instructional activity (laboratory, lecture, discussion, etc.) related to a specific subject.

- *Day period* an instructional period currently between 0730 and 1730 hours.
- *Evening period* an instructional period currently between 1730 and 2200 hours.

Classes on campus can be held from 0730 - 2230 using standard time blocks as defined by the registrar. Colleges using non-standard time blocks need the approval of the registrar.

Term

A period of time defined in the Academic Calendar, for which a course for credit may be offered. Terms

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Academic and Curricular Nomenclature

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are identified by the year and the month of when they occur (e.g. 201609 is September of 20016). Each term usually allows for a minimum of 33 instructional period hours of instruction per term. For graduate students, the year is divided into graduate term one, graduate term two and graduate term three.

- *Fall and winter (fall term 1 and winter term 2)* each term usually allows for 13 weeks of instruction followed by the examination period. Fall term 1 runs from September to December and term 2 runs January to April. Some professional colleges have longer fall and/or winter terms, and different start and end times.
- Spring and summer (spring term 1 and summer term 2) these two terms begin in mid-May and end in mid-August. Instructional periods and times differ from those in the fall and winter. Spring term 1 runs through May and June and is split into quarter 1 and quarter 2. Summer term 2 runs through July and August and is split into quarter 3 and quarter 4.
- *Irregular terms* some programs have longer terms, and different start and end times. Several colleges deviate from this terminology for example, for graduate students, the year is divided into graduate term 1, graduate term 2, and graduate term 3, while Veterinary Medicine divides its instructional sessions into "Quarters".

Graduation Term

The term in which a student has completed all necessary degreeprogram requirements in order to be eligible for convocation. Please note the following:

- Completion of all degreeprogram requirements in the Summer Term (07) determines a student's eligibility for convocation at the Fall Convocation Ceremony.
- <u>Completion of all degreeprogram requirements in the Winter Term (01) determines a student's</u> eligibility for convocation at the Spring Convocation Ceremony.

Quarter

A division of the university academic year composed of half a term.

SECTION XIV: UNIVERSITY CATALOGUE DEFINITIONS AND STANDARDS

University Catalogue

Formerly known as the University Calendar, the <u>The</u> University Catalogue is the University of Saskatchewan's official source of course and program information, academic calendar dates, tuition and fee information; registration and admissions policies; promotion, graduation and grading standards; and other information and services. The University Catalogue includes the Course and Program Catalogue; Academic Calendar; tuition and fee information; registration and admissions policies. Not all University of Saskatchewan policies and regulations are contained within this University Catalogue. For the most current and complete information about matters outlined in the University Catalogue, contact the relevant academic or administrative unit.

The contents of the University Catalogue are subject to continuing review and revision. The courses listed in the Course and Program Catalogue are not necessarily offered each year. The University of Saskatchewan reserves the right to remove, change or amend, at any time and without notice, the

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information contained in the University Catalogue, including its programs, course offerings, fee structure, policies and regulations.

The University of Saskatchewan is not liable to any person who may suffer any loss or damage of any type arising from the use of or reliance upon any information contained in the University Catalogue, any action of the University of Saskatchewan in regard to the University Catalogue, including but not limited to any amendment, addition or withdrawal to or from the information provided, or any inability to access any information contained in the University Catalogue for any reason whatsoever including technical or administrative difficulties

Catalogue Format for Programs

All programs shown in the catalogue should list all degree requirements, including specified and elective courses, required averages for graduation, and any other requirements.

Catalogue Format for Courses

The format for presenting consistent course information in all formats includes:

1) the course label (consisting of a subject code of 4 characters and a 3 digit numeric code)

- 2) the full title of the course (in English)
- 3) the course academic credit unit value

4) prerequisites (course(s) that must be completed prior to the start of the course for which registration is occurring), corequisites (course(s) that must be taken at the same time as the course for which

registration is occurring), permissions and restrictions if any

5) course description of 150 words or less

6) additional information about transferability, duplication, or loss of credit

Title, label, and credit unit value identify the courses used to meet requirements for graduate and undergraduate degrees. Typically credit units are attached to these courses. Courses offered to meet either degree or certificate requirements follow the same identification system as degree-level courses.

Appendix One: Course Level Numbering

Educational	Course	General Description of Courses Numbered
Level	Level	in this Range
Community	001-009	Courses or groups of courses intended for the general public

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Non-Degree Non- University		010-089	Courses intended primarily for Non-university level programs. These are appropriate for post-secondary training and may have content similar to degree-level courses, but do not have the breadth or depth of understanding.
Upper Level Non-Degree		090-099	Courses which do not require the matriculation level preparation generally required by most Universities as a necessary prerequisite for a first year undergraduate level course in the subject. In particular, this series of course numbers are used when a department also offers a junior level course in a subject for students with matriculation level 30 preparation (identified by a 100 series number). Students should be advised that courses numbered in the 90 series <u>may not</u> be accepted for credit toward a degree in some programs at this or another University and therefore should check course descriptions and program requirements carefully.
University Degree-Level	Undergraduate Junior Level	100-109	General introductory courses usually not intended as preparation for more advanced study in the subject but are designed to acquaint the student with a field of knowledge in which they do not propose to concentrate. Students should be advised that these courses may not be accepted as prerequisites for advanced undergraduate study in the subject or as adequate preparation for entry into some programs and should therefore check course descriptions and program requirements carefully.
Educational Level		Course Level	General Description of Courses Numbered in this Range
University Degree-Level	Undergraduate Junior Level	110-199	All other courses offered for junior undergraduate level credit. These courses are usually accepted toward meeting introductory-level program requirements and are usually used as prerequisites to senior-level courses.

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University Degree-Level	Undergraduate Senior Level	200-699	Courses intended for an advanced level of study. In some non-direct entry programs, the first digit will indicate the year of the program for which the course has been designed. For example, first year program courses will usually be numbered 200-299, second year program courses 300-399, etc. Post-Baccalaureate Certificate programs would typically use 500-699 course numbers.
University Degree-Level	Graduate Junior Level	700-799	A graduate course which has a significant amount of content on the undergraduate level should be numbered on the 700 level. A 700-level designation does not suggest that students taking the course are unprepared for the program in which they are registered; it only indicates that they lack the normally expected undergraduate preparation in the subject area of the course itself.
University Degree-Level	Graduate Senior Level	800-899	A course which may be taken only by students who have completed the undergraduate level preparation generally expected for a graduate level course in the subject.
		990-999	Graduate Seminars, Projects, Theses, Exhibitions

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Attachment 2



Academic and Curricular Nomenclature

Responsibility: University Registrar

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Supplementary Material: Academic Programs Committee at the University of Saskatchewan

Purpose

The purpose of the University of Saskatchewan Academic and Curricular Nomenclature is to provide a consistent and cohesive language and framework for students, instructors, and administrators to discuss academic programming at all levels throughout the university. Nomenclature defines terms contained in other duly approved University of Saskatchewan policies and procedures and commonly used administrative practices and processes.

Principles

Shared language makes collaboration possible and our nomenclature needs to evolve and be flexible enough to encourage the changes in academic programming that are developing throughout campus. In particular, there is a need to offer compelling, engaging, and challenging academic programs which are creatively designed, are grounded in both global and Indigenous perspectives, utilize new methodologies and approaches, provide future-oriented professional education, and address areas of societal need. Therefore, the terminology in this document has been developed with a focus on facilitating change and creativity in curricular development, providing structure only to ensure quality and fairness. The guiding philosophy of nomenclature is that we can improve our academic programs by clarifying and revising the language we use to communicate across campus.

Authority and Responsibility

Under the bylaws of university council, council prescribes curricula, programs of study, and courses of instruction, and authorizes the establishment of colleges and departments. This responsibility includes the authorization of policies related to curriculum, programs, courses, and academic administrative structures. The <u>Academic Programs Committee of Council</u> is responsible for recommending to council classifications and conventions for instructional programs.

The registrar is responsible for management of registration and student information systems so that academic programs may be administered in an orderly manner. This responsibility includes the development and implementation of definitions for academic and curricular terminology, including coordinating with other university offices to establish common terminology.

Additional definitions relating to university governance and the administration of nomenclature, students and faculty can be found in <u>The University of Saskatchewan Act (1995)</u>, the <u>University Council bylaws</u>, and the USFA <u>Collective Agreement</u>.

SECTION I: ORGANIZATIONAL DEFINITIONS

Academic Unit

The term "academic unit" is used to describe authority over academic programs and student progression. Primarily, these refer to departments, schools, and colleges, but for specific programs the academic authority could be an academic division, a research centre or an interdisciplinary administrative committee. Regardless of the name, it is the structure and purpose of the academic or administrative unit that determines the nomenclature that applies.

Affiliated College

An educational institution recognized by the University of Saskatchewan as carrying on work of a university level. As described in the bylaws of council, the aim of affiliation is to associate with the university for the purposes of promoting the general advancement of higher education in the province, those institutions which are carrying on work recognized by council as of university grade, where such association is of mutual benefit to the university and the institution seeking affiliation. The colleges affiliated with the University of Saskatchewan are Horizon College and Seminary, Saskatoon; College of Emmanuel and St. Chad, Saskatoon; Gabriel Dumont College, Saskatoon and Prince Albert; Lutheran Theological Seminary, Saskatoon; St. Andrew's College, Saskatoon; St. Peter's College, Muenster; and Briercrest College and Seminary, Caronport, SK.

Board of Governors

A governing unit of the university, with duties and authority described in The University of Saskatchewan Act 1995. The board is responsible for overseeing and directing all matters involving the management, administration and control of the university's property, revenues and financial affairs.

Centre

The university currently hosts a variety of centres, variously known as centres, institutes, units, organizations, or networks, including incorporated entities. For purposes of this policy, a centre is a formally structured organization which is not a division, department, school or college, but which is established within or in conjunction with the university, for the pursuit or support of: scholarly, artistic, scientific, or technological objectives; teaching; or outreach.

- *Type A Centres* are those that are organizationally part of one college, and report to a dean. These centres involve activities that complement and enhance the work of primarily one college, and could involve multi-disciplinary and multi-faculty work. The activities of the centre should be congruent with approved college plans and would be established with the dean's endorsement and council approval. Responsibility for funding of these centres rests with the college.
- *Type B Centres* are those that involve activities beyond the scope of a single college and/or involve significant resources and will require the endorsement of the deans involved, the appropriate vice-president (usually the vice-president research) and Provost's Advisory Committee (PAC) before seeking the approval of council. These centres are organizationally part of the university and are subject to university management and control, reporting to a designated dean, an executive director that reports to the vice-provost, or an appropriate vice-president (usually the vice-president research).
- *Type C Centres* are incorporated and legally distinct from the university, and which have academic/research implications for the university. These centres must have the authorization of the vice-presidents and secure council approval before being recommended to the Board of Governors. These centres may be either a cooperative relationship involving the sharing of resources, or a landlord-tenant relationship, reflecting the academic interest of the university in

the centre's activities and recognizing the university's community obligation to promote the greatest community use of its faculties and resources. These centres will report on their academic and research activities to a dean to the extent possible, and/or to an appropriate vice-president. A financial report must also be provided to the vice-president (finance and resources) for the board, and all legal requirements of incorporated entities met.

• *Type D Centres* are legally incorporated entities, established to support the activities of the university, but which have no academic focus. Such centres may be proposed by a college or administrative unit, and their establishment would require the approval of the vice-president finance and resources, PAC, and the Board of Governors. Type D centres would report on an annual basis to the vice-president finance and resources and through that office to the board.

Chancellor and Senate

The duties and authority of the chancellor and senate are described in The University of Saskatchewan Act 1995. In general, the chancellor presides at meetings of convocation and senate, and confers degrees. In general, senate is responsible for non-academic student discipline, examination for professional societies, grants honorary degrees, and confirms the decisions of council in the areas of admission requirements, quotas, the disestablishment of departments and colleges, and the dissolution of affiliations.

College

An organizational unit of the university, the faculty council of which is assigned the general responsibility for the development and delivery of programs and courses leading to degrees, certificates, diplomas and other forms of recognition approved by the university and for matters of scholarship and discipline relating to the students enrolled therein.

The dean of a college is an officer of the university with duties and authority described in The University of Saskatchewan Act (1995). The dean is responsible for general supervision over and direction of the work of the college and of the teaching and training of the students of the college. In a non-departmentalized college, the college is also responsible for instruction, research and scholarly work, as described for departments.

Department

An organizational unit of a college, the faculty of which is responsible for the development and delivery of instruction and for carrying out research and scholarly work in a particular subject and/or related subjects.

The head of a department is an officer of the university with duties and authority described in The University of Saskatchewan Act (1995). The department head has general supervision over and direction of the work of the department and shall assign teaching duties to the members of the department following consultation with the department as a whole. The head is also responsible to the dean for the satisfactory performance of the work of the department.



Division

A division may be an academic division or an administrative division. **Academic divisions** are under the authority of University Council, Senate, and the Board of Governors, and operate much like departments, defining the unit's disciplinary or interdisciplinary approach towards program delivery and research, scholarly and artistic work. Examples of academic divisions include the Division of Nutrition in the College of Pharmacy and Nutrition and the Biomedical Engineering Division in the College of Graduate Studies and Research. Academic divisions operate under the direction of a dean and are often governed by an interdisciplinary committee of faculty members. In contrast to academic divisions, **administrative divisions** do not require oversight by University Council, Senate, or the Board of Governors. These units are organized to facilitate administration of a group of departments, programs, or other specific activity in order to achieve administrative efficiencies.

Faculty

A faculty member is defined in The University of Saskatchewan Act (1995) as a person who serves as a professor, associate professor, assistant professor, lecturer, special lecturer, instructor, or librarian. The act requires full-time employment. However, the bylaws of university council defines as members of a college or school faculty, those professors, associate professors, assistant professors, and full-time lecturers, who are members of departments which, for administrative purposes, are assigned to the dean of that college or the head of that school.

Federated College

An educational institution authorized by the university to offer for university credit, courses in certain subject areas. As described in the bylaws of university council, a federated college must be authorized by the university to give courses recognized for credit toward a Bachelor of Arts degree in the subjects of at least four departments of the College of Arts and Science. The members of the federated college teaching staff, must possess qualifications sufficiently high to be recognized as members of the Faculty of Arts and Science and shall be so recognized, and the college must be situated on or adjacent to the campus at Saskatoon. St. Thomas More College, Saskatoon, is the university's only federated college.

Off-Campus

- *Off-Campus Site* a regional college or other educational institution where students may be admitted to the University of Saskatchewan for one or more years of study. Sites designated are reviewed at regular intervals under a policy that requires, among other things that the site offer classes in humanities, social sciences and sciences so that students can complete at least the first year of studies.
- *Off-Campus Class* the administration of the class is not through the main university campus (e.g. through a regional college), if the class is not taught in Saskatoon, or if permitted by the registrar. This definition is used in the determination of student fees. See also "Off-Campus Class" under Course Definitions.
- *Off-Campus Activity* refers to university-affiliated activities involving faculty, staff, or students which occurs off of the main university campus. This includes academic activities,

including fieldwork and all off-campus modes of instruction, and non-academic activities, such as ratified student group events.

• *Off-Campus Graduate Student* – students completing thesis and project requirements are considered to be on-campus unless specifically designated by the registrar for program purposes.

Officers of the University

The authority and duties of the following are described in The University of Saskatchewan Act 1995: president, vice-president and acting president, deans, heads of departments, secretary, and controller. The president is responsible for supervising and directing the academic work of the university, its faculty and student body, and the business affairs of the university.

School

A school may be a university-level or a college-level school. Differences between colleges and university-level schools exist relative to representation on University Council, the appointment of faculty, and the collegial review processes and career progression of faculty within the school.

- The **university-level school** is governed by a faculty council and carries a status that is similar to a college, with the head of the school having a status similar to a Dean. The head of the university-level school is responsible for the school's curriculum, financial affairs and human resource requirements and reports to the Provost and vice-president academic. Faculty associated with the school are assigned through a variety of appointments and are responsible for the general responsibilities assigned to colleges, which include outreach activity, service, research, and the delivery of programs. These programs are most often graduate programs that are interdisciplinary in nature. Examples include: the Johnson-Shoyama Graduate School of Public Policy, the School of Environment and Sustainability, and the School of Public Health.
- The **college-level school** is an academic unit focused on the delivery of programs and courses within a college. These programs may be accredited and prepare their students for particular professional designations. The college-level school carries a status that is similar to a department, with the head of the school reporting to the dean of the associated college. The college-level school may be governed by a faculty council. Examples of college-level schools are the School of Rehabilitation Science in the College of Medicine, which offers the Master of Physical Therapy and the School of Professional Development in the College of Engineering, which offers the Certificate in Professional Communication.

University Council

A governing unit of the university, with duties and authority described in The University of Saskatchewan Act 1995. In general, council is responsible for overseeing and directing the university's academic affairs. This includes establishment of departments, colleges and programs; affiliations; student discipline for academic offences; admission standards and quotas: scholarships and bursaries;



examinations; library policies; and advising the board on physical and budgetary plans.

SECTION II: ADMISSION DEFINITIONS

Admission Category

A way to differentiate and compare applicants with similar qualifications (i.e. regular admission, special admission).

Admission Qualifications

These are the credentials that an applicant must present in order to establish eligibility for admission. They include but are not restricted to objective qualifications such as high school subjects, secondary or post-secondary standing, minimum averages, English proficiency, and minimum scores on standardized tests. Qualifications may vary for some admission categories. Colleges may make recommendations to University Council concerning the qualifications for admission to programs offered by the college.

Admission Requirements

These consist of all admission qualifications, selection criteria and administrative processes (such as completion of application form, payment of application fee, adhering to application deadlines) that an applicant must present or complete to be considered.

Provisional Admission

Available to applicants who have attempted less than 18 credit units and are currently in grade 12 or wish to take a course for interest only.

Regular Admission

Applicants who have completed grade 12 and those who are in attendance at, or have attended, other post-secondary institutions.

- *Early Admission* applicants currently completing high school considered based on preliminary high school marks and are admitted with conditions that must be fulfilled by a specified date.
- *Conditional Admission* applicants who have completed grade 12 and those who are in attendance at, or have attended, other post-secondary institutions are considered for admission with partial or incomplete documentation. All conditions must be fulfilled by a specified date.

Residency Regulations for Admission

The required length of residency in Saskatchewan and/or Canada is program specific and is determined by each college, with final approval being conferred by University Senate.

Selection Criteria

These are the means by which a college assesses and ranks its applicants for admission. They include but are not restricted to admission test scores, cut-off averages, interview scores, departmental recommendations, auditions, portfolios, letters of reference, admission essays, definitions of essential abilities for professional practice, and the relative weighting to be given to the various requirements. Selection criteria may vary for some admission categories. Colleges may establish specific selection criteria for admission to programs administered by the college, subject to the general qualifications for admission to the university.

Special (Mature) Admission

Available to applicants who do not qualify for regular admission. Most direct-entry colleges consider applicants for special (mature) admission. Applicants must be 21 years of age or older.

SECTION III: STUDENT DEFINITIONS

Audit Student

An individual who is admitted to the University of Saskatchewan in order to sit in a particular course but do not wish to take the course for credit. Audit students are not entitled to have assignments corrected or to write any examinations.

Continuing Student

An individual who is currently registered and not yet graduating in a college or program at the University of Saskatchewan.

Exchange Student

- **Inbound exchange student:** an individual who is admitted to the University of Saskatchewan on the basis of an exchange agreement which enables the student to pay tuition to their home institution, and to register and study at the University of Saskatchewan, with credit transferred back to their home institution.
- **Outbound exchange student:** an individual who is admitted to a host partner institution on the basis of an exchange agreement which enables to student to pay tuition to the University of Saskatchewan, and to register and study at the host institution, with credit transferred back to the University of Saskatchewan.

Full Time Student

A student is defined as being full time if:

- An undergraduate student who registers for 9 or more CUs (Operational and/or Academic CUs) during a regular term or 4 or more CUs in a spring or summer term.
- A non-degree student who registers for 9 or more **non-degree level** CUs (Operational and/or Academic CUs) during a regular term or 4 or more CUs in a spring or summer term.
- A graduate student who registers for 6 or more CUs (Operational and/or Academic CUs) during a regular term or spring and summer term; or who is designated as having full time status by the College of Graduate Studies and Research.

• A student who does not meet the above requirements but is deemed to be full time by the university secretary or registrar. Examples include certain Access and Equity students, elected USSU representatives or the editor of the Sheaf.

Graduate Student

An individual who has been admitted to the College of Graduate Studies and Research.

Internal Transfer Student

An individual who is currently studying or who most recently attended the University of Saskatchewan and wants to apply to a different college or program within the University of Saskatchewan. An internal transfer student may apply part way through their studies or they may have already graduated. Applicants who have attended another post-secondary institution after the University of Saskatchewan would then be designated as transfer students.

New Student

An individual that has never attended any post-secondary institution prior to attending the University of Saskatchewan.

Non-Degree Certificate/Diploma Student

An individual who is enrolled in non-degree level courses, eg. courses that are not accepted for credit in a degree program. The topics covered by these students may be similar to topics covered by degree students but the distinguishing features are normally differences in the breadth and depth of understanding required for successful completion.

Part-Time Student

Any student who does not meet the criteria of full time student as defined above.

Postdoctoral Fellow (PDF)

An individual with a doctoral degree (PhD or equivalent) completing defined research mentored by a faculty member over a specified time period.

Probationary Student

An individual who has not met the required minimum admission average or has been required to discontinue multiple times. Admission is at the discretion of the college.

Student in Good Standing

The term "good standing" describes a student who has met the requirements of their program, as defined in the Course and Program Catalogue, and who may proceed in their course of study. A student is considered in good standing if they are not currently the subject of a suspension, an expulsion, or a faculty action, such as being required to discontinue (RTD).

Provisional Student

An individual who has attempted less than 18 credit units and is currently in grade 12 or wishes to take a



course for interest only. Provisional admission is valid for one academic year and allows the completion of a maximum of 12 credit units.

Returning Student

An individual who has previously studied at the University of Saskatchewan and is applying to return to the same college they last attended, without having attending another recognized post-secondary institution during that time. Students may re-apply after an absence from their studies or they may have already graduated.

Special (Mature) Student

An individual who is 21 years of age or older, has attempted less than 18 credit units of post-secondary studies and does not meet the requirements for regular admission.

Transfer Student

An individual who has studied at another post-secondary institution prior to studying at the University of Saskatchewan. A transfer student may apply part way through studies at a post-secondary institution, or they may have already graduated.

Undergraduate Student

An individual who is registered in a degree level course(s) offered by a school or college other than the College of Graduate Studies and Research.

Visiting Student

An individual who is admitted to the University of Saskatchewan, with the purpose of receiving credit for course work or research at their home institute. Visiting students are normally assessed tuition and student fees, may be undergraduate or graduate, and they may be here through an established agreement or through a letter of permission.

Visiting Research Student

An individual who has been admitted to the University of Saskatchewan as an undergraduate or graduate student for the purpose of engaging in an approved plan of research with a faculty supervisor. Visiting research students are not assessed tuition, will not be enrolled in any credit course work, and are registered at the university for a period not exceeding 12 months per 18 month period.

Year in Program

This designation is attached to a student record for individuals working toward a degree-level qualification. It signifies the progress a student has made towards the program requirements and has an effect on administrative process (e.g. assigned registration windows).

SECTION IV: PROGRAM DEFINITIONS

Academic Program Type

A prescribed set of requirements related to fields of study within a program.

Certificates and Diplomas

The terminology of "certificate" and "diploma" is used both for degree-level (undergraduate and graduate) programs and for non-degree-level programs.

• **Degree Level Certificate** Under the authority of council and the Academic Programs Committee, these certificates signify the completion of a recognized program of degree-level courses and imply the attainment of a degree-level standard of proficiency, achievement, or promotion. These programs are entirely comprised of degree-level courses, numbered from 100 – 999. See Appendix One below for details on course level numbering. Undergraduate programs in this category include certificates, post-degree certificates, post-degree specialization certificates; graduate programs in this category include certificates, and postgraduate specialization certificates. These programs may be completed alongside a degree program, or as a stand-alone program.

Undergraduate Programs

- Certificates
- Post-Degree Certificates
- Post-Degree Specialization Certificates

Graduate Programs

- Graduate Certificates
- Postgraduate Specialization Certificates
- **Degree Level Diploma** Under the authority of council and the Academic Programs Committee, these programs are entirely comprised of degree-level courses, and completion implies the attainment of a university-level standard of achievement which is fully transferable into certain undergraduate degree-level programs. See Appendix One below for details on course level numbering
- *Non-Degree Level Certificate* These programs are approved by the vice-president academic & provost following consultation with the registrar and the Academic Programs Committee. This term is used to signify the successful completion of a program of courses appropriate for post-secondary training but not classified as degree-level courses. Generally, these programs are entirely comprised of non-degree level courses numbered from 010-099. The topics covered in these courses may be similar to topics covered in degree-level courses, but the distinguishing features are normally differences in the breadth and depth of understanding required for successful completion. Implies the attainment of a standard of proficiency, achievement or promotion appropriate for post-secondary training. Non-degree level certificates not under the authority of a college shall fall under the authority of an identified administrative unit.
- *Community Level Certificate* These programs are approved by the vice-provost, teaching and learning or the dean of a college, after consultation with the provost & vice-president (academic). This term is used to certify satisfactory attendance at a community-level, non-academic course or

program of courses sponsored by vice-provost, teaching and learning or a college at the university. It does not imply attainment of a standard of proficiency, achievement or promotion, and these programs are entirely comprised of non-academic courses numbered 001-009.

Combined Degree

The terms "combined degree" or "second degree" are used by colleges to describe two degree programs containing courses which may be counted toward the requirements of both degrees, so that a student can achieve both degrees in less time than if the programs were taken separately. This can involve the awarding of more than one degree or the creation of a new degree entity.

Community Level Program

These programs lead to community level certificates which are available to the general public. They are comprised of a single course or program of courses, usually numbered 001 to 009, which are non-academic, not accepted for credit toward any certificate or degree, and not listed on transcripts.

Degree Level Program

Approved by council, these programs lead to a specific academic credential, such as a degree, diploma, or degree level certificate at this university.

- Undergraduate Level Program a program of courses numbered 100 to 699 and other educational experiences intended for students at the university undergraduate level, for example, abachelor degree. Undergraduate level programs are also described in the following ways:
 - *Direct-Entry*: undergraduate programs which admit students with high-school level preparation.
 - *Non-Direct Entry*: undergraduate programs which admit students only after one or more years of university-level preparation.

Professional: programs which are designed to ensure that students will qualify to receive professional certification from a professional body or association in addition to their degree. Professional certification bodies usually specify course requirements and graduation standards expected. The U of S offers the following professional doctorates at the undergraduate level: Doctor of Dental Medicine (D.M.D.); Doctor of Medicine (M.D.); Juris Doctor (J.D.); Doctor of Pharmacy (Pharm.D.); Doctor of Veterinary Medicine (D.V.M.).

- *Graduate Level Program* a program of courses numbered 700 to 999 and educational experiences intended for students at the graduate level for example, a master's degree or a Ph.D. degree. Graduate level programs are also described in the following ways:
 - *Direct-Entry Ph.D.*: direct-entry Ph.D. programs at the graduate level allow students to be admitted to a Ph.D. program without having been admitted to a master's program.
 - *Non-Direct Entry Ph.D*.: non-direct entry Ph.D. programs require completion of a master's degree before admission.

• *Professional Doctorate*: a professionally-focused doctoral program at the graduate level designed for working professionals and oriented toward practice and leadership, for example, the Doctor of Education (Ed.D.) in Educational Leadership.

Depth of Study

In undergraduate programs, several depths of study in a field of study are recognized.

- *Minor* (18-24 CUs) is a depth of study which prescribes a minimum number of courses in one or more related fields of study and which may require the student to maintain a specific scholastic standing in these courses. In contrast to degree-level certificates, a minor may or may not include the completion of a capstone course. Cross-college minors are governed by policies and procedures outlined in the "Adoption and Oversight of Cross College Minors" document, approved by University Council in 2007. Cross-college minors are comprised of courses from more than one college. Authority for cross-college minors is distributed as follows:
 - *Adopting College* the college responsible for the degree program to which the minor is attached.
 - *Resource Unit* may be a college, department, school or interdisciplinary group, which provides the majority of resources for the cross-college minor and is the academic unit with primary expertise for a field of study.
 - *Resource College* the resource unit, in the event that it is a department or interdisciplinary group, will reside within an identified resource college.
- *Major* (>24CUs) is a depth of study which prescribes a significant number of courses in one or more related fields of study and usually requires the student to maintain a specific scholastic standing in these courses. Colleges offering majors with less than 24 credit units must complete the Consultation with the Registrar Form and obtain Academic Programs Committee approval. Exceptions outside of the credit unit values can be approved only by the Academic Programs Committee.
- *Honours* (>42CUs) is a depth of study which prescribes a high number of courses in one or more related fields of study and which always requires the student to maintain a high scholastic standing in these courses (double honours is also permitted as a type of honours program.)
- *Concentration* is a depth of study which prescribes a suite of courses that provides students additional expertise and specialized training in one aspect of their major within a degree program. Concentrations may not be paired with certificates and diplomas. Typically, a concentration will be similar in requirement to a minor, but the majority of coursework will occur within the student's major field of study rather than outside of it. A concentration cannot be completed as a stand-alone program, independent of the student's major field of study. Other



formats of concentration are possible such as, for example, the Business Cooperative Education Program.

Colleges have developed a variety of terms for concentrations (*option, specialization within a major, themes, streams, focus,* etc.). It is possible (within technical limitations) to have the concentrations appear on the transcript, but these terms collectively are referred to and displayed as "concentrations". While the connotation of "option" varies across academic units, it is necessary to have a single term to describe this level of study, and concentration is the simplest and most descriptive at the university/information systems level.

The first three depths of study within a field of study always appear on university transcripts. Concentrations may also appear on the transcript, provided that the proposed concentration is consistent with Canadian university general practices and/or acknowledged and desirable for professional organizations and accreditation and is feasible within the technical limitations of the transcript's reporting system. Consultation with the registrar and Academic Programs Committee must be performed for new concentrations to appear on transcripts.

Discipline

Academic areas of study, research and scholarly work are described at many universities as "disciplines" and terms like "disciplinary", "interdisciplinary" and so forth are used worldwide. In considering descriptive terminology for programs and curriculum at the U of S, however, the term "field of study", as defined below, is a more inclusive term to describe student programs.

Dual Degree Program

A program where a student pursues a degree both at the University of Saskatchewan and another postsecondary institution with whom an agreement is established, with the student receiving two degrees at the end of the program, one from the U of S and one from the partner institution. The U of S transcript reflects the dual nature of the program. The degree can be at the undergraduate or graduate level.

• **Cotutelle Program:** A Cotutelle program is a type of dual degree program, where a doctoral student is jointly supervised by two supervisors, each from a different university, and, the student alternates time between the two universities. The student writes one thesis, under the supervision of an advisory committee comprised of members from both universities, and if successful, the student receives two degrees, each recognized by both universities. However, while the dual degree program is an agreement between two programs at two institutions, a Cotutelle program is an agreement tailored to an individual student studying at two institutions.

Field of Study

A field of study requires completion of a number of prescribed courses in a specific subject or discipline. Programs may permit several fields of study. The number of fields of study identified for a student may be limited by policy or practical considerations. In colleges with many fields of study, it is often convenient to group them by program type. For example, the College of Arts and Science defines three program types within the Bachelor of Arts programs and one program type within the Bachelor of Science program; the College of Education types its programs as secondary, and elementary/middle



years. Within a program or program type, the student usually is required to complete a particular field of study. See also "Teaching Areas".

Interdisciplinary Program

An interdisciplinary program is a field of study which permits students to study beyond the boundaries of traditional disciplines, to explore the relationships among disciplines in depth, and to integrate knowledge gained into a central theme. It may be cross-departmental or cross-college in nature.

Joint Degree Program

A student pursues a degree-level program at both the University of Saskatchewan and another postsecondary institution with whom an agreement is established. The student will receive only one degree at the end of the program jointly awarded by both institutions, with the parchment issued either from the University of Saskatchewan or from the partner institution. The parchment and transcript reflect the joint nature of the program. The program can be at the undergraduate or graduate level.

Non-Degree Programs

These programs lead to non-degree level certificates. These programs consist of courses which are generally numbered between 010 and 099. In some degree-level programs, these courses are treated as cognate courses or can be used towards the completion of a degree-level program

Program

A generally defined set of courses and other requirements described in the catalogue, which the student must successfully complete to obtain a specific degree, certificate or diploma or other recognized qualification. Programs are offered at four educational levels: community, non-degree level, undergraduate, and graduate levels. See also Appendix: Course level numbering.

Program Options

Within the general requirements of a particular program, many colleges provide one or more program options, which identify a specific set of courses and other requirements. Program options may be identified by program type, field of study, depth of study, thesis/non-thesis, and work experience. In graduate programs, a program may have a research option (thesis or project) or a non-research option (course based). Work experience is a program option used to identify a prescribed course or group of courses and associated requirements that provide university-recognized work experience (e.g. Business Co-operative Education Program, internship) in a program.

Residency Regulations for Degree Completion

Residency regulations for degree completion are determined by each college. In some cases, residency refers to a certain number of University of Saskatchewan credit units to be completed toward a program of study. These credit units may be completed online, by distance, or in-person, but must be awarded by the University of Saskatchewan. In other cases, residency refers specifically to the length of time a student must be physically present at the University of Saskatchewan while completing their program of study.



Teaching Areas

Similar to fields of study, teaching areas require the completion of a number of prescribed courses in a specific subject or discipline. Teaching areas, however, are specific to the Bachelor of Education (B.Ed.) and the Bachelor of Music (B.Mus.(Mus.Ed.)) degree programs. As defined by University Course Challenge (September 2011), teaching areas represent disciplinary fields developed by the Saskatchewan Ministry of Education in order to align with the Saskatchewan pre-kindergarten to grade twelve curriculum areas.

Work Experience Program Options

- *Professional Internship Program* is a supervised, paid practical training period for a student, usually endorsed by a professional association or accreditation body.
- *Cooperative Education Program* is a program which allows a student to combine academic study with work experience by combining terms on campus with terms working full-time in a job related to the field of study. Students in co-operative programs are generally paid.
- *Practicum Programs* are designed to give students supervised practical application of previously studied theory. These are generally extensions of a particular course and are generally not paid.

SECTION V: COURSE DEFINITIONS

Course

A unit of study in a subject area defined by a course description, title, and number in the Course and Program Catalogue. This unit of subject material is normally presented over a term to students in one or more registered classes. The smallest formally recognized academic unit of the curriculum is the course – a unit of study in a subject area identified by a description of activities.

Course Authority

Each course label is normally under the administrative authority of one academic unit. Control and management of course labels are delegated to the registrar, but authority for label association with specific courses remains with APC/council. Three types of authority can be defined for each course:

- *Resource authority*: provision of teaching resources for the course
- *Content authority*: determining what should be taught in the course. This is the authority that will be listed in the student information system. It is often referred to as academic authority. This authority includes such areas as grade approval.
- *Administrative authority*: administration of the course when it is taught, including such areas as times and location of classes, class maintenance and dealing with student complaints.

For most courses, all three types of authority are held within a single department or college (in the case of non-departmentalized colleges). For interdisciplinary courses the three types of authority can be spread over several departments, colleges, or other units.

A course label is a subject area identifier (four alphabetic characters) and the course number (numeric). An academic department or college or interdisciplinary program may offer courses titled with several course labels. Each course label should be under the administrative authority of one academic unit or an identified administrative unit for courses in non-degree level certificates not under the authority of a college.

Cognate Courses

The practice of allowing students credit for a course from another department. For example, biology allows students to take several agriculture courses for credit towards a major in biology.

Corequisite Courses

A course or other requirement that must be taken at the same time as the course being described.

Course and Class Titles

Effective communication should be the primary consideration when determining appropriate titles. Course titles appear in the Course and Program Catalogue and class titles are listed on transcripts. As such, titles should reflect educational content and should not include administrative details like credit units, etc. Short titles must be limited to 30 characters in length so they can reasonably appear on transcripts and in the student information system and long titles should be no longer than 100 characters.

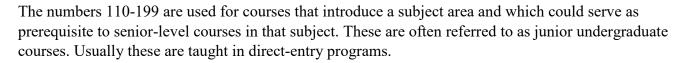
Course Numbers

Course numbers are used according to the conventional practices established by the university for course numbering, as adapted by each college within the academic structure of its programs.

Consistent with the usual university practice, colleges and departments may develop their own numbering schemes in consultation with the registrar for new and revised courses, based on numbers available, the level of study required, and on the order in which they want to have their courses appear in the catalogue. Frequent renumbering should be avoided if possible, as it causes administrative complexity and results in confusion for students. Please see <u>Appendix: Course Level Numbering</u>.

Course numbering will usually follow the conventional practice as described below and shown in the course levels chart.

- *Community level courses*: The numbers 01-09 are used for tracking membership in community-level classes and are not used for university credit towards a degree, diploma, or certificate.
- *Non-Degree courses*: The numbers 010-099 are used for courses developed for non-degree level programs.
- *Undergraduate courses*: The numbers 100-109 are used for general introductory courses which are not usually acceptable as a preparation for more advanced work in the subject area. In some specialized cases, 200-level courses may be considered introductory courses.



Courses numbered 200-699 are also referred to as senior undergraduate courses, including courses in the first year of a non-direct-entry program. These numbers are used for courses that offer advanced study in a subject area. Some post-baccalaureate certificates requirements are comprised of 500 level courses (e.g. Special Education Certificate). 200-level courses usually have 100-level prerequisites, while 300-level and 400-level courses often have 200-level prerequisites. While 300- and 400-level courses are usually taken in the third and fourth years of a program, they need not be numbered according to the year-in-program in which the student completes them.

• *Graduate courses*: The numbers from 700 to 999 are used for graduate-level courses. The 800 series is usually for senior graduate courses which require undergraduate degree completion. The 900 series has been reserved for graduate research and seminar courses.

. The numbers x98 and x99 are reserved by the university for special topics courses, 990 for graduate level seminar requirements, 992 for masters level project-based program requirements, 994 for masters level thesis-based program requirements, and 996 for PhD level thesis requirements. After a course is deleted, that course number cannot be reused for a different course for a minimum of ten years. This avoids confusion for students in registration and transcripts.

Double-Counting or Multiple-Counting of Courses

Applying credit from one course toward more than one degree requirement.

Double-Listing or Cross-Listing of Courses in the Catalogue

The terms "double-listing" and "cross-listing" have been used to describe a variety of academic course delivery methods, but in this document, they are defined as following:

Academic Cross-Listing

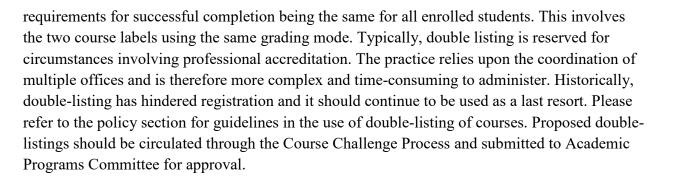
Components of two different courses of different levels (often 400 and 800) which are taught by the same instructor in the same location at the same time. For example, sometimes two courses will be scheduled to share lectures, laboratories, or seminars. In this circumstance, the course requirements for completion of each course are different.

Administrative Cross-Listing

Refers to the practice of creating multiple sections for one class in order to facilitate reserved seating for two or more groups of students or other administrative purposes. For example, a class may require a certain number of seats to be allocated to students in several different colleges. This can be accomplished by creating several different sections and administratively cross-listing the sections back into a single class.

• Double-Listing

The practice of offering a single course under two different course labels with the course



The following guidelines apply to double listings:

- Once a student has completed the course then that course label is the one for which they receive credit. However, equivalencies for double listed courses would apply in the event of program changes.
- The course must be delivered with the same credit units and level for both course labels. Double-listing of an undergraduate-level course with a graduate-level course is not allowed.
- It must be explicitly stated in the Course and Program Catalogue and on the syllabus that it is a double listed course.
- Content resource and administrative authority for the double listed course should be clearly explained and each authority must track back to a single unit. By default these authorities would reside with the unit of the faculty member who is delivering that section of the course.

Elective Courses

An elective course is one chosen by a student from a number of courses in a curriculum, as opposed to a required course which the student must take.

Equivalent Courses

Courses that are deemed to possess equivalent content such that they are considered to be interchangeable across all programs, and students may receive credit for only one of the courses. Equivalent status must be honoured by both or all colleges involved.

Moribund Courses

A moribund course is one that has not been taught in the previous 48 months. Moribund courses will be retained in the course archive for an additional 48 months and then will be deleted. A moribund course does not appear in the catalogue but can still be activated for registration.

Mutually-Exclusive Course

Courses that are not entirely equivalent to each other, but possess similar or overlapping content.

Students may receive credit for only one of the courses deemed to be mutually-exclusive. However, in contrast to the status of equivalent courses, the mutually-exclusive status is program-dependent and therefore does not automatically apply across all programs. Mutually-exclusive status must be honoured by both or all colleges involved.

Placeholder Course

Placeholder courses are normally created for administrative purposes, often to allow students access to university services such as the library and the Physical Activity Complex. These courses may be listed on transcripts, but they do not signify the attainment of academic credit. Placeholder subject codes normally begin with the letter "X." Final authority for the technical setup or adjustment of placeholder courses rests with the Registrar.

Practicum Courses

At the University of Saskatchewan, a practicum is usually a course in which a student works part-time in a workplace for a specified number of hours per week. However, the term is used widely in undergraduate and graduate education to describe all kinds of work-based learning experiences from single courses to lengthy clinical practice experience. Practicum courses are generally unpaid.

Prerequisite Courses

A course or other requirement that must be satisfactorily completed before enrolment will be permitted into an advanced or succeeding course.

Required Courses

A course that all students following a particular program of studies are required to take.

Selected Topics Courses

Regular course offerings approved by University Course Challenge that allow for the subject of offering to change at the discretion of the Instructor. Typically, these courses are approved with a general topic area, for example, "Topics in Literary and Cultural Theory".

Special Topics Courses

These courses are offered on a special case basis, to allow colleges and schools some latitude in course offerings in special circumstances. These courses must be approved by the faculty of the college responsible for the course, forwarded to APC and the Registrar's Office for information, and should be numbered 298, 398, 498, 598, 898 or 299, 399, 499, 599, or 899. Special Topics courses are not normally used to substitute for required courses in a program. Please see the Special Topics Policy for further information.

Subject Codes

A code that most accurately and comprehensively represents the subject matter being taught in the course(s). Most subject codes consist of 4 characters. Courses are identified on transcripts and the Course and Program Catalogue by subject codes, so effective communication should be the primary consideration when determining subject codes. After a subject code has been expired, it cannot be repurposed for different subject matter. This ensures the integrity of academic history records.



Interdisciplinary use of Subject Codes

New subject codes are initiated by colleges and approved by the registrar. Approval involves assigning authority for each subject code to a specific department or academic unit within the college of ownership. After approval by the registrar, the college and academic unit/departmental ownership is recorded in the student information system. A college may permit the use of a subject code under its authority by another academic unit for a specific course or courses, with the secondary unit then having administrative, content and/or resource authority for this specific course. This arrangement requires the agreement of the college authority and is contingent upon consultation with the registrar and the approval of APC via the course challenge process. This arrangement would allow for specific classes to be delivered and administered by faculty from another academic unit (a different resource authority), which is important and desirable for both inter- and multi-disciplinary programs. This would mirror the cross-college minor system where both colleges must agree to the minor for it to be delivered.

SECTION VI: CLASS DEFINITIONS

Class

While "course" is used to identify subject matter, "class" is used to refer to the offering of a course to one or more students for a specific period of time.

Class Scheduling for Common Components

Components of two different courses can be taught in common – for example, sometimes two courses will be scheduled to share lectures, laboratories, or seminars. In this circumstance, the course requirements for completion of each course are different.

Registered Class

When a group of one or more students register in a course under the general direction of a particular instructor(s) at a given time. Each class requires an assigned academic instructor. A registered class may consist of one or more instructional units. Registered classes are defined by the label of the course under study and a registered class section number and by the term and course reference number attached to the class.

Off-Campus Class

Classes are defined as on-campus or off-campus for various reasons, including for the assessment of fees. Off-campus classes are those offered completely, or almost completely, outside of Saskatoon city limits; those not held at the University of Saskatchewan Prince Albert campus; those designated as webbased; those offered through another institution that assesses its own student fees (eg. Saskatchewan Polytechnic or a regional or affiliated college), or those as designated by the Registrar. See also "off-campus" under organizational definitions.

Section Numbers

Classes are identified by section numbers which may contain a prefix indicating the delivery mode or other information. Prefix codes are as follows:

А	Taught as a mixture of delivery modes at (multi-mode)

С	Taught in person at off-campus sites
Е	Taught through or for a contracting agency
G	Sponsored by a government agency
L	Laboratory
Ν	College of Nursing class
Р	Practicum
R	Taught in Regina
S	Seminar
Т	Tutorial
U	University sponsored classes not taught through U of S
V	Television deliver mode at off-campus sites
W	Online or web-based deliver mode
Х	Independent Studies deliver mode

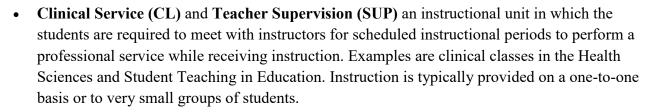
Section number without delivery mode codes are 2 characters in length (eg: Section 21 or Section 03). Section number with embedded delivery mode codes are 3 characters in length (eg: Section L01 or Section W21). Certain number ranges also are reserved to help identify various administrative functions of the class:

01-29	General Use – On Campus
30-49	General Use – Off Campus
50-59	*Reserved
60-67	STM Classes
68-69	*Reserved
70-75	Outbound Exchange
76-79	USLC Classes
80-83	SUNTEP (Saskatoon)
84-85	SUNTEP (PA)
86-87	ITEP (Elementary)
88-89	ITEP (Secondary)
90	*Reserved
91-95	Aboriginal Student Achievement Program
96-99	St Peter's College

SECTION VII: MODES OF INSTRUCTION

Schedule Types

The following types of instruction are offered in various classes (all schedule types are gradable and appear on transcripts unless otherwise noted).



- **Co-op Work Experience (COO)** the portion of an instructional unit which comprises the counseling and on-going monitoring contact in a work experience class. Only the number of instructor hours for the scheduled supervision by a campus instructor should be reported. See Work Experience Program options.
- Internship (IN1, IN2, IN3) the portion of an instructional unit which comprises the counseling and on-going monitoring contact in a paid work experience class. Only the number of instructor hours for the scheduled supervision by a campus instructor should be reported. See Work Experience Program options.
- Field Study (FST) Field study/fieldwork refers to activities conducted for the purpose of research, teaching, or study, and are undertaken by students of the university at any "off-campus" workplace where the standard operating procedures of the university would not apply.
- **Independent Studies (IND)** A class offered by a department utilizing non-face to face and non-web based methods of instruction.
- Individual Research/Reading (RES or RDG) included in this category are individual research, reading and other studies or projects in which each student works independently under the direction and supervision of an assigned instructor(s). The student and instructor usually meet on an "as required" basis. Since the number of hours spent by the student and the number of hours of instruction given by the instructor cannot be determined, only the number of students enrolled in the activity are recorded.
- Laboratory (LAB) an instructional unit in which the instructor is responsible for instructing, preparing and supervising student investigations, experiments, practicum experiences, etc., usually requiring the use of special equipment or facilities (non-gradable). Laboratory examinations are not centrally scheduled, nor are they gradable or listed on transcripts.
- Lecture (LEC) an instructional unit in which the instructor is responsible for preparing and presenting the course material.
- **Multimode (MM)** an instructional unit in which the instructor uses a combination of instruction types in a way which makes a breakdown by specific instruction type difficult.
- **Practicum (PRA)** an instructional unit in which the instructor is responsible for instructing, preparing and supervising student investigations, experiments, practicum experiences, etc., usually requiring the use of special equipment or facilities. Practicums are generally unpaid. See Work Experience Program options.

- Seminar (SEM) an instructional unit in which the students usually share some of the responsibility for preparing and presenting course topics. It may include more discussion types of interaction between instructor and students.
- Supervised Self-Instruction (SSI) an instructional unit in which instructors are scheduled to be available for instruction and supervision of a group of students engaged in solving problem assignments; in using programmed or automated instructional materials; or in other supervised activities. A room or facility may be scheduled for this activity. However, the extent to which the individual student takes advantage of the facility or opportunity to meet with the instructor is not known. Tutorial (TUT) a mechanism to review in class materials and content with greater student interaction between instructor and students outside of the central lecture. Tutorial examinations are not centrally scheduled, nor are they gradable or listed on transcripts.
- Web-Based (WEB) A class where either the entire class or a significant majority of the class is presented to students with a web tool.

Instructional Activity Codes

Abbreviations are used to describe instruction type and modes of delivery.

IND	Independent Studies
LIVE	Live Face to Face
MULTI	Multimode
PRINT	Print Based
TELE	Televised
WEB	Web Based
XHIGH	High School (Admin Only)
XINA	Instructional Mode Not Applicable

SECTION VIII: CREDIT UNITS AND BILLING HOURS

Academic Credit Units

Academic credit units (CU) define the amount of credit awarded for successful completion of a course and are displayed on the transcript or, in the case of transfer credit, of study elsewhere. A frequent criterion used in judging credit units would be the expected student effort in the course. Hours of instruction are also a component of this value with a course requiring approximately 30-39 instructional course hours of lecture per 3 credit units. Courses may be offered with any whole number of credit units. The use of fractional credit units is discouraged, due to administrative complexity.

Courses offered to meet requirements for a non-degree level diploma or certificate will have courses with non-degree level credit units at the non-degree level, in contrast to degree-level classes with degree-level credit units, attached to them. Non-degree level credit units are attached to courses appropriate for post-secondary training but not classified as degree-level courses. Non-degree level



courses are numbered 010 - 099. The value of these non-degree level credit units compared to degree-level credit units is established by the college concerned.

Operational Credit Units

For administrative purposes, courses often carry "operational" credit units, rather than academic credit units. While the course will be listed on transcripts with 0 credit units, the operational credit unit weight of the class are used to determine a student's full or part time status; control the number of classes a student may register in for a term (maximum credit units); determine a student's loan eligibility; determine eligibility for full or part time months for T2202 processing.

Billing Hour Units

The billing hour (BH) unit applied to a class is used in the calculation of tuition and student fees.

SECTION IX: TRANSFER CREDIT DEFINITIONS

Articulation

A process by which institutions assess learning acquired elsewhere in order that credit toward their own credential may be provided. Articulation is based on faculty decisions and established institutional principles, policies and procedures. It acknowledges the missions of different types of institutions and the quality and integrity of their programs. Transfer credit is the result of the articulation process.

Block Transfer

The process of granting of credit for a group of completed courses from one institution to another without requiring course-by-course assessment. An example would be granting a block of 30 to 60 transfer credits for a completed postsecondary diploma at a recognized institution. Block transfer credit assessments establish and recognize that certificate, diploma, and other program graduates possess the knowledge, skills and abilities necessary to succeed in upper-year courses at the receiving institution.

Course-by-Course Transfer

The process of granting credit for a course (or courses) from one institution to another by completing a comparison of course content and learning outcomes for each individual course. Credit may be awarded for a specific U of S course (or courses), non-specific credit for a subject area, or an elective at the junior-level, senior-level, or unspecified-level.

Laddering

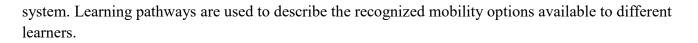
Seamless movement of a student between certificate, diploma, and degree studies with no or limited loss of coursework. Typically a student would complete two years in a diploma program and then move into a degree program, completing their studies in an additional two years.

Learning Outcomes

The knowledge, skills, competencies, and abilities that a student has attained and is able to demonstrate as a result of successfully completing a particular set of educational experiences.

Learning Pathways

Different routes that individuals choose to progress into, within, and out of the post-secondary education



Mobility

The ability to move freely from one jurisdiction to another and to gain entry into an academic institution, trade or profession or to participate in a learning experience without undue obstacles or hindrances.

Recognized Post-Secondary Institution

A public or private institution that has been given authority to grant degrees, diplomas, certificates, and other formal credentials by competent authorities within the country or that is widely accepted by other institutions and organizations inside and/or outside the country. Examples that designate an institution as such include a public or private act of the provincial/territorial legislature, a government-mandated quality assurance mechanism, or a national accrediting body.

Transfer Credit (Credit Transfer)

Transfer credit refers to a course or courses taken at one post-secondary institution (the sending institution) that are transferred to another postsecondary institution for credit (the receiving institution). Transfer credit is sometimes also called credit transfer or advanced standing. The U of S accepts, for transfer of credit, courses from accredited institutions in Canada and internationally. The purpose of transfer credit is to give students fair and reasonable credit for academic work which has been completed at another institution and to reduce the likelihood of a student repeating academic work for which there has already been a demonstrated competence.

SECTION X: STUDY ABROAD DEFINITIONS

Cotutelle Agreement

The agreement required to establish a Cotutelle program. Please see "Cotutelle program" under program definitions.

Dual Degree Program

Please see "dual degree program" under program definitions.

Independent Study Abroad

A credit-based education abroad activity initiated and arranged by the student with the home institution, and recognized by establishing an independent leaning course or the granting of transfer credit.

Internship Abroad Program

A supervised work-placement abroad where the primary motivation is educational. Internships may be credit or non-credit, and are usually paid.

Joint Degree Program

The agreement required to establish a joint degree program. Please see "joint degree program" under



program definitions.

Student Exchange Program

A Student Exchange is a program of study whereby partner institutions establish a reciprocal agreement which enables students to pay tuition at their home institution and to register and study at the host partner institution, with credit transferred back to the home institution. Student fees are collected by the host institution. The typical duration of an exchange is one or two terms.

Taught Abroad Course/Program

A short-term credit-based activity, involving a group of students taking one or two University of Saskatchewan courses abroad, under the supervision of a University of Saskatchewan faculty member.

Term Abroad Program

A one term group program abroad with a prescribed course of study offered by an institution such that the student obtains home-institution credit.

Visiting Student Program

A program of study either formally established through an agreement or through a letter of permission, enabling a student to attend the University of Saskatchewan, with credit transferred back to their home institution. Tuition and student fees are paid to the University of Saskatchewan.

Visiting Research Student Program

A program of study whereby an undergraduate or graduate student is admitted to the University of Saskatchewan for the purpose of engaging in an approved plan of research with a faculty supervisor. Visiting research students are not assessed tuition, and are registered at the university for a period not exceeding twelvemonths.

SECTION XI: MOBILITY AGREEMENT DEFINITIONS

Block Transfer Agreements

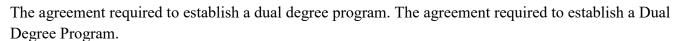
A type of block transfer credit agreement between the U of S and another academic institution which allows a student to complete 1, 2 or 3 years at the sending institution and the balance of coursework at the U of S. This type of agreement goes beyond a basic transfer credit agreement because it specifies that the completion of specific courses, or completion of a specific credential, will fulfill the requirements of a particular program at the U of S. Students would receive their final credential from the U of S. Some examples of these agreements include, but are not limited to: 2+2, 1+3 and 3+1.

Consortium

A network to which the university is a member, along with other universities or institutions with the objective of facilitating student mobility (eg. TASSEP, CALDO, MICEFA).

Dual Degree Agreement

University of Saskatchewan



Home Institution

The institution in which a student is formally enrolled and is expected to graduate from.

Host Institution

The institution which has agreed to accept a student from the home institution for a limited period of study.

Joint Degree Agreement

The agreement required to establish a Joint Degree Program.

MOU (Memorandum of Understanding)

A non-legally binding umbrella agreement that provides a framework for collaborative activities between international partners. This agreement has also commonly been referred to as a "handshake agreement" or "parent agreement." This agreement is often the beginning of a formal relationship between two institutions.

Student Exchange Agreement

A reciprocal agreement which allows for the exchange of students where students pay tuition at their home institution and study at the host partner institution, with credit transferred back to the home institution. These agreements can be university wide or restricted to specific colleges, departments or levels of study.

Transfer Credit Agreement (Articulation Agreement)

An agreement between two institutions that authorizes studies completed at one institution to be credited toward studies taken at another institution. Transfer credit agreements can be bilateral (with each institution agreeing to recognize the other's courses) or unilateral. Transfer credit can be recognized course-by-course or as a block transfer credit.

Visiting Student Agreement

An agreement established between two universities that allows students from the home institution to attend the host institution as a visiting student.

STUDENT XII: STUDENT RECORD DEFINITIONS

Student Record

The student record holds the program and course information related to a specific student. It will typically contain information related to the specific classes, sections, and terms.

Qualification

The qualification is the degree, diploma, or certificate awarded to the student, which may be accompanied by an indication of distinction (Distinction, Great Distinction, Honors, or High Honours).



Transcript

The transcript is the official and unabridged version of a student's educational record at the University of Saskatchewan provided to the student and at the student's request to third parties. Transcripts are a complete listing of a student's educational record up until the day the transcript is produced. The transcript shows the label, title, class, term and result for each course in which a student was registered past the add/drop deadline. It also records such information as faculty actions, suspensions, expulsions, transfer credits, and qualifications and distinctions. An official transcript is one issued directly to another agency or institution and bearing the seal of the University of Saskatchewan and the signature of the registrar. The seal and the signature may be in electronic form in accordance with the university's signing policy.

The nature, extent and format of information that appears on the transcript are determined by the registrar and university secretary in accordance with national and international professional standards, normal practice in higher education, and practical systems.

Co-Curricular Record

The Co-Curricular Record (CCR) is a personalized and official record of university-approved and facilitated activities in which students have been involved outside of regular academic course work. This document can be used to further employment and educational goals.

Parchment

The parchment is a legal document issued by the University of Saskatchewan, that confirms the recipient has successfully completed a specific program and confers an academic qualification. The parchment displays the University of Saskatchewan seal, at minimum the signatures of the university president, university chancellor, university secretary, dean of the college with academic authority for the program, and the date, degree, and major (or program in the case of the College of Graduate Studies and Research) where appropriate.

The nature, extent and format of information that appears on the the parchment are determined by the registrar and university secretary in accordance with national and international professional standards, normal practice in higher education, and practical systems.

SECTION XIII: TIME-PERIOD DEFINITIONS

Academic Calendar

A listing of the dates of major academic events or deadlines for the academic calendar year.

Academic Catalogue Year

A twelve month time period beginning May 1st of each year around which admission procedures and curricular changes are organized. Students are generally expected to complete the program requirements approved for the academic calendar year in which they were admitted. As such, program changes and

new programs are typically implemented with an effective date of May 1st. The degree audit system evaluates each student's progress toward program completion based upon their designated academic calendar year.

Academic Year

A twelve-month period beginning on July 1st of each year. This is the usual time period used for academic appointments in the hiring and promotion of faculty.

Final Exam Period Definitions

Fall term: The examination period begins on the first day following the last day of instruction and goes no later than December 23^{rd} .

Winter term: The examination period begins the first day following the last day of instruction and goes no later than April 30th.

Spring & summer: The examination periods for spring and summer include the two days following the last day of instruction after each quarter and the 3 days following the last day of instruction after each term.

- **Deferred examinations**: A deferred examination is the sitting of a final examination at a time other than the scheduled time and date of the final examination. A deferred examination may be granted to a student who is not able to complete a final examination through no fault of their own, for serious personal circumstances. These examinations are approved and granted under regulations established by the college and subject to the Academic Courses Policy.
- **Supplemental examinations:** A supplemental examination is the re-writing of a final examination. These examinations are approved and granted under regulations established by the college and subject to the Academic Courses Policy.
- Special deferred and special supplemental examinations: the college may, under extenuating circumstances, approve and grant a special deferred or supplemental examination to a student who submits satisfactory evidence of inability to be present at the scheduled deferred or supplemental examination under regulations established by the college and the Academic Courses Policy..

Fiscal Year

The fiscal year for the university runs from May 1 to April 30 as defined in The University Act (1995).

Instructional cycle and instructional periods

For fall and winter term standard day period lecture classes:

• 50 minute instructional periods starting half-past the hour, on the instructional cycle every Monday, Wednesday and Friday; or 75 minute instructional periods starting at 0830, 1000, 1130, 1300 or 1430, on the instructional cycle every Tuesday and Thursday;



• Edwards School of Business (ESB) offers Monday/Wednesday classes on a 75 minute instructional period

For fall and winter term standard evening period lecture classes:

• 150 minute instructional periods, on the instructional cycle of one evening per week;

For fall and winter term standard Saturday lecture classes:

• 150 minute instructional period starting at 0900 or 1300

For spring and summer terms lecture classes:

• Presently these are usually taught for about two instructional hours per day (110 minutes), five days per week, but this can vary depending on the course requirements.

Classes can be offered in any day or night standard instructional period except Sundays.

Instructional period

A scheduled period of time in which a group of students participate in a particular type of instructional activity (laboratory, lecture, discussion, etc.) related to a specific subject.

- *Day period* an instructional period currently between 0730 and 1730 hours.
- *Evening period* an instructional period currently between 1730 and 2200 hours.

Classes on campus can be held from 0730 - 2230 using standard time blocks as defined by the registrar. Colleges using non-standard time blocks need the approval of the registrar.

Term

A period of time defined in the Academic Calendar, for which a course for credit may be offered. Terms are identified by the year and the month of when they occur (e.g. 201609 is September of 20016). Each term usually allows for a minimum of 33 instructional period hours of instruction per term. For graduate students, the year is divided into graduate term one, graduate term two and graduate term three.

- *Fall and winter (fall term 1 and winter term 2)* each term usually allows for 13 weeks of instruction followed by the examination period. Fall term 1 runs from September to December and term 2 runs January to April. Some professional colleges have longer fall and/or winter terms, and different start and end times.
- *Spring and summer (spring term 1 and summer term 2)* these two terms begin in mid-May and end in mid-August. Instructional periods and times differ from those in the fall and winter. Spring term 1 runs through May and June and is split into quarter 1 and quarter 2. Summer term 2 runs through July and August and is split into quarter 3 and quarter 4.
- *Irregular terms* some programs have longer terms, and different start and end times. Several colleges deviate from this terminology for example, for graduate students, the year is divided into graduate term 1, graduate term 2, and graduate term 3, while Veterinary Medicine divides its instructional sessions into "Quarters".

Graduation Term



The term in which a student has completed all necessary program requirements in order to be eligible for convocation. Please note the following:

- Completion of all program requirements in the Summer Term (07) determines a student's eligibility for convocation at the Fall Convocation Ceremony.
- Completion of all program requirements in the Winter Term (01) determines a student's eligibility for convocation at the Spring Convocation Ceremony.

Quarter

A division of the university academic year composed of half a term.

SECTION XIV: UNIVERSITY CATALOGUE DEFINITIONS AND STANDARDS

University Catalogue

The University Catalogue is the University of Saskatchewan's official source of course and program information, academic calendar dates, tuition and fee information; registration and admissions policies; promotion, graduation and grading standards; and other information and services. The University Catalogue includes the Course and Program Catalogue; Academic Calendar; tuition and fee information; registration and admissions policies. Not all University of Saskatchewan policies and regulations are contained within this University Catalogue. For the most current and complete information about matters outlined in the University Catalogue, contact the relevant academic or administrative unit.

The contents of the University Catalogue are subject to continuing review and revision. The courses listed in the Course and Program Catalogue are not necessarily offered each year. The University of Saskatchewan reserves the right to remove, change or amend, at any time and without notice, the information contained in the University Catalogue, including its programs, course offerings, fee structure, policies and regulations.

The University of Saskatchewan is not liable to any person who may suffer any loss or damage of any type arising from the use of or reliance upon any information contained in the University Catalogue, any action of the University of Saskatchewan in regard to the University Catalogue, including but not limited to any amendment, addition or withdrawal to or from the information provided, or any inability to access any information contained in the University Catalogue for any reason whatsoever including technical or administrative difficulties

Catalogue Format for Programs

All programs shown in the catalogue should list all degree requirements, including specified and elective courses, required averages for graduation, and any other requirements.

Catalogue Format for Courses

The format for presenting consistent course information in all formats includes:

- 1) the course label (consisting of a subject code of 4 characters and a 3 digit numeric code)
- 2) the full title of the course (in English)
- 3) the course academic credit unit value



4) prerequisites (course(s) that must be completed prior to the start of the course for which registration is occurring), corequisites (course(s) that must be taken at the same time as the course for which registration is occurring), permissions and restrictions if any5) course description of 150 words or less

6) additional information about transferability, duplication, or loss of credit

Title, label, and credit unit value identify the courses used to meet requirements for graduate and undergraduate degrees. Typically credit units are attached to these courses. Courses offered to meet either degree or certificate requirements follow the same identification system as degree-level courses.

Educational Level	Course Level	General Description of Courses Numbered in this Range
Community	001-009	Courses or groups of courses intended for the general public
Non-Degree Non- University	010-089	Courses intended primarily for Non-university level programs. These are appropriate for post-secondary training and may have content similar to degree-level courses, but do not have the breadth or depth of understanding.
Upper Level Non-Degree	090-099	Courses which do not require the matriculation level preparation generally required by most Universities as a necessary prerequisite for a first year undergraduate level course in the subject. In particular, this series of course numbers are used when a department also offers a junior level course in a subject for students with matriculation level 30 preparation (identified by a 100 series number). Students should be advised that courses numbered in the 90 series <u>may not</u> be accepted for credit toward a degree in some programs at this or another University and therefore should check course descriptions and program requirements carefully.

Appendix One: Course Level Numbering

r	1		
University Degree-Level	Undergraduate Junior Level	100-109	General introductory courses usually not intended as preparation for more advanced study in the subject but are designed to acquaint the student with a field of knowledge in which they do not propose to concentrate. Students should be advised that these courses may not be accepted as prerequisites for advanced undergraduate study in the subject or as adequate preparation for entry into some programs and should therefore check course descriptions and program requirements carefully.
Educational Level		Course Level	General Description of Courses Numbered in this Range
University Degree-Level	Undergraduate Junior Level	110-199	All other courses offered for junior undergraduate level credit. These courses are usually accepted toward meeting introductory-level program requirements and are usually used as prerequisites to senior-level courses.
University Degree-Level	Undergraduate Senior Level	200-699	Courses intended for an advanced level of study. In some non-direct entry programs, the first digit will indicate the year of the program for which the course has been designed. For example, first year program courses will usually be numbered 200-299, second year program courses 300-399, etc. Post-Baccalaureate Certificate programs would typically use 500-699 course numbers.
University Degree-Level	Graduate Junior Level	700-799	A graduate course which has a significant amount of content on the undergraduate level should be numbered on the 700 level. A 700-level designation does not suggest that students taking the course are unprepared for the program in which they are registered; it only indicates that they lack the normally expected undergraduate preparation in the subject area of the course itself.

University Degree-Level	Graduate Senior Level	800-899	A course which may be taken only by students who have completed the undergraduate level preparation generally expected for a graduate level course in the subject.
		990-999	Graduate Seminars, Projects, Theses, Exhibitions

UNIVERSITY COUNCIL ACADEMIC PROGRAMS COMMITTEE REQUEST FOR DECISION

PRESENTED BY:	Susan Detmer, chair, Academic Programs Committee
DATE OF MEETING:	June 18, 2020
SUBJECT:	College of Engineering – Replacement program for the Bachelor of Science in Engineering (B.E.) program

DECISION REQUESTED:

It is recommended: That Council approve the replacement program for the Bachelor of Science in Engineering (B.E.) program, effective May 2021.

PURPOSE:

University Council has the authority to approve major changes to an existing degree program.

CONTEXT AND BACKGROUND:

The College of Engineering is proposing a significant redesign of the first year of its Bachelor of Science in Engineering (B.E.) program. The first year of the B.E. program is taken by all students before they select their specific engineering discipline. This replacement program moves to an integrated model of instruction. While the technical content of the replacement program remains similar to the existing program and meets Canadian engineering accreditation requirements, the new program includes both Course Learning Outcomes specific to each course and Program Learning Outcomes which cut across multiple courses.

The new curriculum is more modular, collaborative, experiential and integrated. It is designed to ensure that students will learn prerequisite skills in one course before needing them in another and courses in the program will be linked through assignments, problem solving, and standards of performance and systems of assessment.

All B.E. programs at USask are accredited through the Canadian Engineering Accreditation Board and the change to the first year curriculum ensures that all eight programs still meeting accreditation requirements.

The College of Engineering consulted broadly both internally and externally in developing this replacement program, and specifically worked closely with the College of Arts and Science to develop courses or redesign courses to deliver as part of this new first year.

The academic programs committee reviewed this proposal at its May 27, 2020 meeting and were impressed with the scope of the change and the collaboration between the College of Engineering and the College of Arts and Science in the development and delivery of this redesign of the first-year program. The committee also commended the College of Engineering for the work it undertook in consulting with the Gwenna Moss Centre in its development of this program. The committee voted to recommend that Council approve this replacement program.

FURTHER ACTION REQUIRED:

Changes to tuition related to this change require approval through the processes defined in the *Tuition* and *Fees Authorization Policy*.

ATTACHMENTS:

1. Proposal for Academic and Curricular Change – First Year Redesign in Engineering



Memorandum

To: Dr. Susan Detmer, Chair, Academic Programs Committee of Council From: Dr. Bruce Sparling, Associate Dean Academic, College of Engineering

Dr. Gordon DesBrisay, Vice Dean Academic, College of Arts and Science Date: May 12, 2020 Subject: Joint Submission - Proposed Revision to First-Year Engineering Curriculum and New Arts and Science Courses

Dr. Detmer:

We are pleased to jointly present the proposal for a revised first-year Engineering curriculum and the accompanying new courses in the College of Arts and Science. Through consultation with representatives from the Office of the University Secretary and Registrar's Office it was determined that these should be submitted to the Academic Programs Committee of Council together.

The consultation process for the proposed changes was extensive, as outlined in the proposal. In the College of Engineering, the proposal was recommended for approval by the Undergraduate Academic Programs Committee at their meeting on March 9, 2020, and received college-level approval from the Engineering Faculty Council on May 12, 2020. In the College of Arts & Science, the new courses were circulated in the January 2020 College Challenge, and received college-level approval from the Academic Programs Committee (B.Sc.) on January 16, 2020. The Arts & Science Faculty Council was informed of this approval at their meeting on February 4, 2020.

The College of Engineering would like to take this opportunity to thank the College of Arts and Science for their ongoing support and unprecedented collaboration on this project.

Please do not hesitate to contact either of us directly should you have any further comments, questions, or concerns.

Sincerely,

Bruce Sparling, Ph.D., P. Eng., FCSCE Associate Dean Academic College of Engineering Email: <u>engr.academicdean@usask.ca</u> Phone: 306-966-4190 Gordon DesBrisay, Ph.D. Vice Dean Academic College of Arts and Science Email: <u>gordon.desbrisay@usask.ca</u> Phone: 306-966-4315



PROPOSAL IDENTIFICATION

Title of proposal: First Year Redesign in Engineering

Degree(s): Bachelor of Science in Engineering (B.E.)

Field(s) of Specialization: Chemical, Civil, Computer, Electrical, Environmental, Geological, Mechanical Engineering and Engineering Physics

Degree College: College of Engineering

Contact person(s) (name, telephone, fax, e-mail):

Bruce Sparling, Ph.D., P.Eng., FCSCE Associate Dean Academic College of Engineering Tel: (306) 966-4190 Email: <u>engr.academicdean@usask.ca</u>

Proposed date of implementation: September 2021

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Proposal Document

1. Academic justification:

"The rapidly evolving role of the engineering profession in society requires an engineering graduate with a more diverse and robust skill set than ever before"¹. In 2016-2017 the College of Engineering embarked on a complete redesign of its Common First Year curriculum. "This project started from a blank slate and posed the question, "If we could design any first year program that we wanted, what would we create?" The goal is to offer a first year program that excites, engages, inspires, and holistically prepares students for learning in subsequent years".² To read more about the Vision, Mission, Values and Delivery Strategy for this project please see Appendix A.

This project is also outlined in the College's 2018-2025 Strategic Plan. The following Commitment is listed under the Strategic Pillar: Teaching and Learning, "Implement a revised first-year engineering program that will be recognized as the most innovative and effective program in Canada". Ties to the University Plan can also be seen particularly through the "Courageous Curiosity" and "Boundless Collaboration" sections of the framework. This change to the Common First Year curriculum of the Bachelor of Engineering programs at USask is a useful addition to the University because it is designed to enhance student learning, to increase student enrollment and to enhance the reputation of the College and the University with its unique structure and design objectives (see Appendix B for the Structural Model).

An analysis of 17 first year engineering programs, common program or mechanical (for direct entry), from across Canada was conducted in the early stages of the development of this redesign. Institutions included provincial, Western Canadian and a number of U15 comparators from across the country. The analysis was conducted using online course catalogues and conducting a comparison of relative weightings of each subject (by contact hours). In addition, innovative delivery ideas were also sought out.

Findings from this analysis show that the proposed program will:

- move from below average to well above average, in terms of contact hours, on subjects such as Professionalism, Design and Communication;
- provide an enhanced focus on transferable skills that employers are actively looking for;
- bring us in line with other Canadian institutions with the inclusion of computer programming to first year;

¹ Joel B. Frey, Sean Maw, Susan Bens, Bruce Sparling, "Design of a Completely New First Year Engineering Program at the University of Saskatchewan," *Proc. 2018 Canadian Engineering Education Association.* Paper 150, 2018.

² Joel B. Frey, Sean Maw, Susan Bens, Jim Bugg, Bruce Sparling, "Design of a Completely New First Year Engineering Program at the University of Saskatchewan – Part II," *Proc. 2019 Canadian Engineering Education Association.* Paper 116, 2019.

- provide a more balanced inclusion of the fundamentals of engineering science between mechanics, electrical circuits and process engineering, an improvement over both our current first year program and other programs in Canada;
- provide students with an opportunity to experience five engineering disciplines through meaningful one day experiences as part of the Engineering Discipline Experience course prior to submitting their discipline choices for acceptance into a major at the end of first year;
- allow for a calculated reduction in the percentage of overall hours spent directly on math due to the integrated curriculum and the fact that math skills will be immediately applied in other courses;
- allow for increased confidence in students' understanding of the basics, as a result of competency-based assessment, as they transition to upper years;
- provide a calculated reduction in subjects like business, humanities and social sciences by deferring them until upper years when students will likely make a more informed choice of elective(s); and
- introduce a new course that contextualizes the profession in Indigenous Culture in a way that appears to be unique in Canada.

Many of the changes to the Common First Year curriculum will make it distinct in Canada. The proposed changes also see a program that is "modular, allowing for intentional uses of time during the academic year. Course duration and intensity vary and are selected to best serve student learning, rather than conform to the traditional academic schedule"³. For a more detailed description of the structure please see the paper in Appendix D.

2. Admissions

College admission

The College of Engineering offers direct entry into the Bachelor of Science in Engineering program. High school, post-secondary, and special (mature) applicants apply for admission into an undeclared first year of engineering studies. Students are then required to apply into one of eight upper-year majors at the end of their first year of engineering studies. They are ranked based on an average generated from a set of first-year courses. In turn, they are admitted into upper-year majors on a competitive basis.

The proposed redesign of the Common First Year curriculum does not suggest changing any aspects of College admission policies, procedures, or criteria.

The proposal does, however, recognize that the students arriving to first year are not homogenous, and have different qualities, depths, and breadths of training. The proposal

³ Joel B. Frey, Sean Maw, Susan Bens, Jim Bugg, Bruce Sparling, "Design of a Completely New First Year Engineering Program at the University of Saskatchewan – Part II," *Proc. 2019 Canadian Engineering Education Association.* Paper 116, 2019.

introduces online "Summer Top Ups", which will set an attainable minimum standard for basic knowledge and skills across a number of fields i.e. algebra, physics, writing, reading, chemistry, and Indigenous People's histories. Those at or above the standard will quickly and easily be able to show their readiness for first year. For those with one or more areas of weakness, they will have an opportunity to develop competence so that first year instructors can proceed knowing that all students have the same base knowledge and skills in those areas.

The College of Engineering Strategic Enrolment Management Plan (2018-2023) written by the Strategic Enrolment Management Project Steering Committee listed this first year redesign as one of the medium term strategic priorities for the College. The proposed program has been developed with the College's enrollment goals in mind, such as increased gender diversity, indigenous representation, and internationalization in the undergraduate student body. "Our goal is to provide a welcoming learning environment in which students of any gender, race, ethnicity, religion, identity or background can work hard and succeed in becoming an engineer".⁴

Program admission

It can be expected that the proposed redesign of the Common First Year curriculum will lead to changes in the program admission requirements.

Current program admission policy requires its departments define which suite of courses will be used in generating a program admission average. Following the receipt of all applications to the engineering disciplines, the College of Engineering will rank undergraduate applications, on the basis of a program admission average, from highest to lowest.

In establishing a departmental program admission policy, departments within the College of Engineering are required to identify a minimum of 24 credit units that will be used to calculate a program admission average for students wishing to gain entry into an engineering discipline. The following eight courses have been used to generate a program admission average and rank prospective students for admission into the eight engineering programs: CHEM 114, GE 111, GE 121, GE 124, GE 125, MATH 123, MATH 124, and PHYS 155.

This set of eight courses will be replaced with new courses. Use of these courses for program admission will be established by the departments as per the *Program Admission Policy:*

⁴ Joel B. Frey, Sean Maw, Susan Bens, Bruce Sparling, "Design of a Completely New First Year Engineering Program at the University of Saskatchewan," *Proc. 2018 Canadian Engineering Education Association.* Paper 150, 2018.

Defining Entrance Requirements For Engineering Disciplines, for the minimum number of credit units that will be used to calculate the a program admission requirement.

Once the departmental program admission policy (or criteria) has been identified, and to ensure transparency, the College of Engineering will ensure that the program admission policies are formalized and made accessible to the public.

Communications/Recruitment

Discussions have taken place within the College and with the UofS Central Recruitment team regarding a communications and recruitment plan regarding the redesign of the first year curriculum. A brief overview of the plan can be seen in Appendix E. In addition, a search is currently underway for a Recruitment Officer (24 month term with possibility of extension). This position is joint with Central Student Recruitment and it will focus strategically on initiatives and activities related to the recruitment of domestic, international and Indigenous undergraduate Engineering students, maximizing stakeholder awareness of the benefits of an Engineering degree and the college's unique first-year Engineering program design.

3. Description of the program

Ultimately "the overarching learning objective is to better prepare students to make a good vocational choice, whether that be engineering generally, or their discipline, specifically".⁵ The curricular objectives of the Common First Year curriculum are to prepare the students to transition to second year and their major "well-equipped with knowledge (facts and concepts), skills (demonstrable abilities), experiences (meaningful applications of skills), and attitudes/beliefs (adoptable philosophies), or KSEA."⁶ The redesign of the Common First Year curriculum consists of three phases:

Phase I - determine the required first year graduate attributes (complete)
Phase II - development of program/curriculum structure and delivery methods (nearing completion)
Phase III - detailed course design (in progress).

To read in detail about the process to determine the required first year graduate attributes please see Appendix C. Two types of learning outcomes were identified for the redesign Common First Year curriculum: Course Learning Outcomes, specific to each course and more technical in nature, and Program Learning Outcomes, which cut across multiple courses and are more transferable in nature. To see examples of Program Learning Outcomes please see Appendix F. The technical content in the proposed curriculum remains fairly similar to the

⁵ Joel B. Frey, Sean Maw, Susan Bens, Bruce Sparling, "Design of a Completely New First Year Engineering Program at the University of Saskatchewan," *Proc. 2018 Canadian Engineering Education Association.* Paper 150, 2018.

⁶ Joel B. Frey, Sean Maw, Susan Bens, Bruce Sparling, "Design of a Completely New First Year Engineering Program at the University of Saskatchewan," *Proc. 2018 Canadian Engineering Education Association.* Paper 150, 2018.

existing curriculum and is well defined by Canadian engineering accreditation requirements. The proposed curriculum will include elements of interest to all 8 disciplines/majors and will better prepare students for summer jobs after the first year of study.

The redesign of the Common First Year has resulted in a curriculum that is more modular, collaborative, and experiential in nature. The general teaching philosophy is one of deep integration. This will manifest itself in students learning prerequisite skills in one course (just) before they need them in another. It will involve linking courses through assignments, formats of problem solving, standards of performance, and terminology/systems of assessment. Appendix B shows the Structural Model for the proposed Common First Year. This structure has facilitated several design objectives such as a strategic sequencing of learning allowing for integration and reinforcement of essential skills, multiple and individualized opportunities for students to stumble and recover, a focus on holistic balancing of content and student well-being, and comprehensive exposure to the wide range of programmatic choices for students.⁷

The mission for the First Year Redesign Project includes multiple references to encouraging and helping facilitate a healthy life balance, both physically and psychologically, for students. Throughout the design process this has been incorporated in various aspects such as:

- Summer Top Ups provide entering students an opportunity to start their program feeling better prepared academically and Fall and Winter Top Ups allow students additional opportunities to demonstrate competence on key learning outcomes so that they can recover from minor academic stumbles;
- End of day "tutorials" provide specific support for those students who need it occasionally or a structured space to study and complete assignments for those that find that valuable;
- Assessment research indicates the approach taken by the redesigned first-year program is supportive of increased student wellness (see Appendix H);
- The daily schedule of lectures and labs runs from 8:30 to 4, providing a predictable schedule familiar to students entering the program directly from high-school and the shared lunch break allows for student group meetings, physical activity, etc.;
- Physical and social activities will be encouraged through an extracurricular passport concept;
- Considerable hours are dedicated to providing students with a tool kit for success in engineering in GE102, including developing a growth mindset, self-assessment, time management, study skills, and awareness of support services available (academic, career and personal).

The proposed program is designed to holistically prepare students for the challenges to come in later years.⁸

⁷ Joel B. Frey, Sean Maw, Susan Bens, Jim Bugg, Bruce Sparling, "Design of a Completely New First Year Engineering Program at the University of Saskatchewan – Part II," *Proc. 2019 Canadian Engineering Education Association.* Paper 116, 2019.

⁸ Joel B. Frey, Sean Maw, Susan Bens, Bruce Sparling, "Design of a Completely New First Year Engineering Program at the University of Saskatchewan," *Proc. 2018 Canadian Engineering Education Association.* Paper 150, 2018.

Sustainability has also been carefully considered and integrated into the proposed program where possible. The introduction to the profession courses (GE 102 and GE 103) introduce students to the impact the profession has on society (touching on all three pillars of sustainability) and to the Code of Ethics they must follow, which holds paramount the health and welfare of the public and the environment. The two design courses also introduce the idea of sustainability as an ever-important design objective to the students. The College of Engineering wishes to provide their first-year students with broad exposure to four of the Natural Science disciplines in the College of Arts and Science (Biology, Chemistry, Geological Sciences, and Physics). This is to be achieved through short (1 cu) courses in each of these disciplines. Each of the four courses will be delivered in the Fall term. The four Science courses would seek some commonality in the topics delivered and so these courses will have a common theme about the "environment" and "climate change", at least in the first few years as the theme can be shifted as needed. Finally, where possible, specific classes will utilize examples from sustainability. For example, Process Engineering may have some sort of focus on "green industry" to offset climate anxiety or a group design project in Circuits II might focus on building a small, renewable power system (likely solar).

The assessment system for the proposed redesigned Engineering courses will use a competency-based approach. Students will be required to show competency in foundational material and basic problem solving in all areas. They will be given multiple opportunities to do so. Their learning will also be tracked against course learning outcomes, which will be the basis for grade determinations. The new courses from the College of Arts and Science will use the standard assessment system for the first year of the new Common First Year; however, Arts and Science faculty will to continue to work with Engineering to adopt this new system in year two of the new Common First Year.

The proposed redesign of the Common First Year curriculum actively incorporates aspects of all five of the Learning Pursuits from the University Learning Charter. These are intertwined to ensure that students will possess all twelve of the graduate attributes required by the Canadian Engineering Accreditation Board for an accredited program. This can be clearly seen in the Vision, Mission, Values and Delivery Strategy for the project (Appendix A).

The College of Engineering has a strong student advising program in place with a number of successful initiatives already offered specifically for first year students. These include programs/services such as transition and extended orientation programs, weekly facilitated study sessions, integrated advising and coaching for first year students, Engineering Learning Communities and the Student Advise Recommender Agent (SARA). In addition they are working on a dedicated pro-active/at-risk advising program for their students. These specific initiatives targeted at first year students will be revised to fit into the proposed redesigned curriculum and new opportunities will be explored leading up to and beyond the implementation of the proposed curriculum changes.

As is the case now, students will be able to enter the new First Year from other programs. Indeed, they will be able to receive more specific credit for courses already taken. However, there will be some unique courses that may not be available in other programs. As such, there will be a "half-speed" entry option where students can take a year to adjust to student life at UofS, while finishing the remaining elements of first year. In fact, if a student coming directly from high school (or coming from the working world, in the case of mature students), wants to "ramp up" to University life, they too can take first year in two stages. We anticipate that this will increase the likelihood of retention for such students.

Conversely, there is the issue of transferring out of the new first year. Through discussions with the College of Arts and Science, there is now agreement on course equivalencies for those who exit Engineering at the end of the Fall or Winter term in first year. Overall, the ability of students to retain credit for prior work will not be significantly worse or better than it is currently, although it will be slightly different. If a student exits at the end of the Fall term, there will be limited transfer credits available to them. If a student exits at the end of the Winter term, there will be significantly more transfer credits available to them. Computer Science and Business are a couple of options that tend to be more popular with students transferring out of Engineering and into other UofS programs. For these, prior to the Fall 2021 launch, we will develop materials that show how the proposed first year courses will likely count towards these options. Also, please see Appendix G for more information on course equivalencies.

It is our expectation that our new Common First Year curriculum will better prepare students for subsequent Engineering courses and work. To assess whether this expectation is met, and to what extent, we will begin assessing the current cohort of first year students against a wide variety of first year knowledge, skills, experiences, and attitudes, this year. We will repeat this assessment next year with the Fall 2020 cohort. We will continue doing this assessment indefinitely, while the new program is running. In this way, we plan to monitor how the new first year is more effective in preparing our students. We will also be able to monitor if any subsequent curriculum improvements are meeting their goals.

All eight Bachelor of Engineering programs at the University of Saskatchewan are accredited by the Canadian Engineering Accreditation Board. This has been looked at closely through the process of redesigning the Common First Year curriculum, ensuring that the changes still allow each program to meet the requirements. Changes to the Common First Year will also allow the College to track progress towards many of the twelve graduate attributes in a more comprehensive format through the Program Learning Outcomes mentioned above. These twelve graduate attributes form an important component of the accreditation process.

A significant amount of research, consultation, thought and iteration has gone into the process of redesigning the proposed new Common First Year curriculum for the College of Engineering (Please see Appendix H for a memo from Manager, Curriculum and Professional Development, Gwenna Moss Centre for Teaching and Learning). This redesign should better prepare students both technically and holistically and provide them with better bridging for the transition to their major.

4. Consultation

The intent of the proposed change is for the University of Saskatchewan's College of Engineering to have the most effective first year engineering curriculum in Canada. The first year curriculum will excite, engage and inspire the students, and will holistically prepare them for the challenges to come in later years. Ultimately, it will also serve to enhance the reputation of the College and the University.

The College of Engineering consulted various stakeholders and governing bodies as part of the endorsement process for this proposal. It also conducted an analysis of 17 other first year engineering programs across Canada in the early stages of the process.

Within the College, there were extensive consultations with the faculty, staff and students in various forms, from department and faculty presentations, to town halls, to surveys, to specially formed committees. Internal consultation started with Phase I in 2017 with a focus on content and what everyone wants out of first year (the "first year graduate attributes"). This phase included several rounds of consultation with College faculty, staff and students. In Phase II (2018-2019) the focus was on the structural model and Phase III (2019-2021) is focused on actual course design and development.

Given that the proposal for curricular change affects other academic units on campus, the College of Arts and Science and the Edwards School of Business were consulted as part of the development of this proposal. The College of Arts and Science will play an integral role in the redesign, as they will deliver a number of courses, such as Math, Chemistry, Physics, and Computer Programming. The Edwards School of Business will no longer be involved in the first year Engineering curriculum.

For the past two years, the proposal has also been presented at the Canadian Engineering Education Association annual conference to validate the progress, solicit feedback and provoke national interest.

The following summarizes the breadth and depth of consultation completed to date.

College of Engineering

The proposed curricular changes were shared with faculty, staff and students in the College of Engineering in a variety of ways.

The College included students in the planning process and relied on their input collected through surveys and town hall meetings and presentations. Selected students in good standing participated in the Committee of the Student Advisors on Curriculum Development (CSACD).

The Design Committee organized and delivered a number of presentations and workshops. For example, in summer and fall 2019, the team conducted a round of departmental meetings (see Appendix I for sample presentation):

August 23, 2019	Department of Civil, Geological and Environmental Engineering
August 27, 2019	Department of Mechanical Engineering
	Department of Chemical and Biological Engineering
September 3, 2019	Department of Electrical and Computer Engineering
	Ron and Jane Graham School of Professional Development

Feedback and questions were collected and responded to either on the spot or in follow-up emails or reports with more details (see Appendix J). These meetings were in addition to numerous smaller meetings with Departmental and Undergraduate Chairs, and other pedagogical leaders in each program.

In 2019, a special Change Management Committee (CMC) was formed (with representatives from the Colleges of Engineering and Arts and Science, and the Gwenna Moss Center for Teaching and Learning). It has been chaired by a Special Advisor to the Provost to handle timelines, resources, and other issues related to implementing the new curriculum (Letter from the CMC Chair is attached as Appendix K). The Design Committee remains focused on learning outcomes, integration, and student needs. The Change Management and Design Committees have frequent and clear communication with each other, as do both colleges. Please see Appendix L for the Core and Extended Project Team structure and membership.

The timeline of the approval processes within the College of Engineering was the following:

February 10, 2020	Undergraduate Academic Planning Committee (UAPC) information meeting and discussion
March 9, 2020	UAPC vote
March 9, 2020	Faculty Council info meeting and discussion
April 15, 2020	UAPC meeting (for revisions)
May 12, 2020	Faculty Council vote.

College of Arts & Science

The proposal is based on the renewed cooperation with the College of Arts and Science (Letter from the Vice-Dean, Academic is attached as Appendix M). Leadership of the College of Arts and Science is involved in the Executive Committee and Change Management Committee. Dedicated faculty members from six departments are involved in the development of the courses that will be taught by the College of Arts and Science. The following departments were consulted and involved in the proposal: Physics and Engineering Physics, Geology, Biology, Chemistry, Mathematics and Statistics, and Computer Science.

In addition, a pair of facilitated retreats were held in early 2019 with leadership and key stakeholders from both Colleges. The retreats led to the creation of the Change Management Committee (CMC), separate from those individuals working on the design of the curriculum, but including the leadership from both Colleges. Through Fall 2019 a number of individual and small group meetings and a design workshop (in November) were held to work on the development of the Arts & Science syllabi related to this redesign (the multiple presentation packages for this design workshop can be shared upon request).

The Arts and Science courses are going through a separate approval process i.e. department approval is followed by the College challenge process. The approval for the Arts and Science courses was obtained in January 2020, and was confirmed by the Director of the Programs Office for the College (Appendix N).

Edwards School Business

The new first year engineering curriculum will no longer include the COMM 102: Introduction to Business Management course. That will have an impact on the Edwards School's tuition revenue. The Edwards School of Business acknowledges the implications, but understands the change is in the interest of the students (Letter from the Associate Dean, Students and Degree Programs is attached as Appendix O). Consultation with the Edwards School of Business is ongoing to identify new opportunities for engineering students to enhance their business-related skills.

University of Saskatchewan

Considering the impact of the proposal on the operational costs of several Colleges, student tuition, space requirements, and logistical constraints, the College of Engineering has consulted with the Registrar's Office on various topics and worked closely with the Senior Coordinator of Scheduling regarding the classroom space needs. The College has also requested feedback from the University Planning and Priorities Committee (see Appendix P for letter received). This feedback has been reviewed and additional information incorporated into this proposal to address the items raised.

The Office of the University Registrar was consulted as a part of the proposal approval process. In particular, a Consultation with the Registrar (CWR) form was drafted on March 18, 2020 and signed via email on March 25, 2020 (please Appendix Q for the CWR form). This process involved consultation with the University Registrar, the Senior Coordinator of Academic Programs and Catalogue, and a Functional Analyst from Student Information Systems.

The Office of the University Secretary was consulted during the development of this proposal. In particular, the Academic Programs & Student Appeals Coordinator was consulted to confirm approval timelines and details of the process of this proposal, which requires the approval of the Academic and Programs Committee and Board of Governors.

5. Budget

Budgetary implications of the proposed change are obviously significant, and not just due to its scale and uniqueness. That is why the budget analysis was done with special care, and included extensive discussions with department(s) responsible for delivery of the new modules regarding revisions that will be made to the teaching assignments, proposed credit units, lecture/lab balance, lab sizes, TA budgets, section overlaps, etc.

For budgetary projections presented here, the College of Engineering assumes enrolment of 600 first-year students, of which 15% are international; these numbers align with targets set in the College's recent Strategic Enrolment Management Plan. Considering the current enrolment numbers (presented in the Appendix R) those assumptions are realistic and attainable. The financial projections also assume a retention rate of 80% for first year students, and 95% for upper year students, both of which are consistent with recent student performance statistics.

Scenario analyses for lower (as low as 300) and higher (650) first year enrolments were also conducted. These analyses demonstrated that the program is sustainable over the full range of possible enrolment levels; however, in keeping with our Strategic plan and efforts to diversify and grow our student body, we have used 600 first-year undergraduate students as the baseline level for the purpose of this proposal.

Summary of Changes

The proposal translates into the following projected net changes in tuition revenue for the College of Engineering, College of Arts and Science and Edwards School of Business:

	Incremental Tuition Revenue											
	Engineering	Arts & Science	Edwards	Total								
-	\$1,261,794	\$568,787	\$(365,060)	\$1,465,522								
	Incremental Costs											
-	Engineering	Arts & Science	Edwards	Total								
Salary Costs =	\$ 521,600	\$ -	\$ -	\$ 521,600								
Operational Costs =	\$ 251,997	\$ 50,529	\$ (3,000)	\$ 299,526								
Total Incremental Costs =	\$ 773,597	\$ 50,529	\$ (3,000)	\$ 821,126								
		Incremental Ne	Net Revenue									
-	Engineering	Arts & Science	Edwards	Total								
-	\$488,197	\$518,259	\$(362,060)	\$644,396								

Table 1: Budget summary of the proposed program (per College) based on 600 first-year students

The College of Engineering and the College of Arts and Science have also discussed and agreed to a plan for one-time transition cost funding for the new courses in the College of Arts and Science related to staff (~200K) and equipment (~180K). Funding for this has been secured through the Provost's Office and donor funds in the College of Engineering. Discussions are also in progress regarding the allocation of THORV 212 as lab space to the Department of Chemistry and possible renovation costs related to this.

The proposed changes to the first year curriculum will result in changes to the total tuition charged for all eight engineering programs, as summarized in Table 2 below:

		Effective Reve	e Tuition nue*			
Program	Current Program	New Program Change % Change		Total	Change (New – Current)	
CHE	\$ 33,444	\$ 35,000	\$ 1,556	4.7%	\$2,982,333	\$207,791
CE	\$ 34,610	\$ 35,738	\$ 1,128	3.3%	\$4,517,881	\$247,979
CME	\$ 32,093	\$ 34,200	\$ 2,107	6.6%	\$1,830,502	\$156,804
EE	\$ 32,086	\$ 34,192	\$ 2,106	6.6%	\$2,880,543	\$246,803
EP	\$ 34,427	\$ 36,716	\$ 2,289	6.6%	\$1,404,565	\$120,265
ENVE	\$ 34,325	\$ 35,578	\$ 1,253	3.7%	\$843,697	\$49,421
GEOE	\$ 35,172	\$ 36,299	\$ 1,128	3.2%	\$1,101,819	\$59,515
ME	\$ 34,761	\$ 36,317	\$ 1,556	4.5%	\$5,531,587	\$376,943
					\$21,092,927	\$1,465,522

Table 2: Tuition total per student and tuition total revenue per program

*Note: Effective tuition revenue is based on the participation factors based on the 5-year average, as well as the upper year attrition

The proposed redesign of the Common First Year program curriculum requires hiring new teaching staff in the College of Engineering. Other costs, such as TA/MA costs, as well as consumable materials, diagnostic placement test costs, automated assessment software costs and contingency will increase in both the College of Engineering and the College of Arts & Science:

	Coll	lege of Engine	ering	College of Arts & Science						
ltem	Existing Program	Redesigned Program	Difference	Existing Program	Redesigned Program	Difference				
APA Position #1	-	\$ 129,155	\$ 129,155	-	-	-				
APA Position #2	-	\$ 121,256 \$ 121,256 -			-	-				
Lecturer Position #1	- \$ 90,372		\$ 90,372 \$ 90,372 -		-	-				
Lecturer Position #2	-	\$ 90,372	\$ 90,372	-	-	-				
Lab Tech Position (ASPA)	-	\$ 90,445	\$ 90,445	-	-	-				
Total Salary Cost	-	\$ 521,600	\$ 521,600	-	-	-				
TA/MA Budget	\$ 142,168	\$ 283,065	\$ 140,897	\$ 187,719	\$ 238,248	\$ 50,529				
Other Operational Costs	\$ 3,400	\$ 114,500	\$ 111,100	\$ 3,967	\$ 3,967	\$ -				
Total Operational Costs	\$145,568	\$397,565	\$251,997	\$191,686	\$242,214	\$50,529				

Table 3: Breakdown of incremental costs

Total lecture, lab and tutorial hours are all expected to increase, which further explains the need for additional staff and increased teaching assistants/marking assistants budget. With the introduction of Summer, Fall and Winter Top Ups, tutorial hours are expected to increase significantly (from 48 to 236.5), along with the commensurate increases in the success of first-year students and retention rates at the College of Engineering.

Term	Course	Lecture	Lab	Total Lecture + Lab	Assigned CU
1	Introduction to Engineering I (GE102)	27	21	48	2
	Engineering Communication I (GE132)	15	13.5	28.5	1
	Engineering Discipline Experience (GE112)	15	15	30	1
	Natural Science	36	24	60	4
	Intro to Computer Science	25.5	18	43.5	3
	Engineering Math I	48	15	63	4
	Mechanics I (GE122)	22.5	12	34.5	2
	Design I (GE142)	16.5	9	25.5	2
	Electrical Circuits I (GE152)	16.5	9	25.5	1
2	Introduction to Engineering II (GE103)	13.5	10.5	24	1
	Engineering Communication II (GE133)	45	15	60	2
	Physics	34.5	12	46.5	3
	Chemistry	34.5	27	61.5	3
	Engineering Math II	33	13.5	46.5	3
	Mechanics II (GE123)	34.5	12	46.5	3
	Design II (GE143)*	21	21	42	2
	Electrical Circuits II (GE153)	22.5	6	28.5	2
	Process Engineering (GE163)	22.5	6	28.5	2
	Bridge Course** (Lecture and Lab hours per bridge course vary by specific bridge course)	42	0	42	3
Tot	al =	525	259.5	784.5	44

Table 4: Contact hours and CUs of the new First Year curriculum

*Civil, Environmental and Geological Engineering programs will not participate in Design II course. **Bridge course in Civil, Environmental and Geological Engineering programs is 2 CUs.

The number of credit units in the common first year curriculum is going to increase (from the current 34) due to a number of new courses that have been created (to a proposed 44). The increased number of CUs in the first year will influence the changes in the upper years of the engineering programs, and lead to the increase in the total number of CUs in the programs: by 10 in Computer, Electrical Engineering and Engineering Physics; by 5 new CUs in Civil, Environmental and Geological (as these programs will not participate in GE 143 course, and the bridge course for these programs is only 2 CUs); and 7 CUs in Chemical and Mechanical Engineering (For details please see Appendix S).

Although consideration was given to the creation of new tuition categories for the new engineering course, the current plan is that the new engineering courses will fall under the existing Tuition Category 7 (currently \$243.2 per CU). Existing tuition categories were also assumed for the new Arts & Science courses (Category 3 for Computer Science courses, Category 8 for Mathematics, and Category 14 for Natural Science courses). Based on those assumptions, Table 5 describes the projected *effective* revenue in the eight engineering programs, including an allowance for expected participation rates in first year courses (to account for incoming students with some transfer credits), as well as attrition in each year of the programs:

Program	Year		Effective Tuition Revenue								
		(includes allowance fo	(includes allowance for 1st year participation rates & upper year attrition)								
		Engineering	Arts & Science	Total							
Chemical	1	\$6,028.96	\$2,874.71	\$8,903.66							
	2	\$3,733.98	\$2,446.74	\$6,180.72							
	3	\$5,613.49	\$760.10	\$6,373.59							
	4	\$5,733.96	\$345.21	\$6,079.17							
		\$21,110.39	\$6,426.76	\$ 27,537.14							
Civil	1	\$5,408.80	\$2,874.71	\$8,283.50							
	2	\$5,218.32	\$1,646.64	\$6,864.96							
	3	\$6,220.58	\$363.38	\$6,583.96							
	4	\$6,321.25	\$-	\$6,321.25							
		\$23,168.95	\$4,884.72	\$28,053.67							
Computer	1	\$5,391.28	\$3,314.63	\$8,705.90							
	2	\$3,949.42	\$2,509.38	\$6,458.80							
	3	\$5,262.01	\$814.64	\$6,076.66							
	4	\$4,971.08	\$690.41	\$5,661.49							
		\$19,573.19	\$7,329.06	\$26,902.85							
Electrical	1	\$5,391.28	\$3,314.63	\$8,705.90							
	2	\$4,386.46	\$4,386.46 \$2,069.46								
	3	\$5,677.20	\$396.72	\$6,073.92							
	4	\$4,971.08	\$690.41	\$5,661.49							
		\$20,426.01	\$6,471.22	\$26,897.23							
Engineering Physics	1	\$5,555.44	\$3,314.63	\$8,870.06							
	2	\$3,049.06	\$3,894.06	\$6,943.12							
	3	\$2,096.27	\$4,625.32	\$6,721.59							
	4	\$2,364.41	\$3,932.59	\$6,297.00							
		\$13,065.17	\$15,766.80	\$28,831.77							
Environmental	1	\$5,408.80	\$2,874.71	\$8,283.50							
	2	\$5,218.32	\$1,646.64	\$6,864.96							
	3	\$6,231.70	\$396.72	\$6,628.42							
	4	\$5,096.71	\$1,067.30	\$6,164.00							
		\$21,955.52	\$5,985.36	\$27,940.88							
Geological	1	\$5,408.80	\$2,874.71	\$8,283.50							
-	2	\$5,206.62	\$1,611.54	\$6,818.16							
	3	\$5,651.66	\$1,983.60	\$7,635.26							
	4	\$5,393.34	\$376.88	\$5,770.22							
		\$21,660.42	\$6,846.73	\$28,507.15							
Mechanical	1	\$6,028.96	\$2,874.71	\$8,903.66							
	2	\$5,206.62	\$1,611.54	\$ 6,818.16							
	3	\$6,653.95	\$-	\$6,653.95							
	4	\$5,497.85	\$690.41	\$6,188.26							
	•	\$ 23,387.38	\$5,176.66	\$ 28,564.03							

Table 5: Student tuition by program

College Statement



Memorandum

To: Dr. Susan Detmer, Chair, Academic Programs Committee of Council
From: Dr. Bruce Sparling, Associate Dean Academic
Date: May 12, 2020
Subject: College Statement Regarding Proposed Revision to First-Year Engineering Curriculum

Dr. Detmer:

We are exited to present the proposal for a revised first-year engineering curriculum. When the College started working on this idea almost four years ago, we started from a blank piece of paper, allowing us to be creative and bold. In the meantime, in our Strategic Plan 2018-2025 we have committed ourselves to implementing a first-year curriculum that will be recognized as the most innovative and effective program in Canada.

The consultation process leading up to this point has been extensive, as outlined in the proposal. On March 9, 2020 the Undergraduate Academic Programs Committee in the College of Engineering carried a motion to recommend to Faculty Council the approval of this proposal. The Engineering Faculty Council voted to approve the proposal on May 12, 2020. As such I am writing to inform the Academic Programs Committee of Council of these recently approved curricular changes in the College of Engineering. I am additionally writing to express my support for these changes and to request that they be further reviewed and considered for final approval at the university-level.

All of this has required an unprecedented level of cooperation and consultation with partners from across campus, for which we are very grateful, and in particular would like to thank the College of Arts and Science for their ongoing collaboration on this project. I also wish to certify that the senior leadership team in the College of Engineering has reviewed and is in support of this proposal.

Please do not hesitate to contact me directly should you have any further comments, questions, or concerns.

Sincerely,

Bruce Sparling, Ph.D., P. Eng., FCSCE Associate Dean Academic College of Engineering Email: <u>engr.academicdean@usask.ca</u> Phone: 306-966-4190

Catalogue Entry

Engineering First Year

Common First Year

First-Year Common Core

All undergraduate students admitted to the College of Engineering are required to complete a common first-year of undeclared studies (known as the first-year common core). prior to applying for admission into an upper-year program.

The first year curriculum features a modular structure, with well-integrated content across courses to reinforce program learning objectives and develop the skills and attitudes that will promote student success. A competency-based assessment approach, supported by daily help sessions, provides students with multiple opportunities to demonstrate mastery of fundamental concepts. Near the end of the Winter Term in first year, students will select a major and will be placed in the appropriate bridging courses to facilitate their transition into the upper year programs.

Prospective students who begin their studies in a college other than the College of Engineering are encouraged to consult an Academic Advisor within the Engineering Student Centre on a regular basis to plan their program of study, choose courses (including electives), and monitor their academic progress.

Recommended Science Electives

Undeclared students who intend to register in the Chemical Engineering program are advised to complete <u>CHEM 115.3</u> General Chemistry II Chemical Processes in their first year; otherwise, they must take the course in the first term of their second year.

Undeclared students who intend to register in the Civil Engineering, Geological Engineering, or Environmental Engineering programs are advised to complete <u>GEOL 121.3</u> Earth Processes in their first year; otherwise, they must take the course in the first term of their second year.

Undergraduate students registered in the Environmental Engineering program must complete <u>BIOL 120.3</u> The Nature of Life, <u>CHEM 115.3</u> General Chemistry II Chemical Processes, and <u>GEOL 121.3</u> Earth Processes by the end of their second year.

Year 1 (41-4434 credit units depending on major)

Fall Term

*The start and end dates of the courses vary, as the duration of the courses varies from 4 to 12 weeks.

- <u>CHEM 114.3</u> General Chemistry for Engineers
- <u>COMM 102.3</u> Introduction to Business Management
- <u>GE 101.1 Introduction to the Engineering Profession</u>
- GE 111.3 Engineering Problem Solving
- <u>GE 124.3</u> Engineering Mechanics I
- MATH 123.3 Calculus I for Engineers
 - GE 102.2 Introduction to Engineering I
 - GE 112.1 Engineering Discipline Experience
 - GE 122.2 Engineering Mechanics I
 - GE 132.1 Engineering Communication I
 - GE 142.2 Design I
 - GE 152.1 Electrical Circuits I
 - CMPT 142.3 Introduction to Computer Science for Engineers
 - MATH 133.4 Engineering Math I
 - Natural Science Series (must take all):
 - o PHYS 152.1 Introduction to Atoms and Nuclei for Engineering
 - o CHEM 142.1 The Global Impact of Chemistry for Engineering
 - GEOL 102.1 Introduction to Geology for Engineering
 - BIOL 102.1 Nature for Engineering

Winter Term

* The start and end dates of the courses vary, as the duration of the courses varies from 4 to 12 weeks.

- GE 121.3 Engineering Design
- GE 125.3 Engineering Mechanics II
- MATH 124.3 Calculus II for Engineers
- PHYS 155.3 Introduction to Electricity and Magnetism

- 3 credit units Science Elective
 - GE 103.1 Introduction to Engineering II
 - GE 123.3 Engineering Mechanics II
 - GE 133.2 Engineering Communication II
 - GE 143.2 Design II (Please note: This course is not taken by students entering Civil, Geological and Environmental Engineering majors.)
 - GE 153.2 Electrical Circuits II
 - GE 163.2 Process Engineering
 - CHEM 146.3 General Chemistry for Engineering
 - MATH 134.3 Engineering Math II
 - PHYS 156.3 Electromagnetism and Waves for Engineering

Discipline Bridge Course (depends on selected major):

- CMPT 146.3 Principles of Computer Science for Engineers (Computer and Electrical Engineering, and Engineering Physics)
- ME 113.3 Engineering Analysis I (Mechanical Engineering)
- o CHE 113.3 Unit Operations in Chemical Process Engineering (Chemical Engineering)
- CE 271.2 Spring Surveying Camp (Civil, Geological and Environmental Engineering)

Fall Term or Winter Term

3 credit units Junior Humanities or Social Science Elective

Electives

Science Elective

BIOL 120.3 The Nature of Life

<u>CHEM 115.3</u> General Chemistry II Chemical Processes

GEOL 121.3 Earth Processes

PHYS 125.3 Physics and Technology

Junior Humanities or Social Science Elective

ANTH 111.3 One World Many Peoples Introduction to Cultural Anthropology

ARCH 112.3 The Human Journey Introduction to Archaeology and Biological Anthropology

ARCH 116.3 Introduction to Near Eastern and Classical Archaeology

CLAS 110.3 Greek Civilization

CLAS 111.3 Roman Civilization

<u>CMRS 110.3</u> The Graeco Roman Tradition Evolution and Reception

<u>CMRS 111.3</u> Medieval and Renaissance Civilization

ECON 111.3 Introductory Microeconomics

ECON 114.3 Introductory Macroeconomics

GEOG 130.3 Environment Health and Planning

HIST 110.3

HIST 111.3

HIST 115.3 History Matters Ideas and Culture

HIST 121.3

HIST 122.3

HIST 125.3 History Matters Indigenous Colonial and Post Colonial Histories

HIST 135.3 History Matters Gender Sex and Society

HIST 145.3 History Matters War Violence and Politics

HIST 155.3 History Matters Science and Environment

HIST 165.3 History Matters Health and Society

HIST 175.3 History Matters Identities and Communities in Transition

INDG 107.3 Introduction to Canadian Indigenous Studies

LING 111.3 Structure of Language

LING 112.3 Dynamics of Language

PHIL 120.3 Knowledge Mind and Existence

PHIL 133.3 Introduction to Ethics and Values

PHIL 140.3 Critical Thinking

POLS 111.3 Democratic Citizenship in Canada

POLS 112.3 Justice and Injustice in Politics and Law

<u>PSY 120.3</u> Biological and Cognitive Bases of Psychology

<u>PSY 121.3</u> Social Clinical Cultural and Developmental Bases of Psychology

<u>SOC 111.3</u> Foundations in Sociology Society Structure Process

<u>SOC 112.3</u> Foundations in Sociology Social Construction of Everyday Life

WGST 112.3 Introduction to Womens and Gender Studies

Appendices

Appendix A - Vision, Mission, Values and Delivery Strategy



College of Engineering First Year Redesign Project

Vision:

The University of Saskatchewan's College of Engineering will have the most effective first year engineering program in Canada. The first year program will excite, engage and inspire our students, and it will holistically prepare them for the challenges to come in later years. Ultimately, it will also serve to enhance the reputation of the College and the University.

Mission:

Our mission is to implement a first year engineering program that

- attracts a diverse set of students well-suited for the work and challenges of engineering,
- effectively bridges the curricular and socio-cultural transition into engineering student life,
- allows students to make a well informed decision as to whether engineering is for them,
- shows students career possibilities in the profession and available educational pathways,
- encourages students to engage in self-directed, life-long learning, including extracurricular activities,
- develops every student's knowledge, skills, experiential base, and attitudes/beliefs in ways that effectively prepare them for the challenges to come in their academic careers, and beyond,
- sequences material and organizes learning and skill development progressively and thoughtfully,
- integrates knowledge and skills from different subject areas in realistic and stimulating scenarios,
- develops a sense of professional ethical responsibility and behaviour,
- respects and values diversity and inclusion,
- applies formative and summative methods of student assessment that accurately evaluate student performance and/or growth, and that support further improvement, and
- encourages and helps facilitate a healthy life balance, both physically and psychologically.

Values:

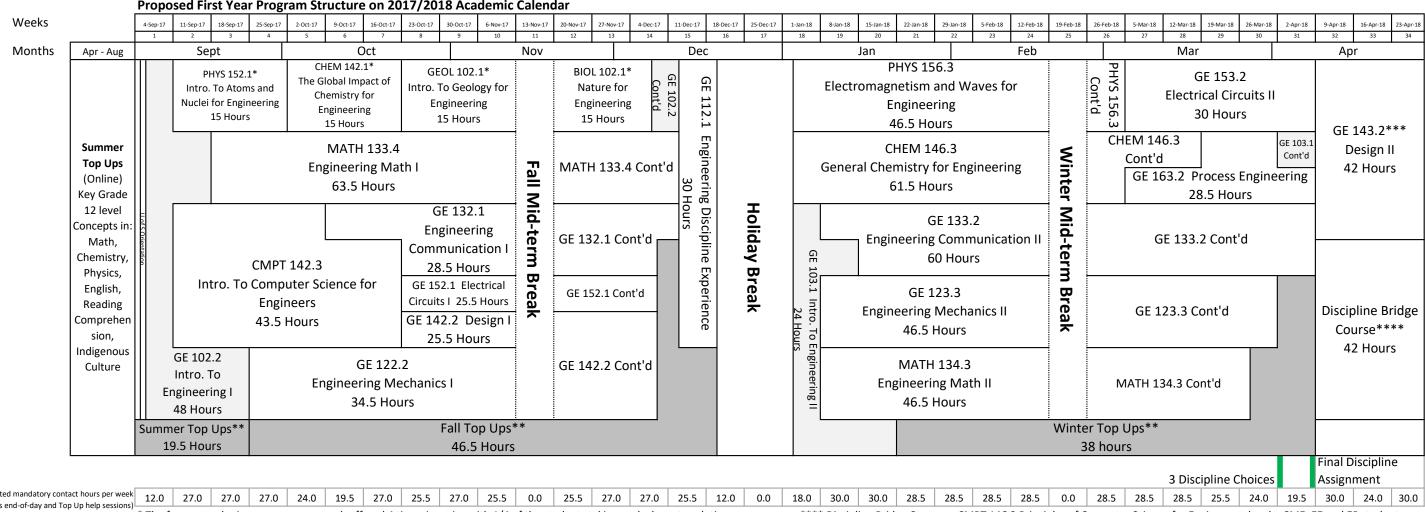
In our delivery of the mission, we will be guided by our desire to be informed, consultative, holistic, innovative, inclusive, and responsive.

Delivery Strategy:

We will fulfill the mission by

- consulting stakeholders, including prospective students, current students, alumni, College staff, departments/programs, College leadership, the CEAB, and APEGS,
- studying and adopting appropriate best practices from first year programs across Canada and abroad,
- ensuring curriculum content is relevant, appropriate, and current,
- embracing and adopting proven best practices in pedagogy to facilitate deep, intrinsically motivated, and self-directed learning,
- exploring novel content, delivery methods, delivery structures, and evaluation methods, as appropriate,
- removing any identifiable and unnecessary barriers to success for current and prospective students,
- presenting, developing an appreciation for, and applying Indigenous perspectives in engineering and design,
- adopting a holistic approach to education that considers the student as a complete person, and
- developing methods of receiving timely feedback on important program metrics to facilitate continuous improvement.

Appendix B - Structural Model (v33)



Version Date: March 1, 2020 (V33)
Branasad Eirst Vaar Bragram Structure on 2017/2018 Academic Calendar

Estimated mandatory contact hours per week (excludes end-of-day and Top Up help sessions)	12.0	27.0	27.0	27.0	24.0	19.5	27.0	25.5	27.0	25.5	0.0	25.5	27.0	27.0	25.5	12.0	0.0	18.0	30.0	30.0	28.5	28.5	28.5	28.5	0.0	2
(* The fo	our natu	ral scien	ice cour	ses are e	each offe	ered 4 ti	mes in s	eries w	ith 1/4 c	of the st	udents t	aking ea	ch class	at each	n time.		****	* Discipli	ine Brid	ge Cours	e: CM	PT 146.3	3 Princip	oles of C	Corr
	** Sum	mer, Fal	ll and W	inter To	p Hours	include	only op	tional he	lp sessi	ons.												ME	113.3 E	ngineer	ing Ana	lysi
	*** GE	143.2 D	esign II t	taken by	/ ChE, CN	ME, EE, E	EP and N	∕IE stude	ents.													CH	E 113.3	Chemica	al Engin	eer
	⁺Hours	listed fo	r all cou	rses are	the tota	al manda	atory co	ntact ho	urs, inc	luding b	oth lect	ures and	l labs wł	nere app	olicable.							CE	271.2 Sp	oring Su	rveying	Car

Computer Science for Engineers taken by CME, EE and EP students. Ilysis I taken by ME students.

eering Unit Operations and Plant Design taken by ChE Students.

Camp taken by CE, EnvE and GeoE Students.

Appendix C - Design of a Completely New First Year Engineering Program at the University of Saskatchewan

Design of a Completely New First Year Engineering Program at the University of Saskatchewan

Joel B. Frey, Sean Maw, Susan Bens, and Bruce Sparling University of Saskatchewan Corresponding Author: sean.maw@usask.ca

Abstract – The rapidly evolving role of the engineering profession in society requires an engineering graduate with a more diverse and robust skill set than ever before. To answer this challenge, the University of Saskatchewan's College of Engineering has embarked upon a complete redesign of its first year program. This project essentially started from a "blank slate" and posed the question, "If we could design any first year program that we wanted, what would we create?" The outcome of this endeavor is intended to be an extremely effective first year program that excites, engages and inspires students, and that holistically prepares them for the challenges to come in later years. In this paper, we review the broad learning objectives of our new first year, and the values that we applied to our decision making during its design.

The overall project consists of three distinct phases: determination of required first year graduate attributes, development of program structure and delivery methods, and detailed course design. Phase I has been completed. It has left us with a detailed inventory of knowledge, skills, experiences, and attitudes, distributed across 23 content categories, that the College wants students to internalize by the end of their first year of study.

We will outline the methods that we used to compile and refine this attribute inventory, including multiple approaches aimed at meaningful stakeholder engagement, surveys of existing first year programs across Canada, and an analysis of gaps and redundancies between the Saskatchewan high school curriculum and our existing first year program. We will also describe the 23 content categories used to organize the graduate attributes of the proposed first year program and how these categories are weighted in relative terms.

We share some of our key learnings from Phase I of the project, including which consultation strategies worked most effectively, why we focused on first year graduate attributes and not content, and key elements that will be emphasized in our new program. We will also briefly describe the process by which we are starting to develop the program structure and delivery methods i.e. Phase II.

Keywords: first year, engineering, program, design, curriculum, planning, graduate attributes, Saskatchewan

1. INTRODUCTION

Curriculum change in higher education is known to be challenging [1]. Incremental improvement is a common strategy for most academic program development and, as an optimization process, it can work very well. However, given the passage of enough time combined with enough change in the service environment, the best "solution" to the current incarnation of the first year pedagogical "problem" might not be found using this approach. This is akin to seeking an energy minima in a distributed energy field [2]. We do not want to get trapped in a local minima from which we will never escape. However, this can happen using incremental optimization. This strategy can prevent us from finding a better way (a global minima). To avoid this fate, periodic leaps are sometimes necessary to thoroughly explore the "pedagogical energy landscape".

This was the rationale that led the University of Saskatchewan's College of Engineering to undertake a redesign of its first year, starting from a blank sheet of paper. This approach allowed for a wide-angle view of the landscape to see where a first year engineering program could best meet the needs of the present and near future, given the current environment as characterized by student attitudes, preparation, motivations, needs, and skills.

The work began with a committee looking at different structural models for a new first year program. It soon became clear that the volume of work required for the redesign demanded more than volunteer effort. Last year, a full-time curriculum developer was hired, and a small management and advisory team engaged more intensively with the project. We identified the main phases to the project, as well as a clear vision of what we were trying to accomplish and a mission by which the vision could be achieved. Taking a technical-rational approach [3], a focus on the quality of the innovation informed by diverse expertise, iteratively examined by stakeholders, adjusted and refined in combination with reasoned planning for implementation, can create the change envisioned.

The vision for the redesign was simply to attract excellent students to our College from Saskatchewan, Canada and beyond, and to excite, engage and inspire our students, while preparing them holistically for the challenges to come in later years. While retention is a common concern and a driver for change in higher education, this curriculum design process intentionally focuses on the qualities of the learning experience that engage and empower students. There is a well-founded expectation that retention impact will be positive when the quality of the learning experience is enhanced [4].

Informed by research on effective instruction in undergraduate science and engineering [5], research-based principles for teaching and learning in higher education [6,7], and research on policies and practices known to support student success [8], the mission for this curriculum would involve:

- attracting a diverse set of students well-suited for the work and challenges of engineering,
- effectively bridging the transition into engineering student life,
- allowing students to make a well informed decision as to whether engineering is for them,
- encouraging students to engage in self-directed lifelong learning, including extracurricular activities,
- showing students career possibilities and available paths through the College,
- facilitating student development in terms of knowledge, skills and attitudes/beliefs in ways that effectively prepare every student for the challenges to come in their engineering degree, and beyond,
- sequencing learning material progressively and thoughtfully,
- integrating knowledge and skills in different areas in realistic scenarios,
- applying formative and summative methods of student assessment that accurately evaluate student performance as well as encourage growth,
- helping and encouraging students to be healthy and strong, physically and psychologically, and
- providing them with sound academic guidance as they consider their career path.

We would do this by:

- consulting all stakeholders,
- studying best practices for first year programs across Canada and around the world,
- ensuring curriculum content is relevant, appropriate, and up-to-date,
- embracing proven best practices in pedagogy to facilitate deep, intrinsically motivated, and self-directed learning,
- exploring novel content delivery methods and structures, where appropriate,
- removing unnecessary barriers to success for underrepresented groups of students,
- presenting, and developing an appreciation for, Indigenous perspectives in engineering and design,
- adopting a holistic approach to education that considers the experience of the student as a complete person, and

• developing methods of receiving timely feedback on important program metrics to facilitate continuous improvement.

The project was broken into three phases:

- Phase I determination of required first year graduate attributes,
- Phase II development of program structure and delivery methods, and
- Phase III development of course material.

Phase I has been largely completed and is the focus of this paper, while Phase II is currently underway.

2. PHASE I METHODOLOGY

2.1. First Year Graduate Attributes

The focus of Phase I was the determination of required first year graduate attributes. It began as the identification of content in first year. However, it was quickly realized that attributes and content are not equivalent concepts and the differences between them became pivotal to our overall program design approach.

In this work, *content* defines what is in the program. Graduate attributes define, most simply, what the students leave the program with. Examining the notion of attributes at completion of first year has helped us to come to explicit terms with the fundamental purposes of the first year program for student learning [9]. Not all students enter the program in the same state of preparedness and not all progress through the material at the same speed and with the same degree of success. Nevertheless, students are expected to leave first year well-equipped with knowledge (facts and concepts), skills (demonstrable abilities), experiences (meaningful applications of skills), and attitudes/beliefs (adoptable philosophies), or KSEA [10]. This is the primary basis for being considered "prepared" for second year and beyond. Sometimes these expectations are explicit, but we learned that, oftentimes, they are not.

In Phase I, it became readily apparent that we needed to be explicit about all of these expectations, where relatively few had ever been so. Moreover, if the "output" of first year (students having these "graduate attributes") was to meet some minimum standards, then by definition, the first year would have to effectively adapt to differences among student preparedness, success rates, and speeds of learning. This insight became a major design parameter for the structure and delivery models in Phase II.

In Phase I though, the idea of "graduate attributes" clarified what information we were seeking and how we would manage it. Ultimately, we gathered information in 23 distinct topical categories spanning the breadth of all that we could imagine might be included in first year. Collectively, preparing students with these attributes would meet the specifications of our vision and mission.

The following four sub-sections describe how we gathered these first year graduate attributes.

2.2. Analysis of Existing Programs (Internal)

The first step of Phase I was the determination of the content and learning objectives currently included in first year engineering at the University of Saskatchewan. Less than half of the courses taken by engineering students enrolled in the full first year program are taught within the College. Therefore, this first step required consultation across campus.

We began by gathering the most recent syllabus for each course and extracted and categorized what we believed to be the most important knowledge, skills and attitudes aspired to in each course (the idea of experiences being a separate and distinct type of attribute had not yet emerged). These lists were then shared with course coordinators and instructors for feedback on the accuracy of our interpretations. This feedback, as well as meetings with instructors, and hours spent reading over course notes and lab manuals, resulted in the most detailed itemization of the first year curriculum that the College has had in recent memory.

Anecdotal evidence gathered from discussions with first year instructors led us to believe that certain existing courses contained a large amount of material which was potentially redundant with prerequisite Saskatchewan high school courses. As a result, we also conducted a brief analysis of the learning outcomes of these high school courses to identify where, on paper at least, there was significant overlap. The courses evaluated included Pre-Calculus 30, Calculus 30, Chemistry 30, and Physics 30.

2.3. Analysis of Existing Programs (External)

An analysis of 17 other first year engineering programs across Canada was conducted, including UofA, UofC, UBC, UofM, McGill, McMaster, Dalhousie, Queens, Western, UofT (TrackOne), UofR, Victoria, Carleton, Guelph, York, Ryerson and Waterloo. Utilizing online course catalogs for each school, a comparison of relative weightings of each subject (by contact hours) at each institution was performed. For programs with direct entry into each discipline (a non-common first year), the first year program experienced by mechanical engineering students was chosen for comparison, due to the relatively broad applicability of a mechanical engineering program. This survey of the Canadian engineering education landscape also presented an opportunity to seek out innovative ideas in content delivery being implemented across the country.

2.4. College Staff and Faculty Engagement

While informal discussions with staff and faculty in the College helped to socialize, normalize and inform the development of the project, we sought to formalize the input process. This was done through the use of surveys. It was decided that these initial surveys should remain internal to the College as, in alignment with the concept of engineering being a self-regulating profession, the members of the College should be in the best position to determine the ideal attributes of our students. Moreover, the staff and faculty of the various programs within the College are key stakeholders in this project, as the effects of success or failure to effectively prepare the students for upper year study have enormous implications on them.

The first faculty and staff survey (FSS1) asked the respondents to determine what KSEA attributes all students *should have* by the end of their first year, across all 23 graduate attribute categories listed in Table 1 (see Section 3). It did not ask respondents what KSEA attributes they believed the students do develop as a result of our existing program. Program undergraduate chairs were asked to consider what attributes the ideal student entering their particular program would have. FSS1 also included a 24th category of "Other", but responses received under this categories after subsequent analysis.

The results of FSS1 were compared against the list of learning objectives arising from our existing program (the compilation described in Section 2.2). This comparison generated a list of content that is currently covered in first year, but was not noted as being needed by any respondents in FSS1. This list was then disseminated to the College faculty and staff in the form of a second survey (FSS2) asking which, if any, of these identified content items should be retained. Since these items were not foremost in any respondent's mind during the first survey, we also asked for a justification for retention.

The results of FSS2 were used to finalize a draft first year graduate attributes proposal. This exhaustive list of KSEA attributes for each of the 23 categories was shared with department heads and undergraduate chairs in each engineering program in the College. As well, relevant external programs (Mathematics and Statistics, Chemistry, Physics, Biology, Geology, and Business) were also consulted for input. The project team held meetings with representatives from each internal and external department to discuss the generated attribute lists most pertinent to each department.

Useful feedback was received from subject matter experts (SMEs) in every meeting, with the needs and/or interests of their respective programs kept as the focus of the conversation. Post-meeting, departments were asked to provide further written feedback as well as a list of core concepts and threshold concepts appropriate for first year study for their respective field. Threshold concepts are transformative and troublesome concepts, an understanding of which forever changes a student's perspective on the respective field of study [11]. We requested these lists from SMEs to allow for the prioritization of attributes once we begin allocating contact hours for each category in Phase II of the project.

2.5. Student Engagement

It is not the norm to involve students early on and with frequency in first year curriculum design, yet there is great potential and value for their strategic and appropriate involvement [12]. Informed by the notion of students-aspartners [13], substantive student engagement was incorporated into Phase 1. In November of 2017, we drafted a student engagement strategy and reached out with a student survey (SS1) focused on Fall term curriculum content. Current first year students were surveyed on their general experience in first year, including their feeling of academic preparedness, their sense of belonging, and supports offered by the College. They were also asked to rate their experience in each of their first term courses and to identify any content in each course which was not new to them. This could reveal materials that were possibly redundant.

A separate version of SS1 was sent out to all upper year students in the College. This survey asked students to identify core concepts they took away from each existing first year course and to rate how prepared they were for the demands placed on them by their program in second year in each of the 23 content categories.

In March – April of 2018, a second student survey (SS2) was sent out to all current first year students asking similar questions to SS1, but focusing on the Winter term first year courses.

To facilitate more meaningful student engagement, we also created a Committee of Student Advisors on Curriculum Development (CSACD). The first members of this committee consisted of 21 students with representation from every year of study and each of the 8 upper year programs offered by the College. Program diversity was the main selection factor for this first group (there were over 70 interested applicants), but students were also chosen for having different backgrounds and life situations to be sure that as diverse a voice as possible was represented by the committee.

The committee became active in January, 2018 with anticipation of continued engagement over the summer and renewed membership in the Fall of 2018. The committee has met monthly to provide feedback to the project team on curriculum proposals. We have evolved the engagement philosophy beyond simple consultation into a more cocreative environment, by providing opportunities for the student advisors to provide ideas for the new program and to assist in conducting research into best practices.

This broad and varied strategy for student engagement has yielded some very meaningful insights for the project team and will most certainly result in the development of a more robust and accessible program [12].

3. FIRST YEAR GRADUATE ATTRIBUTES

The stakeholder engagement described above yielded a first year graduate attributes proposal with almost 1800 individual line items describing the desired KSEA attributes in the 23 categories listed in alphabetical order in Table 1. Table 1 also shows the percentage of line items attributed to a given category. It should be noted that not all line items in the proposal represent the same number of contact hours or credit units, but it is interesting to compare the relative detail included for each.

Obviously, the full list of attributes cannot be included here. However, interesting elements will be discussed and related to the points in the project mission statement to which they contribute.

Table 1: Proposed first year KSEA graduate attributes categories and the relative proportion of each category.

Attribute Category	% of Proposal
1. Biology and Environmental Engineering	2%
2. Business, Economics and Entrepreneurship	2%
3. Chemistry and Chemical Engineering	12%
4. Communication (Oral, Written and Graphical)	7%
5. Computing, Software, Programming and Computer Engineering	7%
6. Design	5%
7. Electricity, Magnetism and Electrical Engineering	6%
8. Geology, Civil Engineering and Geological Engineering	4%
9. Health, Safety and Risk Management	2%
10. Humanities and Social Sciences	2%
11. Integration Between Subject Areas	1%
12. Intro. to the Profession, Ethics and Inclusivity	4%
13. Leadership and Group Dynamics	3%
14. Math: Algebra	5%
15. Math: Calculus	7%
16. Mechanical Engineering and Mechanics: Dynamics	6%
17. Mechanics: Statics	5%
18. Physics and Engineering Physics (excluding mechanics, electricity and magnetism)	8%
19. Project Management	2%
20. Research (Students conducting research)	2%
21. Study Skills, Life Skills and Self-Assessment	5%
22. Teaching (Teaching students to teach, mentor and tutor)	2%
23. The University/Institution (U of S history, policies, infrastructure and services)	1%

3.1. Better Preparing Students

When it comes to the "hard" technical content in the proposed curriculum, there are few, if any, major surprises. The core technical expertise required by a burgeoning engineering student is well defined by Canadian engineering accreditation requirements [14] and is well covered by the proposed attributes. The review of first year programs across Canada showed little variation in the basic philosophy of the content covered. An average distribution of contact hours for the Canadian institutions studied can be seen in Figure 1 in the middle column. This distribution is similar to that seen in previous surveys and is similar to the distribution for major US schools, although many often delay linear algebra and some physics content until second year [15,16].

Relatively unique elements identified in the existing University of Saskatchewan first year engineering program included a 3 credit unit (CU) business class, a lack of any computer programming, and a choice of natural science elective between physics, biology, geology or an additional chemistry class. A full comparison of the distribution of contact hours for the existing U of S program, the Canadian average distribution, and the proposed U of S program can be seen in Figure 1. The proportions represented for the proposed program are based on the number of line items in the proposal, which do not fully correlate with the contact hours that will eventually be associated with them. It can be seen that computer programming will make up a sizable proportion of the new first year program. It should also be noted that the apparent decrease in math and mechanics content is not precisely indicative of what the final program will include. These are areas of study well defined at the U of S and stakeholders did not feel the need to itemize these topics in as much detail as some other topics.

The proposed program will do away with the existing natural science elective and will replace it with a strong introduction to each of the four core sciences (chemistry, physics, geology, biology). The learning objectives in each of the four areas will be the same: appreciate each in relation to the others, compare and contrast with each other and with respective engineering disciplines (e.g. chemistry versus chemical engineering), and develop a skill that can be applied to virtually any branch of engineering. These science experiences will involve hands-on lab activities.

Similarly, each of the 8 engineering programs will be introduced to all of the first year students in an intensive multi-hour format with similar learning objectives i.e. appreciate each in relation to the others, compare and contrast with each other, and develop a skill that can be applied to all of the other branches of engineering. This will give them all a better sense of the breadth of the engineering profession.

As well, instead of a standard social science or humanities course, students will take part in a new type of arts course that will orient them to the various fields in the social sciences and humanities, while linking them to engineering. In this way, when they do select subsequent arts electives, those choices will be informed and relevant and will provide a more meaningful experience [17].

The overarching learning objective is to better prepare students to make a good vocational choice, whether that be engineering generally, or their discipline, specifically.

The proposed program will also ensure appropriate preparation in areas such as mathematics and mechanics, while better preparing all first year students in electrical circuits, physics, CAD, computer programming, technical communication, and engineering design. Design will be more deeply integrated with other course material, and will include elements of interest to every discipline.

The curriculum will also focus on better preparing students to acquire an engineering-related summer job after their first year of study. They will be proficient in at least one programming language, will have basic first aid, CPR and WHMIS training, and will have an understanding of an engineer's professional obligation for health and safety. They will have solid design and CAD skills, and will be able to apply the basics of project management.

We also intend to equip students with a better sense of intuition in their fields. The proposed program includes experiences in several categories that focus on seeing or feeling the major concepts, not just reading about them. For example, students will develop an intuition for what 10 N feels like, what 30 ml looks like, and how circuits behave.

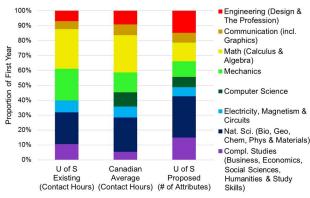


Figure 1. First year curriculum comparison.

3.2. Bridging the Transition into Engineering

The proposed curriculum places a strong emphasis on bridging students into the program, both academically and socially. Important contributors to a sense of belonging on campus, including an awareness of the supports available, are explicitly identified in the proposal.

The proposal does list many math concepts and skills, such as logarithms, graphing, taking limits and basic differentiation, which have all been identified to be redundant with College pre-requisites. A similar situation exists with chemistry. The proposal includes items such as basic atomic structure, the periodic table, and types of molecular bonds. These items remain, as they cannot be neglected should a student not have a basic competency. These are KSEAs that a student should have by the end of first year. However, if they enter the program with them, they should not have to spend time reviewing them. We will explore options, such as challenges-for-credit, to allow better prepared students to minimize redundancy.

General life skills will also be addressed to better facilitate a smooth transition into the College. This transition support will include ensuring basic competency with word processors and spreadsheets, as well as study skills, time management, exam writing strategies, learning styles, critical thinking, and group dynamics/teamwork training.

Finally, we will explicitly address the reasons they came into engineering. This includes a robust introduction to the scope of the profession and to available career paths. In addition to an awareness of traditional careers in industry, students will acquire a better understanding of the scientific method and how discovery research plays a role in engineering. They will learn the key similarities and differences between discovery research and engineering design. Students will also learn how to apply effective teaching methods to teach, mentor and tutor their peers, to develop an understanding that teaching is often the most effective way to improve one's own understanding of a concept. Business content in first year will become more focused on an awareness of entrepreneurship and how that can relate to design.

3.3. Sequencing and Integration of Material

While sequencing of the content in the program is beyond the scope of Phase I, it is anticipated that various elements of the program can be integrated, meaningfully and purposefully, with mutual benefit. One example is the application of computer programming. If programming is covered early in the year, it can be applied to many other subjects, such as in the solving of systems of linear equations in algebra. Building linkages between course materials in different topic areas will be a key part of the revised first year.

3.4. Encouraging Good Health and Growth

Good physical and mental health are qualities that we don't just hope to facilitate in the program; they will be explicitly supported by several learning objectives. These include an awareness of mental and physical health indicators, practice in implementing effective methods for stress management, an internalization of Carol Dweck's Growth Mindset [18], and how to deal with failure. We want our students to be physically, mentally, and socially healthy. The first year content focused on these goals will be facilitated and enhanced by program structure and delivery methods.

3.5. Attracting and Maintaining Diversity

An understanding and appreciation of the importance of respect, diversity, and inclusivity are specific line items in the proposal. There are also items outlining an Indigenous cultural contextualization and the integration of Indigenous content into the curriculum. This aligns with the University of Saskatchewan Strategic Framework and Narrative for 2025 [19]. Our goal is to provide a welcoming learning environment in which students of any gender, race, ethnicity, religion, identity or background can work hard and succeed in becoming an engineer.

4. LESSONS LEARNED

We have learned much from this (ongoing) program design process, and specifically from the first phase that has focused on first year graduate attributes.

An early lesson was found in the design process that we adopted. Most design processes involve the determination of constraints before coming up with alternative solutions. We are applying constraints at the end of our process. This works in this case because of the composite nature of the curriculum "solution" that we are striving for i.e. it won't all be acceptable or unacceptable. Parts will or will not be. Given the nature of the creation/ideation process that we used, we knew that at least most of the ideas would be deemed acceptable by our College and accreditation So we adopted open-ended ideation without bodies. constraints to prevent the inhibition of new and less conventional ideas. This worked for at least some of our stakeholders, such that we were able to gather a broad swath of suggestions, some of the more novel of which may be acceptable to accreditation bodies within the context of the whole program.

Another design lesson was borrowed from the design axiom "fail early, fail often" [20]. In our context, that meant running our ideas by a wide variety of different people. With intent, we started with more "friendly" audiences whose goals were in close alignment with those of the project. When early "fails" were noted, they were remedied before they could become big and serious fails in front of more challenging audiences. Notably, this strategy has become more important as we have moved into Phase II (Program Structure and Delivery).

A very important lesson we learned was that of placing our focus on first year "graduate attributes" as opposed to content, following the framework of constructive alignment [21]. As noted earlier, we have a variable input (incoming students), variable processing of those inputs (progress through first year), and a fairly constrained definition of our "minimum viable product" (first year graduates). Non-adaptive first year content simply cannot deliver this product due to the variability in inputs and processing. By shifting the focus to graduate attributes, this makes clear what the desired outcomes are, while leaving the methods to achieve those outcomes as flexible as possible. For example, it highlights the importance of admissions criteria. It also suggests that not all students should go through all the same courses, in the same way.

Yet another design axiom was highlighted during our experiences with Phase I of this project, that being "don't get married to your first solution". Ultimately, the details of any solution do matter. But they don't matter too much, yet. The key take-away at this stage is the big picture perspective of what topic areas should be addressed by the end of first year, and for what reasons should they be addressed. The ever-present temptation to focus on how material would be delivered is a short-circuiting process that distracts from these key questions. In this design process, "how" comes later, and must be ignored in this first phase of the program design.

Design engineers also know that one should always take input from stakeholders with a grain of salt. While the perception of a need may always be valid, the actual need may not always be so. That is, we must process input from clients and users through a filter that serves to address our design objectives. If we were told by a stakeholder that effective writing skills were not an important first year graduate attribute (because those skills weren't very relevant to that stakeholder), that might be true for that stakeholder, but it wouldn't necessarily be true for the program, given the goals of the program. We learned to treat feedback differently depending on the investment of the feedback provider. Indeed, we learned to only seek feedback from stakeholders on topics that were important to them and/or that they were knowledgeable about. The clearest way in which we addressed this point was by specifically asking stakeholders what outcomes they wanted from first year, and not what outcomes they didn't want from first year.

Indeed, we learned that survey feedback often required follow-up interpretive discussions in order to contextualize comments properly. Some respondents, especially those involved in compiling the content of the existing first year, just entered the attributes of the existing class with which they were involved. While a valid response, it remained unclear if this was the path of least resistance or whether this was actually tantamount to saying, "I feel every detail covered in this class is crucial for all engineering students to absorb by the end of first year." Later conversations with those instructors facilitated a better understanding of why they answered the way they did.

Another key recognition for us, and more especially for our stakeholders, was the idea of pre/co-requisite courses for their program. We have a common first year leading into disciplinary programs in years two, three and four. Oftentimes, we heard the cry "we need that course for our upper year courses". However, when pushed (vigorously, in some cases) everyone conceded that they needed the learnings of a course, not the course itself. And when pressed further, it became clear that they didn't require all of the learnings coming out of a course. They just needed some of them. When everyone adopted this perspective, it provided us with clarity on what specific first year content didn't directly lead anywhere in subsequent courses. These situations provided some opportunities for dropping noncritical course materials.

A similar concept involved "just-in-time learning" [22]. In several cases, we were told that first year material was needed for third and fourth year courses. However, pedagogical theory, as well as many students, pointed out that students forgot that material by the time they needed to use it. Early on, we adopted the philosophy that if the only need for some part of the existing first year was in third and fourth year, then first year was not the time to introduce it in the expectation that it would be retained by third or fourth year.

5. CONTINUING WORK

Phase I was largely completed by January 2018. However, a failure to secure detailed feedback of a consistent and similar nature from all stakeholders (especially the engineering programs) left some work remaining. As Phase II began in early 2018, our concern over this issue diminished. In the spirit of iterative design, we are going through a number of design cycles which refine what will be taught, when it will be taught, and how it will be taught. We are forming an advisory committee consisting of representatives from every academic program with a stake in the first year, and these individuals are helping us in this data collection/refinement/clarification process.

We have adopted a design process that is analogous to sculpting. It is very compatible with the conventional North American design process that moves from conceptual to configuration to detailed design. In this analogy, imagine that you are a sculptor and that the final design will be the finished sculpture. One begins with the rough outline of the shape. Then there is refinement of the parts. Finally, there is detailing of the minutiae to finish the design. Phase I provided us with the clay and other building materials for our sculpture. Phase II is taking us through the rough outline of the shape of the program, in increasing detail. We are putting our design ideas through various filters such as teaching space availability, staffing, tutorial assistance, accreditation, and transferability. At every stage, we are cycling back to earlier design decisions to refine them. The sculpture is gradually taking shape, in increasing levels of detail. This approach is working well with the tried and tested "fail early, fail often" design philosophy.

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Appendix D – Design of a Completely New First Year Engineering Program at the University of Saskatchewan – Part II

Design of a Completely New First Year Engineering Program at the University of Saskatchewan – Part II

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Abstract – Over the last three years, the University of Saskatchewan's College of Engineering has embarked upon a complete redesign of its first year common program. This project started from a blank slate and posed the question, "If we could design any first year program that we wanted, what would we create?" The goal is to offer a first year program that excites, engages, inspires, and holistically prepares students for learning in subsequent years. At CEEA 2018, Phase I of this project was reviewed with a focus on the content of the new first year. This year, the focus is on the structure of the proposed program and how it aims to satisfy programmatic design objectives.

The proposed first year program is highly modular, allowing for more intentional uses of time during the academic year. Course duration and intensity vary and are selected to best serve student learning, rather than conform to the traditional academic schedule. To provide more timely and targeted feedback, summative assessments occur throughout each term allowing course scheduling to extend into the traditional end-of-term final exam period. This paper presents the current structural design of the new first year and the rationale for its significant features.

Some of the program design objectives that have been facilitated by this structure include:

- strategic sequencing of learning with opportunities to integrate and reinforce essential skills,
- multiple, individualized opportunities for students to stumble and recover,

• holistic balancing of content and pacing for better student wellbeing, and

• comprehensive, well-timed exposure to wide-ranging programmatic choices for students.

Throughout this project, the program structure has evolved continuously. This paper will describe the development process, the challenges faced in that process, and the lessons learned. The paper will conclude by describing the current status of the project, and the focus of work currently being undertaken to prepare for implementation.

Keywords: first year, engineering, program, design, integrated curriculum, planning, accelerated courses, Saskatchewan

1. INTRODUCTION

For the past three years, the University of Saskatchewan's College of Engineering has been steadily working towards the implementation of a completely new first year program (FYP). The vision for the redesigned FYP is to attract excellent students to our College from Saskatchewan, Canada and beyond, and to excite, engage and inspire our students, while preparing them holistically for the challenges to come in later years.

The project has been broken into three phases:

- Phase I determination of first year graduate attributes,
- Phase II development of program structure and delivery methods, and
- Phase III development of course material.

At CEEA 2018 [1], we reported on the results of Phase I and the process by which the desired first year graduate attributes were determined. This involved reviews and comparisons of first year engineering programs across Canada and detailed consultation of students, faculty and staff within the College of Engineering and across the University of Saskatchewan campus. The final deliverable of Phase I was a 100+ page document outlining the knowledge, skills, experiences and attitudes/beliefs (KSEA), across 23 categories, that the new program would be designed to develop in students by the end of first year.

While Phase I focused on the "what" of first year engineering, Phase II of the project has focused on the "how". More specifically, Phase II has focused on the development and refinement of an innovative delivery model for the content identified in Phase I. This model allows for the intentional sequencing and integration of material and experiences that has not been seen with traditional delivery models.

The process employed in Phase II, and the resulting model, constitute the focus of this paper.

2. PHASE II METHODOLOGY

The focus of Phase II has been determining an effective delivery model for the new FYP, including both the weekly schedule and the arrangement of courses by semester, or what we have taken to calling the "structure" of the program.

2.1. Initial Assumptions

We have maintained our project design philosophy of starting each design cycle from as much of a "blank slate" as possible. Phase I of the project yielded the desired first year graduate attributes and this list became the clay from which we began sculpting the program structure. We set out with the objective of including all topics identified as necessary by the stakeholders, with time allotments approximately proportionate to the distribution of the number of graduate attributes identified for each topic. We also sought to keep weekly contact hours at or below those of the existing first year program. Otherwise, we initially did not impose any constraints and viewed the fall and winter semesters as two blank canvasses upon which we could arrange delivery of the necessary topics as we saw fit to best facilitate student learning outcomes. To be clear, "no constraints" meant that we did not initially consider any of the following potential restrictions:

- Scheduling constraints (no requirement for 13 week courses followed by a final exam period, and no assumptions on duration or intensity of individual courses),
- Physical/Facility constraints (classrooms, laboratory space, and equipment),
- Personnel constraints (assignment of duties, restrictions imposed by collective agreements),
- Assessment constraints (the need for final exams, timing of reporting of grades),
- Financial constraints (tuition and/or fees), and
- Academic constraints (accreditation, credit units, transfer programs).

While it may seem foolish to ignore these important considerations, many of these constraints are often the factors that prevent real change and program improvement from occurring, or even from being considered. Our approach allowed for a design based purely on what would work best pedagogically and that would best realize the goals of the program (discussed in Section 3).

2.2. Structural Refinement

The existing FYP at USask features traditionally paced courses which run 12-13 weeks, with a break week near the midpoint, and finishes with a roughly 3 week exam period. In contrast to this, early versions of the proposed program structure featured very intensive, accelerated courses, which included a similar number of contact hours as a traditional course, condensed to a duration of only 3-6 weeks. This allowed for a minimum number of concurrent subjects and logical sequencing of material, leading to immediate application of mathematical and scientific concepts in engineering science and design courses (just-in-time learning [2]).

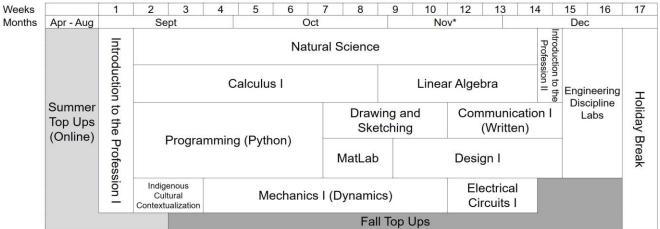
To continue with the sculpting analogy, a sculptor may begin with a beautiful mental model which, for example, may have a very narrow base and an asymmetrical design. When realized physically, the creation topples over due to the practical constraint of gravity and must be refined, compromising on some ideals. This mirrors the experience of our design team as we began consulting stakeholders and applying various constraint filters, such as facility and personnel availability, to the proposed structure. Facility and personnel constraints were analyzed by completing detailed scheduling of the entire curriculum, while the other constraints listed above were introduced through multiple rounds of consultation with academic, administrative, and regulatory stakeholders.

During this process, many of these constraints led to refinements of the program structure. The most profound impact came from facility constraints. To meet our objective of maximizing active learning opportunities such as group work and laboratory experiments for the entire expected first year cohort (600 students), most courses became drawn out in duration with a corresponding reduction in intensity. However, many constraints, such as the existing tuition model and the assessment philosophy requiring a final exam period, were challenged during this process and it was found that some of these "constraints" were not as rigid as initially assumed. Various units on campus have collaborated to steadily work toward creative solutions to allow the program to best serve the students. This has validated our "blank slate" design process. Simply asking, "What would work best?", instead of asking, "What would work best within the system we all take for granted?", has afforded the design team creativity that would have otherwise been stifled.

As high-level course development work has begun, engagement of instructors and subject matter experts from all academic departments involved has led to further refinements of the program's structural details. Changes get smaller and more specific with each round of consultation as we approach a steady-state. The revisions implemented as we have "failed early and failed often" [3] have created a more robust and implementable design.

3. PROPOSED PROGRAM STRUCTURE

Figures 1 and 2 on the following pages illustrate the latest evolution of the structural design for the new FYP. Tables 1 and 2 describe some of the salient course details. The top two rows of the schedules show weeks and months. Below that, labeled horizontal bands represent the modular courses. The width of a band (course) reflects the period of time over which the course runs. For example, in Fig. 1, Linear Algebra runs from Week 9 through Week 14. The height of a band reflects the intensity of a course. The height of an average band (e.g. Calculus I) represents approximately 7 hrs/wk of class time, including lectures, labs, and tutorials. Programming is double the standard intensity, and the Engineering Discipline Labs are approximately 4 times that intensity.

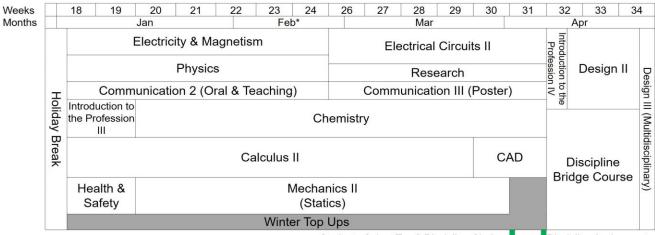


* Week 11 in November is a break week with no scheduled programming and has been removed for clarity of presentation

Figure 1. Proposed program structure for first term.

 Table 1: Contact hours and basic details for first term courses in the proposed FYP.

Comme		Contact	t Hours		Notes					
Course	Lect.	Lab.	Tut.	Total	Notes					
Calculus I	31.5	9	9	49.5	An introduction to differential and integral calculus at the conceptual level.					
Communication I (Written)	15	0	2.5	17.5	A written technical communications course supporting completion of deliverables in Design I. Small class sizes allow lectures to be used as labs when needed.					
Design I	12	15	5	32	An introduction to design with a common project for all students; includes elements of entrepreneurship, project management, leadership, and group dynamics.					
Drawing & Sketching	0	15	2.5	17.5	A manual graphical communication course where labs serve as instructional time.					
Electrical Circuits I	15	0	3	18	An introduction to basic electrical circuits, supporting the electrical and computer engineering components of the Engineering Discipline Labs.					
Engineering Discipline Labs	24	24	8	56	Intensive, one day introductions to each USask Engineering program, i.e. students rotate through all 8 programs over the 8 days.					
Fall Top Ups	0	0	63	63	Optional tutorial time used by students to achieve competence in learning outcomes missed during courses or to improve marks when competence was achieved, thereby promoting skills in self-directed learning.					
Indigenous Cultural Contextualization	7.5	7.5	0	15	A cultural foundation course that will allow for contextualized subsequent inclusion of Indigenous examples in the curriculum and an introduction to the importance of inclusivity and intercultural competencies in engineering.					
Introduction to the Profession I	7.5	10.5	1	19	An orientation to the College, University, and profession, as well as study skills, life skills, professionalism, ethics, and some health and safety training.					
Introduction to the Profession II	6	0	2	8	A course featuring more depth on the topics covered in Introduction to the Profession I, with some opportunity for reflection.					
Linear Algebra	19.5	7.5	5	32	An applied introductory linear algebra course that builds on the Programming and Matlab courses, allowing students to use programming to solve a variety of types of linear algebra problems including systems of linear equations.					
MatLab	0	9	2	11	A short and intense introduction to the fundamentals of Matlab, that builds on the Programming course. Labs serve as instructional time.					
Mechanics I (Dynamics)	22.5	12	10	44.5	A first year particle dynamics course that builds on the Physics Summer Top Up and high school physics (projectile motion).					
Natural Science	36	24	12	72	A unique survey course of the physical sciences (Chemistry, Biology, Physics, Geology) lasting 3 weeks (18 contact hours) per science, to compare and contrast between the sciences and each related engineering discipline.					
Programming	22.5	19.5	6	48	An introductory computer programming course for engineers, using Python.					
Summer Top Ups	0	0	15	15	Online, mastery-model modules covering key high school-level concepts in Calculus, Algebra, Chemistry, Physics, Writing, Reading Comprehension and Indigenous History. To be completed by students before September, with some support time for completion during the first few weeks of school.					



Students Select Top 3 Discipline Choices

Discipline Assignment

* Week 25 in February is a break week with no scheduled programming and has been removed for clarity of presentation

Figure 2. Proposed program structure for second term.

Table 2: Contact hours and basic details for second term courses in the proposed FYP.

G		Contact	t Hours		Notae					
Course	Lect.	Lab.	Tut.	Total	Notes					
CAD	0	12	1.5	13.5	A short introduction to Computer Aided Design, building on manual Drawing and Sketching. Software TBD.					
Calculus II	33	15	11	59	The sequel to Calculus I: presents differential and integral calculus in greater depth with expanded tool kits and application difficulty.					
Chemistry	48	27	8	83	A first year chemistry course for engineers that builds on the chemistry component of the Term 1 Natural Science course.					
Communication II (Oral & Teaching)	19.5	0	4	23.5	An oral communication course with applications to peer teaching/mentoring/support, research presentations and Design II. Small class size allows lectures to be used as labs when needed.					
Communication III (Poster)	12	0	2.5	14.5	An integrative communication course that combines written, graphical and oral communication skills and supports the poster presentation deliverable of the Research course.					
Design II	16.5	18	5	39.5	A second common design class with project topics drawn from each of the 8 USask engineering programs.					
Design III	0	7	0	7	A one day, multidisciplinary design challenge.					
Discipline Bridge Course	39	0	7	46	A bridging course designed to give students a head start in the second year of their chosen discipline.					
Electric Circuits II	25.5	6	5.5	37	The sequel to Electric Circuits I and Electricity and Magnetism: introduces RL and RC circuit analysis and other topics in Electrical Engineering.					
Electricity & Magnetism	21	9	7	37	An introductory course on electricity and magnetism.					
Health & Safety	0	12	0	12	A series of online safety training modules.					
Introduction to the Profession III	7.5	3	1	11.5	A third Introduction to the Profession course, which includes an overview of the role of the humanities and social sciences, allowing for more informed decisions on upper-year complementary study electives.					
Introduction to the Profession IV	4.5	0	1	5.5	A fourth Introduction to the Profession course focused on reflection on professionalism and preparation for summer employment.					
Mechanics II (Statics)	34.5	10.5	11.5	56.5	A particle and rigid body statics course that builds on Dynamics.					
Physics	30	0	7	37	A physics course that builds on the physics component of the Term 1 Natural Science course. Lectures are demonstration-based with no labs.					
Research	16.5	6	3	25.5	A genuine first-year research experience with project data from each engineering discipline and findings presented at a poster symposium.					
Winter Top Ups	0	0	31	31	Optional tutorial time used by students to achieve competence in learning outcomes missed during courses or to improve marks when competence was achieved, thereby promoting skills in self-directed learning.					

3.1. A Coordinated and Integrated Curriculum

The modular approach of the new FYP facilitates a truly coordinated and integrated curriculum, both in terms of intentionally sequenced material and integration of concepts and applications between concurrent courses. While there is little research comparing the learning outcomes of traditionally paced courses and modular, accelerated courses in engineering specifically, there is a wealth of information available for other subjects [4,5] including the natural sciences [6]. Most studies have found that outcomes from accelerated courses are at least on par with those of courses of traditional length [7,8,9].

Some studies indicate that students in accelerated courses do exhibit an advantage in recall of course concepts immediately after the course when compared with students taking the same course over a longer time period [10]. This is an intuitive result, as the information would be fresh in the minds of the students in the accelerated courses. It was found that this advantage, when observed, faded when students were tested several months after the course [11]. However, the just-in-time learning philosophy we have adopted [2] has led to a sequencing of subjects which is well positioned to promote deep learning, making use of prior learning before it has been forgotten.

One of the best examples of this progressive sequencing is computer programming. Students begin the year with an intensive programming course in Python. Students can then translate their skills into another programming language by immediately jumping into Matlab. Then, with these new skills, students can apply them in virtually every other technical course for the rest of the year. In this way, program-level learning outcomes can be much higher level than those of any one course.

Another example of purposeful sequencing appears in our efforts to respond to institutional and professional priorities related to Indigenization and reconciliation [12]. A cultural contextualization will be established to appropriately set the stage for respectful inclusion of Indigenous content. By placing this course early in the first term, students are prepared for examples of Indigenous design and technologies to be incorporated to greater extents into the rest of the first year curriculum.

Across the FYP, concepts will be purposefully linked to also allow for direct integration between concurrent courses. Concepts in Calculus I will be introduced as needed for application in Dynamics and examples of applications of calculus can be taken directly from Dynamics. Technical communication concepts will be directly tied to concurrent courses, e.g. Communication III with Research. Design II will take advantage of the fact that students will already be placed in disciplines to facilitate the most motivating choices of design projects. Several other opportunities for such integration are embedded in the program structure. It is worth noting that such a coordinated effort will require an integrated core team of instructors, communicating continuously, between departments and colleges, both during the development of the program and during its delivery.

3.2. Bridging In and Out of First Year

The transition to university can be daunting and it is a recognized factor in attrition [13]. Likewise, the jump to disciplinary programs in second year can be abrupt, as students in a common FYP may still be uncertain what discipline they will enter by the end of first year classes. This situation can create prerequisite challenges for engineering programs if students have not taken the "right" electives in first year that match with their ultimate programmatic destinations. A modular program structure can help to address these challenges.

Students arriving to first year are not homogenous. They have different qualities, depths, and breadths of training. So why treat them all the same way by having everyone take the same introductory courses that start at the most introductory levels? With the online "Summer Top Ups", we will set an attainable minimum standard for basic knowledge and skills across a number of fields, i.e. calculus, algebra, physics, writing, reading, chemistry, and Indigenous People's histories. Those at or above the standard will easily be able to show their readiness for first year. For those with one or more areas of weakness, they will have an opportunity to develop competence so that first year instructors can proceed knowing that all students have the same base knowledge and skills in those areas. As such, instructors can avoid boring better prepared students with these materials, and also avoid overwhelming lesser prepared students. Largely consisting of online resources and automated assessments, the Summer Top Ups will help set expectations and prepare all students for a strong start to first year engineering.

Introduction to the Profession courses will address general life skills to better facilitate a smooth transition into the College. This transition support will include ensuring basic competency with word processors and spreadsheets, as well as study skills, time management, stress management, exam writing strategies, learning styles, critical thinking, group dynamics training, dealing with failure, and an internalization of a growth mindset [14].

The bridge *out* of first year empowers students to succeed in their discipline. Students will have confirmation of their discipline by the end of Week 31. This timing allows students to become excited about, and better prepared for, second year. Design II will feature discipline specific design projects and the Discipline Bridge Course will be a full course in each student's discipline. While one major goal is to generate enthusiasm for second year among students, the Discipline Bridge Course has turned out to have a very important secondary effect. It is allowing departments to streamline their multiyear program offerings. For example, by having their students take another programming course at the end of the FYP, Computer Engineering can include more advanced programming courses in the 2nd and 3rd year of the program. Civil, Geological and Environmental Engineering students will complete Survey Camp before the end of first year.

3.3. More Informed Decision Making

We aspire to have zero attrition due to academic failure in our new FYP. However, we ironically aspire to maximize attrition among those who may realize that engineering ultimately is not for them. Instead of having this kind of attrition in 2^{nd} or 3^{rd} year, we want it to happen at the end of the first term, ideally, and by the end of the first year at the latest. We also want to facilitate better decision making in discipline and elective course selection.

Empowering more informed decisions will be accomplished by spending significant time in the first term showing students the features of various engineering disciplines, and comparing and contrasting them with the related physical sciences. The existing FYP does not expose students to a selection of physical sciences until the 2nd term. Furthermore, most students only see a 20 minute sales pitch for each engineering discipline. In the proposed FYP, students will spend an entire day with every engineering discipline before the end of Term 1, concluding with advising sessions in each discipline for those students strongly interested. They will also see every physical science, as well as computer science and mathematics. In those cases, they will explicitly learn about the relationships and differences between related fields, such as chemistry and chemical engineering, engineering physics and physics, and so on. The explicit goal for the Natural Science survey course in Term 1 will be to excite and inspire the students, and to empower them with a skill that bridges disciplines.

By the end of first term, students who remain in engineering will hopefully have a higher level of confidence in their chosen vocation and a better sense of what their disciplinary choice will be. Indeed, in the new curriculum, students will be exposed to course materials in more areas of engineering by the time they need to make their choices in late March.

3.4. Empowering Life Long Learning

The Fall and Winter Top Ups will operate in a similar fashion to the Summer Top Ups, insofar as they will allow students multiple chances to "stumble and recover". That is, if students are unable to demonstrate competency in certain learning outcomes in certain courses, they will be given the time, opportunity, and support to address those areas of weakness before there are any permanent repercussions.

While not evident in the structure of the program, it is an important programmatic objective that higher levels of competency be achieved by students in the new first year. Indeed, we frequently refer to "first year graduate attributes". The Top Ups allow for this approach. But they will also allow students who have met the basic competencies to achieve better results, if they so choose. This will involve self-assessments of strengths and weaknesses, prioritization, and time management skills, all of which are important competencies for life-long learning.

3.5. Enhancing Diversity and Inclusion

Students from ALL backgrounds should feel welcome in engineering. While engineering is known to attract those strong in the maths and sciences (sometimes by default), it also needs to more broadly attract those interested in A more diverse solving problems to help people. curriculum can do a better job of showing that side of the profession. The curriculum will be more applied insofar as students can see how theory is expressed in practice in all subjects. The FYP will show the many possible career paths of engineers, including heavy industry, tech innovation, research, and teaching. The program will include diversity in projects that students can pursue in design and research and it will embrace different ways of knowing, e.g. oral traditions, which will be seamlessly woven into the curriculum.

Another aspect of inclusion is respect (knowing what it is and how to live it). That will be a recurring theme in the Indigenous Cultural Contextualization and in the Introduction to the Profession courses. From a structural standpoint, enhancing diversity and inclusion means eliminating needless barriers to different groups of potential students. Figure 3 illustrates a major structural aspect of the new FYP: a consistent weekly schedule. What students do week to week will vary, but the timing will remain the same. This will facilitate time management for family, jobs, teams, and other responsibilities by eliminating the possibility of evening or weekend courses.

	Monday	Tuesday	Wednesday	Thursday	Friday		
8:30 AM							
9:00 AM	Lecture or Lab	Lecture or	Lecture or Lab	Lecture or	Lecture or		
9:30 AM	Lab	Lab	Lab	Lab	Lab		
10:00 AM			1				
10:30 AM	Lecture or Lab						
11:00 AM	Lab	Lap	Lab	Lab	Lab		
11:30 AM							
12:00 PM							
12:30 PM			Lastron and		Lastring		
1:00 PM	Lecture or		Lecture or	La serie a series	Lecture or		
1:30 PM	LaD	Lecture or	LaD	Lecture or Lab	Lap		
2:00 PM		Lap		Lab	1		
2:30 PM	Lecture or Lab	1.224.222.23	Lecture or Lab	Looks and the	Lecture or Lab		
3:00 PM	LaD	Lecture or	LaD	Lecture or	Lap		
3:30 PM		Lab		Lab			
4:00 PM		Tutorial		Tutorial			
4:30 PM		(Optional)		(Optional)			
5:00 PM	Tutorial		Tutorial		Tutorial		
5:30 PM	(Optional)		(Optional)		(Optional)		

Figure 3. Proposed weekly/daily schedule.

3.6. Enhanced Life Balance

Figure 3 is a touchstone for another major theme of the program: enhanced life balance. Engineering is known to be a demanding field. We continue to seek to develop the requisite grit and resilience characteristic of the profession. But that need not preclude happiness, enjoyment, and physical and mental health. The blank spots in Fig. 3 represent breaks. Starting at 11:30 am, there are lunch breaks each day for the entire first year cohort, to facilitate social activities of all types, including events, clubs, games, and physical activity. Likewise, the afternoon breaks build in time for students to work together and help each other, to take a real break, and/or to head home early. Tutorials will be daily occurrences, focused on specific courses, but they will also be optional. Again, self-assessment skills will be developed in terms of judging when help is needed.

Exams illustrate another element of this focus on life balance. Rather than the traditional intensive exam period at the end of term, exams will be staggered throughout the year, and there will be the opportunity to review exams and make them formative evaluations.

It is worth noting that the design objective of reducing weekly contact hours has been met. The existing FYP at USask includes roughly 10% more contact time than the average for the first year programs at many other major Canadian universities. The proposed program reduces mandatory contact hours (which excludes tutorials and Top Ups) from 26.5 hours to 26 in the first term and from 30 hours to 28 in the second term.

4. LESSONS LEARNED

Continuous cycles of refinement of the program proposal have yielded many important lessons for anyone hoping to undertake a similar curriculum renewal project. Much of the learning experienced during Phase II of this project has centered on stakeholder engagement. Appropriate and rigorous stakeholder engagement is a key factor for success on any project, but interactions with some stakeholders on this project have revealed some key lessons worth sharing.

A lesson repeated from our experiences in Phase I of the project is that the inclusion of students as major stakeholders, and consulting with them early in the design process, can provide many benefits to the program development process. Our Committee of Student Advisors on Curriculum Development (CSACD), a group of 20+ students representing all years of undergraduate study and engineering disciplines, has provided unique insights into the impact any curricular changes will have on the student experience. The Committee has identified risks, as seen from the student perspective, associated with a nonconventional timetable. Examples include the fact that missed time in an accelerated course due to an illness may be more difficult to make up than in a traditionally scheduled course. Student concerns around this issue have helped us to focus on finding solutions through the optional tutorial time and Top Up courses. The CSACD has also recently formed sub-committees focused on determining the optimal timing of end-of-day tutorials, topics to be included in the Health and Safety course, and what types of extra-curricular activities can be integrated with the program to improve students' work-life balance.

Another important insight into stakeholder engagement was illuminated when we met with representatives from the eight engineering programs offered at USask. Attempting to better prepare students for study in all of those eight programs with a common first year program is a difficult task. Proper preparation for each of the programs and an easy transition out of first year was one of the filters we applied to our initial constraint-free designs. To do this, we considered the program maps of each of the eight programs. However, upon meeting with representatives of each program, including undergraduate chairs, we found that many were considering the renewed first year an opportunity to update their own programs, including second year courses. These discussions loosened some of the design constraints we had applied, reiterating the importance of early and broad dissemination of project information and follow-up with stakeholders.

We also learned an important communication lesson: understand your stakeholder's communication preferences. As engineers consulting with many non-engineers in various math and science departments in the College of Arts and Science at USask, we relied upon communication tools common to the engineering profession, such as the graphical representation of ideas for discussion. We believed that we had clearly represented our intentions to consult meaningfully and that the draft representations, such as those shown in Figures 1 and 2, were just tools to facilitate discussion. We found out late in the process that many non-engineers believed the commitment of ideas to paper signaled that plans were already finalized and the consultation process was really just a one-way conveyance of information. This partial breakdown in communication of intent may have eroded trust between partners and it necessitated renewed inter-college communication to move the project forward.

In order to align the goals and understanding of both colleges involved in the project, a pair of facilitated retreats were held in early 2019 with leadership and key stakeholders from both Colleges, as well as key administrative units on campus, such as the Registrar's Office. The outcome of these retreats was a common understanding of the goals and challenges of the new FYP in engineering and a shared sense of responsibility to overcome the challenges. This has led to the creation of a Change Management Committee (CMC), separate from those individuals working on the design of the program. The CMC includes leadership from both Colleges and representation from the Office of the Vice-Provost Teaching, Learning and Student Experience. The CMC

will work with the project Design Committee to solve resourcing challenges, including facility, personnel, and financial constraints, and to facilitate the successful implementation of the program.

5. CONTINUING WORK

Work on Phase II of the project began in early 2018. This work has resulted in the proposed program structure presented here. However, it would be remiss to say that Phase II is complete. The iterative design process we have embraced demands that past work be constantly revisited and updated. Putting the "what" of Phase I together with the "how" of Phase II has not only impacted the deliverables of Phase II, but has led to revisions of the deliverables completed in Phase I. Furthermore, as the Change Management Committee works to identify resources and solutions to logistical challenges, they may come up against constraints that are incompatible with the current design. For example, the current schedule relies on the availability of large classrooms (300+ seats) at certain times. If these rooms are simply not available when needed, the program schedule and structure will need to be revised accordingly.

Preliminary work on Phase III of the project is also underway. Representatives from all academic departments involved will begin meeting this summer to develop learning outcomes and high-level syllabi for each course. This work will also be iterative and collaborative, as course developers will have to communicate often and openly to unlock the all of the benefits of the coordinated and integrated curriculum we have planned. And of course, developments in the detailed course design process may necessitate revisions to the overall program structure. The sculpture continues to gain finer details and features with every passing revision.

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Appendix E - Communications and Recruitment Overview

Overview – Marketing USask Engineering's First-Year Redesign

The primary audiences for promotion of the College of Engineering's newly redesigned first-year engineering program are high school students, their parents, and high school counsellors and educators throughout Saskatchewan and in key communities in surrounding provinces.

Among high schools students, we will target our materials to speak to not only students with an aptitude for math and science, but those who may not initially consider engineering, including leaders who enjoy directing and motivating others, world-changers who want to impact the greater good, and curious/creative thinkers who like to think outside the box. Additional student audience segments include young women, Indigenous people and international high school students. Secondary audiences will include alumni, donors and partners of the college (e.g. co-op employers, professional organizations), to build awareness, understanding and support for the program.

In promoting the program, we will describe how key elements of the first year have been changed, including scheduling and length of classes, assessment and skills taught. The marketing materials will also describe the value of the program for student learning, success and well-being. Beyond this, we will also provide the research and the evidence that support why we've transformed the program.

Regarding the specific events and preparation of materials, COVID-19 has added some uncertainty to our plans, particularly surrounding high school career fairs, college-based events (e.g. Open House, What is Engineering) and school visits. Where we can, we will adapt these activities to an online presence until we are able to resume them in future years. In the meantime, social media (including paid campaigns) will be key in promoting the redesign. We can drive our audiences to a dedicated, engaging website that will be home to the materials we develop for students, parents and educators, including infographics, videos, student and faculty profiles, potentially podcast-style interviews. We will also provide updated information for the USask admission webpages. Once we learn whether school will resume, we will be able to determine what printed materials are required (viewbook, posters, etc.) – if schools are open, we'll be able to circulate these, in addition to posting them online. We tentatively plan to host a media event to officially unveil the program and launch recruitment in the fall.

Initial recruiting and marketing efforts will focus on Saskatchewan and Western Canada, though there will be national awareness of the program due to media coverage and general buzz among alumni and the engineering education community.

Additional Note:

An article about the **new First Year Redesign program** appeared in the March 24, 2020 Star Phoenix - <u>https://thestarphoenix.com/news/local-news/u-of-s-college-of-engineering-eyes-potential-overhaul-for-2021/wcm/29a8a7b4-b8e1-4245-90b4-fe7e8ecabd34/</u>

Appendix F – Examples of Program Learning Outcomes

Examples of Program Learning Outcomes

- 1) Demonstrate problem solving skills
- 2) Identify and classify types of problems and their important features
- 3) Identify and construct equivalent systems
- 4) Build and analyze models of systems
- 5) Apply engineering principles to real-life problems
- 6) Take in and interpret technical information (written, oral and graphical)
- 7) Transmit technical information (written, oral and graphical)
- 8) Design
- 9) Demonstrate safety skills and safe behaviour
- 10) Design, execute, and analyze the results of experiments
- 11) Quantify and minimize environmental impact
- 12) Identify and consider social impact
- 13) Reflect upon, draw lessons from, and provide feedback based on lived experience

Appendix G - Course Equivalencies (Information from New Course Forms)

Term	Course	Assigned CU	Identified Course Equivalencies
1	Introduction to Engineering I (GE102)	2	N/A
	Engineering Communication I (GE132)	1	GE121 Please note students must complete GE132 and GE 142 to be equivalent to GE121.
	Engineering Discipline Experience (GE112)	1	N/A
	Natural Science Courses (BIOL102.1; CHEM142.1; GEOL102.1; PHYS152.1)	4	None Students with credit for all four will receive 3 credit units of elective credit in Arts & Science B.Sc. programs or 3 credit units of "science" or "elective" credit in B.A., B.F.A., or B. Mus. Programs. Students who do not pass all four courses will receive no credit in Arts & Science programs.
	Intro to Computer Science for Engineers (CMPT142)	3	CMPT141
	Engineering Math I (MATH133)	4	Students with credit for MATH133 will be considered to have completed a program requirement for MATH110, MATH121, or MATH125. Also please note that students with credit for MATH133 may not subsequently receive credit for MATH101, MATH102, MATH104, MATH110, MATH121, MATH125, MATH150 and MATH176.
	Mechanics I (GE122)	2	GE125
	Design I (GE142)	2	GE121 Please note students must complete GE132 and GE 142 to be equivalent to GE121.
	Electrical Circuits I (GE152)	1	EE204

Course Equivalencies (Information from New Course Forms)

*Please note that the above represent the standard course equivalencies of proposed first-year courses as listed in the New Course Forms. More detailed transfer credit evaluation will be completed as a part of the admission process, and will take into account full student record, historical data and institutional expertise to determine equivalencies in individual cases.

Appendix H- Memo from Manager of Curriculum and Professional Development, Gwenna Moss Centre for Teaching and Learning



 The Gwenna Moss Centre for Teaching and Learning
 Room 50 Murray Building 3 Campus Drive Saskatoon SK S7N SA4 Canada
 Telephone: (306) 966-2231 Facsimile: (306) 966-2242
 Email: gmctl@usask.ca
 Web: teaching.usask.ca/gmctl

University of Saskatchewan University Council - Academic Programs Committee ATTN: Amanda Storey, Academic Programs Coordinator E290 Administration Building 105 Administration Place Saskatoon SK S7N 5A2

Dear Academic Programs Committee:

I am delighted to write this letter of support for the College of Engineering's redesigned common first year. I have been excited to see the new first year program taking shape in the College and am grateful the Gwenna Moss Centre for Teaching and Learning (GMCTL) has been deeply embedded in the process of designing first year engineering courses, scope and sequence, and assessment. Dr. Nancy Turner, our director, and the other four of us supporting the program development and change management process are delighted to see a planned program that embodies so many research-supported processes in higher education teaching and assessment.

The newly redesigned program is consistent with the university's goals to increase retention and support greater diversity within the student population. The focus on integration in courses and careful examination of course outcomes will provide students with a more coherent and supportive program, and the focus on competency-based assessment will be particularly helpful. Although competency-based systems are becoming increasingly common in educational institutions, they are relatively new at our university, except within colleges whose accreditation processes require them. The choice to focus on ensuring as many students as possible achieve the thresholds for competency through the planned top ups and grading processes represents a transition to evidence-based assessment practices that embodies the educator commitments in the renewed version of *Our Learning Charter* (2018) and assessment priority of the Learning, Teaching, and Student Experience Plan (2019). The opportunity to partner with the College in providing a model for joint curriculum and assessment development processes has been positive and informative for all partners, and will provide a model for similar strategic work with other colleges on campus.



 The Gwenna Moss Centre for Teaching and Learning Room 50 Murray Building 3 Campus Drive Saskatoon SK S7N SA4 Canada Telephone: (306) 966-2231 Facsimile: (306) 966-2242
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 Web: teaching.usask.ca/gmctl

Competency-based assessment requires that programs establish clear, skills-based outcomes, and develop multiple opportunities for students to demonstrate those outcomes over time. Competency-based processes utilize the best and most recent assessment evidence to determine student grades, so that a grade is representative of the students' current levels of skill and understanding, rather than an uncertain mix of practice, early attempts, and summative assessments. The College's planned top-ups, overt A, B, and C classifications for thresholds, and careful examination of each course syllabus against the College's assessment principles and course outcomes have generated designs consistent with the intent and process of competency-based systems, and the students will be the beneficiaries of that careful planning. While some students will be successful regardless of course and assessment design or teaching philosophy, assessment research strongly indicates that the approach in the College of Engineering's new first year program is more likely to yield appropriate skill level and understanding in a broader student body. It is also supportive of increased student wellness and growth mindset, aligning it well with academic wellness initiatives on campus. I would like to congratulate the College on selecting the assessment system most likely to meet the College's collective goals, and appreciate the ongoing opportunity to work with Engineering in adapting evidence-based assessment to the College's needs.

Sincerely,

Murry James

Wendy James, PhD Manager, Curriculum and Professional Development Gwenna Moss Centre for Teaching and Learning

Appendix I – Sample Engineering Departmental Presentation



Proposed New First Year Engineering Program at the University of Saskatchewan

Department of Electrical and Computer Engineering September 3, 2019



- 4 years ago we mused about redesigning first year from the ground up (from a blank sheet of paper)
- about 2.5 to 3 years ago, that project became "official"
- 2 years ago, Joel was hired as a curriculum developer



- Phase I (2017) focused on content: what would be in 1st year (which became a focus on 1st year "graduate attributes")
 - Involved several rounds of consultation with College faculty, staff and students
 - Resulted in a 100 page list of Knowledge, Skill, Experience and Attitude Attributes students should have by the end of first year



- Phase II (2018 2019) has focused on the structural model of 1st year
 - Initially assumed no constraints to develop a program that worked best pedagogically
 - A review of literature on accelerated courses has shown the possibility of better learning outcomes vs traditional, 16 week courses
 - Just-in-time learning takes advantage of this to immediately apply these better-retained knowledge and skills
 - Over multiple rounds of revision, logistical constraints have been integrated in the design



- Phase III (2019 2021) is focused on the course development
 - Course syllabi sufficient for the approval process needed by December 2019
 - Detailed course design can continue up until implementation (Fall 2021)



- The proposed program will feature a truly integrated curriculum
- To ensure effective collaboration across colleges (Engineering and Arts & Science), two retreats were held in early 2019
- This led to the formation of the following team structure



Core Project Team

Change Management Committee Executive

- Vince Bruni-Bossio
- Peta Bonham-Smith
- Suzanne Kresta
- Bruce Sparling
- Gordon DesBrisay

Design Committee (DC)

- Sean Maw
- Joel Frey
- Jim Bugg
- Susan Bens
- Ryan Banow
- Andrea Eccleston

Change Management Committee (CMC)

- Vince Bruni-Bossio
- Suzanne Kresta
- Gordon DesBrisay
- Jim Bugg
- Matthew Paige
- Nancy Turner



Extended Project Team

Engineering

- Jim Bugg (Mechanical Engineering)
- Richard Evitts (Chemical Engineering)
- Andrew Kostiuk (Electrical and Computer Engineering)
- Ian Fleming (Civil Engineering)
- Chris Hawkes (Geological Engineering)
- Warren Helgason (Environmental Engineering)
- Adam Bourassa (Engineering Physics)
- Rebekah Bennetch (Technical Communication)
- Sarah Gauthier (Inclusivity)
- Brad Schmid (Graphics and CAD)
- Kristin Cutting (Careers)

Arts & Science

- Ian Burgess (Chemistry)
- Joyce McBeth (Geology)
- Tracy Marchant (Biology)
- Rainer Dick (Physics)
- Gary Au (Mathematics and Statistics)
- Michael Horsch (Computer Science)

Gwenna Moss Centre

- Wendy James
- Stryker Calvez
- Rose Roberts
- Nazreen Beaulieu



Program Vision

The University of Saskatchewan's College of Engineering will have the most effective first year engineering program in Canada. The first year program will excite, engage and inspire our students, and it will holistically prepare them for the challenges to come in later years. Ultimately, it will also serve to enhance the reputation of the College.



The Structural Model (v26)

	1	2 3	4	5	•	7 8	9 10	12 13	3 14	1 15	16	18 19	20 22		26 27		29 30) 31	32	33 3	4
Apr-Aug		Sept			Oct	t	Nov Dec Jan Feb Mar									Apr		_			
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			Fall Top Ups						,					Winter ⁻	Fop Up:	S					
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Design Themes

- also regarded as programmatic design objectives
 - a) better bridging in/out of first year, including better employment outcomes
 - b) better informing student decision making
 - c) coordinating/sequencing/integrating curriculum
 - d) empowering life long learning
 - e) promoting ethics and professionalism
 - f) timely and formative assessment and feedback
 - g) enhancing diversity and inclusion
 - h) enhancing life balance



The Weekly Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
8:30 AM	Locturo or	Locturo or		Locturo or	
9:00 AM	Lecture or Lab	Lecture or Lab	Lecture or	Lecture or	Lecture or
9:30 AM	Lan	Lau	Lab	Lab	Lab
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10:30 AM	Lecture or	Lecture or	Lecture or	Lecture or	Lecture or
11:00 AM	Lab	Lab	Lab	Lab	Lab
11:30 AM					
12:00 PM					
12:30 PM	1				
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1:30 PM	Lab	Lecture or	Lab	Lecture or	Lab
2:00 PM	1	Lab		Lab	1
2:30 PM	Lecture or	1	Lecture or	1 +	Lecture or
3:00 PM	Lab	Lecture or	Lab	Lecture or	Lab
3:30 PM		Lab		Lab	
4:00 PM		Tutorial		Tutorial	
4:30 PM		(Optional)		(Optional)	
5:00 PM	Tutorial		Tutorial		Tutorial
5:30 PM	(Optional)		(Optional)		(Optional)



Project Timeline

- Basic Course Development Generation of course syllabi suitable for the course approval process
 - Complete by December 2019
- Course/Program Approvals
 - January 2020 Summer 2020
- Detailed Course Development
 - January 2020 August 2021
- Full Implementation
 - September 2021
- Continuous Improvement
 - Ongoing after implementation



First Year Learning Outcomes

2 Types:

1) Course Learning Outcomes

- Specific to each course
- More technical in nature

2) Program Learning Outcomes

- Cut across multiple courses
- More transferable in nature



Examples of Program Learning Outcomes

- 1) Demonstrate problem solving skills
- 2) Identify and classify types of problems and their important features
- 3) Identify and construct equivalent systems
- 4) Build and analyze models of systems
- 5) Apply engineering principles to real-life problems
- 6) Take in and interpret technical information (written, oral and graphical)
- 7) Transmit technical information (written, oral and graphical)
 75



Examples of Program Learning Outcomes

- 8) Design
- 9) Demonstrate safety skills and safe behaviour
- 10) Design, execute, and analyze the results of experiments
- 11) Quantify and minimize environmental impact
- 12) Identify and consider social impact
- 13) Reflect upon, draw lessons from, and provide feedback based on experience



The Structural Model (v27)

Apr-Aug	1	2 Sept	4 5 6 Oc		9 10 No			15 16 Dec	18 19 J	20 21 an	22 23 24 Feb	26 27 28 29 Mar	30 31	32 Api	33 34
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Ups (Online)	Profession	(F	ython)	MatLab	b Design I			Labs	Intro. to the Prof. III			anics II tics)		Disc	l (Multidisciplinary)
e)		Indig. Cultural Context- ualization		anics I amics)		Electrical Circuits I			Health & Safety	& Engineering		g Math II			dge urse
		Fall Top Ups									Winter To	op Ups	_		
											Students	s Select Top 3 Disc Ch	cipline loices	Discip Assig	



Thank you. Please direct all additional input, feedback and questions to: andrea.eccleston@usask.ca

Appendix J – Questions from Department Meetings_Fall 2019

First Year Redesign – Design Committee and CGEE Department Meeting Friday August 23, 2019 at 9am Questions/Feedback

- Question: Who will be responsible for teaching this new curriculum?
 - Response: APA and new APA hire, lecturer hires. By and large a specific team will be teaching the majority of the Engineering First Year so that they can keep in touch to help with the integration across courses and so the students get familiar and comfortable with them.
- Question: What will be in the CAD course?
 - Response: We are just starting work with Brad on this to determine the outline.
- Question: With consideration to the CEAB requirements, how does the change with the Math and Science courses affect accreditation?
 - Response: We will still meet the requirements laid out and still use math and science professors to teach these courses. We will be doing an AU count against the new program to ensure we still meet these in the new program. We are not changing the nature of the math and science courses but plan to use more relevant examples to the field of engineering.
- Question: GEOL 121 now covered by the Geology component in the Natural Science Lab-Based course and a 2 cu course Geology is creating for 2nd year. What can be cut to keep GEOL 121 equivalent in the 1st year?
 - Response: There are other pieces from 2nd year now in 1st year so need to look at this to see if things perhaps balance already.
- Question: ENVE needs all 3 science electives. Does this mean we have to take all three in 2nd year?
 - Response: This is something that will need to be looked at and discussed in more depth between the Design Committee and ENVE.
- Question: What happens if someone is away sick for an extended period of time? (Ex: 2-3 weeks)
 - Response: The top ups will be important in cases like these.
- Question: Turnaround time for students on assignments?
 - Response: We'll be using automated assessment technology to help provide rapid and high quality feedback.
- Question: Will changes to 2nd year be required as a result of the new 1st year?
 - Response: Many departments are looking at this as an opportunity to revise 2nd year. It is possible some changes will be required and discussions will be required with each program.
- Question: Have you thought about how this affects 2nd through 4th years of the programs?
 - Response: the new first year program is being created as competency-based learning. This will require students to master certain basics and should make them more prepared for 2nd year.
- Question: Will moving from an unconventional 1st year to a conventional 2nd year be harder for the students than current program?
 - Response: We have softened the step but students should be better prepared for 2nd year in the new program than the current first year.
- Question: Is this harder or easier than the current version?

- Response: There are views from across the college on both sides. The Design Committee is hoping for average.
- Question: Could we have GEOL in Design II instead of Design?
 - Response: Likely yes. Let's talk about it.

First Year Redesign – Design Committee and CBE and ME Departments Meeting Tuesday August 27, 2019 at 9am Questions/Feedback

- Question: Physics Summer Top Up how does this work and how does it help prospective students.
 - Response: Talked about the concept of the Summer Tops Ups; ALEKS.com; help to ensure students understand the high school basics coming into the program. If a student doesn't have the admissions requirements this won't meet those.
- Question: Accreditation relationship with complementary studies
 - Response: Technical Communications courses; Intro to Professional (III or IV) will learn briefly about the various humanities so they can make an informed choice about their elective in 2nd year.
- Jim talked about the 2 options currently being discussed for ME discipline bridge course at end at end of Year 1.
- Mehdi talked about options currently being discussed for CHE for discipline bridge course at end of Year 1.
- Question: What software will be used in the CAD course?
 - Response: Leaning towards AutoCAD (as opposed to SolidWorks)
- Question: Have you considered the needs of the higher curriculum past 1st year?
 - Response: Yes, for links to second year, and remain open to considering changes base on this as we move forward. Started in Phase I. Ex: Math Taylor Series. Continue to consult with departments. Will be sending around learning outcomes for Statics and Dynamics in the next few weeks. Are focused on "Just In Time" Learning.
 - Some departments (CME and CHE as examples) are looking at their 2nd-4th years of their programs to make changes based on the revisions to 1st year.
- Question: Question on course titled "Physics and E&M"
 - Response: talked about how this course is being developed and what they have started to talk about the content being.
- Question:
 - Response: ex: Significant Digits cross multiple classes; It will be a team approach and we need people talk about same concepts in similar fashion across courses.
- Question: Around the schedule on courses of varying length and intensity and is there a way to see if there is a correlation to success of student?
 - Response: different cu for courses and sort of three general types of courses.
 Participation courses, courses that are more like our traditional courses, then the inbetween courses (quiz, assignment or 2 but not a major exam).
- Question: How will grades work....5 business days past end of class....when will they get their marks.
 - Response: Some will be ready shortly after each class ends, some will have to wait for Top Up marks. Marks end of fall and end of winter. Course marks and program learning outcome marks.
- Question: What's transferable? (Sean raised this question)
 - Response: if they have done drawing and sketching but not Communication they will get credit for the one but take the other.
- Question: Scheduling problems do you have to pass all of first year before you proceed with second year.

- Response: no definitive answer at this time. To some extent it is up to the departments.
- Question: What happens if you are sick for an extended period? (Sean raised this question)
 - Response: This is another way that the Top Up courses could help students move through the program.
- Question: You mentioned learning to be a student? For CHE jump from 1st year to 2nd year. Is this going to make that jump that much more difficult from unconventional to traditional learning styles?
 - Response: Variations have come up on this question. This is the stepping stone but yes a different system. Have built in some periods with multiple exams at same time to simulate exam time. If we have done a better job with first year they will also have better skills for the transition and 2nd year on.
- Note: Joel shared that the committee has discussed and is looking at a reduced work load option.

First Year Redesign – Design Committee and ECE Department Meeting Tuesday September 3, 2019 at 3:00pm Questions/Feedback

- Question: Is this program finalized or a proposal?
 - Response: It's still a proposal until it goes through the approval process likely starting in January 2020. For launch in Fall 2021.
- Question: Summer Top Ups mandatory or required? How much time?
 - Response: This is still being worked out but if a student has the knowledge they wouldn't have to go through that content. Sort of test through and spend additional study time/questions on what they struggle with. Amount of time unknown at present (closer to 5 days than 3 months).
- Question: Could the Summer Top Ups be a detriment to students applying and enrolling in Engineering?
 - Response: We would do all we can not to make them a detriment.
- Question: So the last 3 weeks the students are in their discipline?
 - Response: Yes, and for ECE (CME and EE) the course will focus on programming.
- Question: How does the Structural Model work? How is it evaluated?
 - Response: We have more information on types of courses and evaluation a little later in the presentation. 3 types of classes: Participatory (P/F), Traditional, Hybrid.
- Question: What happens if you fail a course? If you fail Communication II can you take Communication III?
 - Response: This is where the Top Ups come in. It approaches more of a mastery model.
 So students are solid on the basics. It could happen that someone would have to retake all or parts of the first year.
- Question: You should consider spreading the Programming (Python) course out over both terms.
 - Response: The skills learned in Programming will be applied in other courses throughout the first year.
- Question: How is this mathematics content comparable to current first year?
 - Response: It will be a mix of topics. For example some calculus and linear algebra in term 1 but then more complex in term 2. Stats a brief intro in Term 2 and applied in the Research course later in term 2. Discrete math, algebra, etc. The math spine runs pretty much through the entire first year. They will know integration by the time they need it.
- Question: For EE if they are weak in math they will not do very well in the program. Provide structure for math.
 - Response: Math will be a large part of the summer top ups. ALEKS.
- Question: A question about the research block and time line.
 - Response: Research is a course. Each block on the diagram is a course. Courses are made up of modules. The amount of time for each course determines the number of modules. Some short courses may only have one module. The Research course will allow Engineering to have a course that is like the FYRE program on campus (First Year Research Experience) but specific to the field of Engineering. Data sets from each program would be used and the students would work to solve a problem with it.
- Question: What is the difference between Natural Science and Chemistry and Physics?

- Response: The Natural Science course is 4 1cu courses one in each of Physics, Geology, Chemistry and Biology so they understand the difference between each and the link to Engineering.
- Question: Statics is after Dynamics?
 - Response: Based on the fact that what they learn in High School is similar to Dynamics so if we start there before they go into a new area. Dynamics first is a better stepping stone. We could do a swap in future years if it doesn't work.
- Question: What's the difference between Drawing and Sketching and CAD?
 - Response: By hand and with the computer.
- Question: How will students register for this?
 - Response: It will likely be a block registration. Students would just get their timetable. That said we are still working out the details.
- Question: Is it possible to fail a module?
 - Response: Yes, but then the tops ups are there to help them catch up.
- Question: Many universities have discipline specific programs for first year. Why don't we?
 - Response: We were given the scope of a common first year not discipline specific for this project.
- Question: Please don't call it Intro to the Profession I. Call it something fun like Orientation week.
 - Response: We will. The Intro to Profession courses bookend both terms.
- Question: Who is teaching this new first year program?
 - Response: The engineering portion of the new program will, for the vast majority of it, be taught by a small dedicated team. Sean, Joel, new APA. A&S will still deliver the A&S courses and there will be regular meetings of the instructors to ensure integration.
- Question: How are departments being made aware of what is in the first year so they can adjust the 2nd year (or other year) content?
 - Response: DH said that once we know the content of the first year they will review 2nd year and upper years and adjusting as needed.
- Question: What will the Mechs do for the Bridge Course?
 - Response: They are looking at two different ideas.
- Question: What's the progression for the short slices of Introduction to the Profession?
 - Response: We are working on that now. A list of small things including student reflection on what is working, what did I get out of studying that way, etc.
- Question: What is CrowdMark?
 - Response: A tool for assessment and marking. More detailed response.

First Year Redesign – Design Committee and SOPD Department Meeting Tuesday September 3, 2019 at 9:30am Questions/Feedback

- Question: Top Ups to shore up topics. But what happens if you struggle with a math concept and how that would then affect other courses, are the Tops Ups there in time for this?
 - Response: Yes, they are there as soon a student struggles with any concept. They can also assist if a student is sick for a period of time.
- Question: Can we use CrowdMark this term in our classes?
 - Response: Yes, it can be used for any Engineering courses this term.
 - Question: How do we get access and training to CrowdMark?
 - Response: Sean will send the information to SOPD Faculty.
- Deb Shared Following Note: Learning outcomes The CPC program is looking at doing something similar with course learning outcomes and program learning outcomes. They are planning to meet later this term regarding this. May be able to share information back and forth on this.
- Question: With the modules how do you know what they have if they fail out at Christmas to transfer?
 - Response: The first term is difficult to quantify but they will have 1cu in each of the four natural sciences, possibly up to 4cu of math, 2 or 3 of mechanics, etc. This needs to be finalized by December when the syllabi start going through the approval process.
 - We can do a better job of transfer credit for incoming students with the new system because we will be able to be more specific about what they have and what it counts for. For outgoing students it may not work the same.
 - There is a half speed option if a student wants to take it slower and complete over 2 years. It's not ideal but it is an option if needed.
 - If they change colleges at the end of first year they would have more 3cu equivalencies to certain Arts and Science courses such as Chemistry, Physics, etc.
- Question: What types of grades do they get for each course?
 - Response: Regular grades. 3 types of courses: participatory (likely P/F), traditional, and a hybrid (perhaps not a summative final exam but more assignments and quizzes). They will also have the Program Learning Outcomes which will either be P/F or a grade.
- Question: Programming and Drawing and Sketching have links to the Communications classes as well. Will those be made to the students?
 - Response: Yes, to the best of our ability in particular with the programming.
- Question: What happens if all students struggle with a concept? Would the faculty re-visit this in class or would it fall to the Top Ups?
 - Response: Depends on where in the class this falls. If early the prof could revisit and the Top Ups could assist. If at the end of the class it may have to fall to the Top Ups but likely the prof would try to help.
- Question: See two big issues this is giving the students the background that we already assume they have. If we add rhetoric to first year this could have bigger implications for RCM 300...but then we might have to have different sections or courses for Engineering students and AgBio students.
 - Response: They won't have done this extensively but they will have been introduced to some things and would have been able to ruminate on it between first year and RCM

300. Wait to see the content when we send it out and provide feedback. Will consider combining Comm II and Comm III.

First Year Redesign – Design Committee and General All Department and Staff Meeting Thursday October 3, 2019 at 4:00pm Questions/Feedback

In Attendance: Kristen Cutting, Ian MacPhedran, Donella Hoffman, Jeanie Wills

- Question: What is drawing and sketching?
 - o Response: It is currently contained in GE 121 and is a useful skill for Engineers.
- Question: What is the Fall Top Ups
 - Response: These are not scheduled classes.
- Question: ~35 hours for classes a week?
 - Response: this 35 hours is not all lecture. It is broken into lecture, labs and tutorials. The tutorials are optional.
- Question: Is any of this content from 2nd year?
 - Response: Yes, more details to come later in the presentation. Programming now in 1st year. Comp studies elective moving to second year. Others.
- Question: How will you evaluate top ups and some other things?
 - Response: Top ups will be online, mastery model. Automated assessment systems are being looked into. Well-trained TAs are also part of the project.
- Question: How much do you think people will need to Top Up before starting the program?
 - Response: Likely quite a bit. Anecdotally we are hearing this from some of the departments.
- Question: Engineering Labs they will see 5 of 7? But all 7 are being offered?
 - Response: Yes all 7 are being offered but the students will rank and we will do our best to give all their top 5.
- Question: Thank you for having the Top Up and the Indigenous Cultural Contextualization courses. This will help with some of the other courses in later years. Can I sit in on this course?
 - Response: Yes.
- Question: What are you going to do about gender?
 - Response: starting in January 2020 we will start looking into how to deliver these courses. Including 30% diversity content in the curriculum so in examples, etc.
- Question: Do you have any definitions of indigenization?
 - Feel there is no one definition. More discussion.
- Question: Has there been student feedback after the initial survey?
 - Response: Yes, CSCAD (acronym?) is a student committee with representation through the years and disciplines and they have been involved. Will be re-instituted this year and started again soon with updated membership.
- Question: How much awareness is there at other engineering schools about this redesign? Is there interest?
 - Response: Yes and lots. People asked when we presented at CEEA we were asked if we were hiring.
- Question: What are the risks? What can cause this to fail?
 - Response: Logistical risks such as space and getting the rooms we need to run this schedule as well as other logistical issues already mentioned. If the faculty teaching the courses don't coordinate. TA support will be vital need TAs or can be effective and will need to be well trained. The Assessment system falls apart if the systems can't keep up. Another risk to meet our goals is how this is marketed.

Appendix K – Memo from Chair, Engineering/Arts and Science Curriculum Change Management Committee and Strategic Project Advisor and Support to the Provost Office



April 13, 2020

University of Saskatchewan University Council - Academic Programs Committee ATTN: Amanda Storey, Academic Programs Coordinator E290 Administration Building 105 Administration Place Saskatoon SK S7N 5A2

Dear Academic Programs Committee:

I am writing you today as the Strategic Project Advisor and Support to the Provost Office and as the Chair of the Engineering/Arts and Science Curriculum Change Management Committee (CMC) for the Engineering First Year Redesign Project in support for the major program revision proposal package. This committee was established, at the request of both Dean Suzanne Kresta and Dean Peta Bonham-Smith, in March 2019 to coordinate change management processes for this project. Provost Tony Vannelli asked me to chair the CMC committee as part of my role in the Provost office. The committee reviews and oversees timelines, resources, and other issues related to the implementation of the redesigned first-year Engineering curriculum. It continues to meet regularly.

The CMC includes representatives from both Colleges and from the Gwenna Moss Centre for Teaching and Learning. The CMC is guided by principles that ensure that the strategic directions and values of both Colleges as well as student learning and collegiality are prioritized in all decisions. The needs, wellbeing and experiences of the people impacted by this program change are also key drivers in how decisions are made.

An Executive to the Change Committee meets as needed to oversee the decisions and process of the committee. The Executive has final authority on all decisions regarding timelines and implementation of the program and consists of the Deans and Associate/Vice Dean, Academics and the Chair. Working groups and advisors are utilized by the Change Committee as needed throughout the process.

Since being created, the CMC has worked diligently to bridge any gaps or misunderstandings between the two Colleges. This has included meeting with department heads and faculty as needed. Working with both Colleges, the CMC has assisted with funding challenges, space challenges, curriculum development challenges and others such issues.

The CMC also interacts regularly with the Design Committee for this project to ensure that the design of the program aligns with the change processes and to ensure that the CMC can assist with any challenges the Design Committee has encountered. Overall, the Design Committee has been the engine of this project, meeting weekly and working endless hours to design an



integrated curriculum. I cannot express how much work this committee has done over the past years.

This collaborative project should be celebrated at our University for two reasons. First, the curriculum is authentically integrated so that each course builds on the next to ensure students are increasing their understanding of Engineering skills and have a firm understanding of the basics before proceeding. The program is also the first of its kind in Engineering and will position our University as a leader in Engineering education. Second, it is rare to witness the collaboration of two colleges at the level needed to build an integrated curriculum. The leaders and faculty of these college should be commended for providing an example of how we can all work together to transcend structural barriers. This type of collaboration aligns well the desire by our university to explore ways to embrace interdisciplinary opportunities and enrich disciplines.

In my role as Chair of the CMC, I have witnessed first-hand the hard work it has taken for this large-scale curricular change to move forward. I can attest that this project is only effective because of the successful efforts demonstrated by all involved in the Engineering First Year Redesign project. I feel compelled to emphasize the extraordinary level of good will that is evident (and was required) for the success of this project. As chair of the CMC I am proud to have been a part of a diligent group of people who continue to demonstrate their value in assisting all parties involved in this project to work together efficiently and develop innovative solutions to issues as they arise.

Sincerely,

Vince Bruni-Bossio Chair, Engineering/Arts and Science Curriculum Change Management Committee Strategic Project Advisor and Support to the Provost Office Associate Professor, Edwards School of Business, University of Saskatchewan Appendix L - Core and Extended Project Team Structure and Membership

Core Project Team

Change Management

- Committee Executive
- Vince Bruni-Bossio
- Peta Bonham-Smith
- Suzanne Kresta
- Bruce Sparling
- Gordon DesBrisay

Design Committee (DC)

- Sean Maw
- Joel Frey
- Jim Bugg
- Susan Bens
- Ryan Banow
- Andrea Eccleston
- Shaobo Huang
- Noreen Predicala

Change Management

- Committee (CMC)
- Vince Bruni-Bossio
- Suzanne Kresta
- . Gordon DesBrisay
- . Jim Bugg
- Matthew Paige

.

Nancy Turner





Extended Project Team

Engineering

- Jim Bugg (Mech Eng)
- Richard Evitts (Chem Eng)
- Andrew Kostiuk (Elec and
- Computer Eng)
- Ian Fleming (Civil Eng)
- Chris Hawkes (Geol Eng)
- Warren Helgason (Enviro Eng)
- Adam Bourassa (Engineering Physics)
- Rebekah Bennetch (Technical Communication)
- Sarah Gauthier (Inclusivity)
- Brad Schmid (Graphics and CAD)
- Kristin Cutting (Careers)

Arts & Science

- Ian Burgess (Chemistry)
- Joyce McBeth (Geology)
- Tracy Marchant (Biology) .
- Rainer Dick (Physics)
- Gary Au (Mathematics and Statistics)
- Michael Horsch (Computer Science)

Gwenna Moss Centre

- . Wendy James
- . Stryker Calvez
- . Rose Roberts
- . Nazreen Beaulieu

Appendix M - Memo from Vice-Dean, Academic - College of Arts & Science



UNIVERSITY OF SASKATCHEWAN College of Arts and Science OFFICE OF THE DEAN ARTSANDSCIENCE.USASK.CA

April 13, 2020

University of Saskatchewan University Council - Academic Programs Committee ATTN: Amanda Storey, Academic Programs Coordinator

Dear Academic Programs Committee:

I represent the College of Arts and Science on the joint Executive and Change committees helping to oversee development of the new first year Engineering curriculum, which involves the design or re-design of a number of Arts and Science STEM classes. This is a critical venture for both colleges, one which stands to benefit future cohorts of students for many years to come. The College of Engineering's bold vision and collaborative approach to this project are to be commended. The College of Arts and Science fully supports this initiative.

Arts and Science has approved ten new courses for use in the Engineering redesign first year curriculum. At each stage of the development of these courses, equivalencies and transfer implications were taken into account. We now foresee no difficulties on that front.

The same can be said with regard to the assignment of duties within the Arts and Science departments concerned. The new and revised courses were developed by faculty chosen by their department heads in the expectation that they would also teach the class going forward. The colleges have cooperated with each other and with the Gwenna Moss Centre and the Provost's Office to ensure that staffing and resourcing will not be a barrier to the rollout of the redesigned program in Fall 2021 (pending all required approvals), when start-up costs will peak. We are confident that revenue flows from teaching activity will make these courses independently viable thereafter.

A high level of collaboration and coordination between our two colleges has been a hallmark of this project of redesign and renewal and bodes very well for its success.

Sincerely,

Gordon DesBrisay Associate Professor and Vice-Dean, Academic College of Arts and Science, University of Saskatchewan

Appendix N – Course Syllabus Approval – Arts & Science



UNIVERSITY OF SASKATCHEWAN College of Arts and Science OFFICE OF THE DEAN ARTSANDSCIENCE.USASK.CA

MEMORANDUM

То:	Undergraduate Academic Programs Committee, College of Engineering
From:	Alexis Dahl, Director of Programs, College of Arts & Science
CC:	Gordon DesBrisay, Vice-Dean Academic, College of Arts & Science
Date:	February 3, 2020
Re:	College-level approval of Science courses to be included in the revised Engineering First Year program requirements

The Academic Programs Committee (B.Sc.) has approved the proposals for the following courses, at the college-level, on behalf of the College of Arts & Science:

BIOL 102.1 Nature of Engineering

CHEM 142.1 The Global Impact of Chemistry for Engineering

CHEM 146.3 General Chemistry for Engineering

CMPT 142.3 Introduction to Computer Science for Engineers

CMPT 146.3 Principles of Computer Science for Engineers

GEOL 102.1 Introduction to Geology for Engineering

MATH 133.4 Engineering Mathematics I

MATH 134.3 Engineering Mathematics II

PHYS 152.1 Introduction to Atoms and Nuclei for Engineering

PHYS 156.3 Electromagnetism and Waves for Engineering

The College of Arts & Science Faculty Council will be informed of the approval of these courses in the Items for Information document submitted by the committee, to the February 4, 2020 meeting.

Pending approval of the program revisions by the College of Engineering, the College of Arts & Science will collaborate with your college to submit a joint proposal to the Academic Programs Committee of Council, such that the new program and the constituent courses proceed through the university-level approval processes concurrently.

Appendix O – Edwards School of Business Memo



TO:	Dr. Bruce Sparling Associate Dean, Academic
FROM:	Noreen Mahoney Associate Dean, Students & Degree Programs
DATE:	February 13, 2020
RE:	College of Engineering First Year Redesign

The Edwards School of Business is in full support of the College of Engineering's redesign of their first-year curriculum. We understand the need to provide programming that meets the needs of a diverse student population and the ever-changing demands of the workforce. Business education is an essential skillset for future engineers, and we support the College in their desire to continue to include business principles in their refreshed curriculum.

Although the College has indicated they will continue to provide business competencies in their distributed curricula, we anticipate that students wishing to enhance their Engineering degree with a Certificate in Business or a Certificate in Entrepreneurship will have the opportunity and space in their program to access business courses as electives.

We look forward to working with the College of Engineering to ensure students who wish to augment their studies with business continue to have the opportunity to do so.

Sincerely,

Noreen Mahoney, CPA, CA, MBA Associate Dean, Students & Degree Programs Edwards School of Business PotashCorp Centre - 25 Campus Drive Saskatoon, SK, CA S7N 5A7

Appendix P - Response from Planning and Priorities Committee of Council



MEMORANDUM

TO:	Suzanne Kresta, Dean, College of Engineering Bruce Sparling, Associate Dean, Academic, College of Engineering Sean Maw, Associate Professor, College of Engineering Joel Frey, Assistant Professor, College of Engineering
FROM:	Darrell Mousseau, Chair, Planning and Priorities Committee (PPC) of Council
DATE:	February 25, 2020
RE:	Proposed First Year Engineering Redesign

On behalf of the planning and priorities committee of Council, I would like to begin by thanking Drs. Sparling, Maw, and Frey for attending the PPC meeting of February 12, 2020 to discuss the proposed Engineering First Year Redesign.

The committee commends the college for their work. The material was comprehensive, clear and compelling.

The committee members agreed that the degree pathways from first-year engineering need to be clearly defined and communicated to students. The course equivalencies should be predetermined so that students will know that if they finish a set of courses, what will be the equivalent. This will empower students to know that they have options. This needs to be done in addition to ensuring that there is proper student advising. This should be explicit in the program redesign documentation.

Detailed information should be provided on the strategies that have been developed for faculty assignment of duties in Arts & Science to accommodate the proposed modular approach. The members of the committee also wondered whether there was a wellness component built into the program design.

There were also a few suggestions for your consideration.

- In the documentation, there should be more discussion of how the redesign fits into the Canadian scene in engineering education.
- Please identify which metrics will be used to measure progress towards EDI goals.
- A communications plan is needed for national and local recruitment, and to ensure continual consultation with the students.

• Articulate briefly where/how sustainability is integrated into the curriculum.

Thank you for your work on this program's redesign. We encourage you to consider this feedback in the next iteration of the proposal that is presented to APC.

Please do not hesitate to contact me if you have any questions.

Kind regards,

Darrell Mousseau Chair, Planning and Priorities Committee University of Saskatchewan tel: (306) 966-8824

BE WHAT THE WORLD NEEDS

c. Andrew Grosvenor, Planning and Priorities Committee
 Vince Bruni-Bossio, Planning and Priorities Committee
 Anthony Vannelli, Provost and Vice-President Academic
 Russ Isinger, University Registrar
 Chelsea Willness, University Secretary and Chief Governance Officer
 Susan Detmer, chair, Academic Programs Committee of Council

Appendix Q - Consultation with the Registrar Form and Approval Email

Consultation with the Registrar Form

This form is to be completed by the Registrar (or his/her designate) during an in-person consultation with the faculty member responsible for the proposal. Please consider the questions on this form prior to the meeting.

Section 1: New Degree / Diploma / Certificate Information or Renaming of Existing

1 Is this a new degree, diploma, or certificate?

Is an existing degree, diploma, or certificate being renamed?

If you've answered NO to each of the previous two questions, please continue on to the next section.

2 What is the name of the new degree, diploma, or certificate?

3 What is the credential of this new degree, diploma, or certificate? [Example - D.M.D. = Doctor of Dental Medicine]

4 If you have renamed an existing degree, diploma, or certificate, what is the current name?

5 Does this new or renamed degree / diploma / certificate require completion of degree level courses or non-degree level courses, thus implying the attainment of either a degree level or non-degree level standard of achievement?

6 If this is a new degree level certificate, can a student take it at the same time as pursuing another degree level program?

7 If YES, a student attribute will be created and used to track students who are in this certificate alongside another program. The attribute code will be:

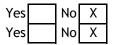
8 Which College is responsible for the awarding of this degree, diploma, or certificate?

9 Is there more than one program to fulfill the requirements for this degree, diploma, or certificate? If yes, please list these programs.

10 Are there any new majors, minors, or concentrations associated with this new degree / diploma / certificate? Please list the name(s) and whether it is a major, minor, or concentration, along with the sponsoring department.

One major is required on all programs [4 characters for code and 30 characters for description]

11 If this is a new graduate degree, is it thesis-based, course-based, or project-based?



Yes

No

Section 2: New / Revised Program for Existing or New Degree / Diploma / Certificate Information

1 Is this a new program?

5

6

7

8

Is an existing program being revised?

If you've answered NO to each of the previous two questions, please continue on to the next section.

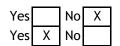
2 If YES, what degree, diploma, or certificate does this new/revised program meet requirements for?

Bachelor of Sc Engineering [BE] - current degree description/code

3 What is the name of this new/revised program?

Bachelor of Sc Engineering [BE[- existing program description/code - with the following attached majors / departments:
Civil Engineering [CE] / Civil Geol and Environ Engnring [CGEE]- major / department
Chemical Engineering [CHE] / Chemical and Biological Engin [CHBI] - major / department
Computer Engineering [CME] / Electrical and Cmptr Engin [ECE] - major / department
Electrical Engineering [EE] / Electrical and Cmptr Engin [ECE] - major / department
Environmental Engineering [ENVE] / Civil Geol and Enviro Engnring [CGEE] - major / department
Engineering Physics [EP] / Physics and Engin Physics [PHYS] - major / department
Geological Engineering [GEOE] / Civil Geol and Enviro Engnring [CGEE] - major / department
Mechanical Engineering [ME] / Mechanical Engienering [ME] - major / department
What other program(s) currently exist that will also meet the requirements for this same degree(s)?
EN Professional Intern Prog [EPIP]
What College/Department is the academic authority for this program?
n/a
Is this a replacement for a current program?
If YES, will students in the current program complete that program or be grandfathered?
If this is a new graduate program, is it thesis-based, course-based, or project-based?
n/a
If this is a new new demonstration down down down and an and a substitution to a substitution time 2

9 If this is a new non-degree or undergraduate level program, what is the expected completion time?

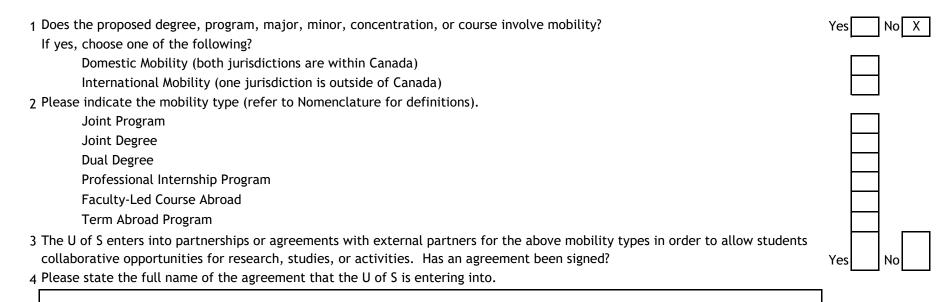


No X

Yes

Section 3: Mobility

Mobility is the ability to move freely from one jurisdiction to another and to gain entry into an academic institution or to participate in a learning experience without undue obstacles or hindrances.



5 What is the name of the external partner?

6 What is the jurisdiction for the external partner?

Section 4: New / Revised Major, Minor, or Concentration for Existing Degree Information (Undergraduate)

- 1 Is this a new or revised major, minor, or concentration attached to an existing degree program? If you've answered NO, please continue on to the next section.
- 2 If YES, please specify whether it is a major, minor, or concentration. If it is more than one, please fill out a separate form for each.

3 What is the name of this new / revised major, minor, or concentration?

4 Which department is the authority for this major, minor, or concentration? If this is a cross-College relationship, please state the Jurisdictional College and the Adopting College.

5

Which current program(s), degree(s), and/or program type(s) is this new / revised major, minor, or concentration attached to?

Section 5: New / Revised Disciplinary Area for Existing Degree Information (Graduate)

1 Is this a new or revised disciplinary area attached to an existing graduate degree program?

If you've answered NO, please continue on to the next section.

2 If YES, what is the name of this new / revised disciplinary area?

3 Which Department / School is the authority for this new / revised disciplinary area? (NOTE - if this disciplinary area is being offered by multiple departments see question below.)

4 Which multiple Departments / Schools are the authority for this new / revised disciplinary area?

4a Of the multiple Departments / Schools who are the authority for this new / revised disciplinary area and what allocation percentage is assigned to each? (Note - must be whole numbers and must equal 100.)

4b

Of the multiple Departments / Schools who is the primary department? The primary department specifies which department / school policies will be followed in academic matters (ex. late adds, re-read policies, or academic misconduct). If no department / school is considered the primary, please indicate that. (In normal circumstances, a department / school with a greater percentage of responsibility - see question above - will be designated the primary department.)

5 Which current program(s) and / or degree(s) is this new / revised disciplinary area attached to?

No X Yes Revised

Page 4 of 14

Section 6: New College / School / Center / Department or Renaming of Existing

1 Is this a new college, school, center, or department?Is an existing college, school, center, or department being renamed?Is an existing college, school, center, or department being deleted?If you've answered NO to each of the previous two questions, please continue on to the next section.

2 What is the name of the new (or renamed or deleted) college, school, center, or department?

3 If you have renamed an existing college, school, center, or department, what is the current name?

4 What is the effective term of this new (renamed or deleted) college, school, center, or department?

5 Will any programs be created, changed, or moved to a new authority, removed, relabelled?

6 Will any courses be created, changed, or moved to a new authority, removed, relabelled?

7 Are there any ceremonial consequences for Convocation (ie. New degree hood, adjustment to parchments, etc.)?

Yes	No	Х
Yes	No	Х
Yes	No	Х

Page 6 of 14

Section 7: Course Information - as per current set-up

1 Is there a new subject area(s) of course offering proposed for this new degree? If so, what is the subject area(s) and the suggested four (4) character abbreviation(s) to be used in course listings?

2

If there is a new subject area(s) of offerings what College / Department is the academic authority for this new subject area?

3 Have the subject area identifier and course number(s) for new and revised courses been cleared by the Registrar?

4 Does the program timetable use standard class time slots, terms, and sessions?

If NO, please describe.

5 Does this program, due to pedagogical reasons, require any special space or type or rooms?

If YES, please describe.

NOTE: Please remember to submit a new "Course Creation Form" for every new course required for this new program / major. Attached completed "Course Creation Forms" to this document would be helpful.

Yes

Yes

No

No

Section 8: Admissions, Recruitment, and Quota Information - as per current set-up

1 Will students apply on-line? If not, how will they apply?

2 What term(s) can students be admitted to?

3 Does this impact enrollment?

4 How should Marketing and Student Recruitment handle initial inquiries about this proposal before official approval?

5 Can classes towards this program be taken at the same time as another program?

6 What is the application deadline?

- 7 What are the admission qualifications? (IE. High school transcript required, grade 12 standing, minimum average, any required courses, etc.)
- 8 What is the selection criteria? (IE. If only average then 100% weighting; if other factors such as interview, essay, etc. what is the weighting of each of these in the admission decision.)
- 9 What are the admission categories and admit types? (IE. High school students and transfer students or one group? Special admission? Aboriginal equity program?)
- 10 What is the application process? (IE. Online application and supplemental information (required checklist items) through the Admissions Office or sent to the College/Department?)
- 11 Who makes the admission decision? (IE. Admissions Office or College/Department/Other?)
- 12 Letter of acceptance are there any special requirements for communication to newly admitted students?

13 Will the standard application fee apply?

14 Will all applicants be charged the fee or will current, active students be exempt?

15 Are international students admissible to this program?

Section 9: Government Loan Information - as per current set-up

NOTE: Federal / provincial government loan programs require students to be full-time in order to be eligible for funding. The University of Saskatchewan defines full-time as enrollment in a minimum of 9 credit units (operational) in the fall and/or winter term(s) depending on the length of the loan.

1 If this is a change to an existing program, will the program change have any impact on student loan eligibility?

2 If this is a new program, do you intend that students be eligible for student loans?

Section 10: Convocation Information (only for new degrees)

1 Are there any 'ceremonial consequences' of this proposal (ie. New degree hood, special convocation, etc.)?

2 If YES, has the Office of the University Secretary been notified?

3 When is the first class expected to graduate?

4

What is the maximum number of students you anticipate/project will graduate per year (please consider the next 5-10 years)?

Section 11: Schedule of Implementation Information

1 What is the start term?

202109 [September 2021]

2 Are students required to do anything prior to the above date (in addition to applying for admission)?

If YES, what and by what date?

Yes No X

Yes

Yes

Yes

Yes

Yes

No

No

No

No

No

Section 12: Registration Information - as per current set-up

1 What year in program is appropriate for this program (NA or a numeric year)?

(General rule = NA for programs and categories of students not working toward a degree level qualification.)

2 Will students register themselves?

If YES, what priority group should they be in?

Section 13: Academic History Information - as per current set-up

1 Will instructors submit grades through self-serve?

2 Who will approve grades (Department Head, Assistant Dean, etc.)?

Section 14: T2202 Information (tax form) - as per current set-up

1 Should classes count towards T2202s?

Section 15:	Awards	Information	- as	per	current	set-up
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1 Will terms of reference for existing awards need to be amended?

2 If this is a new undergraduate program, will students in this program be eligible for College-specific awards?

Section 16: Government of Saskatchewan Graduate Retention (Tax) Program - as per current set-up

1 Will this program qualify for the Government of Saskatchewan graduate retention (tax) program?

To qualify the program must meet the following requirements:

- be equivalent to at least 6 months of full-time study, and
- result in a certificate, diploma, or undergraduate degree.

Section 17: Program Termination

1 Is this a program termination?	Yes	No X
If yes, what is the name of the program?		
]	
2 What is the effective date of this termination?	7	
3 Will there be any courses closed as a result of this termination?		
If yes, what courses?	Yes	NO
in yes, what courses:	1	
4 Are there currently any students enrolled in the program?	Yes	No
If yes, will they be able to complete the program?	L	
]	
5 If not, what alternate arrangements are being made for these students?	-	
6 When do you expect the last student to complete this program?	-	
7 Is there mobility associated with this program termination?	Yes	
If yes, please select one of the following mobility activity types.	les	
Dual Degree Program		
Joint Degree Program		
Internship Abroad Program		
Term Abroad Program		
Taught Abroad Course		
Student Exchange Program		
Partnership agreements, coordinated by the International Office, are signed for these types of mobility activities. Has the		
International Office been informed of this program termination?	Yes	No

Title: Bachelor of Science in Engineering First Year Redesign

No

No

Section 18: Proposed Tuition and Student Fees Information - as per current set-up

1 How will tuition be assessed? Standard Undergraduate per credit Standard Graduate per credit Standard Graduate per term Non standard per credit* Non standard per term* Other **Program Based*** * See attached documents for further details 2 If fees are per credit, do they conform to existing categories for per credit tuition? If YES, what category or rate? 3 If program based tuition, how will it be assessed? By credit unit? By term? Elsehow? 4 Does proponent's proposal contain detailed information regarding requested tuition? Yes If NO, please describe. 5 What is IPA's recommendation regarding tuition assessment? When is it expected to receive approval? 6 IPA Additional comments? 7 Will students outside the program be allowed to take the classes? 8 If YES, what should they be assessed? (This is especially important for program based.) 9 Do standard student fee assessment criteria apply (full-time, part-time, on-campus versus off-campus)? 10 Do standard cancellation fee rules apply? 11 Are there any additional fees (e.g. materials, excursion)? If yes, see NOTE below. 12 Are you moving from one tuition code (TC) to another tuition code? Yes If YES, from which tuition code to which tuition code? 13 Are international students admissible to the program? If yes, will they pay the international tuition differential?

Title: Bachelor of Science in Engineering First Year Redesign

NOTE: Please remember to submit a completed "Application for New Fee or Fee Change Form" for every new course with additional fees.

Title: Bachelor of Science in Engineering First Year Redesign

Section 19: TLSE - Information Dissemination (internal for TLSE use only)

- 1 Has TLSE, Marketing and Student Recruitment, been informed about this new / revised program?
- 2 Has TLSE, Admissions, been informed about this new / revised program?
- 3 Has TLSE, Student Finance and Awards, been informed about this new / revised program?
- 4 Has CGPS been informed about this new / revised program?
- 5 Has TLSE, Transfer Credit, been informed about any new / revised courses?
- 6 Has ICT-Data Services been informed about this new or revised degree / program / major / minor / concentration?
- 7 Has the Library been informed about this new / revised program?
- 8 Has ISA been informed of the CIP code for new degree / program / major?
- 9 Has Room Scheduling/Scheduling Hub/Senior Coordinator of Scheduling been informed of unique space requirements for the new courses and/or informed of program, course, college, and department changes?
- 10 Has the Convocation Coordinator been notified of a new degree?
- 11 What is the highest level of financial approval required for this submission? Check all that apply.
 - a. None as it has no financial implications

- b. Fee Review Committee
- c. Institutional Planning and Assessment (IPA)
- d. Provost's Committee on Integrated Planning (PCIP)
- e. Board of Governors
- f. Other

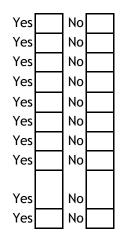
SIGNED

Date:

Registrar (Russell Isinger):

College / Department Representative(s):

IPA Representative(s):





Archived: Monday, May 4, 2020 2:51:10 PM From: <u>Warrington, Seanine</u> Sent: Wed, 25 Mar 2020 19:27:32 +0000Authentication To: <u>Vuong, Lucy Bruce Sparling (AD Academic, Engineering) Isinger, Russell</u> Cc: <u>Pajic, Aleksandra Storey, Amanda</u> Subject: RE: Signed CWR - Bachelor of Science in Engineering (B.E.) First-Year Redesign Sensitivity: Normal

Thank you, Lucy!

Amanda, please let me know if you need anything else from us,

Seanine

From: Vuong, Lucy Sent: March-25-20 1:23 PM

To: Bruce Sparling (AD Academic, Engineering) <engr.academicdean@usask.ca>; Warrington, Seanine <seanine.warrington@usask.ca>; Isinger, Russell <russell.isinger@usask.ca>

Cc: Pajic, Aleksandra <aleksandra.pajic@usask.ca>; Storey, Amanda <amanda.storey@usask.ca>

Subject: Re: Signed CWR - Bachelor of Science in Engineering (B.E.) First-Year Redesign

Hi all,

This form is approved from my end.

Thanks,

L

From: Bruce Sparling (AD Academic, Engineering) <<u>engr.academicdean@usask.ca</u>> Sent: March 25, 2020 12:12 PM

To: Warrington, Seanine <<u>seanine.warrington@usask.ca</u>>; Isinger, Russell <<u>russell.isinger@usask.ca</u>>

Cc: Pajic, Aleksandra <<u>aleksandra.pajic@usask.ca</u>>; Vuong, Lucy <<u>lucy.vuong@usask.ca</u>>; Storey, Amanda <<u>amanda.storey@usask.ca</u>> Subject: RE: Signed CWR - Bachelor of Science in Engineering (B.E.) First-Year Redesign

Excellent.

Thank you everyone for your efforts in keeping this initiative moving ahead. That is very much appreciated.

Bruce

Bruce Sparling, Ph.D., P.Eng., FCSCE
 Associate Dean, Academic
 Professor Structures / Materials Group
 College of Engineering, University of Saskatchewan
 Rm. 2A01, Engineering Building, 57 Campus Dr.
 Saskatoon, SK S7N 5A9
 Tel: (306) 966-4190 Direct: (306) 966-5366
 Email: engr.academicdean@usask.ca

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Please think "Green" before printing this email

From: Warrington, Seanine <<u>seanine.warrington@usask.ca</u>>
 Sent: Wednesday, March 25, 2020 11:44 AM
 To: Bruce Sparling (AD Academic, Engineering) <<u>engr.academicdean@usask.ca</u>>; Isinger, Russell <<u>russell.isinger@usask.ca</u>>
 Cc: Pajic, Aleksandra <<u>aleksandra.pajic@usask.ca</u>>; Vuong, Lucy <<u>lucy.vuong@usask.ca</u>>; Storey, Amanda <<u>amanda.storey@usask.ca</u>>
 Subject: RE: Signed CWR - Bachelor of Science in Engineering (B.E.) First-Year Redesign

Thank you, Bruce.

Lucy, can I ask you to reply with your confirmation of this proposal as well? There are no tuition changes in this proposal.

Amanda, following Lucy's email confirmation, we can consider the CWR for the B.E. First-Year Redesign to be signed.

Seanine

From: Bruce Sparling (AD Academic, Engineering)
Sent: March-25-20 11:34 AM
To: Warrington, Seanine <<u>seanine.warrington@usask.ca</u>>; Isinger, Russell <<u>russell.isinger@usask.ca</u>>
Cc: Pajic, Aleksandra <<u>aleksandra.pajic@usask.ca</u>>
Subject: RE: Signed CWR - Bachelor of Science in Engineering (B.E.) First-Year Redesign

Hello everyone,

Thanks for steering this through uncharted waters.

Yes, I approve of the CWR form that was circulated.

All the best,

Bruce

Bruce Sparling, Ph.D., P.Eng., FCSCE Associate Dean, Academic Professor Structures / Materials Group College of Engineering, University of Saskatchewan Rm. 2A01, Engineering Building, 57 Campus Dr. Saskatoon, SK S7N 5A9 Tel: (306) 966-4190 Direct: (306) 966-5366 Email: engr.academicdean@usask.ca

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From: Warrington, Seanine <<u>seanine.warrington@usask.ca</u>>
Sent: Tuesday, March 24, 2020 5:04 PM
To: Isinger, Russell <<u>russell.isinger@usask.ca</u>>
Cc: Pajic, Aleksandra <<u>aleksandra.pajic@usask.ca</u>>; Bruce Sparling (AD Academic, Engineering) <<u>engr.academicdean@usask.ca</u>>
Subject: RE: Signed CWR - Bachelor of Science in Engineering (B.E.) First-Year Redesign

Hi Russ,

Thank you for letting me know you approve the details of attached form!

Bruce, please reply-all with your approval too. We can then consider the form fully signed and ready for APC submission. 😳

Seanine

From: Warrington, Seanine
Sent: March-24-20 10:15 AM
To: Isinger, Russell <<u>russell.isinger@usask.ca</u>>
Cc: Pajic, Aleksandra <<u>aleksandra.pajic@usask.ca</u>>; Bruce Sparling (AD Academic, Engineering) <<u>engr.academicdean@usask.ca</u>>
Subject: Signed CWR - Bachelor of Science in Engineering (B.E.) First-Year Redesign

Good morning Russ,

Aleksandra and I have finalized the CWR form according to the decisions made in our CWR meeting. I've attached it here. Please "reply-all" with your confirmation that the details of the form are correct. Your confirmation email will replace a signature of approval in the midst of the coronavirus pandemic (COVID-19) disruptions.

Aleksandra, can I ask you to secure Bruce's approval on this email string, following Russ's email?

Thank you!

Seanine

Appendix R – Current Enrollment Numbers

Accepted Current Academic Year

iviajor College: All

				Reporting Year	
Major College	International Student	Student Type	2016/2017	2017/2018	2018/2019
Engineering	Domestic Student	Audit Student	1		
		Continuing			
		External Transfer	49	52	5
		Internal Transfer	41	64	5
		New First Time	324	325	33
		Provisional Admission		1	
		Returning Student	33	27	1
		Special (Mature) Student			
		Transfer Former			
		Visiting Student	5	2	
		Domestic Student Total	453	471	46
	International Student	Audit Student	0		
		Continuing			
		External Transfer	14	15	2
		Internal Transfer	14	18	
		New First Time	24	36	6
		Provisional Admission			
		Returning Student	9	3	
		Transfer Former			
		Visiting Student	13	22	2
		International Student Total	74	94	12
	Unknown	Unknown	1	0	
		Engineering Total	528	565	58
irand Total			528	565	58

TERM NAME	TERM DEFINITION	Α	Т	С	С
International Student	Residency status in Canada differentiating between domestic	\bigcirc	\oslash	\oslash	\oslash
Major College	The college that has academic authority over the student's	\checkmark	\oslash	\oslash	\oslash
Reporting Year	The academic year (May 1 through April 31) by which enrolment is	\checkmark	\oslash	\oslash	\oslash
Student Type	The classification of students' prior education during the admission	\bigcirc	\oslash	\oslash	\oslash

Source: University of Saskatchewan Data Warehouse. Data as of Sunday, January 26, 2020 Produced by Information and Communications Technology - Reporting and Data Systems.

Information and Communications Technology - Reporting and Data Systems

244 Research Annex, 105 Maintenance Rd. Phone: (306) 966-4885, Fax: (306) 966-8822 Saskatoon, SK Canada S7N 5C5 <u>Contact ICT-R&DS</u> | <u>Disclaimer</u> | © <u>U of S</u> 1994 - 2020 Appendix S – Credit Unit Breakdown by Program (2nd, 3rd, 4th years)

Chemical Engineering - New

2nd Year:

Term	Course	CU
Fall	CHE 220	3
Fall	CHEM 2xx	3
Fall	CHEM 250	3
Fall	GE 213	3
Fall	MATH 223	3
Winter	Group A	3
Winter	CHE 223	3
Winter	CHEM 221	3
Winter	Hum. / Soc. Sci.	3
Winter	GE 210	3
Fall or Winter	MATH 224	3
Total =	Total CU's =	33

<u> 3rd Year:</u>

Term	Course	CU
Fall	CHE 323	3
Fall	CHE 325	3
Fall	CHEM 231	3
Fall	GE 210	3
Winter	CHE 315	3
Winter	CHE 322	3
Winter	CHE 324	3
Winter	CHE 326	3
Winter	CHE 333	2
Fall or Winter	Comp. Studies	3
Fall or Winter	GE 348	3
Fall or Winter	RCM 300	3
Total =	Total CU's =	35

4th Year:

Term	Course	CU
Fall	CHE 411	3
Fall	CHE 414	2
Fall	CHE 421	3
Fall	CHE 423	3
Fall	CHE 470	0

Civil Engineering - New

2nd Year:

Term	Course	CU
Fall	GEOL 121	3
Fall	CE 212	3
Fall	GE 210	3
Winter	GEOE 218	3
Fall	MATH 223	3
Winter	CE 225	3
Winter	CE 295	3
Fall	Hum. / Soc. Sci.	3
Winter	GE 213	3
Winter	MATH 224	3
Fall or Winter	Sci. Elective	3
Fall or Winter	RCM 300	3
Spring/Summer	CE 271	0
Total =	Total CU's =	36

3rd Year:

Term	Course	CU
Fall	CE 315	3
Fall	CE 317	3
Fall	CE 318	3
Fall	CE 320	3
Fall	CE 328	3
Fall	GE 348	3
Winter	CE 319	3
Winter	CE 321	3
Winter	CE 327	3
Winter	CE 329	3
Winter	CE 330	3
Fall or Winter	Hum. /Soc. Sci	3
Total =	Total CU's =	36

4th Year:

Term	Course	CU
Fall & Winter	CE 495	6
Fall or Winter	Group G	3
Fall or Winter	Group P	3

Winter	Group B / Tech.	3
Winter	CHE 424	2
Winter	GE 449	3
Fall or Winter	Hum. / Soc. Sci.	3
Fall or Winter	Group B	3
Fall or Winter	Group B	3
Fall or Winter	CHE 431	1
Fall & Winter	CHE 495	6
Total =	Total CU's =	35

Grand	Total	CU's =	
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103

Group S Fall or Winter 3 3 Fall or Winter Group W Fall or Winter Gr. W, G, S 3 3 Fall or Winter Gr. W, G, S Gr. W, G, S Fall or Winter 3 3 Fall or Winter Gr. W, G, S Fall or Winter Gr. W, G, S, R 3 Winter GE 449 3 Total = Total CU's = 36

Grand Total CU's = 108

Computer Engineering - New

Electrical Engineering - New

2nd Year:

Term	Course	CU
Fall	Hum. / Soc. Sci.	3
Fall	EE 205	1
Fall	EE 221	3
Fall	EE 265	3
Fall	EP 202	3
Fall	MATH 223	3
Winter	CMPT 145	3
Winter	EE 216	3
Winter	EE 232	3
Winter	EE 271	3
Winter	EP 214	3
Winter	MATH 224	3
Total =	Total CU's =	34

3rd Year:

Term	Course	CU
Fall	CME 331	3
Fall	CME 341	3
Fall	CMPT 214	3
Fall	Dig. Sys.	3
Fall	2nd Focus Area	3
Winter	CME 334	3
Winter	RCM 300	3
Winter	Dig. Sys.	3
Winter	2nd Focus Area	3
Winter	GE 348	3
Winter	Sci. Elec.	3
Total =	Total CU's =	33

4th Year:

Term	Course	CU
Fall	Hum. / Soc. Sci.	3
Fall	Dig. Sys.	3
Fall	Dig. Sys.	3
Fall	2nd Focus Area	3
Fall	2nd Focus Area	3

2nd Year:

Term	Course	CU
Fall	Hum. / Soc. Sci.	3
Fall	EE 205	1
Fall	EE 221	3
Fall	EE 265	3
Fall	EP 202	3
Fall	MATH 223	3
Winter	EE 216	3
Winter	EE 232	3
Winter	EE 241	3
Winter	EE 271	3
Winter	EP 214	3
Winter	MATH 224	3
Total =	Total CU's =	34

3rd Year:

Term	Course	CU
Fall	1st Focus Area	3
Fall	1st Focus Area	3
Fall	2nd Focus Area	3
Fall	2nd Focus Area	3
Fall	CME 331	3
Fall	GE 348	3
Winter	1st Focus Area	3
Winter	Sci. Elec.	3
Winter	2nd Focus Area	3
Winter	EE 382	3
Winter	RCM 300	3
Total =	Total CU's =	33

4th Year:

Term	Course	CU
Fall	Hum. / Soc. Sci.	3
Fall	1st Focus Area	3
Fall	1st Focus Area	3
Fall	2nd Focus Area	3
Fall	2nd Focus Area	3

Winter	GE 449	3	Winter Comp. Studies 3
Winter	Dig. Sys.	3	Winter 1st Focus Area 3
Winter	2nd Focus Area	3	Winter 2nd Focus Area 3
Winter	Comp. Studies	3	Winter GE 449 3
Fall & Winte	CME 495	6	Fall & Wint EE 495 6
Total =	Total CU's =	33	Total = Total CU's = 33

Grand Total CU's = 100

Grand Total CU's = 100

Engineering Physics - New

2nd Year:

Term	Course	CU
Fall	Hum. / Soc. Sci.	3
Fall	EE 221	3
Fall	EP 202	3
Fall	EP 253	1
Fall	MATH 223	3
Fall	PHYS 252	3
Fall	RCM 300	3
Winter	EE 232	3
Winter	EP 214	3
Winter	EP 228	3
Winter	MATH 224	3
Winter	PHYS 223	3
Winter	STAT 241	3
Total =	Total CU's =	37

3rd Year:

Term	Course	CU
Fall	EE 321	3
Fall	EP 353	2
Fall	EP 370	3
Fall	PHYS 356	3
Fall	PHYS 383	3
Fall	MATH 331	3
Fall	EP Req.	3
Winter	EP 317	3
Winter	EP 320	3
Winter	EP 325	3
Winter	EP 354	2
Winter	PHYS 323	3
Winter	EP Req.	3
Total =	Total CU's =	37

<u>4th Year:</u>

Term	Course	CU
Fall	EP 413	3
Fall	EP 417	3

Environmental Engineering - New

2nd Year:

Term	Course	CU
Fall	CE 212	3
Fall	GE 210	3
Winter	GEOE 218	3
Fall	MATH 223	3
Fall	ENVE 201	3
Winter	CHE 210	3
Fall	Hum. / Soc. Sci.	3
Winter	ENVE 212	3
Winter	GE 213	3
Winter	MATH 224	3
Fall	GEOL 121	3
Fall or Winter	Sci. Elective	3
Fall or Winter	CE 271	0
Total =	Total CU's =	36

3rd Year:

Term	Course	CU
Fall	CE 315	3
Fall	CE 318	3
Fall	CE 328	3
Fall	CHEM 250	3
Fall	CE 202	3
Winter	ENVE 395	3
Winter	CE 319	3
Winter	CE 327	3
Winter	CHE 223	3
Winter	ENVE 381	3
Winter	GE 348	3
Fall	RCM 300	3
Total =	Total CU's =	36

<u>4th Year:</u>

Term	Course	CU
Fall	CE 320	3
Fall	ENVE 482	3
Winter	Comp. Studies	3

Fall	EP 421	3
Fall	GE 348	3
Fall	PHYS 456	3
Fall	EP Req.	3
Winter	EP 428	3
Winter	EP Req.	3
Winter	EP Req.	3
Winter	GE 449	3
Fall & Winter	EP 495	6
Total =	Total CU's =	36

		-
Winter	CHE 454	3
Fall or Winter	Group A or B	3
Fall or Winter	Env. Sci. Elec.	3
Fall or Winter	Hum. / Soc. Sci.	3
Fall or Winter	Group A	3
Fall or Winter	Group A	3
Fall or Winter	GE 449	3
Fall & Winter	ENVE 495	6
Total =	Total CU's =	36

Grand Total CU's = 108

Grand Total CU's = 110

Geological Engineering - New

2nd Year:

Term	Course	CU
Fall	GEOL 121	3
Fall	CE 212	3
Fall	GE 210	3
Winter	GEOE 218	3
Fall	MATH 223	3
Winter	CE 225	3
Winter	CE 295	3
Fall	Hum. / Soc. Sci.	3
Winter	GE 213	3
Winter	MATH 224	3
Fall or Winter	Hum. / Soc. Sci.	3
Fall or Winter	RCM 300	3
Spring/Summer	CE 271	0
Total =	Total CU's =	36

3rd Year:

Term	Course	CU
Fall	CE 318	3
Fall	CE 328	3
Fall	GEOL 224	3
Fall	GEOL 245	3
Fall	GEOL 258	3
Winter	CE 319	3
Winter	CE 330	3
Winter	GEOE 315	3
Winter	GEOE 375	3
Winter	GEOL 226	3
Winter	Group B	3
Fall or Winter	GE 348	3
Winter	Group A	3
Spring/Summer	GEOE 378	3
Total =	Total CU's =	42

4th Year:

Term	Course	CU
Fall	CE 320	3

Mechanical Engineering - New

2nd Year:

Term	Course CU				
Fall	Hum. / Soc. Sci.	3			
Fall	Sci. Elec.	3			
Fall	GE 213	3			
Fall	MATH 223	3			
Fall	ME 214	3			
Fall	ME 227	3			
Fall	GE 210	3			
Winter	MATH 224	3			
Winter	ME 215	3			
Winter	ME 226	3			
Winter	ME 229	3			
Winter	RCM 300	3			
Total =	Total CU's =	36			

3rd Year:

Term	Course	CU
Fall	ME 313	3
Fall	ME 321	3
Fall	ME 324	3
Fall	ME 327	3
Fall	ME 330	3
Winter	ME 314	3
Winter	ME 323	3
Winter	ME 328	3
Winter	ME 329	3
Winter	ME 335	3
Winter	ME 352	3
Fall or Winter	GE 348	3
Total =	Total CU's =	36

4th Year:

Term	Course	CU
Fall & Winter	ME 495	6
Fall	ME 417	3
Fall	ME 418	3
Fall	ME 431	3

Fall	GE 449	3	
Fall	GEOE 412	3	
Fall	GEOE 414	3	
Winter	GEOE 466	3	
Fall & Winter	GEOE 495	6	
Fall or Winter	Group A or C	3	
Fall or Winter	Group C	3	
Fall or Winter	Group C	3	
Fall or Winter	Group C	3	
Total =	Total CU's =	33	•

Fall or Winter	Tech. & Design	3
Fall or Winter	Tech. & Design	3
Fall or Winter	Tech. & Design	3
Fall or Winter	Tech. & Design	3
Fall or Winter	Comp. Studies	3
Fall or Winter	Hum. / Soc. Sci.	3
Winter	GE 449	3
Total =	Total CU's =	36

Grand Total CU's = 108

Grand Total CU's = 111

Course Overviews for the new First Year Engineering

Fall Term

Introduction to Engineering I (GE 102.2)

This course is divided into 2 modules: Module 1 focuses on an introduction to the engineering profession, life as an engineering student and strategies for success therein. Module 2 focuses on contextualizing the engineering profession in the culture, worldviews, and communities of Indigenous Peoples of Canada. The modules run concurrently, covering independent but interrelated topics.

Module 1: **Strategies for Success in Engineering** will serve as an orientation to first year engineering at the University of Saskatchewan. Students will learn how to navigate the first year program, including the learning management system, the classroom response system, the assessment system, and technology resources available to them. At the start of the semester, students will be introduced to theory about wellbeing, group dynamics, conflict resolution, time management, goal setting, planning, studying, and problem solving. At the end of the semester, students will have the opportunity to reflect upon their experiences over the semester, and plan for improvement in all of these areas moving forward. Students will be exposed at a high-level to what engineering is and will be expected to protect their academic integrity as a future professional. As a part of this module, students will join working groups for the semester, in which they will develop supports and complete work on a comparative assignment relating to their experiences in other courses. Students will also receive lab safety training to prepare them to complete work in natural science laboratories in other courses.

Module 2: **Indigenous Cultural Contextualization** will discuss the importance of diversity and inclusion to the professional of engineering. Through the associated Summer Top Up, the module will expose students to important aspects of the culture and worldviews of Indigenous Peoples of Canada, resilience against colonization, and reconciliation. The mutual importance of Indigenous culture and the engineering profession to one another will be highlighted by studying the legal and moral duty of engineers to engage in good faith consultation with Indigenous communities affected by engineering projects and examples of historical and contemporary influences of Indigenous worldviews on technology and engineering design. This module will set the stage for such examples to be woven into the rest of the first year engineering program.

Engineering Communication I (GE 132.1)

This course consists of two modules (**Technical Communication I** and **Drawing & Sketching**). They both involve communication skills for engineers, but they will largely be taught and assessed separately in this course. In both cases, instructors will use a competency-based assessment (CBA) system. Students will be expected to demonstrate basic skills in a competent manner by the end of the course. In general, if competency is not demonstrated earlier in the course, there will be at least one opportunity (for a given block of subject matter) to demonstrate it again later in the course.

The **Technical Communication I** module will introduce students to technical communication, with a focus on developing students' communication awareness in the areas of proper referencing methods, building coherent written arguments, and participating in self- and peer-editing exercises.

The **Drawing & Sketching** module will introduce students to technical drawing and sketching. Students will become familiar with basic drawing and sketching tools, terms, and concepts. They will develop basic skills in drawing 2D and 3D primitives and composite objects. This will include isometric and orthographic drawings, and the ability to translate between these drawing types. Students will develop basic skills in dimensioning and scaling, they will be able to interpret sectioning and auxiliary views, and they will become familiar with different types of technical drawings from a variety of engineering disciplines. By the end of the module, students who pass the module will be competent drawers and sketchers for basic technical drawing tasks.

Engineering Discipline Experience (GE 112.1)

This course will provide students with an opportunity to take an in-depth look at engineering programs offered at the University of Saskatchewan. The University's eight engineering programs are provided by the Departments of Chemical Engineering, Civil, Geological and Environmental Engineering, Electrical & Computer Engineering, Engineering Physics, and Mechanical Engineering. Students will spend one day with each of five programs. Students will rank the eight programs according to their preferences in GE 102 in September and they will then be assigned to five programs, one program per day, to make up this course's "engineering discipline experience". Best efforts will be made to give each student their top preferences. Students will attend lectures, seminars, and/or laboratory experiences for a total of 6 hours per day. Students will work individually and/or in groups to perform course activities. Students are responsible to follow the rules for the laboratories in different programs.

Mechanics I (GE 122.2)

This course considers particle dynamics and begins with particle kinematics under arbitrary acceleration. Particle kinetics is then addressed including force-acceleration, work-energy, and impulse-momentum principles. A series of practical laboratories are designed to help the student apply the principles of dynamics to practical problems.

Design I (GE 142.2)

This course will introduce students to Engineering Design, and specifically to the early stages characterized by problem identification, acceptance, definition, and characterization. This will include the determination of design criteria/objectives and constraints/requirements. This module will also introduce the idea of entrepreneurial tech innovation as a path for engineering designers. Students will engage in a group project to identify and characterize an engineering design problem of their choosing. This will involve interactions with potential clients and/or users, and significant literature research. Students will also be introduced to the later stages of design, as a preview of what is to come in Design II.

Electrical Circuits I (GE 152.1)

This course is divided into 2 modules: Module 1 focuses on resistive direct-current circuit analysis and makes up the lecture portion of the course. Module 2 focuses on programming and computation using Matlab and makes up the laboratory portion of the course. The modules run concurrently, but cover independent topics. The content covered in the lectures will not directly relate to the content covered in the labs each week.

Module 1: **Electrical Circuits I** will introduce students to the analysis of basic, resistive direct-current (DC) electrical circuits. Students will learn the basic terminology, units and symbols used when analyzing resistive DC circuits. Students will analyze various resistive DC circuit networks by applying, Kirchoff's current law, Kirchoff's voltage law, Ohm's law, mesh analysis, node analysis and superposition. This will include the application of Matlab to solve systems of linear equations arising from circuit analysis. Students will learn the basic concepts of electrical power and how to analyze power flow in resistive DC circuits. Students will practice creating equivalent representations of circuits, including combining sources and resistive elements/networks and applying Thevenin's theorem and Norton's theorem. By the end of the module, students will become competent in interpreting and representing information in circuit diagrams and applying various methods of analyzing resistive DC circuits.

Module 2: **Matlab** will introduce students to Matlab, and to programming in Matlab. Students will learn how to orient themselves in Matlab and how to navigate the Matlab environment for the purposes of command line interaction. They will become familiar with the matrix organization of Matlab and how to set up, modify, and operate on matrix data types. Students will learn how to set up and solve linear systems, plot 2D and 3D data, and conduct file I/O in Matlab. Building on their knowledge of Python, students will review basic programming constructs (loops, decision making structures, functions) and implement them in Matlab. They will learn about the Matlab/Simulink world and how to find and use resources to continue their professional development in Matlab programming. Students will complete a number of programming problems from a variety of engineering and natural science disciplines, as they learn how to program in Matlab. By the end of the module, students will become competent users of Matlab and competent basic Matlab.

Winter Term

Introduction to Engineering II (GE 103.1)

This course serves as a brief introduction to the winter semester of the first year engineering program. Within the course, students will reflect upon their experience from the fall semester and plan to move forward in a positive way. This includes preparing to make their choice of engineering discipline. This course will provide students with the history of the engineering profession and will discuss the privilege of belonging to a self-governing profession and what it means to be a learned professional. Students will be introduced to ethical frameworks and will be expected to apply those frameworks to analyze engineering case studies. Students will reflect upon the impact of the engineering profession on society.

In this course, students will be exposed to the academic options available to them in their undergraduate program, such as co-op experiences, certificates and course electives. Students will be expected to determine their career goals and reflect upon how their academic options can support them in achieving those goals. In the laboratory portion of the course, students will complete health and safety training relevant to engineering practice.

Engineering Communication II (GE 133.2)

This course consists of four modules (**Technical Communication II and III, CAD** and **Research**). They all involve communication skills for engineers, but they will largely be taught and assessed separately in this

3

course. In all cases, instructors will use a competency-based assessment (CBA) system. Students will be expected to demonstrate basic skills in a competent manner by the end of the course. In general, if competency is not demonstrated earlier in the course, there will be at least one opportunity (for a given block of subject matter) to demonstrate it again later in the course.

The **Technical Communication II** module will introduce students to oral communication in a technical context, including the design of Powerpoint[™] and group presentations. Students will also be introduced to self- and peer-teaching strategies, including conceptual and delivery models to assist in simplifying concepts for peers. They will systematically reflect upon feedback provided to them by instructors and peers, and incorporate such feedback into their evolving communication skills.

The **Technical Communication III** module will introduce students to research report writing, ethical considerations in technical communication, and poster design. Students will learn and apply core concepts in the visual design of posters, and they will get the opportunity to present and defend a poster based on their work in the Research module. As in Technical Communication II, they will continue to reflect upon peer and instructor feedback, and incorporate it into their work.

The **CAD** module will introduce students to Computer-Aided Design through the use of AutoCAD. After a brief review of key concepts and terms from Drawing & Sketching, students will learn how to orient themselves in the AutoCAD system and set up drawings. They will develop basic skills in drawing and modifying 2D and 3D objects in CAD. This will include properly laying out, annotating, and dimensioning drawings. By the end of the module, students who pass the module will be competent users of AutoCAD for basic technical drawing tasks.

The **Research** module will introduce students to research methods in engineering disciplines. In groups, students will select real-world data sets from faculty research labs and analyze and interpret the data sets after conducting a literature review. They will ultimately present their work in a poster session. Students will become familiar with the procedures of research activities, review and evaluation of research literature, statistical concepts for research in engineering, and selection and interpretation of statistical analyses. By the end of the module, students should be able to assist a research study with supervision.

Mechanics II (GE 123.3)

This course is an introduction to statics for particles and rigid bodies in two and three dimensions. Applications involving the analyses of simple trusses, frames, and machines are introduced. Dry friction is also introduced. A series of practical laboratories are designed to help the student apply the principles of statics to practical problems.

Electrical Circuits II (GE 153.2)

This course begins with a brief review of direct-current (DC) electrical circuit analysis, including resistive, capacitive and inductive elements. The focus of the course then shifts to the analysis of single-phase alternating-current (AC) electrical circuits. This includes characterizing AC waveforms and converting to phasor representations to carry out circuit analysis involving complex impedance, both manually and by applying electrical circuit simulation software. AC power is explored, including the concepts of real, reactive and apparent power, power factor and power factor correction.

The course also provides an overview of electrical engineering topics of interest to a broad audience, including electrical safety, power distribution systems, batteries and energy storage, electrical generators and motors, and renewable power generation systems. The course includes a design project, in which students will design a renewable power generation and storage system to meet a specific need.

Design II (GE 143.2)

This course will take students through an entire cycle of an engineering design process. This will include problem definition/characterization, ideation, concept evaluation, and concept selection. Students will select a disciplinary-focused design project topic and will work in groups to complete it. They will apply basic project management techniques as they proceed through the course. Students will come to understand and apply key design concepts such as DFX, proofs of concept, prototypes, pairwise comparison charts, Pugh matrices, and decision matrices. The course concludes with the submission of a project proposal report.

Process Engineering (GE 163.2)

In this course students will learn the basic principles of process engineering. The course starts with an overview of process engineering. Then, unit systems, dimensional homogeneity and dimensionless quantities are presented. The concepts of process streams and process blocks are then described so that block diagrams of processes can be developed. Conservation equations are described. Scaling of systems, along with the concept of basis are introduced followed by variable specification (design variables), equation independence, and Degree of Freedom analysis. Module test 1 is then given.

In the second half of the module, multi-block systems are described and analyzed. Degree of Freedom analysis is revisited and then bookkeeping of these systems is presented as a methodology to develop solution strategies for process design. The concepts of processes with single and multi-rate equations, along with selectivity and yield are introduced. The effects of sources and sinks are discussed. Module test 2 is then given.

Throughout the course examples are presented from a wide range of areas including, but not limited to: general population balances; health care process systems; biological systems; food processing system; financial processes; manufacturing systems; bioremediation; water treatment; leaching; and unit operations. There are five assignments and also two laboratories, in which a simple and a complex process will be developed. Matlab will be incorporated into some assignments and both laboratories.

Bridge Courses

Mechanical Engineering

Engineering Analysis I (ME 113.3)

This course introduces mathematical tools and techniques used to solve mechanical engineering problems. Topics include: intermediate linear algebra, numerical methods for linear systems of equations, solving nonlinear equations, and numerical integration and differentiation. Centre of gravity and centroids, moments of inertia, and vibrations are also introduced. Applications to engineering problems are stressed. The laboratory content consists of two components: numerical modelling and introductory training in parametric solid modelling software.

Electrical, Computer, Engineering Physics

Principles of Computer Science for Engineers (CMPT 146.3)

Introduces computer science principles and strategies for writing correct, efficient, robust, maintainable software. Presents principles and implementations of linear data structures including stacks, queues, and linked-lists, as well as recursive data structures including binary trees, and binary search trees. Introduces algorithm analysis to determine time and space requirements, including best-case and worst-case behaviour. Presents abstract data types as implemented using object-oriented programming. Emphasizes principles of software design, development, and testing, and practical development strategies, including defensive programming, version control, and good coding style.

Chemical Engineering

Unit Operations in Chemical Process Engineering (ChE 113.3)

This bridge course will present Chemical Engineering Unit Operations at both bench-scale and fullscale. These Unit Operations comprise the Chemical Engineering Toolkit that enables the Chemical Engineer to design full-scale chemical process operations.

Six experiments, developed and provided by The Department of Chemistry, will be used to explore the concepts and theory behind unit operations and combinations thereof, at the bench-scale. These experiments may be used to develop a bench-scale batch operational plant (for example, bioethanol), or they may represent individual unit operations (for example, froth flotation).

The lecture, or Chemical Engineering component of the course, will be used to illustrate how unit operations are developed for full-scale processes. Emphasis will be on the unit's purpose, operation, and key design and control parameters. Several processes, taken from the Chemical Process Industry (CPI), will be developed as Process Flow Diagrams. A field trip to a large-scale CPI plant will occur.

Civil, Geological, and Environmental Engineering

Spring Surveying Camp (CE 271.2)

Spring Survey Camp is designed to introduce the basic elements of surveying both in the classroom and in the field using standard surveying techniques. The theory behind surveying is presented so the student can understand why and how surveying is carried out in the field. Manually-operated and more advanced electronic equipment are introduced and used in practicum sessions. The course is intended to give the student a skill set which can be used during summer jobs and to build upon during a career in civil, geological or environmental engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: GE 102
- 2.2 Academic credit units: 2
- 2.3 Course Long Title (maximum 100 characters): Introduction to Engineering I Course Short Title (maximum 30 characters): Introduction to Engineering I

2.4	Total Hours:	Lecture 27	Seminar	L	_ab 21	Tutorial	Other
2.5	Weekly Hours:	Lecture	Seminar	L	ab	Tutorial	Other
2.6	Term in which i	t will be offered	I: T1	Т2	T1 or T	2	T1 and T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course includes two concurrent modules. Module 1 introduces students to the profession of engineering and life as an engineering student. The course will allow students to learn, apply and reflect upon strategies for success in engineering in areas including: wellbeing, group dynamics, conflict resolution, time management, goal setting, planning, studying, problem solving and academic honesty. Module 2 introduces students to important aspects of the culture and worldviews of Indigenous Peoples and contextualizes the engineering profession within those worldviews. The course will introduce students to the engineer's legal and moral duty to consult with affected communities and examples of historical and contemporary influences of Indigenous worldviews on technology and engineering design. There is also discussion about the importance of inclusion of, and respect for, all people.

- 2.9 Do you allow this course to be repeated for credit? No
- 3. **Please list rationale for introducing this course:** This is part of the integrated curriculum in the redesigned first year program.

4. Please l	list the learning	objectives fo	or this course:
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Module 1	L: Strategies for Success in Engineering	67% of overa grade	
Learning Outcome Number	By the end of Module 1, students will be	expected to:	Outcome Weight (By Module)
1.1	identify and employ supports and strateg in engineering in the areas of academics, group work, and productivity,		25%
1.2	reflect upon experiences in order to plan	for the future,	20%
1.3	set and refine goals and plans to achieve those goals,		10%
1.4	create a personal code of ethics which incorporates the importance of protecting one's academic integrity,		5%
1.5	recognize and apply a systematic, step-wise method of solving problems,		15%
1.6	identify applicable safety procedures for laboratory work, and		10%
1.7	compare and contrast the focus and perspectives of biology, chemistry, physics, geology, mathematics and computer science.		15%

Module 2	Module 2: Indigenous Cultural Contextualization 33% of overa		
Learning Outcome Number	By the end of Module 2, students will be	e expected to:	Outcome Weight (By Module)
2.1	describe important aspects of the culture worldviews of Indigenous Peoples of Car they contribute to resilience against colo promotion of reconciliation,	25%	
2.2	reflect upon self and positionality in Can commitment to reconciliation and buildi society and how this will relate to a futur professional engineer,	ng an inclusive	20%

2.3	identify and explain the Truth and Reconciliation Commission's Calls to Action and the elements of the United Nation's Declaration on the Rights of Indigenous Peoples relevant to the engineering profession,	15%
2.4	explain the legal, ethical and social importance of free, prior and informed consent of affected Indigenous peoples before proceeding with economic development projects, and	25%
2.5	identify positive influences of Indigenous worldviews on technology and design.	15%

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No If so, were these departments consulted? (Include correspondence) Were any other departments asked to review or comment on the proposal? Yes, within the College and we worked with the Gwenna Moss Centre for Teaching and Learning.

6. **Other courses or program affected** (please list course titles as well as numbers)

- 6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)
- 6.2 Courses for which this course will be a prerequisite?
- Any changes to the course prerequisites in the programs will be submitted in future UCC.
- 6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Please see syllabus.

9.1	How should this course be graded?
	C – Completed Requirements
	(Grade options for instructor: Completed Requirements, Fail, IP In Progress)
	N – Numeric/Percentage
	(Grade options for instructor: grade of 0% to 100%, IP in Progress)

P – Pass/Fail
(Grade options for instructor: Pass, Fail, In Progress)
S – Special
(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Yes

10. Required text

Include a bibliography for the course: N/A

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget these courses will be replacing others.
- 11.3 Are sufficient library or other research resources available for this course? Yes, Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? N/A

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program

LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

- FNAR Fine Arts
- HUM Humanities
- SCIE Science
- SOCS Social Science
- ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

College of Engineering only

- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course

BIOL 102.1 – Nature for Engineering

- GEOL 102.1 Introduction to Geology for Engineering
- PHYS 152.1 Introduction to Atoms and Nuclei for Engineering
- CHEM 142.1 The Global Impact of Chemistry for Engineering
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here:

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

• If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.

• If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructors and Teaching Assistants:	Name: TBD Office: TBD Phone: TBD Email: TBD
Office Hours:	TBD
Lectures:	Module 1: Weeks: 1-2 and 14-15 Classes: A total of thirteen 1.5 hr classes
	Module 2: Weeks: 1-3 Classes: A total of five 1.5 hr classes
Laboratories:	Module 1: Weeks: 1-2 Labs: A total of eight 1.5 hr Labs
	Module 2: Weeks: 2-4 Classes: A total of three 3 hr classes
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. <u>https://bblearn.usask.ca/</u>
End-of-Day Help Sessions	End of day help session sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses.
Description:	This course includes two concurrent modules. Module 1 introduces students to the profession of engineering and life as an engineering student. The course will allow students to learn, apply and reflect upon strategies for success in engineering in areas including: wellbeing, group

	dynamics, conflict resolution, time management, goal setting, planning, studying, problem solving and academic honesty. Module 2 introduces students to important aspects of the culture and worldviews of Indigenous Peoples and contextualizes the engineering profession within those worldviews. The course will introduce students to the engineer's legal and moral duty to consult with affected communities and examples of historical and contemporary influences of Indigenous worldviews on technology and engineering design. There is also discussion about the importance of inclusion of, and respect for, all people.
Pre or co- requisites:	BIOL 102.1 – Nature for Engineering GEOL 102.1 – Introduction to Geology for Engineering PHYS 152.1 – Introduction to Atoms and Nuclei for Engineering CHEM 142.1 – The Global Impact of Chemistry for Engineering
Course Reference Numbers (CRNs):	TBD Available from the Dynamic Schedule once courses are built (<u>https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched</u>)

Course Learning	Modu	ile 1: Strategies for Success in Engineering	67% of overa grade	
Outcomes:	Learning Outcome Number	By the end of Module 1, students will be a	expected to:	Outcome Weight (By Module)
 identify and employ supports and strategies for 1.1 success in engineering in the areas of academics, wellbeing, group work, and productivity, 		ademics,	25%	
1.2 reflect upon future,		reflect upon experiences in order to pla future,	n for the	20%
	1.3	set and refine goals and plans to achieve those goals,		10%
	1.4	create a personal code of ethics which incorporates the importance of protecting one's academic integrity,		5%
	1.5	recognize and apply a systematic, step- of solving problems,	wise method	15%
1.6 identify applicable safety procedures for laborat work, and		r laboratory	10%	
	1.7	compare and contrast the focus and perspectives of biology, chemistry, physics, geology, mathematics and computer science.		15%

Мо	Module 2: Indigenous Cultural33% of overalContextualizationgrade		
Learning Outcome Number	By the end of Module 2, students will be expected to:		Outcome Weight (By Module)
2.1	describe important aspects of the culture and worldviews of Indigenous Peoples of Canada, and how they contribute to resilience against colonization and promotion of reconciliation,reflect upon self and positionality in Canada's commitment to reconciliation and building an inclusive society and how this will relate to a future as a professional engineer,identify and explain the Truth and Reconciliation Commission's Calls to Action and the elements of the United Nation's Declaration on the Rights of Indigenous Peoples relevant to the engineering profession,explain the legal, ethical and social importance of free, prior and informed consent of affected Indigenous peoples before proceeding with economic 		25%
2.2			20%
2.3			15%
2.4			25%
2.5			15%

Assessment: This course employs a competency-based assessment system. Students must demonstrate competence in certain skills in each module. These skills can be divided into three types (A/B/C).

Type A skills are the most basic and granular for a subject area. In general, this includes the ability to define, recall, recognize, compare, and contrast key terms and concepts. It also includes basic calculations and procedural steps, as appropriate.

Type B skills are basic integrative skills. These include basic types of questions that have been covered in class.

Type C skills are integrative skills that depend on the ability to extend the application of what has been learned in class, into new domains.

Note that the final course grade will be a weighted average of the achieved grades in each module. See **Course Learning Outcomes** for relative weights of each module.

Competence Thresholds

Type A Competence

Competence in Type A knowledge and skills is demonstrated by achieving at least 70% on any Type A assessment for each of the checklist items below before the end date of the module. Each item in the Type A checklist will be assessed through in-class quizzes. If students do not reach the 70% threshold on these initial assessments, they may "Top Up" their grade in each skill by attending a proctored Type A quiz at an end-of-day help session or during optional Top Up Help Sessions. At this session, they may take quizzes on one or more Type A checklist items. All questions on these quizzes are Type A questions. No explicit Type A questions appear on Type B/C assessments in the module although Type A knowledge and skills figure prominently in Type B and Type C questions.

A checklist will be maintained on the Student Dashboard where students can monitor their progress in completing these requirements. Failure to complete all checklist items before the end of the module will result in a maximum grade of 49% for the module. Beyond this requirement, quiz results do not contribute to the Module Grade.

Module						
	Identify key features of the first year program					
	Identify own personality traits and strengths					
	Perform basic tasks in Microsoft Office					
	Identify stages of group formation					
	Identify conflict resolution strategies					
	Identify tools for stress management					
	Identify personal support resources available					
	Identify study practices best suited to different					
	types of assessments					
1	Identify academic support resources available					
	Provide feedback on a course					
	Identify opportunities to reframe failure as a lesson					
	Define academic honesty					
	Qualify skills as transferable or technical					
	Identify the steps involved in solving engineering					
	problems					
	Identify how to apply natural science laboratory					
	safety protocols and procedures					
	Recognize elements of the WHMIS					
	Describe important aspects of the culture and					
	worldviews of Indigenous Peoples of Canada,					
resilience against colonization, and reconciliatio						
2	Identify characteristics of discriminatory behavior					
	and how to respond					
	Identify the legal and moral requirements for					
	consultation					

The list of Type A Knowledge and Skills for this course is as follows:

Type B/C Competence

Performance on the Type B questions in each module is subject to a minimum level of competence. By the end of the module, students must achieve a Type B Running Average of at least 70%. Failure to do so will result in a maximum grade of 49% for the module.

All Type B/C assessments will use a descriptive rubric to determine competence. Achievement at a level above competence will be qualified as evidence of Type C skills. Achievement at this level will result in a higher grade, but is not required to pass the module, i.e. there will be no minimum performance threshold for Type C skills.

Grade Calculations

To calculate the grade for Type B skills in each module, Type B grades from questions on each assessment in that module will be applied against the respective learning outcome(s) they each assess. After each assessment, a student's Type B Running Average for each learning outcome is recalculated. If the Type B skills for a given learning outcome are assessed on the current assessment, and the grade achieved is greater than the Type B Running Average for that learning outcome, it becomes the new Type B Running Average for that learning outcome. If the Type B skills for a given learning outcome are assessed on the current assessment, and the achieved grade is less than the Type B Running Average for that learning outcome, the new Type B Running Average for that learning outcome is a simple mean of the current Running Average and the Type B grade on the current assessment.

To calculate the grade for Type C skills, the Type C grades from each assessment within each module are averaged. They cannot be Topped Up. Instead, a Type C percentage will be established for each learning outcome that has Type C assessments. Applying the weights of each learning outcome, a final Type C percentage score for the module will be calculated.

If a student achieves at least 70% in the Type A and B skills in both modules, their course mark will be a weighted average of the two module marks. If a student fails to achieve "basic competence" in one module, they will fail the course, receiving an overall grade of 49%, or their calculated grade, whichever is lower. However, if they choose to redo the course in the future, they will be given credit for the module they did pass (at the discretion of the instructor), with the passing mark that they did achieve (unless they want to redo the module for a better mark). If a

student fails to achieve "basic competence" in both modules, they will fail the course and will be required to redo both modules in the future.

Keeping Track of Grades

Throughout each module in the course, students will be able to monitor their progress in four complementary respects, for each module:

Assessments: A summary of grades obtained on each assessment (assignment, lab, etc.).

Learning Outcomes: A summary of current grades for each learning outcome.

Type A Checklist: A checklist indicating which Type A knowledge and skills have been demonstrated.

Type B Running Average: The current Type B Running Average.

The Student Grades Dashboard will include automated notifications to students if they are lagging behind in clearing Type A checklist items in a timely fashion. It will also advise students to attend module-specific end-of-day help sessions if their Type B Running Average is lagging.

Assessments

Module 1: Strategies for Success in Engineering

Type A skills are vital to any success in navigating the first year engineering program and practicing reflection upon one's experience in the program.

Type B skills include applying a systematic process to solving engineering problems, planning for success and reflecting upon experiences in the program. Reflections should connect observations to plans for next steps.

Type C skills include reflecting upon experiences in the program using detailed, insightful observations, prioritizing areas for attention, and developing detailed and realistic plans for the future.

Assessment	Week Out	Week Due	Top Up Opp.	Торіс
Quiz 1	1	1	Help/Top Up Sessions	Program Details
Lab Quiz 1	1	1	Help/Top Up Sessions	Self-Assessment
Quiz 2	1	1	Help/Top Up Sessions	MS Office
Quiz 3	1	1	Help/Top Up Sessions	Group Dynamics

<u>Type A</u>

Quiz 4	1	1	Help/Top Up Sessions	Conflict Resolution
Assign 1	1	2	Help/Top Up Sessions	Academic Honesty
Lab Quiz 3	2	2	Help/Top Up Sessions	Transferable Skills
Lab Quiz 4	2	2	Help/Top Up Sessions	Problem Solving
Lab Quiz 5	2	2	Help/Top Up Sessions	Natural Science Lab Safety
Assign 3	2	2	Help/Top Up Sessions	WHMIS
Lab Quiz 6	2	2	Help/Top Up Sessions	Wellbeing
Lab Quiz 7	2	2	Help/Top Up Sessions	Study Skills
Lab Quiz 8	2	2	Help/Top Up Sessions	Academic Supports
Lab Quiz 9	2	2	Help/Top Up Sessions	SLEQs
Quiz 8	15	15	Help/Top Up Sessions	Defining Success

<u>Type B/C</u>

Assessment	Week Out	Week Due	Top Up Opp.	Торіс
Lab Quiz 2	1	1	Quiz 7	Self-Assessment
Quiz 5	1	1	Quiz 7	Reflection
Quiz 6	2	2	Assign 5	Planning
Assign 2	2	2	Help/Top Up Sessions	Problem Solving
Assign 4	2	3	Help/Top Up Sessions	Code of Ethics
Assign 5	2	3	Assign 7	Planning
Quiz 7	14	14	Assign 6	Reflection on self, wellbeing and growth
Assign 6	2	14	Quiz 10	Recreation Passport
Project	1	15	Quiz 9	Natural Science Comparison
Quiz 9	15	15	Quiz 10	Reflection on other courses
Quiz 10	15	15	Help/Top Up Sessions	Reflection on group work and conflict resolution
Assign 7	15	15	Help/Top Up Sessions	Reflection on Goals and Planning

Module 2: Indigenous Cultural Contextualization

Type A skills are vital to any success in relating Indigenous culture and worldviews to engineering and include identifying and describing

important aspects of the culture and worldviews of Indigenous Peoples of Canada.

Type B skills include creating a personal land acknowledgement statement and reflecting upon one's own privilege and how engineering and Indigenous communities and culture can be mutually beneficial. Reflections should connect observations to plans for next steps.

Type C skills include reflections using detailed, insightful observations, prioritizing areas for attention, and developing detailed and realistic plans for the future.

Assessment	Week Out	Week Due	Top Up Opp.	Торіс		
Summer Top Up	0	2	Help/Top Up Sessions	Pursuit of Reconciliation		
Quiz 1	2	2	Help/Top Up Sessions	Diversity and Inclusion		
Quiz 2	3	3	Help/Top Up Sessions	Legal and Moral Requirements for Consultation		

<u>Type A</u>

Ty	be B	/C

<u>туре в/с</u>		1			
Assessment	Week Out	Week Due	Top Up Opp.	Торіс	
Assign 1	0	2	Assign 4	Privilege/Land Acknowledgement	
Assign 2	2	3	Assign 4	Legal and Moral Requirements for Consultation	
Lab Assign 1	3	3	Assign 3	Stakeholders and Consultation	
Assign 3	3	4	Assign 4	Legal and Moral Requirements for Consultation	
Lab Assign 2	4	4	Help/Top Up Sessions	Influence of Indigenous Worldviews on Technology and Design	
Assign 4	4	15	Help/Top Up Land Sessions Acknowledge		

Attendance and Participation:

Attendance and participation is encouraged/expected, and students will be responsible for what happens in classes e.g. quizzes. However, attendance will not be mandatory (or marked).

Criteria That	See Assessment (Competence Thresholds), above.
Must Be Met to	
Pass:	

Final Grades: The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php

For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website:

https://secretariat.usask.ca/student-conduct-appeals/index.php

AcademicMore information on the Academic Courses Policy on course delivery,
examinations and assessment of student learning can be found at:

http://policies.usask.ca/policies/academic-affairs/academic-
courses.php

Learning
Charter:The University of Saskatchewan Learning Charter is intended to define
aspirations about the learning experience that the University aims to
provide, and the roles to be played in realizing these aspirations by
students, instructors and the institution. A copy of the Learning Charter
can be found at: https://teaching.usask.ca/about/policies/learning-

Course Overview:

This course is divided into 2 modules: Module 1 focuses on an introduction to the engineering profession, life as an engineering student, and strategies for success therein. Module 2 focuses on contextualizing the engineering profession in the culture, worldviews, and communities of Indigenous Peoples of Canada. The modules run concurrently, covering independent but interrelated topics.

Module 1: Strategies for Success in Engineering will serve as an orientation to first year engineering at the University of Saskatchewan. Students will learn how to navigate the first year program, including the learning management system, the classroom response system, the assessment system, and technology resources available to them. At the start of the semester, students will be introduced to theory about wellbeing, group dynamics, conflict resolution, time management, goal setting, planning, studying, and problem solving. At the end of the semester, students will have the opportunity to reflect upon their experiences over the semester and plan for improvement in all of these areas moving forward. Students will be exposed at a high-level to what engineering is and will be expected to protect their academic integrity, and the integrity of the profession, as a future professional. As a part of this module, students will join working groups for the semester, in which they will develop supports and complete work on a comparative assignment relating to their experiences in

other courses. Students will also receive lab safety training to prepare them to complete work in natural science laboratories in other courses.

Module 2: Indigenous Cultural Contextualization will discuss the importance of diversity and inclusion to the professional of engineering. Through the associated Summer Top Up, the module will expose students to important aspects of the culture and worldviews of Indigenous Peoples of Canada, resilience against colonization, and reconciliation. The mutual importance of Indigenous culture and the engineering profession to one another will be highlighted by studying the legal and moral duty of engineers to engage in good faith consultation with Indigenous communities affected by engineering projects and examples of historical and contemporary influences of Indigenous worldviews on technology and engineering design. This module will set the stage for such examples to be woven into the rest of the first year engineering program.

	Module 1: Strategies for Success in Engineering							
	Lecture		Lab					
	Number		Number					
WEEK of	(1.5		(1.5					
Program	hours)	Lecture Topic	hours)	Lab Topic				
WEEK 1	1	 Introduction to First Year Engineering 1.1 Schedule 1.2 Assessment System 	1	1. Self-Assessment 1.1 Personality1.2 StrengthsLAB QUIZ 1 (IN CLASS)				

	2	2. Introduction to First Year Engineering Cont'd 2.1 Classroom Response System 2.2 Active Learning	2	2. Growth Mindset
		QUIZ 1 (IN CLASS)		LAB QUIZ 2 (IN CLASS)
	3	3. Technology Resources 3.1 Computer Labs 3.2 VLab 3.3 Microsoft Office		
		QUIZ 2 (IN CLASS)		
	4	4. Group Work 4.1 Stages of Formation 4.2 Conflict Resolution 4.3 Learning Groups		
		QUIZ 3 (IN CLASS) QUIZ 4 (IN CLASS)		
	5	5. Formats for Reflective Practice		
		QUIZ 5 (IN CLASS)		
WEEK 2	6	6. Tools for Time Management and Enhancing Productivity	3	 3. Transferable Skills and Problem Solving 3.1 Types of Skills 3.2 Strategies for Solving Engineering Problems
		QUIZ 6 (IN CLASS)		LAB QUIZ 3 (IN CLASS)

		7. Introduction to the		
		7. Introduction to the Profession		4. Problem Solving Cont'd
		7.1 APEGS		li i i obiem solving cont u
	7	7.2 Codes of Ethics	4	
		7.3 Professional		LAB QUIZ 4 (IN CLASS)
		Relationships		
		8. Goal Setting and Planning		
		8.1 Setting Goals		
	_	8.2 Planning for the Week	_	5. Natural Science
	8	8.3 Planning for the Semester	5	Laboratory Safety
		ASSIGNMENT 1- DUE		
		ASSIGNMENT 2- DUE		
		ASSIGNMENT 3- DUE		
			6	6. Natural Science Laboratory Safety Cont'd
				LAB QUIZ 5 (IN CLASS)
				7. Tools for Wellbeing
			7	7.1 Stress Management
				7.2 Support Services
				7.3 Extra-curricular Options
				LAB QUIZ 6 (IN CLASS)
				8. Study Skills
				8.1 Exam Wrappers
				8.2 Academic Support
			8	Services
				LAB QUIZ 7 (IN CLASS)
				LAB QUIZ 8 (IN CLASS)
				LAB QUIZ 9 (IN CLASS)
WEEK 3		ASSIGNMENT 4- DUE ASSIGNMENT 5- DUE		
WEEKS 4 - 13				
WEEK 14	9	9. Natural Science Project Work Time		

	10	10. Reflection on FirstSemester10.1 Self10.2 Growth10.3 Wellbeing10.4 Land AcknowledgementQUIZ 7 (IN CLASS)ASSIGNMENT 6 - DUE	
	11	11. Reflection on First Semester Cont'd 11.1 Goals 11.2 Reframing Failure QUIZ 8 (IN CLASS)	
WEEK 15	12	12. Reflection on First Semester Cont'd 12.1 Courses Taken 12.2 Preparation for Engineering Discipline Experience	
	13	QUIZ 9 (IN CLASS) 13. Reflection on First Semester Cont'd 13.1 Group Work 13.2 Conflict Resolution QUIZ 10 (IN CLASS) ASSIGNMENT 7 – DUE PROJECT - DUE	

		Module 2: Indigenous Cultura	l Contextu	alization
WEEK of	Lecture Number (1.5		Lab Number (3	
Program	hours)	Lecture Topic	hours)	Lab Topic
WEEK 1	1	1. Diversity and Inclusion 1.1 College/University Policies 1.2 Land Acknowledgement Statement		
		QUIZ 1 (IN CLASS)		
WEEK 2	2	 2. Duty to Consult 2.1 Canadian Legal Requirements 2.2 Moral Requirements 2.3 TRC Report 2.4 UNDRIP 	1	1. Reflection on Self 1.1 Power and Privilege

		3. Engineering in Indigenous Communities		
	3	QUIZ 2 (IN CLASS) SUMMER TOP UP – DUE ASSIGNMENT 1 – DUE		
	4	4. Engineering in Indigenous Communities Cont'd	2	 2. Stakeholders and Consultation 2.1 Stakeholder Identification 2.2 Consultation
WEEK 3	5	5. Engineering in Indigenous Communities Cont'd 5.1 Guest Speaker ASSIGNMENT 2 – DUE	CLASS) PUP - DUE PUP - DUE 2 Indigenous 3 Indigenous 1<	LAB ASSIGNMENT 1 (In Class)
WEEK 4			3	
WEEKS 5 - 14		ASSIGNMENT 3 – DUE		
WEEK 15				
		ASSIGNMENT 4 – DUE		

Assignments: (see Assessment)

Quizzes: (see Assessment)

Missing Quizzes:

Missed quizzes (for any reason) receive a mark of zero. However, quizzes can be Topped Up during End-of-Day Help Sessions or Top Up Help Sessions.

Late Assignments:

Late assignments and lab assignments receive a mark of zero. However, assignments and lab assignments can be Topped Up by subsequent assignments and lab assignments or through direct Top Up assessments. Top Ups subsequent to the course will be permitted at the instructors' discretion.

In the case of sickness, bereavement or other excusable absences, students will not be penalized for late submissions although they may be required to complete a variation on the original assignment. They can alternatively choose to treat a missed assignment as a **Late Assignment**.

Module Tests:

This course will not have examinations or Module Tests.

Required Activities Outside of Class Time

Proctored reassessment of work that does not meet the competence threshold may be conducted outside of regularly scheduled class time. This includes rewriting in-class quizzes, redoing other work completed, and submitted, during class time and rewriting module tests. This reassessment will occur during designated Top Up Help Sessions during the day or during course-specific help sessions (see **End-of-Day Help Sessions**). Students are encouraged to avoid making prior travel, employment, or other commitments at these times to ensure availability to take advantage of these additional opportunities to demonstrate competence in the course learning outcomes.

Experiential Learning

Students will be engaging in problem solving and group work in class and in the labs.

Sept x, 2021	First day of Fall classes
Sept y, 2021	Last day for making changes in registration for first-term courses
	(100% tuition credit).
Nov zz, 2021	Fall Break (Week 11)
Nov xx, 2021	Last day to withdraw from Fall classes
Thanksgiving	Holidays
Dec yy, 2021	Last day of classes

Important Dates:

Required Resources

Required Textbook:

None.

Other Required Materials:

A laptop computer which conforms to the Usask First Year Engineering Laptop Specifications.

Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

Electronic Resources:

None.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints & Appeals (https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/</u>.

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning* (http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Help session to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityHelp session</u>

Safety:

Safety is of paramount importance in the College of Engineering. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Emergency Response Plan:

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit

<u>http://www.usask.ca/copyright/students/rights/index.php</u> or contact the University's Copyright Coordinator at <u>copyright.coordinator@usask.ca</u>.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <u>https://students.usask.ca/health/centres/access-equity-services.php</u>, or contact AES at 306-966-7273 or <u>aes@usask.ca</u>.

Students registered with AES may request alternative arrangements for mid-term and final examinations or module tests. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>

End-of-day help session sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see **End-of-day Help Sessions** for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

	Instructional Level [‡]											
Learning						Attri	bute [†]					
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1.1						Ι	Ι					Ι
1.2												Ι
1.3												Ι
1.4										Ι		
1.5		Ι					Ι					
1.6	Ι							Ι				
1.7	Ι											Ι
2.1									Ι	Ι		
2.2									Ι	Ι		Ι
2.3									Ι	Ι		Ι
2.4								Ι	Ι	Ι	Ι	Ι
2.5	Ι									Ι		Ι

†<u>Attributes</u>:

- A1 A knowledge base for engineering
- A2 Problem analysis
- A3 Investigation
- A4 Design
- **A5** Use of engineering tools
- A6 Individual and team work
- A7 Communication skills
- A8 Professionalism
- A9 Impact of engineering on society and the environment
- A10 Ethics and equity
- A11 Economics and project management A12 Life-long learning

[‡]Instructional Level:

Introduced (I) – Students learn the working vocabulary of the area of content, along with some of the major underlying concepts.

Developed (D) – Students use their working vocabulary and major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar contexts.

Applied (A) – Students approach mastery in the area of content. They explore deeply into the discipline and experience the controversies, debate, and uncertainties that characterize the leading edges of any field. They practice, extend, or refine knowledge in unfamiliar contexts.

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies		
0%	0%	100%	0%	0%

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of

student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: GE 103
- 2.2 Academic credit units: 1
- 2.3 Course Long Title (maximum 100 characters): Introduction to Engineering II Course Short Title (maximum 30 characters): Introduction to Engineering II

2.4	Total Hours:	Lecture 13.5	Seminar	Lab	10.5	Tutorial	Other
2.5	Weekly Hours:	Lecture	Seminar	Lab	1	Tutorial	Other
2.6	Term in which it	will be offered	: T1	Т2	T1 or T	2 T1 an	d T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course introduces the history and scope of the engineering profession, including the concepts of professionalism and ethics. Students will discover the academic and career options available to them and will set out their career goals and a plan to reach them. Students will also complete health and safety training relevant to engineering practice.

- 2.9 Do you allow this course to be repeated for credit? No
- 3. **Please list rationale for introducing this course:** This is part of the integrated curriculum in the redesigned first year program.
- 4. Please list the learning objectives for this course:

Learning		
Outcome		Outcome
Number	By the end of this course, students will be expected to:	Weight

1	explain the impact of engineering on society and the professional responsibility to hold paramount the health and welfare of the public and the environment,	20%
2	identify best practices in workplace safety,	15%
3	identify important aspects of professionalism and belonging to a self-governing profession,	10%
4	apply ethical and legal standards and frameworks to reflect upon and revise a personal code of ethics as a student in the College of Engineering, and	20%
5	incorporate an understanding of degree options, engineering program choices and complementary studies electives to create a set of academic and professional goals and a plan to achieve them.	35%

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No If so, were these departments consulted? (Include correspondence)

Were any other departments asked to review or comment on the proposal? Yes, within the College and we worked with the Gwenna Moss Centre for Teaching and Learning.

6. **Other courses or program affected** (please list course titles as well as numbers)

- 6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)
- 6.2 Courses for which this course will be a prerequisite?

Any changes to the course prerequisites in the programs will be submitted in future UCC.

6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Please see syllabus.

9.1 How should this course be graded?

C – Completed Requirements (Grade options for instructor: Completed Requirements, Fail, IP In Progress) N – Numeric/Percentage

(Grade options for instructor: grade of 0% to 100%, IP in Progress) P – Pass/Fail (Grade options for instructor: Pass, Fail, In Progress) S – Special (Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Yes

10. Required text

Include a bibliography for the course: N/A

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget these courses will be replacing others.
- 11.3 Are sufficient library or other research resources available for this course? Yes, Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? N/A

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
CO0	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision

IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

- 2.2 For the College of Arts and Science only: To which program type does this course belong?
 - FNAR Fine Arts
 - HUM Humanities
 - SCIE Science
 - SOCS Social Science
 - ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

College of Engineering only

- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course GE 102 Introduction to Engineering I
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here:

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

• If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.

• If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:

GE 103.1 Introduction to Engineering II Winter 2022



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructors and Teaching Assistants:	Name: TBD Office: TBD Phone: TBD Email: TBD
Office Hours:	TBD
Lectures:	Weeks: 18-19 and 30-31 Classes: A total of nine 1.5 hr classes
Laboratories:	Weeks: 18-20 Labs: A total of seven 1.5 hr Labs
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. <u>https://bblearn.usask.ca/</u>
End-of-Day Help Sessions	End of day help session sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses.
Description:	This course introduces the history and scope of the engineering profession, including the concepts of professionalism and ethics. Students will discover the academic and career options available to them and will set out their career goals and a plan to reach them. Students will also complete health and safety training relevant to engineering practice.
Pre or co- requisites:	GE 102.2 – Introduction to Engineering I
Course Reference Numbers (CRNs):	TBD Available from the Dynamic Schedule once courses are built (<u>https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched</u>)

Course Learning Outcomes:	Learning Outcome Number	By the end of this course, students will be expected to:	Outcome Weight
outcomes	explain the impact of engineering on societ professional responsibility to hold paramo	explain the impact of engineering on society and the professional responsibility to hold paramount the health and welfare of the public and the environment,	20%
	2 identify best practices in workplace safety,		15%
		identify important aspects of professionalism and belonging to a self-governing profession,	10%
	4	apply ethical and legal standards and frameworks to reflect upon and revise a personal code of ethics as a student in the College of Engineering, and	20%
	5	incorporate an understanding of degree options, engineering program choices and complementary studies electives to create a set of academic and professional goals and a plan to achieve them.	35%

Assessment: This course employs a competency-based assessment system. Students must demonstrate competence in certain skills. These skills can be divided into three types (A/B/C).

Type A skills are the most basic and granular for a subject area. In general, this includes the ability to define, recall, recognize, compare, and contrast key terms and concepts. It also includes basic calculations and procedural steps, as appropriate.

Type B skills are basic integrative skills. These include basic types of questions that have been covered in class.

Type C skills are integrative skills that depend on the ability to extend the application of what has been learned in class, into new domains.

Note that the final course grade will be a weighted average of the achieved grades in each learning outcome. See **Course Learning Outcomes** for relative weights of each learning outcome.

Competence Thresholds

Type A Competence

Competence in Type A knowledge and skills is demonstrated by achieving at least 70% on any Type A assessment for each of the checklist items below before the end date of the course. Each item in the Type A checklist will be assessed through in-class quizzes or out-of-class assignments. If students do not reach the 70% threshold on these initial assessments, they may "Top Up" their grade in each skill by attending a

proctored Type A quiz at an end-of-day help session or during optional Top Up Help Sessions. At this session, they may take quizzes on one or more Type A checklist items. All questions on these quizzes are Type A questions. No explicit Type A questions appear on Type B/C assessments in the course although Type A knowledge and skills figure prominently in Type B and Type C questions.

A checklist will be maintained on the Student Dashboard where students can monitor their progress in completing these requirements. Failure to complete all checklist items before the end of the course will result in a maximum grade of 49% for the course. Beyond this requirement, quiz results do not contribute to the Course Grade.

The list of Type A Knowledge and Skills for this course is as follows:

Type A Knowledge & Skills Checklist
Recognize an engineer's responsibility for health and safety issues
Identify key aspects of the governing bodies of engineering in SK
Identify the impact of engineering on society
Identify types of law relevant to engineering
Identify best practices in workplace safety
Identify key aspects of professionalism
Identify aspects of an appropriate online presence
Define various ethical frameworks
Identify the focus of various humanities and social science fields
Identify available degree options

Type B/C Competence

Performance on the Type B questions is subject to a minimum level of competence. By the end of the course, students must achieve a Type B Running Average of at least 70%. Failure to do so will result in a maximum grade of 49% for the course.

All Type B/C assessments will use a descriptive rubric to determine competence. Achievement at a level above competence will be qualified as evidence of Type C skills. Achievement at this level will result in a higher grade, but is not required to pass the course, i.e. there will be no minimum performance threshold for Type C skills.

Grade Calculations

To calculate the grade for Type B skills, Type B grades from questions on each assessment in the course will be applied against the respective learning outcome(s) they each assess. After each assessment, a student's Type B Running Average for each learning outcome is recalculated. If the Type B skills for a given learning outcome are assessed on the current assessment, and the achieved grade is greater than the Type B Running Average for that learning outcome, it becomes the new Type B Running Average for that learning outcome. If the Type B skills for a given learning outcome are assessed on the current assessment, and the achieved grade is less than the Type B Running Average for that learning outcome, the new Type B Running Average for that learning outcome is a simple mean of the current Running Average and the Type B grade on the current assessment.

To calculate the grade for Type C skills, the Type C grades from each assessment within the course are averaged. They cannot be Topped Up. Instead, a Type C percentage will be established for each learning outcome that has Type C assessments. Applying the weights of each learning outcome, a final Type C percentage score for the course will be calculated.

If a student achieves at least 70% in the Type A and B skills, their course mark will be their earned mark, as weighted by the course learning outcomes. If a student fails to achieve "basic competence", they will fail the course, receiving an overall grade of 49%, or their calculated grade, whichever is lower.

Keeping Track of Grades

Throughout each module in the course, students will be able to monitor their progress in four complementary respects, for each module:

Assessments: A summary of grades obtained on each assessment (assignment, lab, etc.).

Learning Outcomes: A summary of current grades for each learning outcome.

Type A Checklist: A checklist indicating which Type A knowledge and skills have been demonstrated.

Type B Running Average: The current Type B Running Average.

The Student Grades Dashboard will include automated notifications to students if they are lagging behind in clearing Type A checklist items in a timely fashion. It will also advise students to attend module-specific end-of-day help sessions if their Type B Running Average is lagging.

Assessments

Type A skills are vital to any success in planning for a future as an engineering student and, later, as a professional engineer. These include identifying degree and career options and recognizing key aspects of the engineering profession and professionalism.

Type B skills include applying knowledge of the profession and academic options to reflect upon experiences in the program and create career goal and plans. Reflections should connect observations to plans for next steps.

Type C skills include reflecting upon experiences in the program using detailed, insightful observations, prioritizing areas for attention, and developing detailed and realistic plans for the future.

Assessment	Week Out	Week Due	Top Up Opp.	Торіс
Quiz 1	18	18	Help/Top Up Sessions	Health and Safety
Quiz 2	18	18	Help/Top Up Sessions	Governing Bodies of Engineering
Quiz 3	18	18	Help/Top Up Sessions	Impact of Engineering on Society
Quiz 4	19	19	Help/Top Up Sessions	Ethical Frameworks
Quiz 5	19	19	Help/Top Up Sessions	Law
Quiz 7	19	19	Help/Top Up Sessions	Professionalism
Quiz 8	19	19	Help/Top Up Sessions	Online Presence
Lab Assign 1	18	20	Help/Top Up Sessions	Health and Safety
Quiz 9	30	30	Help/Top Up Sessions	Degree Options
Assign 5	30	31	None	Humanities and Social Sciences

<u>Type A</u>

Assessment	Week Out	Week Due	Top Up Opp.	Торіс
Assign 1	18	19	Assign 2	Reflection on Engineering Discipline Experience
Assign 2	18	19	Assign 6	Goals and Planning
Assign 3	18	19	Assign 4	Impact of Engineering on Society
Quiz 6	19	19	Assign 4	Ethical Frameworks
Assign 4	19	20	Help/Top Up Sessions	Codes of Ethics
Assign 6	18	30	Quiz 10	Recreation Passport

	Quiz 10	31	31	Quiz 11	Humanities and Social Sciences			
	Quiz 11	31	31	Assign 7	Goals and Planning			
	Assign 7	30	31	Help/Top Up Sessions	Career Goals and Planning			
Attendance and				ncouraged/expecte	d, and students will			
Participation:		be responsible for what happens in classes e.g. qui attendance will not be mandatory (or marked).						
Criteria That Must Be Met to Pass:	See Assessment (Competence Thresholds), above.							
Final Grades:	The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php							
	For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website: https://secretariat.usask.ca/student-conduct-appeals/index.php							
Academic Courses Policy:	More information on the Academic Courses Policy on course delivery examinations and assessment of student learning can be found at: http://policies.usask.ca/policies/academic-affairs/academic- courses.php							
Learning Charter:	aspirations abor provide, and th students, instruc	ut the lea e roles to ctors and	arning ex o be play the instit	ution. A copy of th				

Course Overview:

This course serves as a brief introduction to the winter term of the first year engineering program. Within the course, students will reflect upon their experience from the fall term and plan to move forward in a positive way. This includes preparing to make their choice of engineering discipline. This course will provide students with the history of the engineering profession and will discuss the privilege of belonging to a self-governing profession and what it means to be a learned professional. Students will be introduced to ethical frameworks and will be expected to apply those frameworks to analyze engineering case studies. Students will reflect upon the impact of the engineering profession on society.

In this course, students will be exposed to the academic options available to them in their undergraduate program, such as co-op experiences, certificates and course electives.

Students will be expected to determine their career goals and reflect upon how their academic options can support them in achieving those goals.

In the laboratory portion of the course, students will complete health and safety training relevant to engineering practice.

WEEK of Program	Lecture Number (1.5 hours)	Locturo Topic	Lab Number (1.5 hours)	Lab Topic
riogram	1	Lecture Topic 1. Introduction to First Year Engineering – Term 2 1.1 Schedule 1.2 Health and Safety Labs QUIZ 1 (IN CLASS)	1	1. Online Health and Safety Training
	2	2. Reflection on Engineering Discipline Experience	2	2. Online Health and Safety Training Cont'd
WEEK 18	3	3. The Engineering Profession 3.1 History 3.2 The Iron Ring 3.3 APEGS 3.4 EGP Act 3.5 Engineers Canada 3.6 CEAB	3	3. Online Health and Safety Training Cont'd
	4	QUIZ 2 (IN CLASS) 4. Impact of Engineering on Society QUIZ 3 (IN CLASS)	4	4. Online Health and Safety Training Cont'd
WEEK 19	5 State of the second		5	5. Online Health and Safety Training Cont'd
19	6	6. Professionalism Cont'd 6.1 Online Presence 6.2 Codes of Ethics QUIZ 7 (IN CLASS) QUIZ 8 (IN CLASS) ASSIGNMENT 2 - DUE ASSIGNMENT 3 - DUE	6	6. Online Health and Safety Training Cont'd

WEEK			7	7. Online Health and Safety Training Cont'd
20		ASSIGNMENT 4 - DUE		LAB ASSIGNMENT 1 - DUE
WEEKS 21 - 29				
WEEK 30	7	7. Degree Options 7.1 Co-op/Internship 7.2 Certificates QUIZ 9 (IN CLASS) ASSIGNMENT 5 - DUE ASSIGNMENT 6 - DUE		
WEEK	8	8. Degree Options Cont'd 8.1 Complementary Studies Electives QUIZ 10 (IN CLASS)		
31	9	9. Career Goals QUIZ 11 (IN CLASS)		
		ASSIGNMENT 7 - DUE		

Assignments: (see Assessment)

Quizzes: (see Assessment)

Missing Quizzes:

Missed quizzes (for any reason) receive a mark of zero. However, quizzes can be Topped Up during End-of-Day Help Sessions or Top Up Help Sessions.

Late Assignments:

Late assignments and lab assignments receive a mark of zero. However, assignments and lab assignments can be Topped Up by subsequent assignments and lab assignments or through direct Top Up assessments. Top Ups subsequent to the course will be permitted at the instructors' discretion.

In the case of sickness, bereavement or other excusable absences, students will not be penalized for late submissions although they may be required to complete a variation on the original assignment. They can alternatively choose to treat a missed assignment as a **Late Assignment**.

Module Tests:

This course will not have examinations or Module Tests.

Required Activities Outside of Class Time

Proctored reassessment of work that does not meet the competence threshold may be conducted outside of regularly scheduled class time. This includes rewriting in-class quizzes, redoing other work completed, and submitted, during class time and rewriting module tests. This reassessment will occur during designated Top Up Help Sessions during the day or during course-specific help sessions (see **End-of-Day Help Sessions**). Students are encouraged to avoid making prior travel, employment, or other commitments at these times to ensure availability to take advantage of these additional opportunities to demonstrate competence in the course learning outcomes.

Experiential Learning

Students will be engaging in analysis of case studies and group work in class and in the labs.

Important Dates:

Sept x, 2021 Sept y, 2021	First day of Fall classes Last day for making changes in registration for first-term courses (100% tuition credit).
Nov zz, 2021	Fall Break (Week 11)
Nov xx, 2021	Last day to withdraw from Fall classes
Thanksgiving	Holidays
Dec уу, 2021	Last day of classes

Required Resources

Required Textbook:

None.

Other Required Materials:

A laptop computer which conforms to the Usask First Year Engineering Laptop Specifications.

Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

Electronic Resources:

None.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints & Appeals (https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/</u>.

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning* (http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Help session to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityHelp session</u>

Safety:

Safety is of paramount importance in the College of Engineering. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Emergency Response Plan:

Preparing for emergencies protects our lives and property. An emergency response plan (ERP) posting is located in each classroom and lab near the main door of the room. Students are advised to review and be familiar with the College ERP and be aware that when an alarm sounds for more than 10 seconds, the building must be evacuated. Muster point locations are posted at each entrance of the Engineering Building. For more details about the ERP, please visit the following website: https://engineering.usak.ca/documents/facilities/ERP%20-%20ENG%20-%20ENG%20-%209_01_2017.pdf

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit

<u>http://www.usask.ca/copyright/students/rights/index.php</u> or contact the University's Copyright Coordinator at <u>copyright.coordinator@usask.ca</u>.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith

towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <u>https://students.usask.ca/health/centres/access-equity-services.php</u>, or contact AES at 306-966-7273 or <u>aes@usask.ca</u>.

Students registered with AES may request alternative arrangements for mid-term and final examinations or module tests. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>

End-of-day help session sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see **End-of-day Help Sessions** for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

Instructional Level [‡]												
Learning Outcome						Attri	bute [†]					
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1								Ι	Ι	Ι		
2								Ι	Ι			
3								Ι				
4								Ι		Ι		
5												Ι

+ Attributor

† <u>Att</u>	<u>ributes</u> :	[‡] Instructional Level:
A1	A knowledge base for engineering	Introduced (I) – Students learn the working vocabulary of the
A2	Problem analysis	area of content, along with some of the major underlying
A3	Investigation	concepts.
A4	Design	Developed (D) – Students use their working vocabulary and
A5	Use of engineering tools	major fundamental concepts to probe more deeply, to read the
A6	Individual and team work	literature, and to deepen their exploration of the concepts. They
A7	Communication skills	may begin to practice, extend, or refine knowledge in familiar
A8	Professionalism	contexts.
A9	Impact of engineering on society	Applied (A) – Students approach mastery in the area of
	and the environment	content. They explore deeply into the discipline and experience
A10	Ethics and equity	the controversies, debate, and uncertainties that characterize
A11	Economics and project	the leading edges of any field. They practice, extend, or refine
	management	knowledge in unfamiliar contexts.
A12	Life-long learning	

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
0%	0%	100%	0%	0%

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



New Course Proposal & Creation Form

1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: GE 112
- 2.2 Academic credit units: 1
- 2.3 Course Long Title (maximum 100 characters): Engineering Discipline Experience Course Short Title (maximum 30 characters): En Discipline Experience

2.4	Total Hours:	Lecture 15	Seminar	La	ab 15	Tutoria	al	Other
2.5	Weekly Hours:	Lecture 15	Seminar	La	ab 15	Tutoria	al	Other
2.6	Term in which it	t will be offered	l: T1	T2	T1 or ⁻	Т2	T1 an	d T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course will provide students with an opportunity to have a meaningful experience for engineering programs offered at the University of Saskatchewan. Students will attend lectures, seminars, and/or laboratory experiences for a total of 6 hours per day for each of the five days. Students will work individually and/or in groups to perform course activities.

2.9 Do you allow this course to be repeated for credit? No

3. Please list rationale for introducing this course:

This is part of the integrated curriculum in the redesigned first year program.

4. Please list the learning objectives for this course:

By the end of this course, students should be able to:

- 1. describe the key features of the five engineering program labs that they attended; and
- 2. reflect on what they have learned about the set of disciplines whose labs they attended.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No If so, were these departments consulted? (Include correspondence) Were any other departments asked to review or comment on the proposal? Yes, within the College and we worked with the Gwenna Moss Centre for Teaching and Learning.

6. **Other courses or program affected** (please list course titles as well as numbers)

- 6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)
- 6.2 Courses for which this course will be a prerequisite?

Any changes to the course prerequisites in the programs will be submitted in future UCC.

6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

This is a Pass/Fail course. The intent is for students to attend and participate in five one-day, hands-on, engineering disciplinary experiences. As such, attendance is the primary grading criterion. Secondarily, students will hand in a deliverable by the end of each day in the course. This is also a requirement for passing the course. Course instructors reserve the right to fail students for inappropriate behaviors. Inappropriate behaviors include, but are not limited to, distracting others during course activities, failing to attend all sessions of the course content for the day, and/or unsafe lab practices.

9.1	How should this course be graded? C – Completed Requirements (Grade options for instructor: Completed Requirements, Fail, IP In Progress) N – Numeric/Percentage (Grade options for instructor: grade of 0% to 100%, IP in Progress)
	P – Pass/Fail
	(Grade options for instructor: Pass, Fail, In Progress)
	S – Special (Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Yes

10. **Required text**

Include a bibliography for the course: N/A

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget.
- 11.3 Are sufficient library or other research resources available for this course? Yes, they may closer to the 2021 launch inquire to see if certain textbooks can be added to hold on reserve in the library if they are not already in the collection?
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? N/A

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#coursefees

No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	ХСН	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

- FNAR Fine Arts
- HUM Humanities
- SCIE Science
- SOCS Social Science
- ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program: College of Engineering only
- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course GE 102 Introduction to Engineering I
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here:

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:

GE 112.1 Engineering Discipline Experience Fall 2021



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructors and Teaching Assistants:	Name: TBD Office: TBD Phone: TBD Email: TBD
Office Hours:	TBD
Lectures and Laboratories	Weeks: 15-16, See Course Content/Schedule
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. <u>https://bblearn.usask.ca/</u>
End-of-Day Helj Sessions	p End of day help sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. For the Engineering Discipline Experience course, end-of-day help sessions will take place after classes each day at the discretion of programs. These will be advising sessions for those interested in learning more about a specific discipline.
Description:	This course will provide students with an opportunity to have a meaningful experience for engineering programs offered at the University of Saskatchewan. Students will attend lectures, seminars, and/or laboratory experiences for a total of 6 hours per day for each of the five days. Students will work individually and/or in groups to perform course activities.
Pre or Co- requisites:	GE 102.1—Introduction to Engineering I
Course Reference Numbers (CRNs):	TBD Available from the Dynamic Schedule once courses are built (<u>https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched</u>)

Course Learning Outcomes:	 By the end of this course, students should be able to: 1. describe the key features of the five engineering program labs that they attended; and 2. reflect on what they have learned about the set of disciplines whose labs they attended.
Assessment:	This is a Pass/Fail course. The intent is for students to attend and participate in five one-day, hands-on, engineering disciplinary experiences. As such, attendance is the primary grading criterion. Secondarily, students will hand in a deliverable by the end of each day in the course. This is also a requirement for passing the course. Course instructors reserve the right to fail students for inappropriate behaviors. Inappropriate behaviors include, but are not limited to, distracting others during course activities, failing to attend all sessions of the course content for the day, and/or unsafe lab practices.

Attendance and See Assessment. Participation:

Criteria That See Assessment. Must Be Met to Pass:

- Absences: In the case of sickness, bereavement or other excusable absences, students will not be penalized for being absent. However, they will be required to conduct an independent study on the program(s) they were absent from, and to submit a research essay (2-3 pages in length, per program missed). For any other absences, the students will need to submit a research essay (5-6 pages in length, per program missed) and interview at least one professional engineer in the same field of any missed program by the last day of the current semester. Some programs may have specific requirements for the research essay.
- Final Grades:The final grades will be consistent with the "literal descriptors" specified
in the university's grading system (at the link below, click on "for
undergraduate students").

https://students.usask.ca/academics/grading/grading-system.php

For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website: https://secretariat.usask.ca/student-conduct-appeals/index.php

AcademicMore information on the Academic Courses Policy on course delivery,
examinations and assessment of student learning can be found at:Policy:

http://policies.usask.ca/policies/academic-affairs/academiccourses.php

Learning
Charter:The University of Saskatchewan Learning Charter is intended to define
aspirations about the learning experience that the University aims to
provide, and the roles to be played in realizing these aspirations by
students, instructors and the institution. A copy of the Learning Charter
can be found at: https://teaching.usask.ca/about/policies/learning-

Course Overview:

This course will provide students with an opportunity to have a meaningful experience for engineering programs offered at the University of Saskatchewan. The University's eight engineering programs are provided by the Departments of Chemical Engineering, Civil, Geological and Environmental Engineering, Electrical and Computer Engineering, Engineering Physics, and Mechanical Engineering. Students will spend one day with each of five programs. Based on rank preferences, students will be assigned to five of the eight programs. Best efforts will be made to give each student their top preferences.

Students will attend lectures, seminars, and/or laboratory experiences for a total of 6 hours per day for each of the five days. Students will work individually and/or in groups to perform course activities. Students are responsible to follow the rules for the laboratories in different programs.

Programs*				Daily Schedule
Chemical	8:30 AM	-	10:00 AM	Lecture 1/Tour of CHE labs
Engineering	10:00 AM	-	3:00 PM	2 hours field trip to local chemical process industry facility
	3:30 PM	-	5:30 PM	Lecture 2/Discussion
Civil	9:00 AM	-	10:00 AM	Lecture (Preparation for the lab)
Engineering	10:00 AM	-	12:00 PM	Lab experience for all
	1:00 PM	-	2:00 PM	Lab experience for all (cont.)
	2:00 PM	-	3:00 PM	Seminar
	3:00 PM	-	5:00 PM	Lab experience for all (cont.)
Computer	8:30 AM	-	10:00 AM	Lecture 1 for Group 1
Engineering	10:00 AM	-	11:30 AM	Lab experience 1 for Group 1 & Lecture 1 for Group 2
	11:30 AM	-	1:00 PM	Lab experience 1 for Group 2
	2:30 PM	-	4:00 PM	Lab experience 2 for Group 1 & Lecture 2 for Group 2
	4:00 PM	-	5:30 PM	Lab experience 2 for Group 2
Electrical	8:30 AM	-	10:00 AM	Lecture 1 for Group 1
Engineering	10:00 AM	-	11:30 AM	Lab experience 1 for Group 1 & Lecture 1 for Group 2
	11:30 AM	-	1:00 PM	Lab experience 1 for Group 2
	2:30 PM	-	4:00 PM	Lab experience 2 for Group 1 & Lecture 2 for Group 2
	4:00 PM	-	5:30 PM	Lab experience 2 for Group 2

Course Content/Schedule:

Engineering	8:30 AM	-	10:00 AM	Lecture 1 for Group 1
Physics	10:00 AM	-	1:00 PM	Lab experience for all
	3:00 PM	-	4:30 PM	Lecture 2 (Intro to professional and presentation
				from industry)
Environmental	8:30 AM	-	9:30 AM	Lecture 1
Engineering	9:30 AM	-	12:00 PM	Lab experience 1 for all
	1:00 PM	-	2:00 PM	Lecture 2
	2:00 PM	-	4:00 PM	Lab experience 2 for all
Geological	8:30 AM	-	9:15 AM	Lecture (Introduction to the profession)
Engineering	9:15 AM	-	11:15 AM	Lab experience 1 for all
	11:15 AM	-	12:00 PM	Presentation from industry
	12:00 PM	-	1:00 PM	Meet and greet with industry & 4 th years & Pizza
				lunch
	1:00 PM	-	1:45 PM	Presentation from industry (Cont.)
	1:45 PM	-	2:30 PM	Case Studies in Geological Engineering
	2:30 PM	-	4:30 PM	Lab experience 2 for all
Mechanical	8:30 AM	-	10:00 AM	Lecture 1
Engineering	10:00 AM	-	1:00 PM	Lab experience for Group 1
	1:00 PM	-	4:00 PM	Lab experience for Group 2
	4:00 PM	-	5:30 PM	Lecture 2/Work period
				(Discussions & calculations)
The shall also the shared as				

* In alphabetical order

Experiential Learning

Students will engage in hands-on activities in class.

Important Dates:

Sept x, 2021	First day of Fall classes
Sept y, 2021	Last day for making changes in registration for first-term courses
	(100% tuition credit).
Nov zz, 2021	Fall Break (Week 11)
Nov xx, 2021	Last day to withdraw from Fall classes
Thanksgiving	Holidays
Dec уу, 2021	Last day of classes

Required Resources

READINGS/TEXTBOOKS There will be no text for this course. OTHER REQUIRED MATERIALS First Year Laptop

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints & Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (<u>http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php</u>).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/</u>.

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning* (<u>http://policies.usask.ca/policies/academic-affairs/academic-courses.php</u>).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: https://library.usask.ca/academic-integrity#AboutAcademicIntegrity

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

Safety is of paramount importance in the College of Engineering. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Emergency Response Plan:

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit

<u>http://www.usask.ca/copyright/students/rights/index.php</u> or contact the University's Copyright Coordinator at <u>copyright.coordinator@usask.ca</u>.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This

includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <u>https://students.usask.ca/health/centres/access-equity-services.php</u>, or contact AES at 306-966-7273 or <u>aes@usask.ca</u>.

Students registered with AES may request alternative arrangements for mid-term and final examinations or module tests. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: esc@usask.ca; Phone: 306-966-5274;
 - https://engineering.usask.ca/contact info/esc-office.php

End-of-day help sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see **End-of-day Help Sessions** for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site https://library.usask.ca/studentlearning/.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

				1	nstruct	ional Le	evel‡					
Learning						Attri	i bute †					
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12

1	Ι	Ι	Ι				Ι	Ι		Ι
2	I, D	Ι	Ι	Ι	I, D	Ι	Ι			Ι

†<u>Attributes</u>:

- A1 A knowledge base for engineering
- A2 Problem analysis
- A3 Investigation
- A4 Design
- **A5** Use of engineering tools
- A6 Individual and team work
- A7 Communication skills
- **A8** Professionalism
- A9 Impact of engineering on society and the environmentA10 Ethics and equity
- **A11** Economics and project
- management A12 Life-long learning

[‡]Instructional Level:

Introduced (I) – Students learn the working vocabulary of the area of content, along with some of the major underlying concepts.

Developed (D) – Students use their working vocabulary and major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar contexts.

Applied (A) – Students approach mastery in the area of content. They explore deeply into the discipline and experience the controversies, debate, and uncertainties that characterize the leading edges of any field. They practice, extend, or refine knowledge in unfamiliar contexts.

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
		100%		

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: GE 122
- 2.2 Academic credit units: 2
- 2.3 Course Long Title (maximum 100 characters): Engineering Mechanics I Course Short Title (maximum 30 characters): Mechanics I

2.4	Total Hours:	Lecture 22.5	Seminar	L	ab 12	Tutoria	l Oth	ner
2.5	Weekly Hours:	Lecture	Seminar	L	ab	Tutoria	l Otł	ıer
2.6	Term in which it	t will be offered	l: T1	Т2	T1 or T	2	T1 and T2	

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course considers particle dynamics and begins with particle kinematics under arbitrary acceleration. Particle kinetics is then addressed including force-acceleration, work-energy, and impulse-momentum principles. A series of practical laboratories are designed to help the student apply the principles of dynamics to practical problems.

2.9 Do you allow this course to be repeated for credit? No

3. **Please list rationale for introducing this course:** This is part of the integrated curriculum in the redesigned first year program.

4. Please list the learning objectives for this course:

This course consists of two modules: The learning outcomes for each module are as follows:

Module 1: Particle Kinematics

	Weight
By the end of this module, students will be expected to:	(%)
 add and subtract vectors using the parallelogram law, triangle method, and Cartesian components; 	5
1.2 derive kinematic equations of motion;	20
 manipulate kinematic equations of motion to solve 1D and 2D rectilinear particle kinematics problems; 	25
1.4 manipulate kinematic equations of motion to solve 2D curvilinear particle kinematics problems; and	25
1.5 calculate absolute, dependent, and relative motion of two particles in planar motion.	25

Module 2: Introductory Particle Kinetics

By the end of this module, students will be expected to:	Weight (%)
2.1 manipulate kinetic equations of motion to solve 1D and 2D rectilinear particle motion problems;	15
2.2 manipulate kinetic equations of motion to solve 2D curvilinear particle motion problems;	15
2.3 solve problems involving forces, velocities, and displacements of particles in 1D and 2D using work and energy principles, and energy conservation;	15
2.4 solve simple particle motion problems involving power and efficiency;	15
2.5 apply the principle of linear impulse and momentum for one or two particles in 1D or 2D; and	20
2.6 evaluate impacts between two particles in 1D and 2D.	20

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No If so, were these departments consulted? (Include correspondence) Were any other departments asked to review or comment on the proposal? Yes, within the College and we worked with the Gwenna Moss Centre for Teaching and Learning.

6. **Other courses or program affected** (please list course titles as well as numbers)

- 6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)
- 6.2 Courses for which this course will be a prerequisite?
- Any changes to the course prerequisites in the programs will be submitted in future UCC.
- 6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Please see syllabus.

9.1	How should this course be graded? C – Completed Requirements
	(Grade options for instructor: Completed Requirements, Fail, IP In Progress)
	N – Numeric/Percentage
	(Grade options for instructor: grade of 0% to 100%, IP in Progress)
	P – Pass/Fail (Grade options for instructor: Pass, Fail, In Progress) S – Special (Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Yes

10. Required text

Include a bibliography for the course:

Hibbeler, R.C. 2016. Engineering Mechanics – Statics & Dynamics. (14th ed.) Hoboken: Pearson.

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget.
- 11.3 Are sufficient library or other research resources available for this course? Yes. The University Bookstore carries the textbook as an eText packaged with a MasteringEngineering access code. MasteringEngineering is the publisher's online assignment tool.
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? N/A

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use <u>tuition category</u>) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> <u>fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
CO0	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

- FNAR Fine Arts
- HUM Humanities
- SCIE Science
- SOCS Social Science
- ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

College of Engineering only

- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course
 GE 102 Introduction to Engineering I, MATH 133 Engineering Mathematics I
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: GE 125

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:

GE 122.2 Engineering Mechanics I Fall 2021-22



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructor Office Hours:	TBA TBA TBA TBA								
Lectures:	Days, Times, Location TBA								
Laboratory:	Days, Times, Location TBA								
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course LMS site. Students are res for keeping up-to-date with the information on this site. LINK TBA	ponsible							
End of Day Tutorials	End of day tutorial sessions will be offered by the College of Engineering Common First Year and will provide support for all courses. Please see more details.								
Description:	This course considers particle dynamics and begins with particle kinematics under arbitrary acceleration. Particle kinetics is then addressed including force- acceleration, work-energy, and impulse-momentum principles. A series of practical laboratories are designed to help the student apply the principles of dynamics to practical problems.								
Prerequisites	:None								
Pre- or	MATH 133.3 Engineering Mathematics I, GE 102 Engineering I								
Co-requisites Course Reference Numbers (CRNs):	TBA (lectures), TBA (laboratory)								
Course Learning	This course consists of two modules: The learning outcomes for each module are as follows:								
Outcomes:	Module 1: Particle Kinematics								
	 By the end of this module, students will be expected to: 1.1 add and subtract vectors using the parallelogram law, triangle method, and Cartesian components; 1.2 derive kinematic equations of motion; 	Weight (%) 5 20							

	1.3 manipulate kinematic equations of motion to solve 1D and 2D rectilinear particle kinematics problems;	25
	1.4 manipulate kinematic equations of motion to solve 2D curvilinear particle kinematics problems; and	25
	1.5 calculate absolute, dependent, and relative motion of two particles in planar motion.	25
M	Iodule 2: Introductory Particle Kinetics	
		Weight
	By the end of this module, students will be expected to:	(%)
	2.1 manipulate kinetic equations of motion to solve 1D and 2D rectilinear particle motion problems;	15
	2.2 manipulate kinetic equations of motion to solve 2D curvilinear particle motion problems;	15
	2.3 solve problems involving forces, velocities, and displacements of particles in 1D and 2D using work and energy principles, and energy conservation;	15
	2.4 solve simple particle motion problems involving power and efficiency;	15
	2.5 apply the principle of linear impulse and momentum for one or two particles in 1D or 2D; and	20
	2.6 evaluate impacts between two particles in 1D and 2D.	20
Assessed		- Grand

AssessmentThis course uses a competency-based assessment system resulting in a finalSystem:numeric grade (percentage). It requires that students demonstrate a minimum
level of competence in key knowledge and skills and basic integrative skills in
order to obtain a passing grade.

Course Grades

Course grades are calculated from a weighted average of module grades according to the following weights. In addition, if any module grade is less that 50%, the final course grade will be a maximum of 49%.

Module	Weight
1	40
2	60

Question Types

Each question on each assessment will be clearly indicated as being one of the following three Question Types:

- Type A: These are key knowledge and very basic skills vital to success in the module. They are the building blocks required for success in performing the more integrative skills in the module.
- Type B: These questions require that Type A knowledge and skills be applied in an integrative manner to basic questions that should be familiar to the student.

Type C: These questions require an ability to apply the knowledge and skills of each module in an advanced integrative manner to questions that may not be familiar to the student.

To achieve a **passing grade** in a module, students must demonstrate competence in Type A and Type B questions. There are no minimum requirements for Type C questions.

Type A Competence

Competence in Type A knowledge and skills is demonstrated by achieving at least 70% on **any Type A quiz** for each of the checklist items below **before** the end date of the module. Students may self-evaluate at any time by accessing practice quiz questions available on the LMS. When they are ready, they attend a proctored Type A quiz at any end-of-day Quiz Session. At this session, they may take quizzes on one or more Type A checklist items. All questions on these quizzes are Type A questions. No explicit Type A questions appear on other assessments in the module although Type A knowledge and skills figure prominently in Type B and Type C questions.

A checklist will be maintained on the Student Dashboard where students can monitor their progress in completing these requirements. **Failure to complete all checklist items before the end of the module will result in a maximum grade of 49% for the module. Beyond this requirement, quiz results do not contribute to the Module Grade.**

Module	Type A Knowledge & Skills Checklist						
	Express numbers to a given number of significant						
	figures						
	Express answers in appropriate units						
1	Add vectors using the parallelogram law and						
	triangle method						
	Add vectors using Cartesian components						
	Plot simple functions						
	Convert from mass to weight in appropriate units						
	Extract Given information from a problem						
	statement						
2	Identify what is requested in a problem statement						
	Identify appropriate Assumptions relevant to						
	particle dynamics						
	Express Conclusions in an English sentence.						

The list of Type A Knowledge and Skills for this course is as follows:

Assessments

The assessments and their respective weights in each module are listed below. All assessments will have a maximum grade of 100.

Module	Assessment	Weight
	Assignment 1.1	5
1	Assignment 1.2	5
	Assignment 1.3	5

	Lab 1.1	20
	Module Test 1	65
	Module 1 Total	100
	Assignment 2.1	5
	Assignment 2.2	5
	Assignment 2.3	5
	Assignment 2.4	5
2	Assignment 2.5	5
	Lab 2.1	10
	Lab 2.2	10
	Module Test 2	55
	Module 2 Total	100

All questions/parts of these assessments will be identified as Type B or Type C. The relative proportions of Type B and Type C questions on each assessment will be at the instructor's discretion.

When developing assessments, the instructor will endeavor to design questions that achieve the Learning Outcome Weights indicated in the Course Learning Outcomes section on an aggregate basis for the entire module. Each assessment will clearly indicate the weighting of each learning outcome.

Type B Competence

Performance on the Type B questions in each module is subject to a minimum level of competence. By the end of the module, students must achieve a Type B Running Average of at least 70%. **Failure to do so will result in a maximum grade of 49% for the module.**

After each assessment, a student's Type B Running Average is recalculated. If the Type B Grade on the current assessment is **greater than** the Running Average, it becomes the new Running Average. If the Type B Grade on the current assessment is **less than** the Running Average, the new Running Average is a simple mean of the current Running Average and the Type B grade on the current assessment.

Final Module Grades

At the end of each module, Module Grades are calculated by applying the final Type B Running Average to **all Type B questions** throughout the module. Type C questions are unadjusted. This yields a raw module grade. If the final Type B Running Average is at least 70% and all Type A checklist items have been cleared, this becomes the final Module Grade. Otherwise, the maximum final Module Grade will be 49%.

Top Ups

After each module, students will be able to clear deficiencies in their Type B Running Average by successfully completing a Top Up on that module. Top Ups consist of online study materials, topic-specific tutorials, and proctored Type B re-test opportunities for each module. Information on the Top Up schedule will be posted on the LMS for this course.

Student Grades Dashboard

On an ongoing basis throughout each module, students may monitor their progress on the LMS in three complementary respects:

Assessments: A summary of grades obtained on each assessment (assignment, lab, etc.).

Learning Outcomes: A summary of current grades for each learning outcome.

Type A Checklist: A checklist indicating which Type A knowledge and skills have been demonstrated.

Type B Running Average: The current Type B Running Average.

The Student Grades Dashboard will include automated notifications to students if they are lagging behind in clearing Type A checklist items in a timely fashion. It will also advise students to attend module-specific end-ofday tutorials if their Type B Running Average is lagging.

Final Grades

The final grades will be consistent with the Literal Descriptors specified in the university's grading system

(at the link below, click on "for undergraduate students").

https://students.usask.ca/academics/grading/grading-system.php

For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website:

https://secretariat.usask.ca/student-conduct-appeals/index.php

Module Exemptions

Students repeating the course must repeat both modules regardless of the grade obtained in the modules.

Attendance and Participation:	Students are strongly encouraged to attend all lectures and are responsible for what happens in during lectures (e.g. quizzes). However, attendance is not mandatory or marked.
Criteria That Must Be Met to Pass:	All three experimental laboratories are mandatory. If all three labs are not completed, the maximum grade in the course is 49%. The Assessment System described above also specifies minimum levels of competence that must be achieved in order to obtain a passing grade.
Academic Courses Policy:	More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: <u>http://policies.usask.ca/policies/academic-affairs/academic-courses.php</u>
Learning Charter:	The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors

and the institution. A copy of the Learning Charter can be found at: <u>https://teaching.usask.ca/about/policies/learning-charter.php</u>

Course Content/Schedule:

Торіс	Textbook Sections	Approximate Lecture Hours
MODULE 1 – PARTICLE KINEMATICS		10.5
1.1 Introduction, Rectilinear Kinematics	12.1, 12.2	1.5
1.2 Rectilinear Kinematics, Curvilinear Motion	12.3-12.5	3
1.3 Rectangular, Normal-Tangential Coordinates	12.6, 12.7	3
1.4 Dependent and Relative Motion	12.9, 12.10	3
MODULE 2 – PARTICLE KINETICS		15
2.1 Newton's Second Law, Equations of Motion in 2-D	13.1-13.5	3
2.2 Principle of Work and Energy	14.1, 14.2	1.5
2.3 Power and efficiency	14.3, 14.4	1.5
2.4 Conservation of Energy	14.5, 14.6	3
2.5 Impulse and Momentum	15.1, 15.2	3
2.6 Conservation of Momentum and Impact	15.3, 15.4	3

Assignments:

Most assignments will be done using an online Homework Management System (e.g. MasteringEngineering from Pearson Education Inc.). These assignments are graded based only on the answer provided (no partial marks for method).

Selected assignments, or portions of assignments, will require students to hand in detailed solutions that conform to the Solution Requirements that are posted on the LMS. These Solution Requirements should be followed for all work in this course including the module tests.

All assignments submitted after the deadline will be given a grade of zero. Solutions will be posted after the due date.

Laboratory:

There will be three experimental laboratories. Check the laboratory schedule on the LMS. The topics of the laboratories are as follow:

- 1. Trajectory of a Projectile (Module 1)
- 2. Completely Inelastic Collision (Module 2)
- 3. Two-body Collision in Two Dimensions (Module 2)

A teaching assistant (TA) will be present during scheduled laboratory times to provide help. No manual need be purchased for the experimental laboratories. Laboratory materials will be posted on the LMS before each experimental laboratory begins.

If you miss an experimental laboratory for medical or compassionate reasons, contact TBA with appropriate evidence. It is mandatory to complete all four experimental laboratories.

Before each of the three experimental laboratories, each student will be required to complete an online pre-lab quiz. The quizzes are designed to ensure that students understand the laboratory theory, data collection, analysis, and safety instructions that are described in each lab instruction file. The pre-lab quizzes will count for 20% of the student's laboratory grade. Students who are granted a complete experimental lab exemption do not need to complete these quizzes.

Please note the following points regarding laboratory exemptions:

- 1. The exemption will only be granted if the laboratories were completed in the previous three offerings of the course.
- 2. The student must have earned an average grade of at least 70% on the experimental laboratories.
- 3. An exemption can only be granted one time for this course.
- 4. The student must agree to accept the laboratory grade received previously.
- 5. The student remains responsible for the learning that takes place in the laboratory.
- 6. In the event that the content of the laboratories changes significantly from previous years, the student may be required to complete the new/modified lab or labs.
- 7. To inquire about an exemption, contact TBA.

Note that **attendance and submission** of laboratory reports is **mandatory**. Failure meet these requirements will result in a final grade of less than 50% for the course.

Module Tests:

- This course is comprised of three modules. Each module will end with a 1.5 hr module test conducted as a required, outside-of-class activity. The module tests will only assess the content of that specific module. The schedule for the Module Tests is:
 - Module 1: Particle Kinematics: Date & Time
 - Module 2: Particle Kinetics: Date & Time
- Students should avoid making prior travel, employment, or other commitments at these times. If a student is unable to write a module test through no fault of their own for medical or other acceptable reasons, documentation must be provided and an opportunity to write the missed module test <u>may</u> be given. Students are encouraged to review all examination policies and procedures: <u>http://students.usask.ca/academics/exams.php</u>
- Alternate times to write Module Tests will not be considered except in the case of acceptable reasons, such as illness, bereavement, etc., or a conflict with other university related activities.
- The use of electronic devices, including calculators, phones and watches, with document storage and/or communication capabilities is prohibited during exams for this course.
- Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines.
- The module tests are closed book. A standardized formula sheet will be provided for all module tests.

Required Activities Outside of Class Time

The Module Tests are written outside of class time. See the Module Test Policy section above.

TBA	First day of classes			
TBA	Last day for making changes in registration for Fall Term courses			
	(100% tuition credit).			
TBA	Module 1 Test			
TBA	Fall Mid-term Break			
TBA	Last day to withdraw from Fall Term classes			
TBA	Holidays TBA			
TBA	Last day of classes.			
	Module 2 Test			

Important Dates

Required Resources

Hibbeler, R.C. 2016. Engineering Mechanics – Statics & Dynamics. (14th ed.) Hoboken: Pearson.

- The University Bookstore carries this book as an eText packaged with a MasteringEngineering access code. MasteringEngineering is the publisher's online assignment tool. <u>https://bookstore.usask.ca/students.php#MyTextbooks</u>
- All course assignments will be done using the MasteringEngineering website. Be careful buying a second-hand version of the textbook. Make sure it has an unused access code. If it does not, you will need to buy an access code directly from the publisher.
- If you want a paper copy of the textbook (loose leaf version), it can be purchased directly from the publisher once you register with MasteringEngineering.

There is no Laboratory Manual to be purchased. Materials will be posted on the LMS prior to each laboratory.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/</u>.

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning

(http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS</u>)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

The APEGS Code of Ethics also states that Professional Engineers shall "hold paramount the safety, health and welfare of the public and the protection of the environment and promote health and safety within the workplace" (Section 20(a), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

Safety is of paramount importance in the College. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Recording Lectures:

When possible, lectures will be recorded and made available to students in the LMS. **Video and/or audio recording of lectures is not allowed.** Students with approval from AES may record lectures for their own use with the permission of the instructor.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit http://www.usask.ca/copyright/students/rights/index.php or contact the University's Copyright Coordinator@usask.ca.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-

protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students:

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit https://students.usask.ca/health/centres/access-equity-services.php, or contact AES at 306-966-7273 or aes@usask.ca.

Students registered with AES may request alternative arrangements for module tests. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca;</u> Phone: 306-966-5274;
 - https://engineering.usask.ca/contact_info/esc-office.php

End of day tutorial sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see X for more details.

Student Learning Services:

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience:

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Graduate Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

	1 1	Instructional Level [‡]										
Learning						Attri	bute [†]					
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1.1	D	D										
1.2	D	D										
1.3	D	D										
1.4	D	D	D				Ι					
1.5	D	D										
1.6	D	D										
2.1	D	D										
2.2	D	D										
2.3	D	D										
2.4	D	D										
2.5	D	D										
2.6	D	D	D				Ι					

†<u>Attributes</u>:

A4 Design

A2 Problem analysisA3 Investigation

A8 Professionalism

A10 Ethics and equity

management

A12 Life-long learning

A5 Use of engineering tools

A6 Individual and team workA7 Communication skills

and the environment

A11 Economics and project

A9 Impact of engineering on society

A1	A knowledge ba	se for engineering
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*Instructional Level:

Introduced (I) – Students learn the working vocabulary of the area of content, along with some of the major underlying concepts.

Developed (D) – Students use their working vocabulary and major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar contexts.

Applied (A) – Students approach mastery in the area of content. They explore deeply into the discipline and experience the controversies, debate, and uncertainties that characterize the leading edges of any field. They practice, extend, or refine knowledge in unfamiliar contexts.

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
			100%	

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: GE 123
- 2.2 Academic credit units: 3
- 2.3 Course Long Title (maximum 100 characters): Engineering Mechanics II Course Short Title (maximum 30 characters): Mechanics II

2.4	Total Hours:	Lecture 34.5	Seminar	Lab	12	Tutorial	Other
2.5	Weekly Hours:	Lecture	Seminar	Lab	1	Tutorial	Other
2.6	Term in which it	will be offered	: T1	T2	T1 or T	2 T1 an	d T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course is an introduction to statics for particles and rigid bodies in two and three dimensions. Applications involving the analyses of simple trusses, frames, and machines are introduced. Dry friction is also introduced. A series of practical laboratories are designed to help the student apply the principles of statics to practical problems.

- 2.9 Do you allow this course to be repeated for credit? No
- 3. **Please list rationale for introducing this course:** This is part of the integrated curriculum in the redesigned first year program.
- 4. Please list the learning objectives for this course:

This course consists of three modules: The learning outcomes for each module are as follows:

Module 1: Particle Statics

		Weight	
By t	he end of this module, students will be expected to:	(%)	
1.1	define terms relevant to particle equilibrium;	20	
1.2	describe the concept of particle equilibrium;	20	
1.3	draw free body diagrams of particles in two and three dimensions;	20	
1.4	calculate the dot product of vectors in two and three dimensions and understand their usefulness; and	20	
1.5	apply the equations of equilibrium to calculate unknown forces in particle equilibrium problems in two and three dimensions.	20	
<u>Modu</u>	le 2: Introductory Rigid Body Statics		
		Weight	
By t	he end of this module, students will be expected to:	(%)	
2.1	describe the concept of rigid body equilibrium;	16	
2.2	draw free body diagrams of rigid bodies in two and three dimensions;	20	
2.3	calculate the cross product of vectors in two and three dimensions and understand their usefulness;	16	
2.4	calculate the moment created by a force about a point or an axis		

N

		weight
By t	he end of this module, students will be expected to:	(%)
2.1	describe the concept of rigid body equilibrium;	16
2.2	draw free body diagrams of rigid bodies in two and three dimensions;	20
2.3	calculate the cross product of vectors in two and three dimensions and understand their usefulness;	16
2.4	calculate the moment created by a force about a point or an axis in two and three dimensions, using vector and scalar formulations;	16
2.5	characterize and apply couples in moment calculations; and	16
2.6	apply the equations of equilibrium to calculate unknown forces	
	in introductory rigid body equilibrium problems in two and three dimensions.	16

Module 3: Intermediate Rigid Body Statics

By the end of this module, students will be expected to:	Weight (%)
3.1 calculate the forces in members and supports of two- dimensional trusses using the method of joints and method of sections;	20
3.2 calculate forces acting on members and supports of two- dimensional frames and machines;	20
3.3 identify two- and three-force members, redundant and improp constraints, and static determinacy in rigid body equilibrium problems;	er 20
3.4 solve for unknown forces in dry friction problems; and	20
3.5 assess the equilibrium of a rigid body subjected to dry friction resulting in no movement or impending movement in the form of tipping or slipping.	20

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No If so, were these departments consulted? (Include correspondence)

Were any other departments asked to review or comment on the proposal? Yes, within the College and we worked with the Gwenna Moss Centre for Teaching and Learning.

- 6. **Other courses or program affected** (please list course titles as well as numbers)
 - 6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)
 - 6.2 Courses for which this course will be a prerequisite?
 - Any changes to the course prerequisites in the programs will be submitted in future UCC.
 - 6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Please see syllabus.

9.1 How should this course be graded? C – Completed Requirements (Grade options for instructor: Completed Requirements, Fail, IP In Progress) N – Numeric/Percentage (Grade options for instructor: grade of 0% to 100%, IP in Progress) P – Pass/Fail (Grade options for instructor: Pass, Fail, In Progress) S – Special (Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Yes

10. Required text

Include a bibliography for the course:

Hibbeler, R.C. 2016. Engineering Mechanics – Statics & Dynamics. (14th ed.) Hoboken: Pearson.

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget .

- 11.3 Are sufficient library or other research resources available for this course? Yes. The University Bookstore carries the textbook as an eText packaged with a MasteringEngineering access code. MasteringEngineering is the publisher's online assignment tool.
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? N/A

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> <u>No</u>

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code CL	Description Clinical	Code PRB	Description Problem Session
CO0	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit
ICR IHP IN1 IN2 IN3 IND LAB LC LEC LL MM PCL	Internet Chat Relay Internet Help Internship - Education Internship - CMPT & EPIP Internship - General Independent Studies Laboratory Lecture/Clinical (Dent Only) Lecture Lecture/Laboratory (Dent Only) Multimode Pre-Clinical (Dent Only)	ROS SEM SSI STU SUP TEL TUT WEB XCH XGN XHS XNA	Roster (Dent Only) Seminar Supervised Self Instruction Studio Teacher Supervision Televised Class Tutorial Web Based Class Exchange Program Ghost Schedule Type Not Applicable High School Class Schedule Type Not Applicable

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

- 2.1 NOAC No Academic Credit
- 0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.
- 2.2 For the College of Arts and Science only: To which program type does this course belong? FNAR Fine Arts

- HUM Humanities
- SCIE Science
- SOCS Social Science
- ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program: College of Engineering only
- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course GE122.3 Engineering Mechanics I (taken)
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course MATH 134.3 Engineering Mechanics II
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: GE 124

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:

GE 123.3 Engineering Mechanics II



Winter 2021-22

Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructor	TBA TBA TBA TBA
Office Hours:	ТВА
Lectures:	Days, Times, Location TBA
Laboratory:	Days, Times, Location TBA
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course LMS site. Students are responsible for keeping up-to-date with the information on this site. LINK TBA
End of Day Tutorials	End of day tutorial sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see TBA for more details.
Description:	This course is an introduction to statics for particles and rigid bodies in two and three dimensions. Applications involving the analyses of simple trusses, frames, and machines are introduced. Dry friction is also introduced. A series of practical laboratories are designed to help the student apply the principles of statics to practical problems.
Prerequisites	GE 122.3 Engineering Mechanics I (taken)
Pre- or	MATH 134.3 Engineering Mathematics II
Co-requisites	
Course	TBA (lectures), TBA (laboratory)
Reference	
Numbers	
(CRNs):	This second consists of these we dollars. The large interest of the second se
Course	This course consists of three modules: The learning outcomes for each module are as follows:
Learning	are as 10110WS:
Outcomes:	Module 1: Particle Statics
	Weight
	0

By the end of this module, students will be expected to:	(%)
1.1 define terms relevant to particle equilibrium;	20

	1.2 describe the concept of particle equilibrium;	20
	 1.3 draw free body diagrams of particles in two and three dimensions; 	20
	1.4 calculate the dot product of vectors in two and three dimensions and understand their usefulness; and	20
	1.5 apply the equations of equilibrium to calculate unknown forces in particle equilibrium problems in two and three dimensions.	20
	Module 2: Introductory Rigid Body Statics	
		Weight
	By the end of this module, students will be expected to:	(%)
	2.1 describe the concept of rigid body equilibrium;	16
	2.2 draw free body diagrams of rigid bodies in two and three dimensions;	20
	2.3 calculate the cross product of vectors in two and three dimensions and understand their usefulness;	16
	2.4 calculate the moment created by a force about a point or an axis in two and three dimensions, using vector and scalar formulations;	16
	2.5 characterize and apply couples in moment calculations; and2.6 apply the equations of equilibrium to calculate unknown	16
	forces in introductory rigid body equilibrium problems in two and three dimensions.	16
	Module 3: Intermediate Rigid Body Statics	
		Weight
	By the end of this module, students will be expected to:	(%)
	3.1 calculate the forces in members and supports of two-	
	dimensional trusses using the method of joints and method of sections;	20
	3.2 calculate forces acting on members and supports of two- dimensional frames and machines;	20
	3.3 identify two- and three-force members, redundant and improper constraints, and static determinacy in rigid body equilibrium problems;	20
	3.4 solve for unknown forces in dry friction problems; and	20
	3.5 assess the equilibrium of a rigid body subjected to dry friction	
	resulting in no movement or impending movement in the form of tipping or slipping.	20
Assessment	This course uses a competency-based assessment system resulting in	
System:	numeric grade (percentage). It requires that students demonstrate a	
	level of competence in key knowledge and skills and basic integrative order to obtain a passing grade.	e skills in
	oruer to obtain a passing grade.	

Course Grades

Course grades are calculated from a weighted average of module grades according to the following weights. In addition, if any module grade is less that 50%, the final course grade will be a maximum of 49%.

|--|

1	25
2	45
3	30

Question Types

Each question on each assessment will be clearly indicated as being one of the following three Question Types:

- Type A: These are key knowledge and very basic skills vital to success in the module. They are the building blocks required for success in performing the more integrative skills in the module.
- Type B: These questions require that Type A knowledge and skills be applied in an integrative manner to basic questions that should be familiar to the student.
- Type C: These questions require an ability to apply the knowledge and skills of each module in an advanced integrative manner to questions that may not be familiar to the student.

To achieve a **passing grade** in a module, students must demonstrate competence in Type A and Type B questions. There are no minimum requirements for Type C questions.

Type A Competence

Competence in Type A knowledge and skills is demonstrated by achieving at least 70% on **any Type A quiz** for each of the checklist items below **before** the end date of the module. Students may self-evaluate at any time by accessing practice quiz questions available on the LMS. When they are ready, they attend a proctored Type A quiz at any end-of-day Quiz Session. At this session, they may take quizzes on one or more Type A checklist items. All questions on these quizzes are Type A questions. No explicit Type A questions appear on other assessments in the module although Type A knowledge and skills figure prominently in Type B and Type C questions.

A checklist will be maintained on the Student Dashboard where students can monitor their progress in completing these requirements. **Failure to complete all checklist items before the end of the module will result in a maximum grade of 49% for the module. Beyond this requirement, quiz results do not contribute to the Module Grade.**

Module	Type A Knowledge & Skills Checklist	
	Define basic terms relevant to particle equilibrium	
1	Take the dot product of two vectors in 3-D	
	Express position and force vectors in 3-D	
	Define basic terms relevant to rigid body equilibrium	
	Take the cross product of two vectors in 3-D	
2	Calculate the moment created by a force about a point	
	Calculate the moment created by a force about a axis	
	Identify and characterize support reactions	
3	Define basic terms relevant to trusses, frames, and	
	machines	

The list of Type A Knowledge and Skills for this course is as follows:

Identify zero-force members
Identify two-force members
Solve for friction forces

Assessments

The assessments and their respective weights in each module are listed below. All assessments will have a maximum grade of 100.

Module	Assessment	Weight
	Assignment 1.1	5
1	Assignment 1.2	5
	Assignment 1.3	5
1	Lab 1.1	20
	Module Test 1	65
	Module 1 Total	100
	Assignment 2.1	5
	Assignment 2.2	5
	Assignment 2.3	5
2	Assignment 2.4	
2	Assignment 2.5	5
	Lab 2.1	15
	Module Test 2	60
	Module 2 Total	100
	Assignment 3.1	5
	Assignment 3.2	5
	Assignment 3.3	5
3	Assignment 3.4	5
3	Lab 3.1	10
	Lab 3.2	10
	Module Test 3	60
	Module 3 Total	100

All questions/parts of these assessments will be identified as Type B or Type C. The relative proportions of Type B and Type C questions on each assessment will be at the instructors discretion.

When developing assessments, the instructor will endeavor to design questions that achieve the Learning Outcome Weights indicated in the Course Learning Outcomes section on an aggregate basis for the entire module. Each assessment will clearly indicate the weighting of each learning outcome.

Type B Competence

Performance on the Type B questions in each module is subject to a minimum level of competence. By the end of the module, students must achieve a Type B Running Average of at least 70%. Failure to do so will result in a maximum grade of 49% for the module.

After each assessment, a student's Type B Running Average is recalculated. If the Type B Grade on the current assessment is **greater than** the Running Average, it becomes the new Running Average. If the Type B Grade on the current assessment is **less than** the Running Average, the new Running Average is a simple mean of the current Running Average and the Type B grade on the current assessment.

Final Module Grades

At the end of each module, Module Grades are calculated by applying the final Type B Running Average to **all Type B questions** throughout the module. Type C questions are unadjusted. This yields a raw module grade. If the final Type B Running Average is at least 70% and all Type A checklist items have been cleared, this becomes the final Module Grade. Otherwise, the maximum final Module Grade will be 49%.

Top Ups

After each module, students will be able to clear deficiencies in their Type B Running Average by successfully completing a Top Up on that module. Top Ups consist of online study materials, topic-specific tutorials, and proctored Type B re-test opportunities for each module. Information on the Top Up schedule will be posted on the LMS for this course.

Student Grades Dashboard

On an ongoing basis throughout each module, students may monitor their progress on the LMS in three complementary respects:

Assessments: A summary of grades obtained on each assessment (assignment, lab, etc.).

Learning Outcomes: A summary of current grades for each learning outcome.

Type A Checklist: A checklist indicating which Type A knowledge and skills have been demonstrated.

Type B Running Average: The current Type B Running Average.

The Student Grades Dashboard will include automated notifications to students if they are lagging behind in clearing Type A checklist items in a timely fashion. It will also advise students to attend module-specific end-ofday tutorials if their Type B Running Average is lagging.

Final Grades

The final grades will be consistent with the Literal Descriptors specified in the university's grading system

(at the link below, click on "for undergraduate students").

https://students.usask.ca/academics/grading/grading-system.php

For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website:

https://secretariat.usask.ca/student-conduct-appeals/index.php

Module Exemptions

Students repeating the course must repeat both modules regardless of the grade obtained in the modules.

Attendance and Participation:	Students are strongly encouraged to attend all lectures and are responsible for what happens in during lectures (e.g. quizzes). However, attendance is not mandatory or marked.
Criteria That Must Be Met to Pass:	All four experimental laboratories are mandatory. If all four labs are not completed, the maximum grade in the course is 49%. The Assessment System described above also specifies minimum levels of competence that must be achieved in order to obtain a passing grade.
Academic Courses Policy:	More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: <u>http://policies.usask.ca/policies/academic-affairs/academic-courses.php</u>
Learning Charter:	The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: https://teaching.usask.ca/about/policies/learning-charter.php

Course Content/Schedule:

Торіс	Textbook Sections	Approximate Lecture Hours
MODULE 1 -PARTICLE STATICS		9
1.1 General principles, Review, Dot product		3
1.2 Particle equilibrium	3.1	1.5
1.3 Free body diagrams (FBDs) for particles	3.2	3
1.4 Coplanar and three-dimensional forces	3.3-3.4	1.5
MODULE 2 – INTRODUCTORY RIGID BODY STATICS		15
2.1 Moments (scalar and vector formulation), Cross products	4.1-4.5	3
2.2 Couples, Distributed loads	4.6, 4.9	3
2.3 2-D rigid body equilibrium, Supports, FBDs for rigid bodies	5.1-5.3	3
2.4 Two- and three-force members, 3D equilibrium	5.4-5.6	3
2.5 Constraints and statical determinacy, Review	5.7	3
MODULE 3 – INTERMEDIATE RIGID BODY STATICS		10.5
3.1 Trusses, method of joints, zero-force members,	6.1-6.3	3
3.2 Method of sections, Frames and machines,	6.4, 6.6	3
3.3 Dry friction	8.1-8.2	3
3.4 Review		1.5

Assignments:

Most assignments will be done using an online Homework Management System (e.g. MasteringEngineering from Pearson Education Inc.). These assignments are graded based only on the answer provided (no partial marks for method).

Selected assignments, or portions of assignments, will require students to hand in detailed solutions that conform to the Solution Requirements that are posted on the LMS. These Solution Requirements should be followed for all work in this course including the module tests.

All assignments submitted after the deadline will be given a grade of zero. Solutions will be posted after the due date.

Laboratory:

There will be three experimental laboratories. Check the laboratory schedule on the LMS. The topics of the laboratories are as follow:

- 1. 3-D Particle Equilibrium (Module 1)
- 2. 2-D Rigid Body Equilibrium (Module 2)
- 3. Friction (Module 3)
- 4. Trusses (Module 4)

A teaching assistant (TA) will be present during scheduled laboratory times to provide help. No manual need be purchased for the experimental laboratories. Laboratory materials will be posted on the LMS before each experimental laboratory begins.

If you miss an experimental laboratory for medical or compassionate reasons, contact TBA with appropriate evidence. It is mandatory to complete all four experimental laboratories.

Before each of the four experimental laboratories, each student will be required to complete an online pre-lab quiz. The quizzes are designed to ensure that students understand the laboratory theory, data collection, analysis, and safety instructions that are described in each lab instruction file. The pre-lab quizzes will count for 20% of the student's laboratory grade. Students who are granted a complete experimental lab exemption do not need to complete these quizzes.

Please note the following points regarding laboratory exemptions:

- 1. The exemption will only be granted if the laboratories were completed in the previous three offerings of the course.
- 2. The student must have earned an average grade of at least 70% on the experimental laboratories.
- 3. An exemption can only be granted one time for this course.
- 4. The student must agree to accept the laboratory grade received previously.
- 5. The student remains responsible for the learning that takes place in the laboratory.
- 6. In the event that the content of the laboratories changes significantly from previous years, the student may be required to complete the new/modified lab or labs.
- 7. To inquire about an exemption, contact TBA.

Note that **attendance and submission** of laboratory reports is **mandatory**. Failure meet these requirements will result in a final grade of less than 50% for the course.

Module Tests:

- This course is comprised of three modules. Each module will end with a 1.5 hr module test conducted as a required, outside-of-class activity. The module tests will only assess the content of that specific module. The schedule for the Module Tests is:
 - Module 1: Particle Statics: Date & Time
 - Module 2: Introductory Rigid Body Statics: Date & Time
 - Module 3: Intermediate Rigid Body Statics: Date & Time
- Students should avoid making prior travel, employment, or other commitments at these times. If a student is unable to write a module test through no fault of their own for medical or other acceptable reasons, documentation must be provided and an opportunity to write the missed module test <u>may</u> be given. Students are encouraged to review all examination policies and procedures: <u>http://students.usask.ca/academics/exams.php</u>
- Alternate times to write Module Tests will not be considered except in the case of acceptable reasons, such as illness, bereavement, etc., or a conflict with other university related activities.

- The use of electronic devices, including calculators, phones and watches, with document storage and/or communication capabilities is prohibited during exams for this course.
- Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines.
- The module tests are closed book. A standardized formula sheet will be provided for all module tests.

Required Activities Outside of Class Time

The Module Tests are written outside of class time. See the Module Test Policy section above.

Important Dates

mportante	
TBA	First day of classes
TBA	Last day for making changes in registration for Winter Term courses
	(100% tuition credit).
TBA	Module 1 Test
TBA	Winter Mid-term Break
TBA	Last day to withdraw from Winter Term classes
TBA	Module 2 Test
TBA	Holidays TBA
TBA	Last day of classes.
TBA	Module 3 Test

Required Resources

Hibbeler, R.C. 2016. Engineering Mechanics – Statics & Dynamics. (14th ed.) Hoboken: Pearson.

- The University Bookstore carries this book as an eText packaged with a MasteringEngineering access code. MasteringEngineering is the publisher's online assignment tool. <u>https://bookstore.usask.ca/students.php#MyTextbooks</u>
- All course assignments will be done using the MasteringEngineering website. Be careful buying a second-hand version of the textbook. Make sure it has an unused access code. If it does not, you will need to buy an access code directly from the publisher.
- If you want a paper copy of the textbook (loose leaf version), it can be purchased directly from the publisher once you register with MasteringEngineering.

There is no Laboratory Manual to be purchased. Materials will be posted on the LMS prior to each laboratory.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct* (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/.</u>

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning

(http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

The APEGS Code of Ethics also states that Professional Engineers shall "hold paramount the safety, health and welfare of the public and the protection of the environment and promote health and safety within the workplace" (Section 20(a), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

Safety is of paramount importance in the College. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Preparing for emergencies protects our lives and property. An emergency response plan (ERP) posting is located in each classroom and lab near the main door of the room. Students are advised to review and be familiar with the College ERP and be aware that when an alarm sounds for more than 10 seconds, the building must be evacuated. Muster point locations are posted at each entrance of the Engineering Building. To view the full ERP, please visit the following website:

https://engineering.usask.ca/documents/facilities/ERP%20-%20ENG%20-%20v%205%200%20-%2009_01_2017.pdf

Recording Lectures:

When possible, lectures will be recorded and made available to students in the LMS. **Video and/or audio recording of lectures is not allowed.** Students with approval from AES may record lectures for their own use with the permission of the instructor.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit http://www.usask.ca/copyright/students/rights/index.php or contact the University's Copyright Coordinator@usask.ca/copyright.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students:

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any

time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <u>https://students.usask.ca/health/centres/access-equity-services.php</u>, or contact AES at 306-966-7273 or <u>aes@usask.ca</u>.

Students registered with AES may request alternative arrangements for module tests. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>

End of day tutorial sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see X for more details.

Student Learning Services:

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience:

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Graduate Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

Learning		Attribute [†]										
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1.1	D											
1.2	D	D										
1.3	D	D										
1.4	D	D	D				Ι					
2.1	D											
2.2	D	D										
2.3	D	D										
2.4	D	D										
2.5	D	D										
2.6	D	D	D				Ι					
3.1	D	D	D				Ι					
3.2	D	D										
3.3	D	D										
3.4	D	D	D				Ι					
3.5	D	D										

† <u>Att</u>	<u>ributes</u> :	* <u>Instructional Level</u> :
A1	A knowledge base for engineering	Introduced (I) – Students learn the working vocabulary of the
A2	Problem analysis	area of content, along with some of the major underlying
A3	Investigation	concepts.
A4	Design	Developed (D) – Students use their working vocabulary and
A5	Use of engineering tools	major fundamental concepts to probe more deeply, to read the
A6	Individual and team work	literature, and to deepen their exploration of the concepts. They
A7	Communication skills	may begin to practice, extend, or refine knowledge in familiar
A8	Professionalism	contexts.
A9	Impact of engineering on society	Applied (A) – Students approach mastery in the area of
	and the environment	content. They explore deeply into the discipline and experience
A10	Ethics and equity	the controversies, debate, and uncertainties that characterize
A11	Economics and project	the leading edges of any field. They practice, extend, or refine
	management	knowledge in unfamiliar contexts.
A12	Life-long learning	

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
			100%	

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: GE 132
- 2.2 Academic credit units: 1
- 2.3 Course Long Title (maximum 100 characters): Engineering Communications I Course Short Title (maximum 30 characters): Engineering Communications I

2.4	Total Hours:	Lecture 15	Seminar	I	Lab 13.5	Tutoria	al	Other
2.5	Weekly Hours:	Lecture	Seminar	I	Lab	Tutoria	al	Other
2.6	Term in which it	t will be offered	l: T1	Т2	T1 or T	Г2	T1 an	d T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course introduces students to written Technical Communication and to Drawing & Sketching. The **Technical Communication I** module focuses on developing students' communication awareness in the areas of referencing, coherency, and editing. The **Drawing & Sketching** module focuses on 2D and 3D isometric and orthographic drawings, as well as dimensioning and scaling.

- 2.9 Do you allow this course to be repeated for credit? No
- 3. **Please list rationale for introducing this course:** This is part of the integrated curriculum in the redesigned first year program.

4. Please list the learning objectives for this course:

The course consists of two modules: Technical Communication I, and Drawing & Sketching. By the end of this course, students will be able to:

1.0 Technical Communication I

- 1.1 identify the needs of an audience,
- 1.2 organize communication to persuade a specific audience,
- 1.3 use sources appropriately for audience and context, and
- 1.4 adapt & refine a document based on peer/expert feedback.
- 2.0 Drawing & Sketching
- 2.1 define, recognize, recall, and compare key terms and features in technical drawing and sketching,
- 2.2 sketch basic 2D technical drawings,
- 2.3 sketch basic 3D technical drawings, and
- 2.4 translate between 2D and 3D representations of an object.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No If so, were these departments consulted? (Include correspondence)

Were any other departments asked to review or comment on the proposal? Yes, within the College and we worked with the Gwenna Moss Centre for Teaching and Learning.

6. **Other courses or program affected** (please list course titles as well as numbers)

- 6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)
- 6.2 Courses for which this course will be a prerequisite?
- Any changes to the course prerequisites in the programs will be submitted in future UCC.
- 6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Please see syllabus.

9.1	How should this course be graded?
	C – Completed Requirements
	(Grade options for instructor: Completed Requirements, Fail, IP In Progress)
	N – Numeric/Percentage
	(Grade options for instructor: grade of 0% to 100%, IP in Progress)
	P – Pass/Fail

(Grade options for instructor: Pass, Fail, In Progress) S – Special (Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Yes

10. Required text

Include a bibliography for the course.

Technical Communication I

This module will use the following open text: TBD. Course notes will supply other required reference materials. The Library will also put useful reference materials and texts on reserve.

Students will require a laptop computer which conforms to the USask First Year Engineering Laptop Specifications, as well as writing paper and a pen/pencil.

Drawing & Sketching

There will be no textbook for this module. Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget these courses will be replacing others.
- 11.3 Are sufficient library or other research resources available for this course? Yes, they may closer to the 2021 launch inquire to see if certain textbooks can be added to hold on reserve in the library if they are not already in the collection.
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? N/A

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
CO0	Coop Class	RDG	Reading Class

FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

- FNAR Fine Arts
- HUM Humanities
- SCIE Science
- SOCS Social Science
- ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program: College of Engineering only
- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course GE 102 Introduction to Engineering I
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: GE121

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

***Please note:** SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructors and Teaching Assistants:	Name: TBD Office: TBD Phone: TBD Email: TBD
Office Hours:	TBD
Lectures:	Technical Communication I Weeks: 8-14 (excluding 11) Classes: Two 1.5 hr lectures per week, in Weeks 8, 10, 12, and 14 and one 1.5 hr lecture per week, in Weeks 9 and 13 (a total of 10 lectures)
Laboratories:	Drawing & Sketching Weeks: 6-15 (excluding 11) Classes: One 1.5 hr lab per week (a total of 9 labs)
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. <u>https://bblearn.usask.ca/</u>
End-of-Day Help Sessions	End of day help sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses.
565510115	Technical Communication I and Drawing & Sketching will each have an end-of-day help session once a week on Mondays in Weeks 8, 9, 10, 12, 13, and 14.
Description:	This course introduces students to written Technical Communication and to Drawing & Sketching. The Technical Communication I module focuses on developing students' communication awareness in the areas of referencing, coherency, and editing. The Drawing & Sketching module focuses on 2D and 3D isometric and orthographic drawings, as well as dimensioning and scaling.

Pre or co- requisites:	GE 102 – Introduction to Engineering I				
Course Reference Numbers (CRNs):	TBD Available from the Dynamic Schedule once courses are built (<u>https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched</u>)				
Course Learning Outcomes:	The course consists of two modules: Technical Communication Drawing & Sketching . By the end of this course, students we expected to:				
	 1.0 Technical Communication I Module Grade W 1.1 - identify the needs of an audience, 1.2 - organize communication to persuade a specific audience, 1.3 - use sources appropriately for audience and context, and 1.4 - adapt & refine a document based on peer/expert feedback. 2.0 Drawing & Sketching Module Grade W 2.1 - define, recognize, recall, and compare key terms and features in technical drawing and sketching, 2.2 - sketch basic 2D technical drawings, 2.3 - sketch basic 3D technical drawings, and 2.4 - translate between 2D and 3D representations of an object. Note that half of the final course grade for this course will com the Technical Communication I module and half will come from Drawing & Sketching module. 	30% 30% 20% 20% <u>/eights</u> 15% 30% 30% 25% e from			
Assessment:	 This course employs a competency-based assessment system. St must demonstrate competence in certain skills in each module. skills can be divided into three types (A/B/C). Type A skills are the most basic and granular for a subject ar general, this includes the ability to define, recall, recognize, co and contrast key terms and concepts. It also includes basic calcu and procedural steps, as appropriate. Type B skills are basic integrative skills. These include basic ty questions that have been covered in class. Type C skills are integrative skills that depend on the ability to the application of what has been learned in class into new domain 	These rea. In mpare, lations ypes of extend			

For this class, students will be expected to perform at a 70% success level or higher in Type A and B materials to be considered competent. There will be no minimum performance threshold for Type C material.

As part of competency-based assessment, students will be given more than one opportunity to display competence. Thus, for Type A and B skills, there will be at least two opportunities to exhibit basic competence. These opportunities may be manifested as portions of later assignments replacing performance on earlier assignments (that cover similar skill sets) and/or "Top Up" opportunities. Top Ups will be proctored opportunities to demonstrate skills during optional coursespecific help sessions (see **End-of-Day Help Sessions**) or during optional Top Up help sessions, which are spread throughout the term's schedule. They may also include supplementary assignments.

Technical Communication I

Type A materials include knowledge and very basic skills vital to any success in written technical communication. Type A skills for this module include implementing basic grammar rules, basic document formatting, rudimentary sequencing of paragraphs, and implementing common referencing and citation formats.

Type B skills include conducting a basic audience analysis, improving a clearly flawed document through editing, basic proposal writing, and appropriately incorporating common sources into written argumentation.

Type C skills will focus on abilities related to providing meaningful and constructive feedback, and paraphrasing.

<u>Type A</u>

- 10-15 Minute in-class Quizzes (Weeks 9, 10, 12, 14)
- Assignment 2: out Week 10, due Week 12 (quoting, summarizing, paraphrasing individual)
- Assignment 3: done in class Week 13 (peer-editing exercise individual)

Top Up opportunities (any Technical Communication I Help Session or Top Up Help Session)

<u>Туре В</u>

- Assignment 1: out Week 8, due Week 9 (write an email to 3 different audiences, same purpose individual)
- Assignment 2: out Week 10, due Week 12 (quoting, summarizing, paraphrasing individual)
- Assignment 3: done in class Week 13 (peer-editing exercise individual)

Top Up opportunities (after assignments are handed back, there will be one opportunity per assignment to Top Up Type B assignment material)

<u> Type C</u>

- Assignment 2: out Week 10, due Week 12 (quoting, summarizing, paraphrasing individual)
- Assignment 3: done in class Week 13 (peer-editing exercise individual)

Top Up opportunities (none)

Drawing & Sketching

Type A materials include knowledge and very basic skills vital to any success in performing the more integrative drawing and sketching skills. Type A skills for drawing and sketching include abilities to define, recognize, recall, and compare key terms and drawing features.

Type B skills include basic drawing and sketching skills such as the abilities to draw different types of lines, 2D and 3D primitives, simple instances of different types of drawings (e.g. oblique, perspective, isometric, orthographic), and simple composite figures.

Type C skills will focus on abilities related to drawing challenging isometric/orthographic translations.

<u>Type A</u>

• 10-15 Minute in-class Quizzes (Weeks 7, 9, 12, 14) Top Up opportunities (any D&S Help Session or Top Up Help Session)

<u>Туре В</u>

- Assignment 1: out Week 7, due Week 8 (lines, simple primitives, and drawing types individual)
- Assignment 2: out Week 9, due Week 10 (simple isometric/orthographic drawings individual)
- Assignment 3: out Week 12, due Week 13 (composite isometric drawings individual)

Top Up opportunities (Assignments 2/3/4 for Assignment 1, Assignment 3/4 for Assignment 2, Assignment 4 for Assignment 3)

<u> Type C</u>

• Assignment 4: done in class Week 15 (translating difficult isometric/ orthographic drawings - individual)

Top Up opportunities (none)

Competency Thresholds

A "module mark" (out of 100) will be calculated for each of the two modules (**Technical Communication I** and **Drawing & Sketching**). For each module, students must achieve at least 70% overall in the Type A material **and** at least 70% overall in the Type B material in order to pass the module with a level of "basic competence". If a student achieves at least 70% in a module's Type A materials and in a module's Type B materials, their module mark will be calculated as per the following section. If a student fails to achieve at least 70% in either or both of the Type A and B materials, they will receive a maximum grade of 49% for module.

If a student achieves at least 70% in the Type A and B materials in both modules, their course mark will be an average of the two module marks. If a student fails to achieve "basic competence" in one module, they will fail the course, receiving an overall grade of 49%, or their calculated grade, whichever is lower. However, if they choose to redo the course in the future, they will be given credit for the module they did pass (at the new instructor's discretion), with the passing mark that they did achieve (unless they want to redo the module for a better mark).

Technical Communication I Grade Calculations

All assessments will be marked on a percentage scale, by type (A/B/C) and by learning outcome e.g. Assignment 1 will have 2 sub-marks (one Type B mark for each of LO1 and LO2). Each percentage mark will be accompanied by a competency descriptor (exemplary, proficient, basic competency, almost competent, not yet competent).

To arrive at a final mark for Type A skills, note that each Quiz has equal weight in grade calculations. The collective weight of the Type A components of Assignments 2 and 3 are equal to two Quizzes. Performance on a Type A Top Up (for a specific Quiz) will replace the corresponding Quiz mark if the Top Up result is better, or it will be averaged with the current Quiz mark, otherwise. The Type A portion of a Top Up for Assignment 2 will replace the original Type A mark for Assignment 2 if is higher, or it will be averaged with prior marks otherwise. This pattern continues with a) Assignment 3's Type A material and b) any Top Up of Assignment 3.

To arrive at a final mark for Type B skills, start with Assignment 1. Assignment 1 has two Type B components corresponding to performance against LO1 and LO2. Only an Assignment 1 Top Up can improve those marks. Assignment 2 has one Type B component corresponding to LO3. Only an Assignment 2 Top Up can improve that mark. Assignment 3 has one Type B component corresponding to LO4. Only an Assignment 3 Top Up can improve that mark. Any Type B component of a Top Up attempt will either replace earlier marks that are lower (for a specific LO), or it will be averaged with prior marks (for a specific LO) that are higher. To arrive at a final mark for the Type C skills, the Type C scores from Assignments 2 and 3 will be used. Type C material cannot be Topped Up. If Top Ups of Assignment 2 and/or 3 take place, only the Type A/B material will be assessed.

Drawing & Sketching Grade Calculations

All assessments will be marked on a percentage scale, by type (A/B/C) and by learning outcome e.g. Assignment 2 will have 3 sub-marks (one Type B mark for each of LO2, LO3, and LO4). Each percentage mark will be accompanied by a competency descriptor (exemplary, proficient, basic competency, almost competent, not yet competent).

To arrive at a final mark for Type A skills, each Quiz will be given equal weighting in grade calculations. Performance on a Type A Top Up will replace the corresponding Quiz mark if the Top Up result is better, or it will be averaged with the current Quiz mark, otherwise.

To arrive at a final mark for Type B skills, start with Assignment 1. Assignment 1's mark will be broken into two parts, corresponding to performance against LO2 and LO3. Any subsequent assignment that is evaluated against LO2 will either replace earlier marks for LO2 that are lower, or it will be averaged with prior marks that are higher. Assignment 2 can replace Assignment 1 marks for LO2 and LO3. Assignment 3 can replace Assignment 1 and 2 marks for LO3. Assignment 4 can replace Assignment 1 and 2 marks for LO2, Assignment 1, 2 and 3 marks for LO3, and Assignment 2 marks for LO4.

To arrive at a final mark for the Type C skills, the Type C score from Assignment 4 will be used. It cannot be Topped Up.

Keeping Track of Grades

Throughout the **Technical Communication I** and **Drawing & Sketching** modules, students will be able to monitor their progress in three complementary respects, for each module:

- a) marks on deliverables students will see how they do on each assignment/quiz
- b) marks on Type A/B/C work students will see how they are doing at each level of material difficulty in the course, and
- c) marks on Learning Outcomes students will see how they are doing against each of the learning outcomes for each module, as they complete elements of them.

Attendance and
Participation:Attendance and participation is encouraged/expected, and students will
be responsible for what happens in classes e.g. quizzes. However,
attendance will not be mandatory (or marked).

Criteria That	See Assessment (Competency Thresholds), above.
Must Be Met to	
Pass:	

Final Grades: The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php

For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website:

https://secretariat.usask.ca/student-conduct-appeals/index.php

AcademicMore information on the Academic Courses Policy on course delivery,
examinations and assessment of student learning can be found at:

http://policies.usask.ca/policies/academic-affairs/academic-
courses.php

Learning
Charter:The University of Saskatchewan Learning Charter is intended to define
aspirations about the learning experience that the University aims to
provide, and the roles to be played in realizing these aspirations by
students, instructors and the institution. A copy of the Learning Charter
can be found at: https://teaching.usask.ca/about/policies/learning-

Course Overview:

This course consists of two modules (**Technical Communication I** and **Drawing & Sketching**). They both involve communication skills for engineers, but they will largely be taught and assessed separately in this course. In both cases, instructors will use a competency-based assessment system. Students will be expected to demonstrate basic skills in a competent manner by the end of the course. In general, if competence is not demonstrated earlier in the course, there will be at least one opportunity (for a given block of subject matter) to demonstrate it again later in the course.

Course Content/Schedule:

The Technical Communication I module will introduce students to technical communication, with a focus on developing students' communication awareness in the areas of proper referencing methods, building coherent written arguments, and participating in self- and peerediting exercises.

The Drawing & Sketching module will introduce students to technical drawing and sketching. Students will become familiar with basic drawing and sketching tools, terms, and concepts. They will develop basic skills in

drawing 2D and 3D primitives and composite objects. This will include isometric and orthographic drawings, and the ability to translate between these drawing types. Students will develop basic skills in dimensioning and scaling, they will be able to interpret sectioning and auxiliary views, and they will become familiar with different types of technical drawings from a variety of engineering disciplines. By the end of the module, students who pass the module will be competent drawers and sketchers for basic technical drawing tasks.

Те	chnical Communication I	Approximate Lecture Hours
1.	TERM WEEK 8 course intro/overview, Technical Communication as problem solving, types of technical communication, document formats, appropriateness in recognizing tone, context, and constraints	3
2.	TERM WEEK 9 building coherence in written communication, introduction to SIDCRA format, audience analysis in written communication, self- editing checklists, Quiz 1	1.5
3.	TERM WEEK 10 role of research in engineering, integrating sources, APA introduction, assessing sources for credibility, academic integrity workshop, voice in technical communication, sentence structure, Quiz 2	3
4.	TERM WEEK 12 grammar workshop, using MS Word tools, technical report formats, peer-editing tools & techniques, Quiz 3	3
5.	TERM WEEK 13 Assignment 3: in-class peer-editing exercise	1.5
6.	TERM WEEK 14 role of reflection in professional communication practice, modes of appeal for written communication, Quiz 4, responding to job advertisements: adapting purpose to context/audience, looking ahead to Tech Com II and III	3

Drawing & Sketching	Approximate Lecture Hours
1. TERM WEEKS 6 & 7 sketching re: basic constructs (line types/weights), 2D primitives (circles, quadrilaterals, triangles, ellipses), types of drawings (isometric, orthographic, oblique, one- and two-point perspective), and minimal dimensioning, sketching 2D primitives and composite bodies, Quiz 1	3

2.	TERM WEEKS 8 & 9 isometric and orthographic drawing theory, projections, scaling, reading dimensioning, hidden lines/shapes, holes, smooth curves, center lines, applying Class 3 knowledge to skills work, Quiz 2	3
3.	TERM WEEKS 10 & 12 sketching 3D primitives (spheres, cylinders, prisms) and simple composites as isometrics (adding/removing primitives), sketching 3D primitives and composite bodies as isometrics, Quiz 3	3
4.	TERM WEEKS 13 & 14 translating isometric/orthographic drawings including missing lines/views, incorrect lines, and challenging isometric/orthographic translations, discipline-specific drawing types, section/auxiliary views, isometric/ orthographic translation problems and drawing exercises, Quiz 4	3
5.	TERM WEEK 15 Assignment 4 (in-class)	1.5

Assignments: (see Assessment)

Quizzes: (see Assessment)

Late Assignments/Missed Quizzes:

Late assignments/missed quizzes will receive a mark of zero. However, Quizzes can be Topped Up during help sessions, and late assignments can usually be Topped Up by subsequent assignments (see above). Type B Top Ups subsequent to the course will be permitted at the discretion of the instructor.

In the case of sickness, bereavement or other excusable absences, students will not be penalized for late submissions although they may be required to complete a variation on the original assignment. They can alternatively choose to treat a missed assignment as a Late Assignment.

Examinations/Module Tests:

This course will not have examinations or Module Tests.

Required Activities Outside of Class Time

This course will not have required activities outside of class time. However, Top Up assessments will be available in optional end-of-day course-specific help sessions (see **End-of-Day Help Sessions**), if students wish to use them.

Experiential Learning

Students will be engaging in drawing and sketching activities in class, as well as technical writing.

Important Dates:

Sept x, 2021	First day of Fall classes
Sept y, 2021	Last day for making changes in registration for first-term courses
	(100% tuition credit).
Nov zz, 2021	Fall Break (Week 11)
Nov xx, 2021	Last day to withdraw from Fall classes
Thanksgiving	Holidays
Dec yy, 2021	Last day of classes

Required Resources

Technical Communication I

This module will use the following open text: xxxxxxxxxx

Course notes will supply other required reference materials. The Library will also put useful reference materials and texts on reserve.

Students will require a laptop computer which conforms to the USask First Year Engineering Laptop Specifications, as well as writing paper and a pen/pencil.

Drawing & Sketching

There will be no textbook for this module. Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

Students will be required to have:

Two 4H Pencils, Two 2H Pencils, Engineering paper, A First Year Laptop, A Faber-Castell Plastic Eraser, and A Staedtler Xcellence Math Set

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints & Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/</u>.

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning* (http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: https://library.usask.ca/academic-integrity#AboutAcademicIntegrity

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

Safety is of paramount importance in the College of Engineering. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Emergency Response Plan:

Preparing for emergencies protects our lives and property. An emergency response plan (ERP) posting is located in each classroom and lab near the main door of the room. Students are advised to review and be familiar with the College ERP and be aware that when an alarm sounds for more than 10 seconds, the building must be evacuated. Muster point locations are posted at each entrance of the Engineering Building. For more details about the ERP, please visit the following website: https://engineering.usak.ca/documents/facilities/ERP%20-%20ENG%20-%20ENG%20-%200%20-%2009 01 2017.pdf

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit

<u>http://www.usask.ca/copyright/students/rights/index.php</u> or contact the University's Copyright Coordinator at <u>copyright.coordinator@usask.ca</u>.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so.

Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <u>https://students.usask.ca/health/centres/access-equity-services.php</u>, or contact AES at 306-966-7273 or <u>aes@usask.ca</u>.

Students registered with AES may request alternative arrangements for mid-term and final examinations or module tests. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 Email: esc@usask.ca; Phone: 306-966-5274;
 - https://engineering.usask.ca/contact info/esc-office.php

End-of-day help sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see **End-of-day Help Sessions** for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site https://library.usask.ca/studentlearning/.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

Learning		Attribute [†]										
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1.1	I,D	I,D				Ι	I,D	Ι		Ι		Ι
1.2	I,D	I,D	Ι	Ι		Ι	I,D	Ι		Ι		Ι
1.3	I,D	I,D					I,D	Ι		Ι		Ι
1.4	I,D	I,D				Ι	I,D	Ι		Ι		Ι
2.1	I,D						I,D					Ι
2.2	I,D						I,D	Ι		Ι		Ι
2.3	I,D			Ι			I,D	Ι		Ι		Ι
2.4	I,D	I,D					I,D					

†<u>Attributes</u>:

- A1 A knowledge base for engineering
- A2 Problem analysis
- A3 Investigation
- A4 Design
- **A5** Use of engineering tools
- A6 Individual and team work
- A7 Communication skills
- A8 Professionalism
- A9 Impact of engineering on society and the environment
- A10 Ethics and equity
- A11 Economics and project management
- A12 Life-long learning

<u>*Instructional Level:*</u>

Introduced (I) – Students learn the working vocabulary of the area of content, along with some of the major underlying concepts.

Developed (D) – Students use their working vocabulary and major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar contexts.

Applied (A) – Students approach mastery in the area of content. They explore deeply into the discipline and experience the controversies, debate, and uncertainties that characterize the leading edges of any field. They practice, extend, or refine knowledge in unfamiliar contexts.

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
		100%		

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: GE 133
- 2.2 Academic credit units: 2
- 2.3 Course Long Title (maximum 100 characters): Engineering Communication II Course Short Title (maximum 30 characters): Engineering Communication II

2.4	Total Hours:	Lecture 45	Seminar	Lab	15 7	Futorial	Other
2.5	Weekly Hours:	Lecture	Seminar	Lab	٦	Tutorial	Other
2.6	Term in which it	will be offered	: T1	T2	T1 or T2	T1 and	d T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course introduces students to oral technical communication (including teaching), CAD, poster presentations, and technical research. The **Technical Communication II** module focuses on developing oral communication skills and self/peer teaching abilities. The **CAD** module introduces students to AuotCAD and basic CAD skills. The **Technical Communication III** module focuses on report editing and technical poster presentation, while the **Research** module introduces students to literature reviews, and basic data analyses of data sets from real research labs.

- 2.9 Do you allow this course to be repeated for credit? No
- 3. **Please list rationale for introducing this course:** This is part of the integrated curriculum in the redesigned first year program.
- 4. Please list the learning objectives for this course:

The course consists of four modules: **Technical Communication II**, **CAD**, **Technical Communication III**, and **Research**. By the end of this course, students will be expected to:

Module Grade Weights
15%
250/
25%
15%
10/0
25%
Module Grade Weights
<u>_</u>
10%
15%
25%
25%
25%

3.0 Technical Communication III	<u>Module Grade Weights</u>
3.1 - use key terms and concepts in communication ethics, editing technique, referencing/citing, and poster layout/organization,	10%
3.2 - select, organize and adapt the visual features of a technical	
poster,	25%
3.3 - select, organize and adapt the content of a technical poster,	25%
3.4 - adapt and refine a technical document based on peer/	
expert feedback, and	25%
3.5 - represent research findings in a balanced & ethical manner.	15%

4.0 Research 4.1 - define, recognize, recall, and compare key terms and concepts invo	Module Grade Weights Ived in conducting research and
writing research papers,	10%
4.2 - search in databases, journals, and other online resources to	
locate relevant literature and information on specific topics,	15%
4.3 - prepare a systematic literature review by summarizing the	
published studies, and critiquing them,	25%
4.4 - apply appropriate statistical analyses to analyze given data,	15%
4.5 - interpret and report the results to address the research	
questions, and	20%
4.6 - present technical research using a poster.	15%

Note that one quarter of the final course grade for this course will come from each of the **Technical Communication II, CAD, Technical Communication III,** and **Research** modules.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No If so, were these departments consulted? (Include correspondence) Were any other departments asked to review or comment on the proposal? Yes, within the College and we worked with the Gwenna Moss Centre for Teaching and Learning.

6. **Other courses or program affected** (please list course titles as well as numbers)

- 6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)
- 6.2 Courses for which this course will be a prerequisite?
- Any changes to the course prerequisites in the programs will be submitted in future UCC.
- 6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. **Course outline**

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Please see syllabus.

9.1	How should this course be graded?			
	C – Completed Requirements			
	(Grade options for instructor: Completed Requirements, Fail, IP In Progress)			
	N – Numeric/Percentage			
(Grade options for instructor: grade of 0% to 100%, IP in Progress) P – Pass/Fail				
	S – Special			
	(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:			

9.2 Is the course exempt from the final examination? Yes

10. Required text

Include a bibliography for the course.

Technical Communication II and III

These modules will use the following open text: TBD. Course notes will supply other required reference materials. The Library will also put useful reference materials and texts on reserve.

CAD

There will be no textbook for this module. Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

Students will require a laptop computer which conforms to the USask First Year Engineering Laptop Specifications. The Specifications include the installation of the (free) AutoCAD vx software.

Research

There will be no textbook for this module. Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget these courses will be replacing others.
- 11.3 Are sufficient library or other research resources available for this course? Yes, they may closer to the 2021 launch inquire to see if certain textbooks can be added to hold on reserve in the library if they are not already in the collection.
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? N/A

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision

IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

- 2.2 For the College of Arts and Science only: To which program type does this course belong?
 - FNAR Fine Arts
 - HUM Humanities
 - SCIE Science
 - SOCS Social Science
 - ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program
 - College of Engineering only
- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course GE 103 Introduction to Engineering II, GE 132 Engineering Communication I
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here:

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

***Please note:** SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:

GE 133.2 Engineering Communication II Winter 2022



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructors and Teaching Assistants:	Name: TBD Office: TBD Phone: TBD Email: TBD
Office Hours:	TBD
Lectures and Laboratories:	Technical Communication II Weeks: 19-24 Classes: Two 1.5 hr lectures per week (for a total of 12 lectures)
	Computer Aided Design (CAD) Weeks: 20-24 Classes: Two 1.5 hr labs per week (a total of 10 labs)
	Technical Communication III Weeks: 26-31 Classes: Two 1.5 hr lectures in Week 26, followed by one 1.5 hr lecture per week (for a total of 7 lectures)
	Research Weeks: 26-31 Classes: Two 1.5 hr lectures per week, in Weeks 26-30, plus one 1.5 hr lecture in Week 31 (for a total of 11 lectures)
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. <u>https://bblearn.usask.ca/</u>
End-of-Day Help Sessions	End of day help sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Technical Communication II will have an end-of-day help session once a week on Mondays in Weeks 19-24. CAD will have them once a week on Wednesdays in Weeks 20-24. Technical Communication III and Research will have them once a week on Wednesdays in Weeks 26-31.

Description :	This course introduces students to oral technical commun (including teaching), CAD, poster presentations, and technical re The Technical Communication II module focuses on developi communication skills and self/peer teaching abilities. The CAD r introduces students to AutoCAD and basic CAD skills. The Tec Communication III module focuses on report editing and te poster presentation, while the Research module introduces stud literature reviews, and to basic analyses of data sets from real re labs.	search. ng oral nodule chnical chnical ents to		
Pre or co- requisites:	GE 103 – Introduction to Engineering II, GE 132 – Engineering Communication I			
Course Reference Numbers (CRNs):	TBD Available from the Dynamic Schedule once courses are built (<u>https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched</u>)			
Course Learning Outcomes:	The course consists of four modules: Technical Communicat CAD , Technical Communication III , and Research . By the end course, students will be expected to:			
	 1.0 Technical Communication II <u>Module Grade W</u> 1.1 - use key terms and concepts in teaching and learning, and oral communication techniques, 1.2 - organize and present oral communication to a specific audience, 1.3 - reflect on how to improve their oral communication techniques, 1.4 - provide feedback to peers to promote a growth mindset, & 1.5 - select and distill content to facilitate understanding for a specific audience in oral communication/teaching. 	Veights 15% 25% 15% 20% 25%		
	2.0 CADModule Grade W2.1 - define, recognize, recall, and compare key terms and features in CAD,2.2 - set up a drawing in CAD,2.3 - draw and modify 2D objects in CAD,2.4 - dimension, layout and annotate 2D and 3D drawings in CAD, and2.5 - draw and modify 3D objects in CAD.	<u>Veights</u> 10% 15% 25% 25% 25%		

3.0 Technical Communication III	Module Grade We	eights
3.1 - use key terms and concepts in communication	tion ethics, editing	5
technique, referencing/citing, and poster layou	t/organization,	10%
3.2 - select, organize and adapt the visual feature	res of a technical	
poster,		25%
3.3 - select, organize and adapt the content of a 3.4 - adapt and refine a technical document bas	-	25%
expert feedback, and		25%
3.5 - represent research findings in a balanced	& ethical manner.	15%
4.0 Research	Module Grade We	eights
4.1 - define, recognize, recall, and compare key	terms and concept	ts
involved in conducting research and writing re	search papers,	10%
4.2 - search in databases, journals, and other or	nline resources to	
locate relevant literature and information on sp	pecific topics,	15%
4.3 - prepare a systematic literature review by	summarizing	
published studies, and critiquing them,		25%
4.4 - apply appropriate statistical analyses to an	nalyze given data,	15%
4.5 - interpret and report the results to address	s the research	
questions, and		20%
4.6 - present technical research using a poster.		15%

Note that one quarter of the final course grade for this course will come from each of the **Technical Communication II, CAD, Technical Communication III,** and **Research** modules.

Assessment: This course employs a competency-based assessment system. Students must demonstrate competence in certain skills in each module. These skills can be divided into three types (A/B/C).

Type A skills are the most basic and granular for a subject area. In general, this includes the ability to define, recall, recognize, compare, and contrast key terms and concepts. It also includes basic calculations and procedural steps, as appropriate.

Type B skills are basic integrative skills. These include basic types of questions that have been covered in class.

Type C skills are integrative skills that depend on the ability to extend the application of what has been learned in class into new domains.

For this class, students will be expected to perform at a 70% success level or higher in Type A and B materials to be considered competent. There will be no minimum performance threshold for Type C material.

As part of competency-based assessment, students will be given more than one opportunity to display competence. Thus, for Type A and B skills, there will be at least two opportunities to exhibit basic competence. These opportunities may be manifested as portions of later assignments replacing performance on earlier assignments (that cover similar skill sets) and/or "Top Up" opportunities. Top Ups will be proctored opportunities to demonstrate skills during optional coursespecific help sessions (see **End-of-Day Help Sessions**) or during optional Top Up help sessions, which are spread throughout the term's schedule. They may also include supplementary assignments.

Technical Communication II

Type A materials include knowledge and very basic skills vital to any success in oral technical communication. Type A skills for this module include defining, recognizing, recalling, comparing, and contrasting key terms and concepts in teaching and learning, reflection, and oral communication technique.

Type B skills include conducting a basic audience analysis, focusing one's self, preparing and organizing a basic group presentation, listening actively, and appropriately incorporating common references/ sources into oral argumentation.

Type C skills will focus on abilities related to providing meaningful and constructive feedback, extracting deep insights from experiences, and mentoring peers effectively.

<u>Type A</u>

• 10-15 Minute in-class Quizzes (Weeks 19, 20, 22, 23) Top Up opportunities (any Technical Communication II Help Session or Top Up Help Session)

Type B/C

- Assignment 1: out Week 19, due Week 21 (in-class peer mentoring exercise individual)
- Assignment 2: out Week 21, due Week 22 (self-reflection on peer feedback & mentoring individual)
- Assignment 3: done in class Week 24 (presentation group)

Type B Top Up opportunities (Assignment 3 can Top Up Assignment 1 Type B material, and one Top Up will be offered for Assignment 2 Type B material after the Module's classes are over)

Type C Top Up opportunities (none)

CAD

Type A materials include knowledge and very basic skills vital to any success in performing the more integrative CAD skills. Type A skills for

CAD include abilities to define, recognize, recall, and compare key terms and CAD features.

Type B skills include basic CAD skills such as the ability to navigate a CAD system, set up a drawing, draw basic 2D and 3D objects, and apply simple dimensioning and annotations.

Type C skills will focus on abilities related to drawing, dimensioning and annotating more challenging 2D and 3D objects.

<u>Type A</u>

• 10-15 Minute in-class Quizzes (Weeks 20, 21, 22, 23) Top Up opportunities (any CAD Help Session or Top Up Help Session)

<u>Type B</u>

- Assignment 1: out Week 20, due Week 21 (setting up and drawing a simple 2D object individual)
- Assignment 2: out Week 21, due Week 22 (setting up and drawing a more challenging 2D object, and applying simple dimensioning and annotations individual)
- Assignment 3: out Week 22, due Week 23 (setting up and drawing a simple 3D object, and applying dimensioning, layout and annotations individual)

Top Up opportunities (after Assignment 1, each subsequent assignment can Top Up different learning outcomes from earlier assignments, as per instructions on the Assignments themselves)

<u>Туре С</u>

• Assignment 4: done in class Week 24 (setting up and drawing a more challenging 3D object, and applying dimensioning, layout and annotations - individual)

Top Up opportunities (none)

Technical Communication III

Type A materials include knowledge and very basic skills vital to any success in preparing and presenting a technical poster, and in editing a technical document. Type A skills for this module include defining, recognizing, recalling, comparing, and contrasting key terms and concepts in poster design and presentation, as well as technical editing.

Type B skills include the basic layout and design of a poster, both visually and content-wise, including judicious selection of key features. They also include the identification of major ethical missteps in the communication of research findings, and the improvement of basic features of a technical document based on feedback.

Type C skills include abilities related to adapting poster design elements to expected audiences, and altering documents in substantial ways based on difficult but valuable feedback.

<u> Type A</u>

• 10-15 Minute in-class Quizzes (Weeks 26, 29) Top Up opportunities (any Technical Communication III Help Session or Top Up Help Session)

<u>Type B/C</u>

- Assignment 1: out Week 26, due Week 27 (peer editing of a literature review group)
- Assignment 2: out Week 27, due Week 29 (fixing ethical violations in technical writing individual)
- Assignment 3: out Week 27, due Week 31 (draft/final research poster group)

Type B Top Up opportunities (Assignment 3 can Top Up Assignment 1 Type B material, and one Top Up will be offered for Assignment 2 Type B material after the Module's classes are over; peer comments on draft posters in Week 31 in the Research Module, make Assignment 3 a de facto Top Up)

Type C Top Up opportunities (none)

Research

Type A materials include knowledge and very basic skills relevant to conducting and reporting research. Type A skills for this module include abilities to define, recall, recognize, and compare key terms and concepts in research practice, as well as procedures for carrying out basic literature searches.

Type B skills include abilities to summarize key information from the literature, distinguish very good from very poor research studies, identify major types of data analysis methods and trends, identify major classes of filters, apply statistical tools to basic data analyses, illustrate the results of basic data analyses, and design research posters.

Type C skills will focus on abilities related to more deeply integrating all of the Type A and B skills in order to derive deeper insights into the research literature, data sets, and interpretation of results.

<u>Type A</u>

• 10-15 Minute in-class Quizzes (Weeks 27, 28, 29, 30) Top Up opportunities (any Research Help Session or Top Up Help Session)

<u>Type B/C</u>

- Assignment 1: out Week 26, due Week 27 (paper outline, lit review plan, identify key sources group)
- Assignment 2: out Week 26, due Week 28 (literature review group)
- Assignment 3: out Week 28, due Week 29 (methods and analyses group)
- Assignment 4: out Week 29, due Week 30 (results, conclusions, recommendations/future work individual)
- Assignment 5: out Week 27, due Week 31 (poster group)

Type B Top Up opportunities (Assignment 2 can Top Up Assignment 1, Assignment 5 can Top Up Assignments 3 and 4, and one Top Up will be offered for Assignment 5 Type B material after the Module's classes are over)

Type C Top Up opportunities (none)

Competency Thresholds

A "module mark" (out of 100) will be calculated for each of the four modules (**Technical Communication II, CAD, Technical Communication III** and **Research**). For each module, students must achieve at least 70% overall in the Type A material **and** at least 70% overall in the Type B material in order to pass the module with a level of "basic competence". If a student achieves at least 70% in a module's Type A materials and in a module's Type B materials, their module mark will be calculated as per the following section. If a student fails to achieve at least 70% in either or both of the Type A and B materials, they will receive a maximum grade of 49% for module.

If a student achieves at least 70% in the Type A and B materials in all four modules, their course mark will be an average of the four module marks. If a student fails to achieve "basic competence" in one or more modules, they will fail the course, receiving an overall grade of 49%, or their calculated grade, whichever is lower. However, if they choose to redo the course in the future, they will be given credit for the modules they did pass (at the new instructor's discretion), with the passing mark that they did achieve (unless they want to redo the module for a better mark).

Technical Communication II Grade Calculations

All assessments will be marked on a percentage scale, by type (A/B/C) and by learning outcome e.g. Assignment 2 will have 2 sub-marks (one each for Type B and C work for LO3). Each percentage mark will be accompanied by a competency descriptor (exemplary, proficient, basic competency, almost competent, not yet competent).

To arrive at a final mark for Type A skills, each Quiz will be given equal weighting in grade calculations. Performance on a Type A Top Up Quiz will replace the corresponding Quiz mark if the Top Up result is better, or it will be averaged with the current Quiz mark, otherwise.

To arrive at a final mark for Type B skills, start with Assignment 1. It has three Type B components corresponding to performance against LO2, LO4, and LO5. These elements are reassessed in Assignment 3. Where the elements receive a better mark, the Assignment 3 marks replace the corresponding Assignment 1 marks. Where they do not, they are averaged with the corresponding Assignment 1 marks. Assignment 2 has one Type B component corresponding to LO3. The only opportunity to Top Up this Type B mark will be through a special Top Up after the Module is over, where students can complete an assignment similar to Assignment 2, but applied to the group presentation of Assignment 3. If the Top Up Type B material gets a better mark, it replaces the Assignment 2 mark. Otherwise, it is averaged with the Assignment 2 mark.

To arrive at a final mark for the Type C skills, the Type C scores from Assignments 1, 2 and 3 will be used. They cannot be Topped Up. If Top Ups of Assignment 2 and/or 3 take place, only the Type B material will be assessed.

CAD Grade Calculations

All assessments will be marked on a percentage scale, by type (A/B/C) and by learning outcome e.g. Assignment 2 will have 3 sub-marks (one for each of LO2, LO3, and LO4 Type B material). Each percentage mark will be accompanied by a competency descriptor (exemplary, proficient, basic competency, almost competent, not yet competent).

To arrive at a final mark for Type A skills, each Quiz will be given equal weighting in grade calculations. Performance on a Type A Top Up will replace the corresponding Quiz mark if the Top Up result is better, or it will be averaged with the current Quiz mark, otherwise.

To arrive at a final mark for Type B skills, start with Assignment 1. Assignment 1's mark will be broken into two parts, corresponding to performance against LO2 and LO3. Any subsequent assignment that is evaluated against LO2 will either replace earlier marks for LO2 that are lower, or it will be averaged with prior marks that are higher. Assignment 2 can replace Assignment 1 marks for LO2 and LO3. Assignment 3 can replace Assignment 1 and 2 marks for LO2, and Assignment 2 marks for LO4. Assignment 4 can replace Assignment 1, 2 and 3 marks for LO2, Assignment 1 and 2 marks for LO3, Assignment 2 and 3 marks for LO4, and Assignment 3 marks for LO5. To arrive at a final mark for the Type C skills, the Type C score from Assignment 4 will be used. It cannot be Topped Up.

Technical Communication III Grade Calculations

All assessments will be marked on a percentage scale, by type (A/B/C) and by learning outcome e.g. Assignment 1 will have 4 sub-marks (one Type B and C mark for each of LO4 and LO5). Each percentage mark will be accompanied by a competency descriptor (exemplary, proficient, basic competency, almost competent, not yet competent).

To arrive at a final mark for Type A skills, each Quiz will be given equal weighting in grade calculations. Performance on a Type A Top Up will replace the corresponding Quiz mark if the Top Up result is better, or it will be averaged with current the Quiz mark, otherwise.

To arrive at a final mark for Type B skills, start with Assignment 1. Assignment 1's Type B marks will be broken into two parts, corresponding to performance against LO4 and LO5. Assignment 2 will also have a Type B LO5 mark. If it is higher than the corresponding Assignment 1 Type B LO5 mark, then the Assignment 2 mark will replace the corresponding Assignment 1 mark. If not, the two marks will be averaged. Assignment 3 has four Type B marks, corresponding to performance against LO2, LO3, LO4, and LO5. For LO4 and LO5, if the Assignment 3 Type B mark is higher than earlier marks, it replaces earlier marks. The LO2 and LO3 Type B marks come directly from Assignment 3.

To arrive at a final mark for the Type C skills, the Type C scores from Assignments 1 to 3 will be used. They cannot be Topped Up.

Research Grade Calculations

All assessments will be marked on a percentage scale, by type (A/B/C) and by learning outcome e.g. Assignment 2 will have 4 sub-marks (a Type B and C mark for each of LO2 and LO3). Each percentage mark will be accompanied by a competency descriptor (exemplary, proficient, basic competency, almost competent, not yet competent).

To arrive at a final mark for Type A skills, each Quiz will be given equal weighting in grade calculations. Performance on a Type A Top Up will replace the corresponding Quiz mark if the Top Up result is better, or it will be averaged with the current Quiz mark, otherwise.

To arrive at a final mark for Type B skills, start with Assignment 1. Assignment 1's marks will correspond to performance against LO2 and LO3. This is also true for Assignment 2 except that there will be specific Type B marks for LO2 and LO3. If either is greater than the corresponding Assignment 1 mark, it will replace the corresponding Assignment 1 mark. If not, it will be averaged with the corresponding Assignment 1 mark. Assignment 3 will have a Type B component for LO4, and Assignment 4 will have a Type B component for LO5. Assignment 5 will have Type B components for LO4, LO5, and LO6. If any are better than the existing Type B marks for those LO's, they will replace them. Otherwise, they will be averaged.

To arrive at a final mark for the Type C skills, the Type C scores from Assignment 2 to 5 will be used. They cannot be Topped Up. If a Top Up of Assignment 5 takes place, only the Type B material will be assessed.

Keeping Track of Grades

Throughout the **Technical Communication I, CAD, Technical Communication III** and **Research** modules, students will be able to monitor their progress in three complementary respects, for each module:

- a) marks on deliverables students will see how they do on each assignment/quiz
- b) marks on Type A/B/C work students will see how they are doing at each level of material difficulty in the course, and
- c) marks on Learning Outcomes students will see how they are doing against each of the learning outcomes for each module, as they complete elements of them.
- Attendance and
Participation:Attendance and participation is encouraged/expected, and students will
be responsible for what happens in classes e.g. quizzes. However,
attendance will not be mandatory (or marked).

Criteria That See **Assessment** (Competency Thresholds), above.

Must Be Met to Pass:

Final Grades: The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php

> For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website: https://secretariat.usask.ca/student-conduct-appeals/index.php

AcademicMore information on the Academic Courses Policy on course delivery,Courses Policy:examinations and assessment of student learning can be found at:

http://policies.usask.ca/policies/academic-affairs/academiccourses.php

Learning The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: <u>https://teaching.usask.ca/about/policies/learning-charter.php</u>

Course Overview:

This course consists of four modules (**Technical Communication II, CAD, Technical Communication III** and **Research**). They all involve communication skills for engineers, but they will largely be taught and assessed separately in this course. In all cases, instructors will use a competency-based assessment system. Students will be expected to demonstrate basic skills in a competent manner by the end of the course. In general, if competence is not demonstrated earlier in the course, there will be at least one opportunity (for a given block of subject matter) to demonstrate it again later in the course.

Course Content/Schedule:

The Technical Communication II module will introduce students to oral communication in a technical context, including the design of PowerPoint[™] and group presentations. Students will also be introduced to self- and peer-teaching strategies, including conceptual and delivery models to assist in simplifying concepts for peers. They will systematically reflect upon feedback provided to them by instructors and peers, and incorporate such feedback into their evolving communication skills.

The CAD module will introduce students to Computer-Aided Design through the use of AutoCAD. After a brief review of key concepts and terms from Drawing & Sketching, students will learn how to orient themselves in the AutoCAD system and set up drawings. They will develop basic skills in drawing and modifying 2D and 3D objects in CAD. This will include properly laying out, annotating, and dimensioning drawings. By the end of the module, students who pass the module will be competent users of AutoCAD for basic technical drawing tasks.

The Technical Communication III module will introduce students to research report writing, ethical considerations in technical communication, and poster design. Students will learn and apply core concepts in the visual design of posters, and they will get the opportunity to present and defend a poster based on their work in the Research module. As in Technical Communication II, they will continue to reflect upon peer and instructor feedback, and incorporate it into their work. The Research module will introduce students to research methods in engineering disciplines. In groups, students will select real-world data sets from faculty research labs and analyze and interpret the data sets after conducting a literature review relevant to the experimental data. Students will ultimately present their work in a poster session. Students will become familiar with the procedures of research activities, review and evaluation of research literature, statistical concepts for research in engineering, and selection and interpretation of statistical analyses. By the end of the module, students should be able to productively assist a research program with supervision.

Те	chnical Communication II	Approximate Lecture Hours
1.	TERM WEEK 19 review of Tech Com I materials/clarity in communication, fixed vs growth mindsets, metacognition and learning, deep vs surface learning, setting personal learning goals, Quiz 1	3
2.	TERM WEEK 20 threshold concepts, essential ideas, selecting content for audiences, peer mentoring workshop, providing constructive feedback in oral presentations, Quiz 2	3
3.	TERM WEEK 21 in-class assignment — mentoring peers, modes of appeal for oral communication, role of reflection in professional communication practice, differences between oral & written communication, types of oral communication	3
4.	TERM WEEK 22 how to structure oral communication, selecting content & sequencing ideas, using sources in oral communication, visual aids: how to use PowerPoint [™] , assignment – reflection on feedback & mentoring experience, Quiz 3	3
	TERM WEEK 23 speech delivery and practice strategies, non-verbal communication in oral communication, relaxation techniques, group presentations: sharing roles & responsibilities, managing group dynamics, active listening: extracting information from oral presentations, adapting communication/consulting with diverse communities, Quiz 4	3
6.	TERM WEEK 24 in-class assignment – group presentations	3

CAD	Approximate Lab Hours
1. TERM WEEK 20 review of the Drawing & Sketching module (knowledge and skills), AutoCAD orientation/navigation, drawing basic shapes, Quiz 1	3

2.	TERM WEEK 21 drawing in 2D, basic 2D dimensioning, modifying objects, drawing aids, 2D drawing tools: rotate, offset, mirror, trim, extend; fillet and chamfer, hatching, Quiz 2	3
3.	TERM WEEK 22 thorough annotation and dimensioning in 2D, 3D drawing in AutoCAD, basic 3D dimensioning, Quiz 3	3
4.	TERM WEEK 23 3D drawing in AutoCAD, thorough dimensioning in 3D, drawing advanced 3D shapes in AutoCAD, Quiz 4	3
5.	<mark>тегм weeк 24</mark> layouts, viewports, plotting, Assignment 4 (in-class)	3

Те	chnical Communication III	Approximate Lecture Hours
1.	TERM WEEK 26 revisit TC II concepts, revisit SIDCRA elements (research report focus), review APA/integrating sources/referencing/citing, editing techniques for technical reports, Quiz 1	3
2.	TERM WEEK 27 in-class assignment – peer edit of Research course's Literature Review	1.5
3.	TERM WEEK 28 communication code of ethics, distilling content for different mediums	1.5
4.	TERM WEEK 29 posters: layout strategies, design tools, and integration of oral, written, and graphical information, Quiz 2	1.5
5.	TERM WEEK 30 poster design workshop	1.5
6.	TERM WEEK 31 poster design class feedback session, module wrap-up	1.5

Research	Approximat Lab Hours
1. TERM WEEK 26 introducing research as an engineering careviews, critiquing research, selection of questions and hypotheses, introduction to cod	data sets, research
 2. TERM WEEK 27 fundamental statistical concepts & data analys processing of data, Quiz 1 	
3. TERM WEEK 28 using R, Matlab and Excel for statistics, co methods for quantitative data, Quiz 2	llection and analysis 3

4.	TERM WEEK 29 collection and analysis methods for qualitative data, experimental design, Quiz 3	3
5.	TERM WEEK 30 interpretation of results in case studies including ethical issues, presentation of data using graphs and charts, Quiz 4	3
6.	TERM WEEK 31 poster design day (approvals to print, top ups, design consultation)	1.5

Assignments: (see Assessment)

Quizzes: (see Assessment)

Late Assignments/Missed Quizzes:

Late assignments/missed quizzes will receive a mark of zero. However, Quizzes can be Topped Up during help sessions, and late assignments can usually be Topped Up by subsequent assignments (see above). Type B Top Ups subsequent to the course will be permitted at the discretion of the instructor.

In the case of sickness, bereavement or other excusable absences, students will not be penalized for late submissions although they may be required to complete a variation on the original assignment. They can alternatively choose to treat a missed assignment as a Late Assignment.

Examinations/Module Tests:

This course will not have examinations or Module Tests.

Required Activities Outside of Class Time

This course will have one required activity outside of class time, that being the First Year Poster Presentation at the end of Week 31 (day/time TBD). Also, Top Up assessments will be available in optional end-of-day modulespecific help sessions (see **End-of-Day Help Sessions**), if students wish to use them.

Experiential Learning

Students will be engaging in technical communication, CAD and research activities in class.

Important Dates:

Jan x, 2022	First day of Winter classes
Jan y, 2022	Last day for making changes in registration for second-term courses
	(100% tuition credit).
Feb zz, 2022	Winter Break (Week 25)

Feb xx, 2022	Last day to withdraw from Winter classes
Easter	Holidays
Apr yy, 2022	Last day of classes

Required Resources

Technical Communication II and III

These modules will use the following open text: xxxxxxxxxxx

Course notes will supply other required reference materials. The Library will also put useful reference materials and texts on reserve.

Students will require a laptop computer which conforms to the USask First Year Engineering Laptop Specifications, as well as writing paper and a pen/pencil.

CAD

There will be no textbook for this module. Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

Students will require a laptop computer which conforms to the USask First Year Engineering Laptop Specifications. The Specifications include the installation of the (free) AutoCAD vx software.

Research

There will be no textbook for this module. Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

Students will be required to have a laptop computer which conforms to the USask First Year Engineering Laptop Specifications.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints & Appeals (https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/.</u>

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning* (http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: https://library.usask.ca/academic-integrity#AboutAcademicIntegrity

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

Safety is of paramount importance in the College of Engineering. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Emergency Response Plan:

Preparing for emergencies protects our lives and property. An emergency response plan (ERP) posting is located in each classroom and lab near the main door of the room. Students are advised to review and be familiar with the College ERP and be aware that when an alarm sounds for more than 10 seconds, the building must be evacuated. Muster point locations are posted at each entrance of the Engineering Building. For more details about the ERP, please visit the following website: https://engineering.usak.ca/documents/facilities/ERP%20-%20ENG%20-%20ENG%20-%209_01_2017.pdf

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit

<u>http://www.usask.ca/copyright/students/rights/index.php</u> or contact the University's Copyright Coordinator at <u>copyright.coordinator@usask.ca</u>.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so.

Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <u>https://students.usask.ca/health/centres/access-equity-services.php</u>, or contact AES at 306-966-7273 or <u>aes@usask.ca</u>.

Students registered with AES may request alternative arrangements for mid-term and final examinations or module tests. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 O Email: esc@usask.ca; Phone: 306-966-5274;
 - https://engineering.usask.ca/contact info/esc-office.php

End-of-day help sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see **End-of-day Help Sessions** for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site https://library.usask.ca/studentlearning/.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

Instructional Level [‡]												
Learning		Attribute [†]										
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1.1	Ι						Ι					
1.2		Ι		Ι		Ι	Ι	Ι				Ι
1.3		Ι					Ι					Ι
1.4		Ι					Ι	Ι				Ι
1.5		Ι		Ι			Ι	Ι		Ι		
2.1	Ι						Ι					
2.2					Ι		Ι	Ι				
2.3					Ι		Ι	Ι				
2.4					Ι		Ι	Ι				
2.5					Ι		Ι	Ι				
3.1	Ι						Ι					
3.2		Ι		Ι	Ι	Ι	Ι	Ι				
3.3		Ι		Ι	Ι	Ι	Ι	Ι				
3.4		Ι		Ι		Ι	Ι	Ι				
3.5		Ι					Ι	Ι		Ι		
4.1	Ι						Ι					
4.2		Ι	Ι		Ι	Ι						
4.3			Ι				Ι	Ι		Ι		
4.4		Ι	Ι		Ι	Ι	Ι			Ι		
4.5		Ι			Ι		Ι	Ι		Ι		
4.6		Ι		Ι	Ι	Ι	Ι	Ι		Ι		

†<u>Attributes</u>:

- A1 A knowledge base for engineering
- A2 Problem analysis
- A3 Investigation
- A4 Design
- **A5** Use of engineering tools
- A6 Individual and team work
- **A7** Communication skills
- A8 Professionalism
- A9 Impact of engineering on society and the environment
- A10 Ethics and equity
- A11 Economics and project management
- A12 Life-long learning

<u>+Instructional Level</u>:

Introduced (I) – Students learn the working vocabulary of the area of content, along with some of the major underlying concepts.

Developed (D) – Students use their working vocabulary and major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar contexts.

Applied (A) – Students approach mastery in the area of content. They explore deeply into the discipline and experience the controversies, debate, and uncertainties that characterize the leading edges of any field. They practice, extend, or refine knowledge in unfamiliar contexts.

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
		100%		

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: GE 142
- 2.2 Academic credit units: 2
- 2.3 Course Long Title (maximum 100 characters): Design I Course Short Title (maximum 30 characters): Design I

2.4	Total Hours:	Lecture 16.5	Seminar	Lab 9	Tutorial	Other
2.5	Weekly Hours:	Lecture	Seminar	Lab	Tutorial	Other
2.6	Term in which it	t will be offered	I: T1 ⁻	T2 T1 or	T2 T1 ar	nd T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course introduces students to Engineering Design. The **Design I** course focuses on the early stages of design characterized by problem identification, acceptance, definition, and characterization. This will include the determination of design functions, criteria/objectives and constraints/requirements. Students will engage in a group project to identify and characterize an engineering design problem of their own choosing.

- 2.9 Do you allow this course to be repeated for credit? No
- 3. **Please list rationale for introducing this course:** This is part of the integrated curriculum in the redesigned first year program.
- 4. Please list the learning objectives for this course:

The course consists of one module: **Design I**. By the end of this course, students will be expected to:

1.0 Design I	Module Grade Weights
 1.1 - define/recognize/compare key terms and concepts in Engineering Design, 	20%
 1.2 - identify, develop, and characterize a basic engineering design problem, 	35%
1.3 - make a case to undertake a specific engineering design	
problem,	20%
1.4 - maintain an effective design logbook, and	15%
1.5 - reflect on how to improve their design work & experiences.	10%

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No If so, were these departments consulted? (Include correspondence) Were any other departments asked to review or comment on the proposal? Yes, within the

College and we worked with the Gwenna Moss Centre for Teaching and Learning.

6. **Other courses or program affected** (please list course titles as well as numbers)

- 6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)
- 6.2 Courses for which this course will be a prerequisite?
- Any changes to the course prerequisites in the programs will be submitted in future UCC.
- 6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Please see syllabus.

9.1	How should this course be graded? C – Completed Requirements (Grade options for instructor: Completed Requirements, Fail, IP In Progress)
	N – Numeric/Percentage
	(Grade options for instructor: grade of 0% to 100%, IP in Progress)
	P – Pass/Fail (Grade options for instructor: Pass, Fail, In Progress) S – Special

(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Yes

10. Required text

Include a bibliography for the course: N/A

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget these courses will be replacing others.
- 11.3 Are sufficient library or other research resources available for this course? Yes, Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? N/A

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> <u>No</u>

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable

PRA Practicum

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

- FNAR Fine Arts
- HUM Humanities
- SCIE Science
- SOCS Social Science
- ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

College of Engineering only

- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course GE 102 Introduction to Engineering I, GE132 Engineering Communication I
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: GE121

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

***Please note**: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

***Please note:** SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructors and Teaching Assistants:	Name: TBD Office: TBD Phone: TBD Email: TBD
Office Hours:	TBD
Lectures:	Weeks: 7-14 (excluding 11) Classes: One 1.5 hr lecture per week, in Weeks 7-10, followed by two, three, and two 1.5 hr lectures, respectively, in Weeks 12-14 (for a total of 11 lectures)
Laboratories:	Weeks: 12-14 Labs: One 3 hr lab per week (for a total of 3 labs)
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. <u>https://bblearn.usask.ca/</u>
End-of-Day Help Sessions	End-of-day help sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses.
	Design I will have an end-of-day help session once a week on Fridays in Weeks 7, 8, 9, 10, 12, 13, and 14.
Description:	This course introduces students to Engineering Design. The course focuses on the early stages of design including problem identification, acceptance, definition, and characterization. This will include the determination of design functions, criteria/objectives and constraints/ requirements. Students will engage in a group project to identify and characterize an engineering design problem of their own choosing.
Pre or co- requisites:	GE 102 – Introduction to Engineering I, GE 132 - Engineering Communication I

Course Reference Numbers (CRNs):	TBD Available from the Dynamic Schedule once courses are built (<u>https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched</u>)				
Course Learning Outcomes:	5 5				
o u com com	1.0 Design I Module Grade	Weights			
	1.1 - define/recognize/compare key terms and concepts in				
	Engineering Design,	20%			
	1.2 - identify, develop, and characterize a basic engineering				
	design problem,	35%			
	1.3 - present a case to undertake a specific engineering design				
	problem,	20%			
	1.4 - maintain an effective design logbook, and	15%			
	1.5 - reflect on how to improve their design work.	10%			
	must demonstrate competence in certain skills. These skills divided into three types (A/B/C). Type A skills are the most basic and granular for a subject a general, this includes the ability to define, recall, recognize, c and contrast key terms and concepts. It also includes basic calc and procedural steps, as appropriate.	area. In compare,			
	Type B skills are basic integrative skills. These include basic to questions that have been covered in class, and basic execution complex skills like project management planning.				
	Type C skills are integrative skills that depend on the ability to the application of what has been learned in class into new dom				
	For this class, students will be expected to perform at a 70% level or higher in Type A and B materials to be considered con There will be no minimum performance threshold for Type C n	mpetent.			
	As part of competency-based assessment, students will be give than one opportunity to display competence. Thus, for Type skills, there will be at least two opportunities to exhib competence. These opportunities may be manifested as por later assignments replacing performance on earlier assignment	A and B oit basic rtions of			

cover similar skill sets) and/or "Top Up" opportunities. Top Ups will be proctored opportunities to demonstrate skills during optional coursespecific help sessions (see **End-of-Day Help Sessions**) or during optional Top Up help sessions, which are spread throughout the term's schedule. They may also include supplementary assignments.

For this course, Type A materials include knowledge and very basic skills relevant to engineering design. Type A skills for this module include abilities to define, recognize, and compare key terms and concepts, as well as knowledge of the procedures to carry out basic project management and ideation processes.

Type B skills include basic design skills such as sound logbook maintenance, identifying major features of simple design problems, constructing basic project management tools, generating ideas using ideation techniques, and recognizing basic justifications for undertaking a design problem.

Type C skills will focus on abilities that more deeply integrate all of the Type A and B skills in order to derive deeper insights into design problems and reflect upon them.

<u>Type A</u>

• 10-15 Minute in-class Quizzes (Weeks 12, 13, 14) Top Up opportunities (any Design I Help Session or Top Up Help Session)

<u> Type B</u>

- Assignment 1: out Week 8, due Week 10 (log submission individual)
- Assignment 2: out Week 9, due Week 12 (initial problem definition individual)
- Assignment 3: out Week 9, due Week 14 (problem proposal group)
- Assignment 4: out Week 9, due Week 14 (log submission with reflection individual)

Top Up opportunities (after Assignment 1, each subsequent assignment can Top Up different learning outcomes from earlier assignments, as per instructions on the Assignments themselves)

<u> Type C</u>

- Assignment 2: out Week 9, due Week 12 (initial problem definition individual)
- Assignment 3: out Week 9, due Week 14 (problem proposal group)
- Assignment 4: out Week 9, due Week 14 (log submission with reflection individual)

Top Up opportunities (none)

Competence Thresholds

For this course, students must achieve at least 70% overall in the Type A material **and** at least 70% overall in the Type B material in order to pass the course with a level of "basic competence". If a student achieves at least 70% in the Type A materials and in the Type B materials, their course mark will be calculated as per the following section (**Grade Calculations**). If a student fails to achieve at least 70% in either or both of the Type A and B materials, they will receive a maximum grade of 49% for the course.

Grade Calculations

All assessments will be marked on a percentage scale, by type (A/B/C) and by learning outcome e.g. Assignment 4 will have 3 sub-marks (one for LO4 Type B work and one each for Type B and C work for LO5). Each percentage mark will be accompanied by a competence descriptor (exemplary, proficient, basic competency, almost competent, not yet competent).

To arrive at a final mark for Type A skills, each Quiz will be given equal weighting in grade calculations. Performance on a Type A Top Up will replace the corresponding Quiz mark if the Top Up result is better, or it will be averaged with the current Quiz mark, otherwise.

To arrive at a final mark for Type B skills, Assignment 1's marks will correspond to performance against LO2 and LO4. Assignment 2's Type B LO2 mark will replace Assignment 1's Type B LO2 mark if it is higher. It will be averaged with Assignment 1's Type B LO2 mark otherwise. Assignment 3's Type B LO2 mark will replace the current Type B LO2 mark if it is higher. It will be averaged with the current Type B LO2 mark otherwise. Assignment 3's Type B LO2 mark otherwise. Assignment 3's Type B LO2 mark will replace the current Type B LO2 mark otherwise. Assignment 3's Type B LO3 mark can only be Topped Up after the Design I course at the discretion of the instructor. Assignment 4's Type B LO4 mark will replace the current Type B LO4 mark if it is higher. Otherwise, it will be averaged with the current Type B LO4 mark.

To arrive at a final mark for the Type C skills, the Type C scores from Assignments 2, 3 and 4 will be used. They cannot be Topped Up.

Keeping Track of Grades

Throughout the **Design I** course, students will be able to monitor their progress in three complementary respects:

- a) marks on deliverables students will see how they do on each quiz,
- b) marks on Type A/B/C work students will see how they are doing at each level of material difficulty in the course, and

	c) marks on Learning Outcomes – students will see how they are doing against each of the five learning outcomes as they complete elements of them .
Attendance and Participation:	Attendance and participation is encouraged/expected, and students will be responsible for what happens in classes e.g. quizzes. However, attendance will not be mandatory (or marked).
Criteria That Must Be Met to Pass:	See Assessment (Competency Thresholds), above.
Final Grades:	The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php
	For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website: https://secretariat.usask.ca/student-conduct-appeals/index.php
Academic Courses Policy:	More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: <u>http://policies.usask.ca/policies/academic-affairs/academic- courses.php</u>
Learning Charter:	The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: <u>https://teaching.usask.ca/about/policies/learning-charter.php</u>
Course Overview	w:
	The Design I course consists of one module. This module will introduce

The **Design I** course consists of one module. This module will introduce students to Engineering Design, and specifically to the early stages of design including problem identification, acceptance, definition, and characterization. This will include the determination of design functions, criteria/objectives and constraints/requirements. This module will also introduce the idea of entrepreneurial technology innovation as a career path for engineering students, and sustainability as an ever-important design objective. Students will engage in a group project to identify and characterize an engineering design problem of their own choosing. This will involve the application of basic group dynamics principles, project management skills, interactions with potential clients and/or users, and literature/market research. Students will also be introduced to the later stages of design, as a preview of the Design II course.

Course Content/Schedule:

De	esign I	Approximate Lecture (Lab) Hours
1.	TERM WEEKS 7 & 8 motivating the value of design, motivating the value of problem definition, identifying "good" problems	3
2.	TERM WEEKS 9 & 10 accepting and researching a design problem, logs, the various aspects of problem definition (problem statements, scope, criteria/ objectives, constraints/requirements/specs), Assignment 1	3
3.	TERM WEEK 12 problem definition exercises, group formation/dynamics exercises, group dynamics, work breakdown structures, linear responsibility charts, initial problem definition for group projects, Assignment 2, Quiz 1	3 (+3 Lab Hrs)
4.	TERM WEEK 13 introduction to ideation (for problem definition, and solution generation), tech innovation/tech entrepreneurship, introduction to lean design, DFX (sustainability), proposals, risk assessment, cost/ benefit analyses, Quiz 2	4.5 (+3 Lab Hrs)
5.	TERM WEEK 14 peer evaluation of proposals, reflection on Design I Module activities, peer evaluations within groups, preview of Design II Module, final design exercise, Assignments 3/4, Quiz 3	3 (+3 Lab Hrs)

Assignments: (see Assessment)

Quizzes: (see Assessment)

Late Assignments/Missed Quizzes:

Late assignments/missed quizzes will receive a mark of zero. However, Quizzes can be Topped Up during help sessions, and late assignments can usually be Topped Up by subsequent assignments (see above). Type B Top Ups subsequent to the course will be permitted at the discretion of the instructor.

In the case of sickness, bereavement or other excusable absences, students will not be penalized for late submissions although they may be required to complete a variation on the original assignment. They can alternatively choose to treat a missed assignment as a Late Assignment.

Examinations/Module Tests:

This course will not have examinations or Module Tests.

Required Activities Outside of Class Time

This course will not have required activities outside of class time. However, Top Up assessments will be available in optional end-of-day course-specific help sessions (see **End-of-Day Help Sessions**), if students wish to use them.

Experiential Learning

Students will be engaging in design activities in class.

Important Dates:

First day of Fall classes
Last day for making changes in registration for first-term courses
(100% tuition credit).
Fall Break (Week 11)
Last day to withdraw from Fall classes
Holidays
Last day of classes
-

Required Resources

There will be no textbook for this course. Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

Students will be required to have: a logbook (as specified in class), and a laptop computer which conforms to the USask First Year Engineering Laptop Specifications.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints & Appeals (https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/</u>.

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning* (http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: https://library.usask.ca/academic-integrity#AboutAcademicIntegrity

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

Safety is of paramount importance in the College of Engineering. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Emergency Response Plan:

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit

<u>http://www.usask.ca/copyright/students/rights/index.php</u> or contact the University's Copyright Coordinator at <u>copyright.coordinator@usask.ca</u>.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so.

Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <u>https://students.usask.ca/health/centres/access-equity-services.php</u>, or contact AES at 306-966-7273 or <u>aes@usask.ca</u>.

Students registered with AES may request alternative arrangements for mid-term and final examinations or module tests. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 o Email: esc@usask.ca; Phone: 306-966-5274;
 - https://engineering.usask.ca/contact info/esc-office.php

End-of-day help sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see **End-of-day Help Sessions** for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site https://library.usask.ca/studentlearning/.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

Instructional I evel

Learning		Attribute [†]										
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1.1	Ι											
1.2	D	I,D	I,D	I,D		Ι		Ι	Ι		Ι	
1.3						Ι	D	Ι	Ι		Ι	
1.4	Ι		Ι	Ι			Ι	Ι			Ι	Ι
1.5		Ι					Ι					Ι

†<u>Attributes</u>:

A1	A knowledge base for engineering	Iı
A2	Problem analysis	а

- A3 Investigation
- A4 Design
- A5 Use of engineering tools
- A6 Individual and team work
- A7 Communication skills
- A8 Professionalism
- A9 Impact of engineering on society and the environment
- A10 Ethics and equity
- A11 Economics and project management
- A12 Life-long learning

Instructional Level:

Introduced (I) – Students learn the working vocabulary of the area of content, along with some of the major underlying concepts.

Developed (D) – Students use their working vocabulary and major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar contexts.

Applied (A) – Students approach mastery in the area of content. They explore deeply into the discipline and experience the controversies, debate, and uncertainties that characterize the leading edges of any field. They practice, extend, or refine knowledge in unfamiliar contexts.

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
				100%

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: GE 143
- 2.2 Academic credit units: 2
- 2.3 Course Long Title (maximum 100 characters): Design II Course Short Title (maximum 30 characters): Design II

2.4	Total Hours:	Lecture 21	Seminar	Lab 21	Tutorial	Other
2.5	Weekly Hours:	Lecture	Seminar	Lab	Tutorial	Other
2.6	Term in which it	t will be offered	: Т1 Т2	T1 or	T2 T1 ar	nd T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course introduces students to Engineering Design, building on the **Design I** course. **Design II** focuses on the later stages of conceptual design characterized by ideation, concept evaluation, and concept selection. In groups, students will undertake one of a set of design problems from a variety of engineering disciplines, including multidisciplinary problems. Ultimately, students will implement a proof of concept of their solution, and they will present their progress in a Design Recommendation Report.

2.9 Do you allow this course to be repeated for credit? No

- 3. **Please list rationale for introducing this course:** This is part of the integrated curriculum in the redesigned first year program.
- 4. Please list the learning objectives for this course:

The course consists of one module: **Design II**. By the end of this course, students will be expected to:

1.0 Design II	Module Grade Weights
1.1 - define/recognize/compare key terms and concepts in	
Engineering Design,	15%
1.2 - develop and characterize a basic engineering design	
problem,	10%
1.3 - develop feasible conceptual solutions to basic engine	ering
design problems,	20%
1.4 - prepare convincing design recommendations in repor	t
and model form,	20%
1.5 - maintain an effective design logbook,	15%
1.6 - construct basic project management documents/syste	ems,
and	10%
1.7 - reflect on how to improve their design work & experie	nces. 10%

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No If so, were these departments consulted? (Include correspondence) Were any other departments asked to review or comment on the proposal? Yes, within the College and we worked with the Gwenna Moss Centre for Teaching and Learning.

6. **Other courses or program affected** (please list course titles as well as numbers)

- 6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)
- 6.2 Courses for which this course will be a prerequisite?

Any changes to the course prerequisites in the programs will be submitted in future UCC.

6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Please see syllabus.

9.1 How should this course be graded? C – Completed Requirements

(Grade options for instructor: Completed Requirements, Fail, IP In Progress)

 N – Numeric/Percentage

 (Grade options for instructor: grade of 0% to 100%, IP in Progress)

 P – Pass/Fail

 (Grade options for instructor: Pass, Fail, In Progress)

 S – Special

 (Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Yes

10. Required text

Include a bibliography for the course: N/A

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget these courses will be replacing others.
- 11.3 Are sufficient library or other research resources available for this course? Yes, Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? N/A

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class

LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

- 2.2 For the College of Arts and Science only: To which program type does this course belong?
 - FNAR Fine Arts
 - HUM Humanities
 - SCIE Science
 - SOCS Social Science
 - ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program
 - College of Engineering only
- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course GE 103- Introduction to Engineering II, GE 133 Engineering Communication II, GE 142 Design I
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here:

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

• If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.

• If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructors and Teaching Assistants:	Name: TBD Office: TBD Phone: TBD Email: TBD
Office Hours:	TBD
Lectures:	Weeks: 32-34 Classes: Week 32: six 1.5 hr lectures Week 33: four 1.5 hr lectures Week 34: four 1.5 hr lectures (for a total of 14 lectures)
Laboratories:	Weeks: 32-34 Labs: Week 32: two 3 hr labs Week 33: two 3 hr labs Week 34: three 3 hr labs (for a total of 7 labs)
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. <u>https://bblearn.usask.ca/</u>
End-of-Day Help Sessions	End-of-day help sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Design II will have an end-of-day help session twice a week on Tuesdays and Thursdays in Weeks 32, 33, and 34.
Description:	This course introduces students to Engineering Design, building on the Design I course. This course focuses on the later stages of conceptual design characterized by ideation, concept evaluation, and concept

	selection. In groups, students will undertake one of a set of problems from a variety of engineering disciplines, inc multidisciplinary problems. Ultimately, students will implen proof of concept of their solution, and they will present their pro in a Design Recommendation Report.	ludin 1ent
Pre or co- requisites:	GE 103 – Introduction to Engineering II, GE 133 – Engineering Communication II, GE 142 – Design I	
Course Reference Numbers	TBD Available from the Dynamic Schedule once courses are built (<u>https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched</u>)	
(CRNs):		
(CRNs): Course Learning Outcomes:	The course consists of one module: Design II . By the end of this c students will be expected to:	ours
Course Learning	o <i>i</i>	
Course	students will be expected to: 1.0 Design II <u>Module Grade W</u> 1.1 - define/recognize/compare key terms and concepts in Engineering Design,	
Course Learning	students will be expected to: 1.0 Design II <u>Module Grade W</u> 1.1 - define/recognize/compare key terms and concepts in	<u>eigh</u>
Course Learning	 students will be expected to: 1.0 Design II <u>Module Grade W</u> 1.1 - define/recognize/compare key terms and concepts in Engineering Design, 1.2 - develop and characterize a basic engineering design problem, 1.3 - develop feasible conceptual solutions to basic engineering design problems, 	<u>eigh</u> 159
Course Learning	students will be expected to: 1.0 Design II Module Grade W 1.1 - define/recognize/compare key terms and concepts in Engineering Design, 1.2 - develop and characterize a basic engineering design problem, 1.3 - develop feasible conceptual solutions to basic engineering	<u>eigh</u> 15º 10º
Course Learning	 students will be expected to: 1.0 Design II <u>Module Grade W</u> 1.1 - define/recognize/compare key terms and concepts in Engineering Design, 1.2 - develop and characterize a basic engineering design problem, 1.3 - develop feasible conceptual solutions to basic engineering design problems, 1.4 - prepare convincing design recommendations in report 	<u>eigh</u> 15 10 20
Course Learning	 students will be expected to: 1.0 Design II <u>Module Grade W</u> 1.1 - define/recognize/compare key terms and concepts in Engineering Design, 1.2 - develop and characterize a basic engineering design problem, 1.3 - develop feasible conceptual solutions to basic engineering design problems, 1.4 - prepare convincing design recommendations in report and model form, 	<u>eigh</u> 15 10 20 20

Assessment: This course employs a competency-based assessment system. Students must demonstrate competence in certain skills. These skills can be divided into three types (A/B/C).

Type A skills are the most basic and granular for a subject area. In general, this includes the ability to define, recall, recognize, compare, and contrast key terms and concepts. It also includes basic calculations and procedural steps, as appropriate.

Type B skills are basic integrative skills. These include basic types of questions that have been covered in class, and basic execution of more complex skills like project management planning.

Type C skills are integrative skills that depend on the ability to extend the application of what has been learned in class into new domains.

For this class, students will be expected to perform at a 70% success level or higher in Type A and B materials to be considered competent. There will be no minimum performance threshold for Type C material.

As part of competency-based assessment, students will be given more than one opportunity to display competence. Thus, for Type A and B skills, there will be at least two opportunities to exhibit basic competence. These opportunities may be manifested as portions of later assignments replacing performance on earlier assignments (that cover similar skill sets) and/or "Top Up" opportunities. Top Ups will be proctored opportunities to demonstrate skills during optional coursespecific help sessions (see **End-of-Day Help Sessions**) or during optional Top Up help sessions, which are spread throughout the term's schedule. They may also include supplementary assignments.

For this course, Type A materials include knowledge and very basic skills relevant to engineering design. Type A skills for this module include abilities to define, recognize, and compare key terms and concepts, as well as knowledge of the procedures to carry out basic project management, ideation, evaluation & decision making processes.

Type B skills include basic design skills such as sound logbook maintenance, identifying major features of simple design problems, constructing basic project management tools, generating ideas using ideation techniques, implementing design decision making methods correctly, and making useful proof of concept models.

Type C skills will focus on abilities that more deeply integrate all of the Type A and B skills in order to derive deeper insights into design issues and reflect upon them.

<u>Type A</u>

• 10-15 Minute in-class Quizzes (Weeks 32, 33, 34) Top Up opportunities (any Design II Help Session or Top Up Help Session)

<u>Type B/C</u>

- Assignment 1: out Week 32, due Week 32 (problem statement, Gantt/LRC group)
- Assignment 2: out Week 32, due Week 32 (initial problem definition group)
- Assignment 3: out Week 32, due Week 33 (concept selection justification group)

- Assignment 4: out Week 32, due Week 34 (log submission with reflection individual)
- Assignment 5: out Week 32, due Week 34 (Design Recommendation Report group)

Type B Top Up opportunities (after Assignment 1, each subsequent assignment can Top Up different learning outcomes from earlier assignments, except for Assignment 4; one Top Up will be offered for Assignment 4 Type B material after the course's classes are over)

Type C Top Up opportunities (none)

Competence Thresholds

For this course, students must achieve at least 70% overall in the Type A material **and** at least 70% overall in the Type B material in order to pass the course with a level of "basic competence". If a student achieves at least 70% in the Type A materials and in the Type B materials, their course mark will be calculated as per the following section (**Grade Calculations**). If a student fails to achieve at least 70% in either or both of the Type A and B materials, they will receive a maximum grade of 49% for the course.

Grade Calculations

All assessments will be marked on a percentage scale, by type (A/B/C) and by learning outcome e.g. Assignment 4 will have 3 sub-marks (one for LO5 Type B work and one each for Type B and C work for LO7). Each percentage mark will be accompanied by a competency descriptor (exemplary, proficient, basic competency, almost competent, not yet competent).

To arrive at a final mark for Type A skills, each Quiz will be given equal weighting in grade calculations. Performance on a Type A Top Up Quiz will replace the corresponding Quiz mark if the Top Up result is better, or it will be averaged with the current Quiz mark, otherwise.

To arrive at a final mark for Type B skills, start with Assignment 1. Assignment 1's Type B marks will correspond to performance against LO2 and LO6. Assignment 2's Type B LO2 mark will replace Assignment 1's Type B LO2 mark if it is higher. It will be averaged with Assignment 1's Type B mark otherwise. Assignment 3's Type B marks will correspond to performance against LO3 and LO4. Likewise, Assignment 4's Type B marks will correspond to performance against LO5 and LO7. Assignment 5 has Type B elements corresponding to performance against LO2, LO3, LO4, and LO6. For each of these elements, if the mark exceeds Type B marks on earlier assignments for the corresponding LO's, then Assignment 5's Type B mark will replace the earlier one. Otherwise, it will be averaged with the earlier one. If a Top Up of

	Assignment 4 is needed after the last day of classes for the course, the Top Up will be treated just as Assignment 5 is to earlier assignments.
	To arrive at a final mark for the Type C skills, the Type C scores from Assignments 1 to 5 will be used. They cannot be Topped Up.
	 Keeping Track of Grades Throughout the Design II course, students will be able to monitor their progress in three complementary respects: a) marks on deliverables – students will see how they do on each quiz, b) marks on Type A/B/C work – students will see how they are doing at each level of material difficulty in the course, and c) marks on Learning Outcomes – students will see how they are doing against each of the seven learning outcomes as they complete elements of them.
Attendance and Participation:	Attendance and participation is encouraged/expected, and students will be responsible for what happens in classes e.g. quizzes. However, attendance will not be mandatory (or marked).
Criteria That Must Be Met to Pass:	See Assessment (Competency Thresholds), above.
Final Grades:	The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php
	For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website: https://secretariat.usask.ca/student-conduct-appeals/index.php
Academic Courses Policy:	More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: http://policies.usask.ca/policies/academic-affairs/academic- courses.php
Learning Charter:	The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: <u>https://teaching.usask.ca/about/policies/learning-charter.php</u>

Course Overview:

This **Design II** course consists of one module. This module will continue to introduce students to Engineering Design, and specifically to the later stages of conceptual design characterized by ideation, concept evaluation, and concept selection. In groups, students will undertake one of a set of design problems from a variety of engineering disciplines, including multidisciplinary problems. They will revisit problem identification, acceptance, definition, and characterization, and then they will move through the remaining stages. Iteration of the design process will take place. Ultimately, students will implement a proof of concept of their solution, and they will present their progress in a Design Recommendation Report. An intensive reflection exercise will conclude the design experience.

Course Content/Schedule:

Design I	Approximate Lecture (Lab) Hours
1. TERM WEEK 32 reviewing the value of design, revisiting design processes and logs, introduction to projects, team selection, team assignments, group dynamics, project management review (WBS/LRC) plus Gantt charts, the various aspects of problem definition (problem statements, scope, criteria/objectives, constraints/requirements/specs), initial problem definition, research, Gantt chart/WBS/LRC, researching the design problem, ranking and weighting design objectives, ideation techniques reviewed, design documentation, refine problem definition, ideation, Assignments 1 and 2, Quiz 1	9 (+6 Lab Hrs)
2. TERM WEEK 33 refine problem definition, ideation, logs and Gantt charts revisited, evaluating concepts (STARE), modeling, decision making methods, decision making methods, proofs of concept, prototypes, concept selection, peer evaluations, intermediate/preliminary/configuration design, iteration in design within and between levels, fail early fail often at this stage, redoing the initial stages, proof of concept design, introduction to Design Proposal Reports, Assignment 3, Quiz 2	6 (+6 Lab Hrs)
3. TERM WEEK 34 redo design from start, proof of concept design, Design Recommendation Reports, intellectual property primer, proof of concept building, peer editing, learnings from proof of concept models, incorporating into reports, editing session, Report hand-in, proof of concept displays, reflection, Assignments 4 and 5, Quiz 3	6 (+9 Lab Hrs)

Assignments: (see Assessment)

Quizzes: (see Assessment)

Late Assignments/Missed Quizzes:

Late assignments/missed quizzes will receive a mark of zero. However, Quizzes can be Topped Up during help sessions, and late assignments can usually be Topped Up by subsequent assignments (see above). Type B Top Ups subsequent to the course will be permitted at the discretion of the instructor.

In the case of sickness, bereavement or other excusable absences, students will not be penalized for late submissions although they may be required to complete a variation on the original assignment. They can alternatively choose to treat a missed assignment as a Late Assignment.

Examinations/Module Tests:

This course will not have examinations or Module Tests.

Required Activities Outside of Class Time

This course will not have required activities outside of class time. However, Top Up assessments will be available in optional end-of-day course-specific help sessions (see **End-of-Day Help Sessions**), if students wish to use them.

Experiential Learning

Students will be engaging in design activities in class.

Important Dates:

Jan x, 2022	First day of Winter classes
Jan y, 2022	Last day for making changes in registration for second-term courses
	(100% tuition credit).
Feb zz, 2022	Winter Break (Week 25)
Feb xx, 2022	Last day to withdraw from Winter classes
Easter	Holidays
Apr yy, 2022	Last day of classes

Required Resources

There will be no textbook for this course. Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

Students will be required to have: a logbook (as specified in class), and a laptop computer which conforms to the USask First Year Engineering Laptop Specifications.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints & Appeals (https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/</u>.

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning* (http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

Safety is of paramount importance in the College of Engineering. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Emergency Response Plan:

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit

http://www.usask.ca/copyright/students/rights/index.php or contact the University's Copyright Coordinator at <u>copyright.coordinator@usask.ca</u>.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith

towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <u>https://students.usask.ca/health/centres/access-equity-services.php</u>, or contact AES at 306-966-7273 or <u>aes@usask.ca</u>.

Students registered with AES may request alternative arrangements for mid-term and final examinations or module tests. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>

End-of-day help sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see **End-of-day Help Sessions** for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

Instructional Level

Learning						Attri	bute [†]					
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1.1	Ι											
1.2	D	D	D	D		D		D	D		D	
1.3				Ι	Ι	D	D	Ι	Ι	Ι	Ι	
1.4				Ι	Ι	D	D	Ι	Ι		Ι	
1.5	D		D	D			D	D			D	D
1.6	Ι	Ι			Ι	D	Ι	D			I,D	
1.7		Ι					Ι					D

† <u>Att</u>	ributes:	* <u>Instructional Level</u> :
A1	A knowledge base for engineering	Introduced (I) – Students learn the working vocabulary of the
A2	Problem analysis	area of content, along with some of the major underlying
A3	Investigation	concepts.
A4	Design	Developed (D) – Students use their working vocabulary and
A5	Use of engineering tools	major fundamental concepts to probe more deeply, to read the
A6	Individual and team work	literature, and to deepen their exploration of the concepts. They
A7	Communication skills	may begin to practice, extend, or refine knowledge in familiar
A8	Professionalism	contexts.
A9	Impact of engineering on society	Applied (A) – Students approach mastery in the area of
	and the environment	content. They explore deeply into the discipline and experience
A10	Ethics and equity	the controversies, debate, and uncertainties that characterize
A11	Economics and project	the leading edges of any field. They practice, extend, or refine
	management	knowledge in unfamiliar contexts.
A12	Life-long learning	

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
				100%

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: GE 152
- 2.2 Academic credit units: 1
- 2.3 Course Long Title (maximum 100 characters): Electrical Circuits I Course Short Title (maximum 30 characters): Electrical Circuits I

2.4	Total Hours:	Lecture 16.5	Seminar	La	ab 9	Tutorial	Other
2.5	Weekly Hours:	Lecture	Seminar	La	ab	Tutorial	Other
2.6	Term in which i	t will be offered	l: T1	T2	T1 or T	-2 -	T1 and T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course includes two concurrent modules. Module 1 introduces students to basic properties of direct-current **electrical circuits**: voltage, current, resistance and power. Students will learn to analyze series and parallel resistive direct-current circuits by applying: Kirchoff's laws, Ohm's law, mesh and node analysis, superposition and Thevenin's and Norton's Theorems. Module 2 introduces students to computation and programming using **Matlab**. Students will learn the Matlab interface and how to conduct I/O, plot data in 2 and 3 dimensions and solve linear systems using matrix data types. Students will apply programming skills to create programs and user-defined functions. Students will be introduced to advanced features available in Matlab.

2.9 Do you allow this course to be repeated for credit? No

- 3. **Please list rationale for introducing this course:** This is part of the integrated curriculum in the redesigned first year program.
- 4. Please list the learning objectives for this course:

	Module 1: Electrical Circuits I 67% of overal grade				
Learning Outcome Number	Outcome Weight (By Module)				
1.1	identify and define fundamental electrica concepts,	l circuit	5%		
1.2	draw and interpret resistive direct-currer diagrams,	10%			
1.3	apply Kirchoff's Voltage Law, Kirchoff's Cu Ohm's Law to Conduct Basic Resistive DC	30%			
1.4	calculate Electrical Power Flow in Simple Circuits, and	15%			
1.5	apply node analysis, mesh analysis, the p superposition, Thevenin's theorem and N theorem to Conduct Intermediate Resisti Analysis.	orton's	40%		

	Module 2: Matlab 33% of overall grade				
Learning Outcome Number	By the end of Module 1, students will be	Outcome Weight (By Module)			
2.1	define, recognize, and compare key term in Matlab,	is and features	10%		
2.2	navigate the Matlab interface and use it calculator,	5%			
2.3	plot 2D and 3D data (in code and using V	Vizards),	10%		
2.4	implement display and file I/O,	10%			
2.5	create user-defined functions, and	10%			
2.6	code basic programs in Matlab.		55%		

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No

If so, were these departments consulted? (Include correspondence)

Were any other departments asked to review or comment on the proposal? Yes, within the College and we worked with the Gwenna Moss Centre for Teaching and Learning.

6. **Other courses or program affected** (please list course titles as well as numbers)

6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)

6.2 Courses for which this course will be a prerequisite?

Any changes to the course prerequisites in the programs will be submitted in future UCC.

6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Please see syllabus.

9.1 How should this course be graded?

C – Completed Requirements

(Grade options for instructor: Completed Requirements, Fail, IP In Progress)

N – Numeric/Percentage
(Grade options for instructor: grade of 0% to 100%, IP in Progress)
P – Pass/Fail
(Grade options for instructor: Pass, Fail, In Progress)
S – Special
(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Yes

10. Required text

Include a bibliography for the course:

Module 1: Electrical Circuits I

Required Textbook: Principles and Applications of Electrical Engineering, 6th Ed., Rizzoni and Kearns, 2015

Module 2: Matlab

Required Textbook: MATLAB: An Introduction with Applications, 6th Ed., Amos Gilat, 2016

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget these courses will be replacing others.
- 11.3 Are sufficient library or other research resources available for this course? Yes, course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? N/A

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

- FNAR Fine Arts
- HUM Humanities
- SCIE Science
- SOCS Social Science
- ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program
 - College of Engineering only
- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course GE 102 Introduction to Engineering I, MATH 133- Engineering Math I, CMPT 142- Introduction to Computer Science for Engineers
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: EE204

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructors and Teaching Assistants:	Name: TBD Office: TBD Phone: TBD Email: TBD
Office Hours:	TBD
Lectures:	Electrical Circuits Weeks: 8-14 (excluding 11) Classes: One 1.5 hr class in Week 8, Two 1.5 hr classes per week, in Weeks 9-14 (a total of 11 classes)
Laboratories:	Matlab Weeks: 8-14 (excluding 11) Classes: One 1.5 hr class per week, in Weeks 8-14 (a total of 6 classes)
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. <u>https://bblearn.usask.ca/</u>
End-of-Day Help Sessions	End of day help session sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses.
	Electrical Circuits and Matlab each have an end-of-day help session once a week on Wednesdays in Weeks 8, 9, 10, 12, 13, and 14.
Description:	This course includes two concurrent modules. Module 1 introduces students to basic properties of direct-current electrical circuits : voltage, current, resistance and power. Students will learn to analyze series and parallel resistive direct-current circuits by applying: Kirchhoff's laws, Ohm's law, mesh and node analysis, superposition and Thevenin's and Norton's Theorems. Module 2 introduces students to computation and programming using Matlab . Students will learn the Matlab interface and how to conduct I/O, plot data in 2 and 3

	dimensions and solve linear systems using matrix data types. Students will apply programming skills to create programs and user-defined functions. Students will be introduced to advanced features available in Matlab.
Pre or co- requisites:	GE 102 – Introduction to Engineering I MATH 133 – Engineering Math I CMPT 142 – Introduction to Computer Science for Engineers
Course Reference Numbers (CRNs):	TBD Available from the Dynamic Schedule once courses are built (<u>https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched</u>)

Course Learning	Мо	odule 1: Electrical Circuits I	67% of overall course grade		
Outcomes:	Learning Outcome Number	By the end of Module 1, students will to:	be expected	Outcome Weight (By Module)	
	1.1 identify and define fundamental electrical circuit concepts,				
	1.2draw and interpret resistive direct-current (DC) circuit diagrams,1.2apply Kirchhoff's Voltage Law, Kirchhoff's Current Law and Ohm's Law to Conduct Basic Resistive DC Circuit Analysis ,1.4calculate Electrical Power Flow in Simple Resistive DC Circuits, and				
	1.5apply node analysis, mesh analysis, the principle of superposition, Thevenin's theorem and Norton's theorem to Conduct Intermediate Resistive DC Circuit Analysis.				

	Module 2: Matlab	33% of overa grad	
Learning Outcome Number	By the end of Module 1, students wil to:	l be expected	Outcome Weight (By Module)
2.1	define, recognize, and compare key ter features in Matlab,	10%	
2.2	navigate the Matlab interface and use it as a powerful calculator,		5%
2.3	plot 2D and 3D data (in code and using Wizards),		10%
2.4	implement display and file I/O,		10%

2.5	create user-defined functions, and	10%
2.6	code basic programs in Matlab.	55%

Assessment: This course employs a competency-based assessment scheme. Students must demonstrate competence in certain skills in each module. These skills can be divided into three types (A/B/C).

Type A skills are the most basic and granular for a subject area. In general, this includes the ability to define, recall, recognize, compare, and contrast key terms and concepts. It also includes basic calculations and procedural steps.

Type B skills are basic integrative skills. These include basic types of questions that have been covered in class.

Type C skills are integrative skills that depend on the ability to extend the application of what has been learned in class, into new domains.

For this class, students will be expected to perform at a 70% success level or higher in Type A and B skills to be considered competent. There will be no minimum performance threshold for Type C skills.

As part of competency-based assessment, students will be given more than one opportunity to display competence. Thus, for Type A and B skills, there will be at least two opportunities to exhibit basic competence. These opportunities may be manifested as portions of later assignments replacing performance on earlier assignments (that cover similar skill sets) and/or "Top Up" opportunities. Top Ups will be proctored opportunities to demonstrate skills during optional coursespecific help sessions (see **End-of-Day Help Sessions**) or during optional Top Up Help Sessions, which are spread throughout the term's schedule.

Note that the final course grade will be a weighted average of the achieved grades in each module. See **Course Learning Outcomes** for relative weights of each module.

Module 1: Electrical Circuits

Type A skills are vital to any success in analyzing resistive DC circuits. Type A skills for this module include recognizing relevant terms, symbols and units and performing isolated calculations involving Ohm's law and Kirchhoff's laws. Type B skills include conducting analysis of simple circuits by applying Ohm's law, Kirchhoff's laws, voltage and current dividers, node analysis, mesh analysis and superposition.

Type C skills include conducting analysis of more complex circuits by applying Ohm's law, Kirchhoff's laws, voltage and current dividers, node analysis, mesh analysis, superposition, Thevenin's Theorem and Norton's Theorem.

<u>Type A</u>

- Assignment 1: out Week 8, Due Week 9 -> Topped up by Quiz 1 (Week 9) (Electrical properties, symbols, terms, units)
- Assignment 2: out Week 9, Due Week 10 -> Topped up by Quiz 2 (Week 10) (Ohm's law, Kirchhoff's Laws, Circuit Diagrams)
- Assignment 3: out Week 10, Due Week 12 -> Topped up by Quiz 3 (Week 12) (Equivalent Sources, Voltage/Current Divider)
- Assignment 4: out Week 12, Due Week 13 -> Topped up by Quiz 4 (Week 13) (Power Terms and Units)

Type A portion of all Quizzes can be Topped Up during End-of-Day Help Sessions or Top Up Help Sessions.

<u>Туре В</u>

- Assignment 2: out Week 9, Due Week 10 -> Topped up by Quiz 2 (Week 10) (Application of Ohm's law, Kirchhoff's Laws)
- Assignment 3: out Week 10, Due Week 12 -> Topped up by Quiz 3 (Week 12) (Basic Circuit Analysis)
- Assignment 4: out Week 12, Due Week 13 -> Topped up by Quiz 4 (Week 13) (Power Flow, Equivalent Resistances/Circuits)
- Assignment 5: out Week 13, Due Week 14 -> Topped up by Quiz 5 (Week 14) (Mesh and Node Analysis, Superposition, Thevenin's and Norton's Theorem)
- Module Test: Week 15 (Basic and Intermediate Circuit Analysis, Power Flow Analysis Type B/C)

Type B portion of all Quizzes can be Topped Up during End-of-Day Help Sessions or Top Up Help Sessions. One Type B Top Up for the Module Test will be announced subsequent to classes ending in the course.

<u> Type C</u>

- Assignment 3: out Week 10, Due Week 12 (Basic circuit analysis)
- Assignment 4: out Week 12, Due Week 13 (Power Flow, Equivalent Resistances/Circuits)
- Assignment 5: out Week 13, Due Week 14 (Mesh and Node Analysis, Superposition, Thevenin's and Norton's Theorem)

• Module Test: Week 15 (Basic and Intermediate Circuit Analysis, Power Flow Analysis – Type B/C)

Top Up opportunities - none

Module 2: Matlab

Type A skills are vital to any success in using Matlab as a computational tool and/or a programming environment. Type A skills for Matlab include abilities to define, recognize, and compare key terms and Matlab features, as well as abilities to navigate the Matlab interface and use Matlab as a command-line computational tool.

Type B skills include basic Matlab programming skills such as abilities to iterate and make decisions, plot data (in code or using Wizards), import or export data from/to files or the screen, and create user-defined functions.

Type C skills will focus on abilities to integrate all of the Type A and B skills in order to solve more complex and practical problems.

<u>Type A</u>

- 10 Minute Quizzes (Weeks 9, 10, 12, 13)
- Assignment 1: out Week 8, due Week 9 (online, Type A, covering Matlab navigation, the Matlab GUI, and basic command-line computation)

Top Up opportunities (any Matlab Help session or Top Up Help session)

<u>Туре В</u>

- Assignment 2: out Week 9, due Week 10 (Type B; basic programming questions using logic, iteration and decision making)
- Assignment 3: out Week 10, due Week 12 (Type B/C; mix of basic and more challenging programming involving random numbers and linear systems)
- Assignment 4: out Week 12, due Week 13 (Type B/C; mix of basic and more challenging programming involving display of input/output and file I/O)
- Module Test: an evening in Week 15 (Type B/C; mix of basic and more challenging programming involving anything covered in the course, including 2D/3D plotting)

Top Up opportunities (after Assignment 2, subsequent assignments and MT can Top Up different learning outcomes from earlier assignments, as per instructions on the Assignments themselves). One Type B Top Up for the Module Test will be announced subsequent to classes ending in the course.

<u> Type C</u>

- Assignment 3: out Week 10, due Week 12 (Type B/C; mix of basic and more challenging programming involving random numbers and linear systems)
- Assignment 4: out Week 12, due Week 13 (Type B/C; mix of basic and more challenging programming involving display of input/output and file I/O)
- Module Test: an evening in Week 15 (Type B/C; mix of basic and more challenging programming involving anything covered in the course, including 2D/3D plotting)

Top Up opportunities (none)

Competence Thresholds

A "module mark" (out of 100) will be calculated for each of the modules in the course. For each module, students must achieve at least 70% overall in the Type A skills **and** at least 70% overall in the Type B skills in order to pass the module with a level of "basic competence". If a student achieves at least 70% in a module's Type A skills and in a module's Type B skills, their module mark will be calculated as per the following section (**Grade Calculations**). If a student fails to achieve at least 70% in either or both of the Type A and B skills, they will receive a maximum grade of 49% for the module.

If a student achieves at least 70% in the Type A and B skills in both modules, their course mark will be a weighted average of the two module marks. If a student fails to achieve "basic competence" in one module, they will fail the course, receiving an overall grade of 49%, or their calculated grade, whichever is lower. However, if they choose to redo the course in the future, they will be given credit for the module they did pass (at the discretion of the instructor), with the passing mark that they did achieve (unless they want to redo the module for a better mark). If a student fails to achieve "basic competence" in both modules, they will fail the course and will be required to redo both modules in the future.

Electrical Circuits Grade Calculations

All assessments will be marked on a percentage scale, by type (A/B/C) and by learning outcome e.g. Assignment 2 will have 3 sub-marks (one for each of LO1.2 (Type A) and LO1.3 (1 Type A and 1 Type B)). Each percentage mark will be accompanied by a competency descriptor (exemplary, proficient, basic competence, almost competent, not yet competent).

To calculate the grade for Type A skills, Type A grades from questions on Assignments 1 through 4 will be applied against the respective learning outcome(s) they each assess. After each assessment, a student's Type A Running Average for each learning outcome is recalculated. If the Type A skills for a given learning outcome are assessed on the current assessment, and the achieved grade is greater than the Type A Running Average for that learning outcome, it becomes the new Type A Running Average for that learning outcome. If the Type A skills for a given learning outcome are assessed on the current assessment, and the grade achieved is less than the Type A Running Average for that learning outcome, the new Type A Running Average for that learning outcome is a simple mean of the current Running Average and the Type A grade on the current assessment. The repetition of material on the weekly assignments in the following week's guizzes allows for predictable weekly Top Up opportunities on all Type A skills. Type A content on guizzes can be Topped Up in end-of-day help sessions and Top Up help sessions and Type A grades in those Top Ups are further applied as described above.

The grade for Type B skills is calculated in the same manner as described for Type A skills, but they will be assessed on Assignments 2 through 5 and their respective follow-up quizzes. Type B content on quizzes can be Topped Up in end-of-day help sessions and Top Up help sessions and Type B grades in those Top Ups are further applied as described above. The module test will also include Type B questions which provides an additional opportunity for students to improve their grade on Type B content for learning outcomes that include Type B assessments. Type B content covered on the module test can be further Topped Up after the course ends, if required. Only one opportunity to Top Up the Type B content on the module test will be permitted.

To calculate the grade for Type C skills, the Type C scores from Assignments 3, 4 and 5 and the Module Test will be used. They cannot be Topped Up (quizzes will only include Type A and B questions). Instead, a Type C percentage will be established for each learning outcome that has Type C assessments. Applying the weights of each learning outcome, a final Type C percentage score for the module will be calculated.

Matlab Grade Calculations

All assessments will be marked on a percentage scale, by type (A/B/C) and by learning outcome e.g. Assignment 4 will have 4 sub-marks (one for each of LO2.4 and LO2.5, and two for LO2.6 – one part Type B, one part Type C). Each percentage mark will be accompanied by a competency descriptor (exemplary, proficient, basic competence, almost competent, not yet competent).

To arrive at a final mark for Type A skills, note that all Type A skills are covered in Quizzes and Assignment 1, and that Quizzes and Assignment 1 only cover Type A skills. Also, each Quiz has equal weight in grade calculations and Assignment 1 will have the weight of one Quiz. Performance on a Type A Top Up (for a specific Quiz or Assignment 1) will replace the corresponding Quiz/Assignment 1 mark if the Top Up result is better, or it will be averaged with the current Quiz/Assignment 1 mark, otherwise.

To arrive at a final mark for Type B skills, first note that Assignment 2's mark will correspond to performance against LO6. Any subsequent assignment with a Type B assessment that is evaluated against LO6 will either replace earlier marks for LO2.6 that are lower, or the Type B marks will be averaged with prior marks that are higher. For example, the Type B mark from Assignment 3 will replace Assignment 2's marks for LO2.6 if the Type B mark from Assignment 3 is higher, or it will be averaged with the Assignment 2 mark if it is lower. Assignment 4 contains parts that correspond to performance against LO2.4, LO2.5 and LO2.6. Similar to Assignment 3, Assignment 4's Type B LO2.6 component can therefore replace Assignment 2's and/or 3's marks for LO2.6 if it is higher, or the Type B mark will be averaged with the Assignment 2 mark will be averaged with the the therefore replace Assignment 2's and/or 3's marks for LO2.6 if it is higher, or the Type B marks if it is lower. The same would be true for the Type B LO2.6 portion of the Module Test.

To arrive at a final mark for the Type C skills, the Type C scores from Assignments 3 and 4 and the Module Test will be used. They cannot be Topped Up. Instead, a Type C percentage will be established for each Learning Outcome that has Type C assessments. Applying the weights of each Learning Outcome, a final Type C percentage score will be calculated.

Keeping Track of Grades

Throughout each module in the course, students will be able to monitor their progress in three complementary respects, for each module:

- marks on deliverables students will see how they did on each assignment/quiz
- marks on Type A/B/C work students will see how they are doing at each level of skill difficulty in the course, and
- marks on Learning Outcomes students will see how they are doing against each of the learning outcomes for each module, as they complete elements of them.

Attendance and
Participation:Attendance and participation is encouraged/expected, and students will
be responsible for what happens in classes e.g. quizzes. However,
attendance will not be mandatory (or marked).

Criteria That	See Assessment (Competence Thresholds), above.
Must Be Met to	
Pass:	

Final Grades: The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php

For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website:

https://secretariat.usask.ca/student-conduct-appeals/index.php

AcademicMore information on the Academic Courses Policy on course delivery,
examinations and assessment of student learning can be found at:

http://policies.usask.ca/policies/academic-affairs/academic-
courses.php

Learning
Charter:The University of Saskatchewan Learning Charter is intended to define
aspirations about the learning experience that the University aims to
provide, and the roles to be played in realizing these aspirations by
students, instructors and the institution. A copy of the Learning Charter
can be found at: https://teaching.usask.ca/about/policies/learning-

Course Overview:

This course is divided into 2 modules: Module 1 focuses on resistive direct-current circuit analysis and makes up the lecture portion of the course. Module 2 focuses on programming and computation using Matlab and makes up the laboratory portion of the course. The modules run concurrently, but cover independent topics. The content covered in the lectures will not directly relate to the content covered in the labs each week.

Module 1: Electrical Circuits will introduce students to the analysis of basic, resistive direct-current (DC) electrical circuits. Students will learn the basic terminology, units and symbols used when analyzing resistive DC circuits. Students will analyze various resistive DC circuit networks by applying, Kirchhoff's current law, Kirchhoff's voltage law, Ohm's law, mesh analysis, node analysis and superposition. This will include the application of Matlab to solve systems of linear equations arising from circuit analysis. Students will learn the basic concepts of electrical power and how to analyze power flow in resistive DC circuits. Students will practice creating equivalent representations of circuits, including combining sources and resistive elements/networks and applying Thevenin's theorem and Norton's theorem. By the end of the module, students will become competent in interpreting and representing information in circuit diagrams and applying various methods of analyzing resistive DC circuits.

Module 2: Matlab will introduce students to Matlab, and to programming in Matlab. Students will learn how to orient themselves in Matlab and how to navigate the Matlab environment for the purposes of command line interaction. They will become familiar with the matrix organization of Matlab and how to set up, modify, and operate on matrix data types. Students will learn how to set up and solve linear systems, plot 2D and 3D data, and conduct file I/O in Matlab. Building on their knowledge of Python, students will review basic programming constructs (loops, decision making structures, functions) and implement them in Matlab. They will learn about the Matlab/Simulink world and how to find and use resources to continue their professional development in Matlab programming. Students will complete a number of programming problems from a variety of engineering and natural science disciplines, as they learn how to program in Matlab. By the end of the module, students will become competent users of Matlab and competent basic Matlab programmers.

WEEK of Program	Lecture Topic – Module 1 (Circuits)	Approx. Lecture Hours	Lab Topic – Module 2 (Matlab)	Approx. Lab Hours
WEEK 8	 Properties of Electrical Circuits Terminology Symbols	1.5	 1. Introduction to Matlab 1.1 User Environment 1.2 Graphical User Interface 1.3 Command-line Computation 2. Creating and Addressing Arrays 2.1 Vectors 2.2 Matrices 	1.5
WEEK 9	 3. Electrical Circuit Diagrams 3.1 Circuit Topology 4. Basic Resistive DC Circuit Analysis 1 4.1 Kirchhoff's Current Law 4.2 Kirchhoff's Voltage Law 4.3 Ohm's Law ASSIGNMENT 1- DUE QUIZ 1 (IN CLASS) 	3.0	3. Programming Constructs in Matlab 3.1 Relational Operators 3.2 Logical Operators 3.3 Iterative Control Structures 3.4 Decision-making Control Structures LAB ASSIGNMENT 1- DUE LAB QUIZ 1 (IN CLASS)	1.5

WEEK 10	 5. Types of Electrical Sources 5.1 Combining Sources 6. Basic Resistive DC Circuit Analysis 2 6.1 Current Dividers 6.2 Voltage Dividers 7. Basic Resistive DC Circuit Analysis 3 7.1 Application and Practice ASSIGNMENT 2- DUE QUIZ 2 (IN CLASS) 	3.0	 4. Array Mathematics 4.1 Strings 4.2 Element Operations 4.3 Solving Systems of Linear Equations 4.4 Random Number Generation LAB ASSIGNMENT 2- DUE LAB QUIZ 2 (IN CLASS)	1.5	
WEEK 12	8. Equivalent Resistances 8.1 Combining series and parallel resistor networks 9. Electrical Power and Energy ASSIGNMENT 3- DUE QUIZ 3 (IN CLASS)	3.0	 5. Inputs and Outputs (I/O) 5.1 Display I/O 5.2 File I/O 6. User-Defined Functions LAB ASSIGNMENT 3- DUE LAB QUIZ 3 (IN CLASS) 	1.5	
WEEK 13	QUIZ 3 (IN CLASS)10. Intermediate ResistiveDC Circuit Analysis10.1 Node Analysis10.2 Mesh Analysis10.3 SuperpositionASSIGNMENT 4- DUEQUIZ 4 (IN CLASS)	3.0	7. Plotting Data 7.1 2D 7.2 3D LAB ASSIGNMENT 4- DUE LAB QUIZ 4 (IN CLASS)	1.5	
WEEK 14	11. One-Port Network Simplification 11.1 Thevenin's Theorem 11.2 Norton's Theorem 11.3 Maximum Power Transfer Theorem ASSIGNMENT 5 - DUE	3.0	8. Advanced Features 8.1 Functions 8.2 Data Types 8.3 Toolboxes 8.4 SimuLink	1.5	
WEEK 15	QUIZ 5 (IN CLASS) Module Test 1		Module Test 2		

Assignments: (see Assessment)

Quizzes: (see Assessment)

Missing Quizzes:

Missed quizzes (for any reason) receive a mark of zero. However, quizzes can be Topped Up during End-of-Day Help Sessions or Top Up Help Sessions.

Late Assignments:

Late assignments receive a mark of zero. However, for Electrical Circuits, assignments can be Topped Up by the following week's quiz. For Matlab, assignments can be Topped Up by subsequent assignments.

In the case of sickness, bereavement or other excusable absences, students will not be penalized for late submissions although they may be required to complete a variation on the original assignment. They can alternatively choose to treat a missed assignment as a **Late Assignment**.

Module Tests:

- This course is comprised of 2 modules. Each module will end with a module test conducted outside of class time as a required activity outside class time. The module test will only assess the content of that specific module. The schedule for the Module Tests is:
 - o Module 1: Electrical Circuits: Week 15, Day and Time TBD
 - 1.5 hrs, covering only content from Module 1: Electrical Circuits
 - Closed book, 1 formula sheet allowed
 - No electronic devices, including calculators, phones and watches, with document storage and/or communication capabilities allowed
 - Module 2: Matlab: Week 15, Day and Time TBD
 - 1.5 hrs, covering only content from Module 2: Matlab
 - Closed book
 - Laptops are allowed but all external internet capabilities will be disabled
 - No other electronic devices, including calculators, phones and watches, with document storage and/or communication capabilities allowed
- Students should avoid making prior travel, employment, or other commitments at these times. If a student is unable to write a module test through no fault of their own for medical or other acceptable reasons, documentation must be provided and an opportunity to write the missed module test <u>may</u> be given. Students are encouraged to review all examination policies and procedures:

http://students.usask.ca/academics/exams.php

• Alternate times to write Module Tests will not be considered except in the case of acceptable reasons, such as illness, bereavement, etc, or a conflict with other university related activities.

• Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines.

Required Activities Outside of Class Time

The Module Tests are written outside of class time (see **Module Test**).

Proctored reassessment of work that does not meet the competence threshold may be conducted outside of regularly scheduled class time. This includes rewriting in-class quizzes, redoing other work completed, and submitted, during class time and rewriting module tests. This reassessment will occur during designated Top Up Help Sessions during the day or during course-specific help sessions (see **End-of-Day Help Sessions**). Students are encouraged to avoid making prior travel, employment, or other commitments at these times to ensure availability to take advantage of these additional opportunities to demonstrate competence in the course learning outcomes.

Experiential Learning

Students will be engaging in programming and problem solving in class.

Important Dates:

Sept x, 2021	First day of Fall classes
Sept y, 2021	Last day for making changes in registration for first-term courses
	(100% tuition credit).
Nov zz, 2021	Fall Break (Week 11)
Nov xx, 2021	Last day to withdraw from Fall classes
Thanksgiving	Holidays
Dec yy, 2021	Last day of classes

Required Resources

Module 1: Electrical Circuits I

Required Textbook:

Principles and Applications of Electrical Engineering, $6^{\rm th}$ Ed., Rizzoni and Kearns, 2015

Textbooks are available from the University of Saskatchewan Bookstore: <u>https://bookstore.usask.ca/students.php#MyTextbooks</u>

Other Required Materials:

A laptop computer which conforms to the Usask First Year Engineering Laptop Specifications.

Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

Module 2: Matlab

Required Textbook:

MATLAB: An Introduction with Applications, 6th Ed., Amos Gilat, 2016

Textbooks are available from the University of Saskatchewan Bookstore: <u>https://bookstore.usask.ca/students.php#MyTextbooks</u>

Other Required Materials:

A laptop computer which conforms to the Usask First Year Engineering Laptop Specifications.

Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

Electronic Resources:

Matlab 2021a

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints & Appeals (https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/</u>.

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning* (http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Help session to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityHelp session</u>

Safety:

Safety is of paramount importance in the College of Engineering. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Emergency Response Plan:

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license

terms and educational exceptions in the Canadian Copyright Act (see <u>http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html</u>).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit

<u>http://www.usask.ca/copyright/students/rights/index.php</u> or contact the University's Copyright Coordinator at <u>copyright.coordinator@usask.ca</u>.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <u>https://students.usask.ca/health/centres/access-equity-services.php</u>, or contact AES at 306-966-7273 or <u>aes@usask.ca</u>.

Students registered with AES may request alternative arrangements for mid-term and final examinations or module tests. Students must arrange such accommodations through AES by the

stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 o Email: <u>esc@usask.ca</u>; Phone: 306-966-5274;
 - https://engineering.usask.ca/contact info/esc-office.php

End-of-day help session sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see **End-of-day Help Sessions** for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

Learning		Attribute [†]										
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1.1	Ι											
1.2		Ι					Ι					
1.3	Ι	Ι										
1.4	Ι	Ι										
1.5	Ι	Ι										
2.1					Ι							
2.2					Ι							
2.3					Ι		Ι					
2.4					Ι							
2.5					Ι							
2.6		D			Ι							

Instructional Level[‡]

[†]Attributes:

- **A1** A knowledge base for engineering
- A2 Problem analysis
- A3 Investigation
- A4 Design
- **A5** Use of engineering tools
- A6 Individual and team work
- A7 Communication skills
- A8 Professionalism

[‡]Instructional Level:

Introduced (I) – Students learn the working vocabulary of the area of content, along with some of the major underlying concepts.

Developed (D) – Students use their working vocabulary and major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar contexts.

A9 Impact of engineering on society and the environment	Applied (A) – Students approach mastery in the area of content. They explore deeply into the discipline and experience
 A10 Ethics and equity A11 Economics and project management A12 Life-long learning 	the controversies, debate, and uncertainties that characterize the leading edges of any field. They practice, extend, or refine knowledge in unfamiliar contexts.

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
0%	0%	0%	100%	0%

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: GE 153
- 2.2 Academic credit units: 2
- 2.3 Course Long Title (maximum 100 characters): Electrical Circuits II Course Short Title (maximum 30 characters): Electrical Circuits II

2.4	Total Hours:	Lecture 22.5	Seminar	Lab	6	Tutorial	Other
2.5	Weekly Hours:	Lecture	Seminar	Lab		Tutorial	Other
2.6	Term in which it	will be offered	: T1 [2	T1 or T	2 T1 an	d T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course focuses on the analysis of basic alternating-current (AC) electrical circuits and the calculation of the flow of real, reactive and apparent power. There is also exploration of other electrical engineering topics, including electrical safety, power distribution systems, batteries and energy storage, electric motors and generators, and renewable power generation systems.

- 2.9 Do you allow this course to be repeated for credit? No
- 3. **Please list rationale for introducing this course:** This is part of the integrated curriculum in the redesigned first year program.

4. Please list the learning objectives for this course:

Module 1: AC Electrical Circuit Analysis	50% of overall course		
Module 1: AC Electrical Circuit Analysis	grade		

Learning Outcome Number	By the end of Module 1, students will be expected to:	Outcome Weight (By Module)
1.1	analyze steady-state DC circuits including resistive, capacitive and inductive elements,	5%
1.2	characterize AC signals and convert between time- domain and phasor representations,	10%
1.3	draw and interpret AC circuit diagrams,	5%
1.4	determine the complex impedance of a circuit containing resistive, capacitive and inductive components at different frequencies,	10%
1.5	analyze basic single-phase AC circuits,	40%
1.6	calculate real, reactive and apparent power, and power factor, in single-phase AC circuits, and	10%
1.7	apply circuit simulation software to analyze AC circuits.	20%

Module 2: Selected Topics in Electrical Systems 50% of overal grade			
Learning Outcome Number	By the end of Module 2, students will be	e expected to:	Outcome Weight (By Module)
2.1	draw and interpret AC circuit diagrams,		5%
2.2	analyze ideal transformers in single-phas circuits,	10%	
2.3	identify the purpose of elements of practransmission and distribution systems,	10%	
2.4	analyze the operation of AC/DC and DC/	10%	
2.5	characterize energy storage requirement	10%	
2.6	design a renewable power generation ar system,	35%	
2.7	model the operation of simple electric m generators, and	10%	

2.8	identify safety precautions necessary when working with electricity.	10%	
	with cleating.		

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No If so, were these departments consulted? (Include correspondence) Were any other departments asked to review or comment on the proposal? Yes, within the

6. **Other courses or program affected** (please list course titles as well as numbers)

6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)

College and we worked with the Gwenna Moss Centre for Teaching and Learning.

6.2 Courses for which this course will be a prerequisite?

Any changes to the course prerequisites in the programs will be submitted in future UCC.

6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Please see syllabus.

9.1 How should this course be graded?	
C – Completed Requirements	
(Grade options for instructor: Completed Requirements, Fail, IP In Progress)	
N – Numeric/Percentage	
(Grade options for instructor: grade of 0% to 100%, IP in Progress)	
P – Pass/Fail	
(Grade options for instructor: Pass, Fail, In Progress)	
S – Special	
(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:	

9.2 Is the course exempt from the final examination? Yes

10. Required text

Include a bibliography for the course:

Principles and Applications of Electrical Engineering, 6th Ed., Rizzoni and Kearns, 2015

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget these courses will be replacing others.
- 11.3 Are sufficient library or other research resources available for this course? Yes.
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? Circuit Simulation Package TBD, Matlab 2021a

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

- 2.2 For the College of Arts and Science only: To which program type does this course belong?
 - FNAR Fine Arts
 - HUM Humanities
 - SCIE Science
 - SOCS Social Science
 - ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program: College of Engineering only
- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course GE 152- Electrical Circuits I, MATH 134- Engineering Math II, PHYS 156- Electromagnetism and Waves for Engineers
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: EE204

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructors and Teaching Assistants:	Name: TBD Office: TBD Phone: TBD Email: TBD
Office Hours:	TBD
Lectures:	Weeks: 27-31 Classes: Three 1.5 hr classes per week (a total of 15 classes)
Laboratories:	Weeks: 27-31 Labs: One 1.5 hr lab per week (a total of 5 labs)
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. <u>https://bblearn.usask.ca/</u>
End-of-Day Help Sessions	End of day help session sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses.
	Electrical Circuits II has an end-of-day help session twice per week on Mondays and Fridays in Weeks 27, 28, 29, 30, and 31.
Description:	This course focuses on the analysis of basic alternating-current (AC) electrical circuits and the calculation of real, reactive, and apparent power. Other electrical engineering topics, including electrical safety, power distribution systems, batteries and energy storage, electric motors and generators, and renewable power generation systems are also explored.
Pre or co- requisites:	GE 152.1 – Electrical Circuits I MATH 134.3 – Engineering Math II PHYS 156.3 – Electromagnetism and Waves for Engineers

Course	TBD
Reference	Available from the Dynamic Schedule once courses are built
Numbers	(https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched)
(CRNs):	

Course Learning	Module	e 1: AC Electrical Circuit Analysis 50% of over grad		
Outcomes: Utcome Number By the end of Module 1, students will be expected to		expected to:	Outcome Weight (By Module)	
	1.1	analyze steady-state DC circuits includi capacitive, and inductive elements,	ng resistive,	5%
	1.2characterize AC signals and convert between time- domain and phasor representations,1.3draw and interpret AC circuit diagrams,		ween time-	10%
			,	5%
	1.4	determine the complex impedance of a circuit containing resistive, capacitive and inductive components at different frequencies,		10%
	1.5	analyze basic single-phase AC circuits,		40%
	1.6	calculate real, reactive and apparent power, and power factor, in single-phase AC circuits, and		10%
	1.7	pply circuit simulation software to analyze AC ircuits.		20%

Module 2: Selected Topics in Electrical 50% of overa Systems grade			
Learning Outcome Number	ome		
2.1	draw and interpret AC circuit diagrams	5,	5%
2.2	analyze ideal transformers in single-ph electrical circuits,	ase AC	10%
2.3	identify the purpose of elements of pra transmission and distribution systems,	10%	
2.4	analyze the operation of AC/DC and DC converters,	10%	
2.5	characterize energy storage requireme system,	10%	
2.6	design a renewable power generation a system,	35%	
2.7	model the operation of simple electric generators, and	10%	
2.8	identify safety precautions necessary when working with electricity.		10%

Assessment:	This course employs a competency-based assessment system. Students must demonstrate competence in certain skills in each module. These skills can be divided into three types (A/B/C).
	Type A skills are the most basic and granular for a subject area. In general, this includes the ability to define, recall, recognize, compare, and contrast key terms and concepts. It also includes basic calculations and motor skills, as appropriate.
	Type B skills are basic integrative skills. These include basic types of questions that have been covered in class.
	Type C skills are integrative skills that depend on the ability to extend the application of what has been learned in class, into new domains.
	For this class, students will be expected to perform at a 70% success level or higher in Type A and B skills to be considered competent. There will be no minimum performance threshold for Type C skills.
	As part of competency-based assessment, students will be given more than one opportunity to display competence. Thus, for Type A and B skills, there will be at least two opportunities to exhibit basic competence. These opportunities may be manifested as portions of later assignments replacing performance on earlier assignments (that cover similar skill sets) and/or "Top Up" opportunities. Top Ups will be proctored opportunities to demonstrate skills during optional course- specific help sessions (see End-of-Day Help Sessions) or during optional Top Up Help Sessions, which are spread throughout the term's schedule.
	Note that the final course grade will be a weighted average of the achieved grades in each module. See Course Learning Outcomes for relative weights of each module.
	Module 1: AC Electrical Circuit Analysis Type A skills are vital to any success in analyzing AC electrical circuits. Type A skills for this module include converting time-domain electrical signals into phasor notation and calculating complex impedance values as a function of frequency.
	Type B skills include conducting analysis of simple AC electrical circuits, including real, reactive and apparent power, using phasor notation and

Type B skills include conducting analysis of simple AC electrical circuits, including real, reactive and apparent power, using phasor notation and applying Ohm's law, Kirchhoff's laws, voltage and current dividers, node analysis, and mesh analysis.

Type C skills include conducting analysis of more complex circuits by applying Ohm's law, Kirchhoff's laws, voltage and current dividers, node analysis, and mesh analysis, and conducting power factor correction calculations.

Assessment	Week Out	Week Due	Top Up Opp.	Торіс
Lab Assign 1	27	27	Help/Top Up Sessions	Simulation Software
Assign 1	27	28 Quiz 2		AC Signals, RMS, Phasors
Quiz 2	28	28	Help/Top Up Sessions	AC Signals, RMS, Phasors
Assign 2	28	29	Module Test 1	Complex Impedance, AC Circuit Diagrams
Module Test 1	29	29	Help/Top Up Sessions	AC Signals, RMS, Phasors, Complex Impedance

Tvr	be A	4
IVL	<u>)e</u>	4

One Type A Top Up for the Module Test will be announced subsequent to classes ending in the course.

Туре в				
Assessment	Week Out	Week Due	Top Up Opp.	Торіс
Quiz 1	27	27	Help/Top Up Sessions	Review of Resistive DC Circuit Analysis
Assign 1	27	28	Quiz 2	Steady-state RL and RC Circuits
Quiz 2	28	28	Help/Top Up Sessions	Steady-state RL and RC Circuits
Lab Assign 2	28	28	Lab Assign 3	AC Circuit Simulation
Assign 2	28	29	Module Test 1	AC Circuit Analysis, AC Circuit Diagrams, AC Power
Lab Assign 3	29	29	Help/Top Up Sessions	AC Circuit Simulation incl. AC Power
Module Test 1	29	29	Help/Top Up Sessions	Steady-state DC RL and RC Circuits, AC Circuit Analysis, AC Power

Type B

One Type B Top Up for the Module Test will be announced subsequent to classes ending in the course.

<u>Type C</u>				
Assessment	Week Out	Week Due	Top Up Opp.	Торіс
Assign 1	27	28	None	Steady-state RL and RC Circuits
Lab Assign 2	28	28	None	AC Circuit Simulation
Assign 2	28	29	None	AC Circuit Analysis, AC Circuit Diagrams, AC Power
Lab Assign 3	29	29	None	AC Circuit Simulation incl. AC Power
Module Test 1	29	29	None	Steady-state DC RL and RC Circuits, AC Circuit Analysis, AC Power

Module 2: Selected Topics in Electrical Systems

Type A skills include identification of, and explaining conceptually, various elements in residential and industrial power systems, including transformers, AC/DC conversion, batteries, 3-phase power distribution, renewable power generation, electric motors and generators and electrical safety.

Type B skills include basic circuit analysis and modeling of systems that include components such as idealized transformers, motors and generators, rectifiers, inverters and energy storage elements.

Type C skills will focus on abilities to integrate all of the Type A and B skills in order to solve more complex and practical problems, such as the theoretical design of a renewable power generation and storage system.

Assessment	Week Out	Week Due	Top Up Opp.	Торіс
Assign 3	29	30	Quiz 3	Purpose of elements in power distribution systems – transformers, batteries
Quiz 3	30	30	Help/Top Up Sessions	Purpose of elements in power distribution systems – transformers, batteries
Assign 4	30	31	Quiz 4	Purpose of elements in power

Ty	pe	А

				distribution
				systems – 3-phase
				power, renewable
				systems, safety
				Purpose of
				elements in power
Quiz 4	31	31	Help/Top Up	distribution
Quiz 4	51	51	Sessions	systems – 3-phase
				power, renewable
				systems, safety
				Purpose of
				elements in power
Assign 5	31	31	Module Test 2	distribution
				systems – motors
				and generators
				Purpose of
Madula Test 2	32	32	Help/Top Up	elements in power
Module Test 2	52	52	Sessions	distribution
				systems

One Type A Top Up for the Module Test will be announced subsequent to classes ending in the course.

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Assessment	Week Out	Week Due	Top Up Opp.	Торіс
Assign 3	29	30	Quiz 3	AC circuit analysis with transformers, AC/DC and DC/AC conversion, battery specifications
Quiz 3	30	30	Help/Top Up Sessions	AC circuit analysis with transformers, AC/DC and DC/AC conversion, battery specifications
Assign 5	31	31	Module Test 2	AC circuit analysis of simple models of motors and generators
Group Project	27	31	Module Test 2	Theoretical Design of a Renewable Power Generation and Storage System
Lab Assign 4	31	31	Module Test 2	Motor and Generator Modeling
Module Test 2	32	32	Help/Top Up Sessions	AC circuit analysis with transformers, AC/DC and DC/AC conversion, battery specifications, motor and generator modeling

One Type B Top Up for the Module Test will be announced subsequent to classes ending in the course.

Assessment	Week Out	Week Due	Top Up Opp.	Торіс
Assign 3	29	30	None	AC circuit analysis with transformers, AC/DC and DC/AC conversion, battery specifications
Assign 5	31	31	None	AC circuit analysis of simple models of motors and generators
Group Project	27	31	None	Theoretical Design of a Renewable Power Generation and Storage System
Lab Assign 4	31	31	None	Motor and Generator Modeling
Module Test 2	32	32	None	AC circuit analysis with transformers, AC/DC and DC/AC conversion, battery specifications, motor and generator modeling

Type C

Competence Thresholds

A "module mark" (out of 100) will be calculated for each of the modules in the course. For each module, students must achieve at least 70% overall in the Type A skills **and** at least 70% overall in the Type B skills in order to pass the module with a level of "basic competence". If a student achieves at least 70% in a module's Type A skills and in a module's Type B skills, their module mark will be calculated as per the following section (**Grade Calculations**). If a student fails to achieve at least 70% in either or both of the Type A and B skills, they will receive a maximum grade of 49% for the module.

If a student achieves at least 70% in the Type A and B skills in both modules, their course mark will be a weighted average of the two module marks. If a student fails to achieve "basic competence" in one module, they will fail the course, receiving an overall grade of 49%, or their calculated grade, whichever is lower. However, if they choose to redo the course in the future, they will be given credit for the module they did pass (at the discretion of the instructor), with the passing mark that they did achieve (unless they want to redo the module for a better mark). If a student fails to achieve "basic competence" in both modules,

they will fail the course and will be required to redo both modules in the future.

Grade Calculations

All assessments will be marked on a percentage scale, by type (A/B/C) and by learning outcome e.g. Assignment 1 will have 3 sub-marks (two for LO1.1 (1 Type B and 1 Type C) and one for LO1.2 (Type A)). Each percentage mark will be accompanied by a competency descriptor (exemplary, proficient, basic competence, almost competent, not yet competent).

To calculate the grade for Type A skills in each module, Type A grades from questions on each assessment in that module will be applied against the respective learning outcome(s) they each assess. After each assessment, a student's Type A Running Average for each learning outcome is recalculated. If the Type A skills for a given learning outcome are assessed on the current assessment, and the achieved grade is greater than the Type A Running Average for that learning outcome, it becomes the new Type A Running Average for that learning outcome. If the Type A skills for a given learning outcome are assessed on the current assessment, and the achieved grade is less than the Type A Running Average for that learning outcome, the new Type A Running Average for that learning outcome is a simple mean of the current Running Average and the Type A grade on the current assessment. The repetition of material on the weekly assignments in the following week's quizzes allows for predictable weekly Top Up opportunities on all Type A skills. Type A content on quizzes can be Topped Up in end-of-day help sessions and Top Up help sessions and Type A grades in those Top Ups are further applied as described above.

The module tests will also include Type A questions where assessment scheduling does not allow for a Quiz to be conducted between the due date of an assignment and the writing of a module test.

The grade for Type B skills is calculated in the same manner as described for Type A skills, but using the Type B questions on each assessment in each module. Type B content on quizzes can be Topped Up in end-of-day help sessions and Top Up help sessions and Type B grades in those Top Ups are further applied as described above.

The module test will also include Type B questions which provides an additional opportunity for students to improve their grade on Type B content for learning outcomes that include Type B assessments. Type B content covered on the module test can be further Topped Up after the course ends, if required. Only one opportunity to Top Up the Type B content on the module test will be permitted.

To calculate the grade for Type C skills, the Type C scores from each assessment within each module are averaged. They cannot be Topped Up (quizzes will only include Type A and B questions). Instead, a Type C percentage will be established for each learning outcome that has Type C assessments. Applying the weights of each learning outcome, a final Type C percentage score for the module will be calculated.

Important note: LO1.3 and LO2.1 are the same: "draw and interpret AC circuit diagrams". At the discretion of the instructor, improved performance on assessments under LO2.1 during Module 2 may be used to overwrite previous evidence of LO1.3, if it benefits the student.

Keeping Track of Grades

Throughout each module in the course, students will be able to monitor their progress in three complementary respects, for each module:

- marks on deliverables students will see how they did on each assignment/quiz
- marks on Type A/B/C work students will see how they are doing at each level of skill difficulty in the course, and
- marks on Learning Outcomes students will see how they are doing against each of the learning outcomes for each module, as they complete elements of them.
- Attendance and
Participation:Attendance and participation is encouraged/expected, and students will
be responsible for what happens in classes e.g. quizzes. However,
attendance will not be mandatory (or marked).
- **Criteria That** See **Assessment** (Competence Thresholds), above.
- Must Be Met to Pass:
- **Final Grades:** The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php

For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website: https://secretariat.usask.ca/student-conduct-appeals/index.php

Academic
Courses Policy:More information on the Academic Courses Policy on course delivery,
examinations and assessment of student learning can be found at:
http://policies.usask.ca/policies/academic-affairs/academic-
courses.php

Learning Charter: The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: <u>https://teaching.usask.ca/about/policies/learningcharter.php</u>

Course Overview:

This course is divided into 2 sequential modules: Module 1 focuses on analysis of alternating-current (AC) electrical circuits. Module 2 focuses on practical elements found in various power generation, transmission, and utilization systems.

Module 1: AC Electrical Circuit Analysis begins with a brief review of direct-current (DC) electrical circuit analysis, including resistive, capacitive, and inductive elements. The focus of the course then shifts to the analysis of single-phase alternating-current (AC) electrical circuits. This includes characterizing AC waveforms and converting to phasor representations to carry out circuit analysis involving complex impedance, both manually and by applying electrical circuit simulation software. AC power is explored, including the concepts of real, reactive and apparent power, power factor and power factor correction.

Module 2: Selected Topics in Electrical Systems provides an overview of electrical engineering topics, including electrical safety, power distribution systems, batteries and energy storage, electric motors and generators, and renewable power generation systems. The course includes a group design project, in which students will design a renewable power generation and storage system to meet a specific need.

WEEK of Program	Lecture Topic	Approx. Lecture Hours	Lab Topic	Approx. Lab Hours
WEEK 27 Module 1	 1. Review of DC Circuits 1.1 Resistive DC Circuit Analysis 1.2 RLC DC Circuit Steady- State Operation 2. Intro to AC Circuits 2.1 AC vs DC 2.2 Properties of AC signals 2.3 Phasors 2.4 AC Impedance 	4.5	1. Introduction to Circuit Simulation 1.1 Software Interface and Functions 1.2 DC Circuit Simulation	1.5
	QUIZ 1 (IN CLASS)		LAB ASSIGNMENT 1- DUE	
WEEK 28 Module 1	3. Basic AC Circuit Analysis 3.1 AC Circuit Diagrams 3.2 Application of Circuit Analysis Techniques and Phasor Notation	4.5	2. AC Circuit Simulation 1	1.5

	4. AC Power 4.1 Real, Reactive, Apparent Power ASSIGNMENT 1- DUE QUIZ 2 (IN CLASS)		LAB ASSIGNMENT 2 - DUE	
WEEK 29 Module 1/2	 4. AC Power, cont'd 4.2 Power Factor Correction Start of Module 2 Content in Lectures 5. Ideal Transformers 5.1 Purpose in Electrical Systems 5.2 Simple Model 5.3 Analysis of AC Circuits 6. AC/DC Conversion 6.1 Inverters 6.2 Rectifiers 7. Batteries and Energy Storage 7.1 Methods of Storing Energy 7.2 Battery Specifications 	4.5	3. AC Circuit Simulation 2	1.5
	ASSIGNMENT 2- DUE MODULE TEST 1 (Evening)		LAB ASSIGNMENT 3 - DUE	

WEEK 30 Module 2	 8. Renewable Power Generation and Systems 8.1 Solar 8.2 Wind 8.3 Hydro 8.4 Other 9. Practical Electrical Concepts 9.1 3-phase Power 9.2 Household Power 9.3 Canadian Electrical Code 9.4 Electrical Safety 	4.5	Start of Module 2 Content in Labs 4. Renewable Power Generation and Systems 4.1 Specifications of System Components (Project Work Time – no deliverable)	1.5
WEEK 31 Module 2	QUIZ 3 (IN CLASS) 10. Electric Generators 10.1 Basic Operation 10.2 Simple Model 11. Electric Motors 11.1 Types 11.2 Basic Operation 11.3 Simple Models 11.4 Applications ASSIGNMENT 4 - DUE QUIZ 4 (IN CLASS) ASSIGNMENT 5 - DUE	4.5	5. Modeling of Electric Motors and Generators 5.1 Voltage/Torque LAB ASSIGNMENT 4 - DUE	1.5
WEEK 32	PROJECT - DUE Module Test 2 (Evening)			

Assignments: (see Assessment)

Quizzes: (see Assessment)

Missing Quizzes:

Missed quizzes (for any reason) receive a mark of zero. However, quizzes can be Topped Up during End-of-Day Help Sessions or Top Up Help Sessions.

Late Assignments:

Late assignments and lab assignments receive a mark of zero. However, assignments can be Topped Up by the following week's quiz. Lab assignments can either be Topped Up by subsequent lab assignments or through direct Top Up assessments.

In the case of sickness, bereavement or other excusable absences, students will not be penalized for late submissions although they may be required to complete a variation on the original assignment. They can alternatively choose to treat a missed assignment as a **Late Assignment**.

Module Tests:

- This course is comprised of 2 modules. Each module will end with a module test conducted outside of class time as a required activity outside class time. The module test will only assess the content of that specific module. The schedule for the Module Tests is:
 - Module 1: AC Electrical Circuit Analysis: Week 29, Day and Time TBD
 - 1.5 hrs, covering only content from Module 1: AC Electrical Circuit Analysis
 - Closed book, 1 formula sheet allowed
 - No electronic devices with document storage and/or communication capabilities allowed, including calculators, phones and watches
 - Module 2: Selected Topics in Electrical Systems: Week 32, Day and Time TBD
 - 1.5 hrs, covering only content from Module 2: Selected Topics in Electrical Systems
 - Closed book, 1 formula sheet allowed
 - No electronic devices with document storage and/or communication capabilities allowed, including calculators, phones and watches
- Students should avoid making prior travel, employment, or other commitments at these times. If a student is unable to write a module test through no fault of their own for medical or other acceptable reasons, documentation must be provided and an opportunity to write the missed module test <u>may</u> be given. Students are encouraged to review all examination policies and procedures:

http://students.usask.ca/academics/exams.php

- Alternate times to write Module Tests will not be considered except in the case of acceptable reasons, such as illness, bereavement, etc, or a conflict with other university related activities.
- Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines.

Required Activities Outside of Class Time

The Module Tests are written outside of class time (see **Module Test**).

Proctored reassessment of work that does not meet the competence threshold may be conducted outside of regularly scheduled class time. This includes rewriting in-class quizzes, redoing other work completed, and submitted, during class time and rewriting module tests. This reassessment will occur during designated Top Up Help Sessions during the day or during course-specific help sessions (see **End-of-Day Help Sessions**). Students are encouraged to avoid making prior travel, employment, or other commitments at these times to ensure availability to take advantage of these additional opportunities to demonstrate competence in the course learning outcomes.

Experiential Learning

Students will be engaging in problem solving in class and modeling and simulation in the labs.

Important Dates:

Sept x, 2021	First day of Fall classes
Sept y, 2021	Last day for making changes in registration for first-term courses
	(100% tuition credit).
Nov zz, 2021	Fall Break (Week 11)
Nov xx, 2021	Last day to withdraw from Fall classes
Thanksgiving	Holidays
Dec yy, 2021	Last day of classes

Required Resources

Required Textbook:

Principles and Applications of Electrical Engineering, 6^{th} Ed., Rizzoni and Kearns, 2015

Textbooks are available from the University of Saskatchewan Bookstore: <u>https://bookstore.usask.ca/students.php#MyTextbooks</u>

Other Required Materials:

A laptop computer which conforms to the Usask First Year Engineering Laptop Specifications.

Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

Electronic Resources:

Circuit Simulation Package TBD Matlab 2021a

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints & Appeals (https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/</u>.

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning* (http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Help session to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityHelp session</u>

Safety:

Safety is of paramount importance in the College of Engineering. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Emergency Response Plan:

Preparing for emergencies protects our lives and property. An emergency response plan (ERP) posting is located in each classroom and lab near the main door of the room. Students are advised to review and be familiar with the College ERP and be aware that when an alarm sounds for more than 10 seconds, the building must be evacuated. Muster point locations are posted at each entrance of the Engineering Building. For more details about the ERP, please visit the following website: https://engineering.usak.ca/documents/facilities/ERP%20-%20ENG%20-%20ENG%20-%209_01_2017.pdf

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit

<u>http://www.usask.ca/copyright/students/rights/index.php</u> or contact the University's Copyright Coordinator at <u>copyright.coordinator@usask.ca</u>.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith

towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <u>https://students.usask.ca/health/centres/access-equity-services.php</u>, or contact AES at 306-966-7273 or <u>aes@usask.ca</u>.

Students registered with AES may request alternative arrangements for mid-term and final examinations or module tests. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>

End-of-day help session sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see **End-of-day Help Sessions** for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

					Instruc	tional Le	evel‡					
Learning		Attribute [†]										
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1.1	Ι	Ι										
1.2	Ι	Ι										
1.3	Ι	Ι					Ι					
1.4	Ι	Ι										
1.5	Ι	Ι										
1.6	Ι	Ι										
1.7	Ι	Ι	Ι		Ι							
2.1	Ι	Ι					D					
2.2	Ι	Ι										
2.3	Ι											
2.4	Ι	Ι										
2.5	Ι	Ι										
2.6	Ι	Ι		Ι			Ι		Ι			
2.7	Ι	Ι			D							
2.8	Ι								Ι			

- A1 A knowledge base for engineering
- A2 Problem analysis
- A3 Investigation
- A4 Design
- **A5** Use of engineering tools
- A6 Individual and team work
- A7 Communication skills
- A8 Professionalism
- A9 Impact of engineering on society and the environment
- A10 Ethics and equity
- A11 Economics and project management
- A12 Life-long learning

[‡]Instructional Level:

Introduced (I) – Students learn the working vocabulary of the area of content, along with some of the major underlying concepts.

Developed (D) – Students use their working vocabulary and major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar contexts.

Applied (A) – Students approach mastery in the area of content. They explore deeply into the discipline and experience the controversies, debate, and uncertainties that characterize the leading edges of any field. They practice, extend, or refine knowledge in unfamiliar contexts.

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
0%	0%	0%	100%	0%

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: GE 163
- 2.2 Academic credit units: 2
- 2.3 Course Long Title (maximum 100 characters): Process Engineering Course Short Title (maximum 30 characters): Process Engineering

2.4	Total Hours:	Lecture 22.5	Seminar	Lab	6 T	utorial	Other
2.5	Weekly Hours:	Lecture	Seminar	Lab	Т	utorial	Other
2.6	Term in which it	will be offered	l: T1	Т2	T1 or T2	T1 and	d T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course presents the concepts of process engineering and applies them to a wide array of systems. Basic process engineering tools are developed in the first half of the course that are then used to solve complex process systems in the second half. The course is designed to appeal to many sectors of the engineering profession. Examples are taken from many process systems including, but not limited to: manufacturing; geological systems; health care; food production; environmental systems; financial systems; biological systems; water treatment; and unit operations.

2.9 Do you allow this course to be repeated for credit? No

3. **Please list rationale for introducing this course:** This is part of the integrated curriculum in the redesigned first year program.

4. Please list the learning objectives for this course:

м	Module 1: Single-Block Processes 50% of overall grade		
Learning Outcome Number	By the end of Module 1, students will be	Outcome Weight (By Module)	
1.1	convert units between systems, consider homogeneity,	10%	
1.2	draw and interpret block diagrams and fl	owcharts, and	20%
1.3	characterize and solve single-block proce conducting degree of freedom analyses.	sses by	70%

Module 2: Multi-Block Processes 50% of overal grade			
Learning Outcome Number	By the end of Module 2, students will be	e expected to:	Outcome Weight (By Module)
2.1	draw and interpret block diagrams and f	20%	
2.2	characterize and solve single-block processes by conducting degree of freedom analyses, and		60%
2.3	model and develop a solution strategy for processes.	or complex	20%

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No If so, were these departments consulted? (Include correspondence) Were any other departments asked to review or comment on the proposal? Yes, within the College and we worked with the Gwenna Moss Centre for Teaching and Learning.

6. **Other courses or program affected** (please list course titles as well as numbers)

- 6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)
- 6.2 Courses for which this course will be a prerequisite?
- Any changes to the course prerequisites in the programs will be submitted in future UCC.
- 6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Please see syllabus.

9.1	How should this course be graded?					
	C – Completed Requirements					
	(Grade options for instructor: Completed Requirements, Fail, IP In Progress)					
	N – Numeric/Percentage					
	(Grade options for instructor: grade of 0% to 100%, IP in Progress)					
	P – Pass/Fail					
	(Grade options for instructor: Pass, Fail, In Progress)					
	S – Special					
	(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:					

9.2 Is the course exempt from the final examination? Yes

10. Required text

Include a bibliography for the course: Looking for a suitable open textbook.

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget these courses will be replacing others.
- 11.3 Are sufficient library or other research resources available for this course? Yes, Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? Matlab 2021a

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

CL Clinical PRB Problem Session	
COO Coop Class RDG Reading Class	
FLD Field Trip RES Research	
ICR Internet Chat Relay ROS Roster (Dent Only)	
IHP Internet Help SEM Seminar	
IN1 Internship - Education SSI Supervised Self Instruction	
IN2 Internship - CMPT & EPIP STU Studio	
IN3 Internship - General SUP Teacher Supervision	
IND Independent Studies TEL Televised Class	
LAB Laboratory TUT Tutorial	
LC Lecture/Clinical (Dent Only) WEB Web Based Class	
LEC Lecture XCH Exchange Program	
LL Lecture/Laboratory (Dent Only) XGN Ghost Schedule Type Not Applicabl	ole
MM Multimode XHS High School Class	
PCL Pre-Clinical (Dent Only) XNA Schedule Type Not Applicable	
PRA Practicum XNC No Academic Credit	

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

- FNAR Fine Arts
- HUM Humanities
- SCIE Science
- SOCS Social Science
- ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

College of Engineering only

- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course

GE 152.1 – Electrical Circuits I MATH 134.3 – Engineering Math II CHEM 146.3 – General Chemistry for Engineering

- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here:

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructors and Teaching Assistants:	Name: TBD Office: TBD Phone: TBD Email: TBD
Office Hours:	TBD
Lectures:	Weeks: 27-31 Classes: Three 1.5 hr classes per week (a total of 15 classes)
Laboratories:	Weeks: 29-30 Labs: One 3 hr lab per week (a total of 2 labs)
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. <u>https://bblearn.usask.ca/</u>
End-of-Day Help Sessions	End of day help session sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses.
	Process Engineering has an end-of-day help session twice per week on Mondays and Fridays in Weeks 27, 28, 29, 30, and 31.
Description:	This course presents the concepts of process engineering and applies them to a wide array of systems. Basic process engineering tools are developed in the first half of the course that are then used to solve complex process systems in the second half. The course is designed to appeal to many sectors of the engineering profession. Examples are taken from many process systems including, but not limited to: manufacturing; geological systems; health care; food production; environmental systems; financial systems; biological systems; water

treatment; and unit operations.

Pre or co- requisites:	GE 152.1 – Electrical Circuits I MATH 134.3 – Engineering Math II CHEM 146.3 – General Chemistry for Engineering
Course Reference Numbers (CRNs):	TBD Available from the Dynamic Schedule once courses are built (<u>https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched</u>)

Course Learning	Mod	ule 1: Single-Block Processes	50% of overa grade	
Outcomes:	Learning Outcome Number	By the end of Module 1, students will be	expected to:	Outcome Weight (By Module)
1.1 convert units between systems, considering dimensional homogeneity,		ering	10%	
	1.2	draw and interpret block diagrams and and	flowcharts,	20%
	1.3	characterize and solve single-block pro conducting degree of freedom analyses	•	70%

Mod	ule 2: Multi-Block Processes	50% of overall cour grade	
Learning Outcome Number	By the end of Module 2, students will be	Outcome Weight (By Module)	
2.1	draw and interpret block diagrams and flowcharts, characterize and solve single-block processes by conducting degree of freedom analyses, and		20%
2.2			60%
2.3 model and develop a solution strategy for complex processes.		20%	

Assessment: This course employs a competency-based assessment system. Students must demonstrate competence in certain skills in each module. These skills can be divided into three types (A/B/C).

Type A skills are the most basic and granular for a subject area. In general, this includes the ability to define, recall, recognize, compare, and contrast key terms and concepts. It also includes basic calculations and motor skills, as appropriate.

Type B skills are basic integrative skills. These include basic types of questions that have been covered in class.

Type C skills are integrative skills that depend on the ability to extend the application of what has been learned in class, into new domains.

For this class, students will be expected to perform at a 70% success level or higher in Type A and B skills to be considered competent. There will be no minimum performance threshold for Type C skills.

As part of competency-based assessment, students will be given more than one opportunity to display competence. Thus, for Type A and B skills, there will be at least two opportunities to exhibit basic competence. These opportunities may be manifested as portions of later assignments replacing performance on earlier assignments (that cover similar skill sets) and/or "Top Up" opportunities. Top Ups will be proctored opportunities to demonstrate skills during optional coursespecific help sessions (see **End-of-Day Help Sessions**) or during optional Top Up Help Sessions, which are spread throughout the term's schedule.

Note that the final course grade will be a weighted average of the achieved grades in each module. See **Course Learning Outcomes** for relative weights of each module.

Module 1: Single-Block Processes

Type A skills are vital to any success in analyzing processes. Type A skills for this module include converting between unit systems, identifying process variables and types of processes, and interpreting information from block diagrams and flowcharts.

Type B skills include creating block diagrams and flowcharts, conducting degree of freedom analysis, determining appropriate basis for calculations, scaling systems and analyzing simple single-block processes.

Type C skills will focus on abilities to integrate all of the Type A and B skills in order to solve more complex and practical problems.

<u>Type A</u>

- Quiz 1: Week 27 (Unit Conversions)
- Assignment 1: out Week 27, Due Week 28 -> Topped up by Quiz 2 (Week 28) (Processes, Process Variables, Stream Compositions)
- Assignment 2: out Week 28, Due Week 29 -> Topped up by Quiz 3 (Week 29) (Block Diagrams, Types of Processes, Conservation Equations)
- Assignment 3: out Week 29, Due Week 30 -> Topped up by Module Test 1 (Week 30) (Flowcharts, Basis, Scaling)
- Module Test 1: Week 30 (Flowcharts, Basis, Scaling)

Type A portion of all Quizzes can be Topped Up during End-of-Day Help Sessions or Top Up Help Sessions. Module Test 1 provides Top Up Opportunity for Type A content on Assignment 3.

<u> Type B</u>

- Assignment 2: out Week 28, Due Week 29 -> Topped up by Quiz 3 (Week 29) (Block Diagrams)
- Lab Assignment 1: Week 29 -> Topped up by Lab Assignment 2 (Week 30) (Block Diagrams, Flowcharts, Sets of Equations)
- Assignment 3: out Week 29, Due Week 30 -> Topped up by Module Test 1 (Week 30) (Flowcharts, Basis, Scaling, Sets of Equations, Degree of Freedom Analysis)
- Module Test 1: Week 30 (Block Diagrams, Flowcharts, Basis, Scaling, Sets of Equations, Degree of Freedom Analysis)

Type B portion of all Quizzes can be Topped Up during End-of-Day Help Sessions or Top Up Help Sessions. One Type B Top Up for the Module Test will be announced subsequent to classes ending in the course. Lab Assignment 1 can be Topped Up by Lab Assignment 2.

<u>Type C</u>

- Assignment 3: out Week 29, Due Week 30 (Degree of Freedom Analysis)
- Module Test 1: Week 30 (Degree of Freedom Analysis)

Top Up opportunities - none

Module 2: Multi-Block Processes

Type A skills include interpreting information from block diagrams and flowcharts, calculating rates of generation or loss within a process, and identifying rate limiting variables.

Type B skills include applying degree of freedom analysis and bookkeeping techniques to analyze multi-block processes, selecting the appropriate type of process to solve a practical problem, and modeling real-world systems as processes.

Type C skills will focus on abilities to integrate all of the Type A and B skills in order to solve more complex and practical problems.

<u>Type A</u>

- Assignment 5: out Week 31, Due Week 31 -> Topped up by Module Test 2 (Week 32) (Rates of Generation/Loss, Rate Limiting Variables)
- Module Test 2: Week 32 (Rates of Generation/Loss, Rate Limiting Variables)

Module Test 2 provides Top Up Opportunity for Type A content on Assignment 5.

<u> Type B</u>

- Assignment 4: out Week 30, Due Week 31 -> Topped up by Quiz 4 (Week 31) (Multi-Block Degree of Freedom Analysis, Bookkeeping, Solution Strategies, Special Units and Blocks)
- Lab Assignment 2: Week 30 (Solving System of Equations from a Multi-Block Process using Matlab)
- Assignment 5: out Week 31, Due Week 31 -> Topped up by Module Test 2 (Week 32) (Multi-Block Processes with Rates of Change, Degree of Freedom Updating Tables)
- Module Test 2: Week 32 (Block Diagrams, Flowcharts, Multi-Block Degree of Freedom Analysis, Bookkeeping, Solution Strategies, Special Units and Blocks, Rates of Change, Degree of Freedom Updating Tables)

Type B portion of all Quizzes can be Topped Up during End-of-Day Help Sessions or Top Up Help Sessions. One Type B Top Up for the Module Test will be announced subsequent to classes ending in the course. Lab 2 can be Topped Up during End-of-Day Help Sessions or Top Up Help Sessions.

<u> Type C</u>

- Assignment 4: out Week 30, Due Week 31 (Multi-Block Degree of Freedom Analysis, Bookkeeping, Solution Strategies, Special Units and Blocks)
- Lab Assignment 2: Week 30 (Solving System of Equations from a Multi-Block Process using Matlab)
- Assignment 5: out Week 31, Due Week 31 (Multi-Block Processes with Rates of Change, Degree of Freedom Updating Tables)
- Module Test 2: Week 32 (Block Diagrams, Flowcharts, Multi-Block Degree of Freedom Analysis, Bookkeeping, Solution Strategies, Special Units and Blocks, Rates of Change, Degree of Freedom Updating Tables)

Top Up opportunities (none)

Competence Thresholds

A "module mark" (out of 100) will be calculated for each of the modules in the course. For each module, students must achieve at least 70% overall in the Type A skills **and** at least 70% overall in the Type B skills in order to pass the module with a level of "basic competence". If a student achieves at least 70% in a module's Type A skills and in a module's Type B skills, their module mark will be calculated as per the following section (**Grade Calculations**). If a student fails to achieve at least 70% in either or both of the Type A and B skills, they will receive a maximum grade of 49% for the module.

If a student achieves at least 70% in the Type A and B skills in both modules, their course mark will be a weighted average of the two module marks. If a student fails to achieve "basic competence" in one module, they will fail the course, receiving an overall grade of 49%, or their calculated grade, whichever is lower. However, if they choose to redo the course in the future, they will be given credit for the module they did pass (at the discretion of the instructor), with the passing mark that they did achieve (unless they want to redo the module for a better mark). If a student fails to achieve "basic competence" in both modules, they will fail the course and will be required to redo both modules in the future.

Grade Calculations

All assessments will be marked on a percentage scale, by type (A/B/C) and by learning outcome e.g. Assignment 2 will have 3 sub-marks (two for LO1.2 (1 Type A and 1 Type B) and one for LO1.3 (Type A)). Each percentage mark will be accompanied by a competency descriptor (exemplary, proficient, basic competence, almost competent, not yet competent).

To calculate the grade for Type A skills in each module, Type A grades from questions on each assessment in that module will be applied against the respective learning outcome(s) they each assess. After each assessment, a student's Type A Running Average for each learning outcome is recalculated. If the Type A skills for a given learning outcome are assessed on the current assessment, and the achieved grade is greater than the Type A Running Average for that learning outcome, it becomes the new Type A Running Average for that learning outcome. If the Type A skills for a given learning outcome are assessed on the current assessment, and the achieved grade is less than the Type A Running Average for that learning outcome, the new Type A Running Average for that learning outcome is a simple mean of the current Running Average and the Type A grade on the current assessment. The repetition of material on the weekly assignments in the following week's quizzes allows for predictable weekly Top Up opportunities on all Type A skills. Type A content on guizzes can be Topped Up in end-of-day help sessions and Top Up help sessions and Type A grades in those Top Ups are further applied as described above.

The module tests will also include Type A questions where assessment scheduling does not allow for a Quiz to be conducted between the due date of an assignment and the writing of a module test. The grade for Type B skills is calculated in the same manner as described for Type A skills, but using the Type B questions on each assessment in each module. Type B content on quizzes can be Topped Up in end-ofday help sessions and Top Up help sessions and Type B grades in those Top Ups are further applied as described above.

The module test will also include Type B questions which provides an additional opportunity for students to improve their grade on Type B content for learning outcomes that include Type B assessments. Type B content covered on the module test can be further Topped Up after the course ends, if required. Only one opportunity to Top Up the Type B content on the module test will be permitted.

To calculate the grade for Type C skills, the Type C scores from each assessment within each module are averaged. They cannot be Topped Up (quizzes will only include Type A and B questions). Instead, a Type C percentage will be established for each learning outcome that has Type C assessments. Applying the weights of each learning outcome, a final Type C percentage score for the module will be calculated.

Important note: L01.2 and L02.1 are the same: "draw and interpret block diagrams and flowcharts". At the discretion of the instructor, improved performance on assessments under L02.1 during Module 2 may be used to overwrite previous evidence of L01.2, if it benefits the student. Furthermore, as L02.2 is a continuation of L01.3, "characterize and solve single-block processes by conducting degree of freedom analyses" which extends to more complex, multi-block processes, improved performance on assessments under L02.2 during Module 2 may be used to overwrite previous evidence of L01.3, if it benefits the student.

Keeping Track of Grades

Throughout each module in the course, students will be able to monitor their progress in three complementary respects, for each module:

- marks on deliverables students will see how they do on each assignment/quiz
- marks on Type A/B/C work students will see how they are doing at each level of skill difficulty in the course, and
- marks on Learning Outcomes students will see how they are doing against each of the learning outcomes for each module, as they complete elements of them.

Attendance and Attendance and participation is encouraged/expected, and students will be responsible for what happens in classes e.g. quizzes. However, attendance will not be mandatory (or marked).

Criteria That	See Assessment (Competence Thresholds), above.		
Must Be Met to			
Pass:			

Final Grades: The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php

For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website:

https://secretariat.usask.ca/student-conduct-appeals/index.php

AcademicMore information on the Academic Courses Policy on course delivery,
examinations and assessment of student learning can be found at:

http://policies.usask.ca/policies/academic-affairs/academic-
courses.php

Learning
Charter:The University of Saskatchewan Learning Charter is intended to define
aspirations about the learning experience that the University aims to
provide, and the roles to be played in realizing these aspirations by
students, instructors and the institution. A copy of the Learning Charter
can be found at: https://teaching.usask.ca/about/policies/learning-

Course Overview:

In this course students will learn the basic principles of process engineering. This course is divided into 2 sequential modules: Module 1 focuses on analysis of single-block processes. Module 2 focuses on analysis of multi-block processes.

Module 1: Single-Block Processes starts with an overview of process engineering. Then, unit systems, dimensional homogeneity and dimensionless quantities are presented. The concepts of process streams and process blocks are then described so that block diagrams of processes can be developed. Conservation equations are described. Scaling of systems, along with the concept of basis are introduced followed by variable specification (design variables), equation independence, and Degree of Freedom analysis.

Module 2: Multi-Block Processes describes and analyzes multi-block systems. Degree of Freedom analysis is revisited and then bookkeeping of these systems is presented as a methodology to develop solution strategies for process design. The concepts of processes with single and multi-rate equations, along with selectivity and yield are introduced. The effects of sources and sinks are discussed.

Throughout the course, examples are presented from a wide range of areas including, but not limited to: general population balances; health care process systems; biological systems;

food processing system; financial processes; manufacturing systems; bioremediation; water treatment; leaching; and unit operations. There are five assignments and also two laboratories, in which a simple and a complex process will be developed. Matlab will be used to solve systems in some assignments and both laboratories.

WEEK of Program	Lecture Topic	Approx. Lecture Hours	Lab Topic	Approx. Lab Hours
WEEK 27 Module 1	 1. Introduction 1.1 What is Process Engineering? 2. Units 2.1 Derived Units 2.2 Dimensional Homogeneity 2.3 Dimensionless Units 3. Processes 3.1 Process Variables 3.2 Rates 3.3 Process Stream Composition 3.4 Process Types 	4.5		
WEEK 28 Module 1	 4. Process Blocks 5. Conservation Equations 5.1 Examples: Population Balance, Distillation 6. Flowcharts 6.1 Examples: Fast Food Operation, Combustion System, Bacterial Incubator/Bioremediation Unit ASSIGNMENT 1- DUE QUIZ 2 (IN CLASS) 	4.5		

WEEK 29 Module 1/2	7. Basis and Scaling 8. Independent Process Balance Equations 8.1 Example: Equation Independence of a Simple Mixer 9. Degrees of Freedom 9.1 Example: Degrees of Freedom of a Simple Mixer 10. Specifying a Process for Solution 10.1 Example: Textiles Dying System Start of Module 2 Content in Lectures 11. Degree of Freedom for Multi-Unit Processes 11.1 Example: Two-Unit Separation Manufacturing Scheme ASSIGNMENT 2- DUE	4.5	1. Modeling of a Single-Unit Process LAB ASSIGNMENT 1 - DUE	3
	QUIZ 3 (IN CLASS)			

WEEK 30 Module 2	12. Book Keeping and Solution Strategies 12.1 Examples: Fast-food Process Revisited, Hospital Emergency Room, Economics/Cash Flow 13. Special Units and Blocks 13.1 Examples: Distillation Column with Recycles MODULE TEST 1 (IN CLASS) ASSIGNMENT 3- DUE	4.5	Start of Module 2 Content in Labs 2. Modeling of a Multi-Unit Process 2.1 Applying Matlab to solve the resulting system of equations LAB ASSIGNMENT 2 - DUE	3
WEEK 31 Module 2	 14. Effects of Rates in Processes 14.1 Examples: Ammonia Reactor, Currency Generation 14.2 Limiting Rates 14.3 Degree of Freedom Analysis with Rates 15. Degree of Freedom Updating Tables 15.1 Example: Metabolism 16. Multiple Rate Processes 16.1 Selectivity 16.2 Conversion and Yield of Variables 16.3 Examples: GeoE Leaching Problem, ChE Reactor Problem 16.3 Bookkeeping with Multiple Sources and Sinks ASSIGNMENT 4 - DUE QUIZ 4 (IN CLASS) ASSIGNMENT 5 - DUE 	4.5		
WEEK 32	Module Test 2 (Evening)			

Assignments: (see Assessment)

Quizzes: (see Assessment)

Missing Quizzes:

Missed quizzes (for any reason) receive a mark of zero. However, quizzes can be Topped Up during End-of-Day Help Sessions or Top Up Help Sessions.

Late Assignments:

Late assignments and lab assignments receive a mark of zero. However, assignments can be Topped Up by the following week's quiz. Lab assignments can either be Topped Up by subsequent lab assignments or through direct Top Up assessments.

In the case of sickness, bereavement or other excusable absences, students will not be penalized for late submissions although they may be required to complete a variation on the original assignment. They can alternatively choose to treat a missed assignment as a **Late Assignment**.

Module Tests:

- This course is comprised of 2 modules. Each module will end with a module test conducted outside of class time as a required activity outside class time. The module test will only assess the content of that specific module. The schedule for the Module Tests is:
 - Module 1: Single-Block Processes: Week 30, Day and Time TBD
 - 1.5 hrs, covering only content from Module 1: Single-Block Processes
 - Closed book, 1 formula sheet allowed
 - No electronic devices, including calculators, phones and watches, with document storage and/or communication capabilities allowed
 - Module 2: Multi-Block Processes: Week 32, Day and Time TBD
 - 1.5 hrs, covering only content from Module 2: Multi-Block Processes
 - Closed book, 1 formula sheet allowed
 - No electronic devices, including calculators, phones and watches, with document storage and/or communication capabilities allowed
- Students should avoid making prior travel, employment, or other commitments at these times. If a student is unable to write a module test through no fault of their own for medical or other acceptable reasons, documentation must be provided and an opportunity to write the missed module test <u>may</u> be given. Students are encouraged to review all examination policies and procedures:

http://students.usask.ca/academics/exams.php

• Alternate times to write Module Tests will not be considered except in the case of acceptable reasons, such as illness, bereavement, etc, or a conflict with other university related activities.

• Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines.

Required Activities Outside of Class Time

The Module Tests are written outside of class time (see **Module Test**).

Proctored reassessment of work that does not meet the competence threshold may be conducted outside of regularly scheduled class time. This includes rewriting in-class quizzes, redoing other work completed, and submitted, during class time and rewriting module tests. This reassessment will occur during designated Top Up Help Sessions during the day or during course-specific help sessions (see **End-of-Day Help Sessions**). Students are encouraged to avoid making prior travel, employment, or other commitments at these times to ensure availability to take advantage of these additional opportunities to demonstrate competence in the course learning outcomes.

Experiential Learning

Students will be engaging in problem solving in class and modeling in the labs.

Important Dates:

Sept x, 2021	First day of Fall classes
Sept y, 2021	Last day for making changes in registration for first-term courses
	(100% tuition credit).
Nov zz, 2021	Fall Break (Week 11)
Nov xx, 2021	Last day to withdraw from Fall classes
Thanksgiving	Holidays
Dec yy, 2021	Last day of classes

Required Resources

Required Textbook:

This course will use the following open text: xxxxxxxxxxx

Textbooks are available from the University of Saskatchewan Bookstore: <u>https://bookstore.usask.ca/students.php#MyTextbooks</u>

Other Required Materials:

A laptop computer which conforms to the Usask First Year Engineering Laptop Specifications.

Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.

Electronic Resources:

Matlab 2021a

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints & Appeals (https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/.</u>

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning* (http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Help session to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityHelp session</u>

Safety:

Safety is of paramount importance in the College of Engineering. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Emergency Response Plan:

Preparing for emergencies protects our lives and property. An emergency response plan (ERP) posting is located in each classroom and lab near the main door of the room. Students are advised to review and be familiar with the College ERP and be aware that when an alarm sounds for more than 10 seconds, the building must be evacuated. Muster point locations are posted at each entrance of the Engineering Building. For more details about the ERP, please visit the following website: https://engineering.usak.ca/documents/facilities/ERP%20-%20ENG%20-%20ENG%20-%200%20-%2009_01_2017.pdf

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit

<u>http://www.usask.ca/copyright/students/rights/index.php</u> or contact the University's Copyright Coordinator at <u>copyright.coordinator@usask.ca</u>.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in th e process of becoming Professional Engineers, it is expected that students will conduct themselves i n an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit https://students.usask.ca/health/centres/access-equity-services.php, or contact AES at 306-966-7273 or aes@usask.ca.

Students registered with AES may request alternative arrangements for mid-term and final examinations or module tests. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>

End-of-day help session sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see **End-of-day Help Sessions** for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

					Instruc	tional Le	vel‡					
Learning						Attri	bute [†]					
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1.1	Ι											
1.2	Ι	Ι					Ι					
1.3	Ι	Ι			D							
2.1	Ι	Ι					D					
2.2	Ι	D			D							
2.3	Ι	D			D							

†<u>Attributes</u>:

- A1 A knowledge base for engineering
- A2 Problem analysis
- A3 Investigation
- A4 Design
- **A5** Use of engineering tools
- A6 Individual and team work
- A7 Communication skills
- A8 Professionalism
- A9 Impact of engineering on society and the environment
- A10 Ethics and equity
- A11 Economics and project management
- A12 Life-long learning

<u>Instructional Level</u>:

Introduced (I) – Students learn the working vocabulary of the area of content, along with some of the major underlying concepts.

Developed (D) – Students use their working vocabulary and major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar contexts.

Applied (A) – Students approach mastery in the area of content. They explore deeply into the discipline and experience the controversies, debate, and uncertainties that characterize the leading edges of any field. They practice, extend, or refine knowledge in unfamiliar contexts.

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
0%	0%	0%	100%	0%

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: CHE 113
- 2.2 Academic credit units: 3
- 2.3 Course Long Title (maximum 100 characters): Unit Operations in Chemical Process Engineering

Course Short Title (maximum 30 characters): Unit Ops in Chem Process Eng

- 2.4 Total Hours: Lecture 24 Seminar Lab 18 Tutorial Other
- 2.5 Weekly Hours: Lecture Seminar Lab Tutorial Other
- 2.6 Term in which it will be offered: T1 T2 T1 or T2 T1 and T2
- 2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course is designed to introduce first year students to the building block of chemical engineering processes: the unit operation. The fundamentals of chemical plant design, process flow diagrams, and unit operations will be illustrated both by lecture and by laboratory experiments. The lecture component will focus on full-scale equipment used in industry and, in parallel, experiments using some of that same equipment will be undertaken at the bench-scale. A bench-scale batch chemical plant will be built along with a paper-design of a full-scale plant. The course will culminate in a field trip to an industrial plant.

- 2.9 Do you allow this course to be repeated for credit? No
- 3. **Please list rationale for introducing this course:** This is part of the integrated curriculum in the redesigned first year program.

4. Please list the learning objectives for this course:

By the end of this course, students will be expected to:

- 1. explain the concept of the Unit Operation and how the Unit Operation can be used to develop a Process Flow Diagram of chemical processes,
- 2. develop a Process Flow Diagram,
- 3. categorize chemical process equipment,
- 4. perform basic calculations (short-cut equipment design) on the unit operations illustrated in the laboratory section of the course, and
- 5. display competence in measuring process variables and performing analysis of data taken at the bench-scale.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No If so, were these departments consulted? (Include correspondence)

Were any other departments asked to review or comment on the proposal? Yes, within the College and we worked with the Gwenna Moss Centre for Teaching and Learning.

6. **Other courses or program affected** (please list course titles as well as numbers)

- 6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)
- 6.2 Courses for which this course will be a prerequisite?
- Any changes to the course prerequisites in the programs will be submitted in future UCC.
- 6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 150
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

The methods of assessment and their respective weightings are given below:

Assignments (5):	10%
Laboratories (6):	30%
Midterm Exam:	10%
Final Exam:	50%

9.1 How should this course be graded?

_	
C – Completed Requirements	

 (Grade options for instructor: Completed Requirements, Fail, IP In Progress)
N – Numeric/Percentage
(Grade options for instructor: grade of 0% to 100%, IP in Progress)
 P – Pass/Fail
(Grade options for instructor: Pass, Fail, In Progress)
S – Special
(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? No

10. Required text

Include a bibliography for the course:

Chemical Engineering Process Design and Economics, A Practical Guide, 2nd Edition, Ulrich, G.D. & Vasudevan, P.T., Process Publishing, New Hampshire, 2004

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget these courses will be replacing others.
- 11.3 Are sufficient library or other research resources available for this course? Yes, Course notes and references to other online resources will constitute the required reference materials. The Library will also put useful reference materials and texts on reserve.
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? NA

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)

IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

- 2.2 For the College of Arts and Science only: To which program type does this course belong?
 - FNAR Fine Arts
 - HUM Humanities
 - SCIE Science
 - SOCS Social Science
 - ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

College of Engineering only

- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course
 MATH 134 Engineering Mathematics II

GE 163 – Process Engineering

- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here:

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:

CHE 113.3 Unit Operations in Chemical Process Engineering Winter 2022



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructors and Teaching Assistants:	Name: TBD Office: TBD Phone: TBD Email: TBD Optional: Instructor Profile
Office Hours:	TBD
Lectures:	Weeks: 32 – 34 Classes: Six 1.5 hr classes in Weeks 32 and 34, Four 1.5 hr classes in Week 33 (a total of 16 classes)
Laboratory:	Weeks: 32 – 34 Labs: Two 3 hr labs per week (a total of 6 labs)
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. <u>https://bblearn.usask.ca/</u>
End-of-Day Help Sessions	End-of-day help sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses.
	Unit Operations in Chemical Process Engineering will have end-of-day help sessions 3 times a week in Weeks 32, 33 and 34.
Description :	This course is designed to introduce first year students to the building block of chemical engineering processes: the unit operation. The fundamentals of chemical plant design, process flow diagrams, and unit operations will be illustrated both by lecture and by laboratory experiments. The lecture component will focus on full-scale equipment used in industry and, in parallel, experiments using some of that same equipment will be undertaken at the bench-scale. A bench-scale batch chemical plant will be built along with a paper-design of a full-scale plant. The course will culminate in a field trip to an industrial plant.
Pre or co- requisites:	MATH 134 – Engineering Math II GE 163 – Process Engineering

Course Reference Numbers (CRNs):	D ailable from the Dynamic Schedule once courses are built tps://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched)					
Course Learning Outcomes:	 By the end of this course, students will be expected to: explain the concept of the Unit Operation and how the Unit Operation can be used to develop a Process Flow Diagram of chemical processes, develop a Process Flow Diagram, categorize chemical process equipment, perform basic calculations (short-cut equipment design) on the unit operations illustrated in the laboratory section of the course, and display competence in measuring process variables and performing analysis of data taken at the bench-scale. 					
Assessment:	The methods of assessment and their respective weightings are given below:Assignments (5):10%Laboratories (6):30%Midterm Exam:10%Final Exam:50%					
Attendance a Participation						
Criteria That Must Be Met t Pass:	Students must obtain a passing grade (greater than or equal to 50%) in either the midterm exam or the final exam in order to receive a passing grade in this course. A student who does not pass either the midterm exam or the final exam will receive a grade of 49% or the overall mark, whichever is lower.					
	Attendance and submission of laboratory reports is mandatory . Failure to meet these requirements will result in a final grade of 49% or the overall mark, whichever is lower.					
Final Grades:	The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). <u>https://students.usask.ca/academics/grading/grading-system.php</u>					
	For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website: <u>https://secretariat.usask.ca/student-conduct-appeals/index.php</u>					

Academic Courses Policy:	More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: <u>http://policies.usask.ca/policies/academic-affairs/academic-courses.php</u>
Learning Charter:	The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: https://teaching.usask.ca/about/policies/learning-charter.php

Course Content/Schedule:

То	nic	Approximate Lecture Hours
-		Lecture nours
1.	COURSE INTRODUCTION (TEXT CHAPTER 1)	
	1.1. Definition of Chemical Engineering	1
	1.2. Definition of a chemical process	1
	1.3. The context of chemical process design	
2	1.4. Levels of process design	
Ζ.	PROCESS FLOW DIAGRAMS (TEXT CHAPTER 3)	
	2.1. Elements of process flow diagrams	3
	2.2. Creating process flow diagrams	
	2.3. Interpreting process flow diagrams	
3.	EXAMPLES OF CHEMICAL PROCESSES (TEXT CHAPTER 3)	
	3.1.1 or 2 examples from: Steam generation, Potash mill, Water treatment,	3
	ß-Galactosidase via Recombinant E. coli	
4.	UNIT OPERATIONS BY GENERIC EQUIPMENT TYPE (TEXT CHAPTER 4)	
	4.1. Auxiliary facilities	
	4.2. Conveyors	
	4.3. Crushers, mills and grinders	
	4.4. Drives and power recovery machines	
	4.5. Evaporators, vapourizers (explored in the labs)	
	4.6. Furnaces	
	4.7. Gas movers, compressors and exhausters	12
	4.8. Heat exchangers (explored in the labs)	12
	4.9. Mixers (explored in the labs)	
	4.10. Process Vessels	
	4.11. Pumps (explored in the labs)	
	4.12. Reactors (explored in the labs)	
	4.13. Separators (explored in the labs)	
	4.14. Size-enlargement equipment	
	4.15. Storage vessels	
5.	DEVELOPMENT OF A PROCESS FLOW DIAGRAM FOR A DISTILLERY (TEXT	2
	CHAPTER 3)	2
6.	FIELD TRIP TO A DISTILLERY	3

Assignments:

There will be 5 semi-weekly assignments focusing on the technical content of the course. Each assignment is worth 2% of the total course grade (for a total of 10% of the total grade).

Laboratory:

То	Торіс				
1.	MIXING AND BLENDING	3			
2.	REACTION AND FERMENTATION	3			
3.	FILTRATION AND FLUID MOVERS	3			
4.	DISTILLATION AND EVAPORATION & CONDENSATION AND PHASE CHANGE	3			
5.	DILUTION AND GLASSWARE TECHNIQUES	3			
6.	LAB QUIZ	3			

Completion of lab work and the associated deliverables for each lab (including the lab quiz) is worth 5% of the total course grade (for a total of 30% of the total grade).

Attendance and submission of laboratory reports is **<u>mandatory</u>**. Failure meet these requirements will result in a final grade of less than 50% for the course.

Late Assignments:

Late assignments receive a mark of zero. In the case of sickness, bereavement or other excusable absences, students will not be penalized for late submissions although they may be required to complete a variation on the original assignment.

Examinations:

Midterm Exam: Week 33, Day and Time TDB 1 Hour

Final Exam:

Week 34, Day and Time TDB 2 Hours

Examination Policies:

- Examinations may be scheduled outside of regular class time: students should therefore avoid making prior travel, employment, or other commitments at these times. If a student is unable to write an exam through no fault of their own for medical or other valid reasons, documentation must be provided and an opportunity to write the missed exam may be given. Students are encouraged to review all examination policies and procedures: http://students.usask.ca/academics/exams.php
- The student cannot earn a passing grade in the course without having earned a mark of 50% or higher in at least one of the midterm or final exams. A student who does not pass either the midterm or final exam will receive a grade of 49% or the overall mark, whichever is lower.
- All exams are closed book. Students may bring in one 8.5" x 11", double-sided formula sheet.
- The use of electronic devices, including calculators, phones and watches, with document storage and/or communication capabilities is prohibited during exams.
- Alternate times to write midterm examinations will not be considered except in the case of illness or a conflict with other university related activities.

- Alternate times to write final examinations cannot be accommodated. If a student misses a final exam, application must be made to the Engineering Student Centre to write a deferred exam.
- Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines.

Required Activities Outside of Class Time

The midterm exam and the final exam will be written outside of class time.

Experiential Learning

Students will be involved in experimental investigation and design in the laboratory periods.

Important Dates:

TBD	First day of classes
TBD	Last day for making changes in registration for first-term courses
	(100% tuition credit).
TBD	Fall/Winter Break
TBD	Midterm Exam
TBD	Last day to withdraw from T2 classes
TBD	Holidays (if any)
TBD	Last day of classes.
TBD	Final examination

Required Resources

Readings/Textbooks

Chemical Engineering Process Design and Economics, A Practical Guide, 2nd Edition, Ulrich, G.D. & Vasudevan, P.T., Process Publishing, New Hampshire, 2004

Textbooks are available from the University of Saskatchewan Bookstore: <u>https://bookstore.usask.ca/students.php#MyTextbooks</u>

Other Required Materials

None.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken. For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/.</u>

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning*

(http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS</u>)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

Safety is of paramount importance in the College of Engineering. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Emergency Response Plan:

Preparing for emergencies protects our lives and property. An emergency response plan (ERP) posting is located in each classroom and lab near the main door of the room. Students are advised to review and be familiar with the College ERP and be aware that when an alarm sounds for more than 10 seconds, the building must be evacuated. Muster point locations are posted at each entrance of the Engineering Building. For more details about the ERP, please visit the following website: https://engineering.usask.ca/documents/facilities/ERP%20-%20ENG%20-%20ENG%20-%209_01_2017.pdf

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit http://www.usask.ca/copyright/students/rights/index.php or contact the University's Copyright Coordinator at contact the University's Copyright.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit https://students.usask.ca/health/centres/access-equity-services.php, or contact AES at 306-966-7273 or aes@usask.ca.

Students registered with AES may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

 Engineering Student Centre (Rm. 2A05 Engineering Building)

 Email: esc@usask.ca; Phone: 306-966-5274; https://engineering.usask.ca/contact info/esc-office.php

End of day help sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see **End-of-day Help Sessions** for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

	Instructional Level [‡]											
Learning	Learning Attribute [†]											
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1	Ι						Ι					
2	Ι						Ι					
3	Ι	Ι	Ι									
4		Ι	Ι									
5		Ι	Ι		Ι							

#Instructional Loval:

†Attributes:

' <u>Att</u>	<u>ributes</u> :	+ <u>Instructional Level</u> :
A1	A knowledge base for engineering	Introduced (I) – Students learn the working vocabulary of the
A2	Problem analysis	area of content, along with some of the major underlying
A3	Investigation	concepts.
A4	Design	Developed (D) – Students use their working vocabulary and
A5	Use of engineering tools	major fundamental concepts to probe more deeply, to read the
A6	Individual and team work	literature, and to deepen their exploration of the concepts. They
A7	Communication skills	may begin to practice, extend, or refine knowledge in familiar
A8	Professionalism	contexts.
A9	Impact of engineering on society	Applied (A) – Students approach mastery in the area of content.
	and the environment	They explore deeply into the discipline and experience the
A1(Ethics and equity	controversies, debate, and uncertainties that characterize the
A11	L Economics and project	leading edges of any field. They practice, extend, or refine
	management	knowledge in unfamiliar contexts.
A12	Life-long learning	

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
			100%	

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Engineering
- 1.2 Department with academic authority: Associate Dean, Academic Office
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: ME 113
- 2.2 Academic credit units: 3
- 2.3 Course Long Title (maximum 100 characters): Engineering Analysis I Course Short Title (maximum 30 characters): Engineering Analysis I

2.4	Total Hours:	Lecture 24	Seminar	Lab	18	Tutorial	Other
2.5	Weekly Hours:	Lecture	Seminar	Lab		Tutorial	Other
2.6	Term in which it	will be offered	: T1	Т2	T1 or T2	2 T1 an	d T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval (Associate Dean, Academic)

I – Instructor Approval

2.8 Catalogue description (150 words or less):

This course introduces mathematical tools and techniques used to solve mechanical engineering problems. Topics include: intermediate linear algebra, numerical methods for linear systems of equations, solving nonlinear equations, and numerical integration and differentiation. Centre of gravity and centroids, moments of inertia, and vibrations are also introduced. Applications to engineering problems are stressed. The laboratory content consists of two components: numerical modelling and introductory training in parametric solid modelling software.

2.9 Do you allow this course to be repeated for credit? No

3. **Please list rationale for introducing this course:** This is part of the integrated curriculum in the redesigned first year program.

4. Please list the learning objectives for this course:

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

1. add, transpose, multiply, and invert matrices;

- 2. understand a range of techniques to solve linear systems of equations;
- 3. use computational tools to solve linear systems of equations;
- 4. use computational tools to solve a non-linear equation;
- 5. determine eigenvalues and eigenvectors for simple problems;
- 6. articulate various numerical methods and apply them to engineering problem solving; and
- 7. perform numerical differentiation on simple to intermediate functions;

8. perform numerical line integrals, area integrals, and volume integrals on simple to intermediate function;

9. calculate the centroid and moment of inertia for simple to intermediate shapes;

10. perform simple vibration analyses; and

11. demonstrate beginner-level skills in SOLIDWORKS.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? No

If so, were these departments consulted? (Include correspondence)

Were any other departments asked to review or comment on the proposal? Yes, within the College and we worked with the Gwenna Moss Centre for Teaching and Learning.

6. **Other courses or program affected** (please list course titles as well as numbers)

- 6.1 Courses to be deleted? GE 101, GE 111, GE 121, GE 124, GE 125 (for Fall 2021)
- 6.2 Courses for which this course will be a prerequisite?

Any changes to the course prerequisites in the programs will be submitted in future UCC.

6.3 Is this course to be required by your majors, or by majors in another program? Required for Engineering Students as part of the Common First Year.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 200
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

The methods of assessment and their respective weightings are: Assignments 15% Lab reports (3) 15% SOLIDWORKS Certification 5% Final Exam 65% Total 100%

9.1 How should this course be graded?
 C – Completed Requirements
 (Grade options for instructor: Completed Requirements, Fail, IP In Progress)

N – Numeric/Percentage	
(Grade options for instructor: grade of 0% to 100%, IP in Progress)	
P – Pass/Fail	
(Grade options for instructor: Pass, Fail, In Progress)	
S – Special	
(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:	

9.2 Is the course exempt from the final examination? No

10. Required text

Include a bibliography for the course:

Hibbeler, R.C. Engineering Mechanics: Statics & Dynamics, 14thEd., 2016, Pearson.

11. Resources

- 11.1 Proposed instructor: Engineering Faculty
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within College/department budget.
- 11.3 Are sufficient library or other research resources available for this course? Yes.

11.4 Are any additional resources required (library, audio-visual, technology, etc.)? SolidProfessor SolidWorks subscription required (www.solidprofessor.com)

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC07
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> <u>fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class

LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

- 2.2 For the College of Arts and Science only: To which program type does this course belong?
 - FNAR Fine Arts
 - HUM Humanities
 - SCIE Science
 - SOCS Social Science
 - ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: No
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program
 - College of Engineering only
- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course: MATH 134- Engineering Math II (taken), GE 123- Engineering Mechanics II (taken)
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here:

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

• If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.

• If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here:

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:

ME 113.3

Engineering Analysis I Department of Mechanical Engineering Winter 2022



Description:	This course introduces mathematical tools and techniques used to solve mechanical engineering problems. Topics include: intermediate linear algebra, numerical methods for linear systems of equations, solving nonlinear equations, and numerical integration and differentiation. Centre of gravity and centroids, moments of inertia, and vibrations are also introduced. Applications to engineering problems are stressed. The laboratory content consists of two components: numerical modelling and introductory training in parametric solid modelling software.				
Prerequisites:	MATH 134.3 (taken) and GE 123.3 (taken) (Note: The GE 123 is the second mechanics class.) None				
Co-requisites:	TBA				
Instructor:					
Lectures:	Date, Time, Location TBA				
Tutorials:	None				
	Date, Time, Location TBA				
Laboratory:	TBA				
Office Hours:	Assignments, solutions, lab schedules, general course information, and announcements will be				
Website:	posted on the course website/LMS. Students are responsible for keeping up-to-date with the information on the course website/LMS.				
	Link provided here (TBA)				
Course Reference Numbers (CRNs):	TBA (lectures), TBA (laboratory)				
Textbook:	 Hibbeler, R.C. Engineering Mechanics: Statics & Dynamics, 14th Ed., 2016, Pearson. SolidProfessor SolidWorks subscription required (<u>www.solidprofessor.com</u>) 				
Reading List:	None				
Assessment:	The methods of assessment and their respective weightings are:Assignments15%Lab reports (3)15%SOLIDWORKS Certification5%Final Exam65%Total100%				
Final Grades:	The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "Understanding Your Grades").				
	http://students.usask.ca/academics/grades.php				
	For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website:				

	http://www.usask.ca/secretariat/student-conduct-appea	<u>ls/</u>			
	Students receiving a failing grade in this course will be Examination. The supplemental examination grade wi in the final grade calculation.		amination		
	Student failing ME 113 after writing the supplemental to Discontinue faculty action, can apply to the College their required to discontinue year.				
Assignments:	There will be approximately four assignments worth a	total of 15%.			
Tutorials:	None				
Laboratory:	There will be six, 3-hour laboratory periods. (See Cour There are four deliverables associated with the labs, ea 1. Certified SOLIDWORKS Associate (CSW Exam passed – Score = 100% Exam attempted but not passed – Score 2. Linear/non-linear equation solving lab report 3. Numerical integration lab report 4. Numerical differentiation lab report	ch worth 5% of the course gra A) exam pre = 50%	de.		
Quizzes:	None.				
Midterm Exam:	None.				
Final Exam:	The final exam will be a three-hour, written, closed-bo below for the date and time of the final exam. For mor schedules, policies and regulations, please visit the follow	e information on university ex			
	http://students.usask.ca/academics/exams.php				
Rules for Exams:	Electronic devices (e.g., cell phones, computers, tablets, PDA's, smart watches, and tape, CD and digital music players) are not permitted in exams. The use of electronic communication devices during the exams is prohibited, both inside and outside the examination rooms. Access to the internet during these times may be monitored.				
	Students should also be aware of University of Saskatc (http://policies.usask.ca/policies/academic-affairs/acad	•			
Important Dates:	TBA TBA April TBA, 2022 from 7:00 pm to 10:00 pm	First day of classes Last day of classes Final Examination			
Attendance and Participation:	There are no explicit attendance requirements for the levery strongly recommended.	ectures. However, regular atte	endance is		
	It is mandatory that all four laboratory exercises be con maximum course grade will be 48%.	npleted. If all four are not cor	npleted, the		
Recording Lectures:	Video and/or audio recording of lectures is not allow record lectures for their own use with the permission o		s may		
Copyright:	Course materials are provided to students based on their registration in a class, and anything created by their professors and instructors is the intellectual property of the professors and instructors. This includes exams, PowerPoint/PDF slides and other course notes. Additionally,				
ME 113.3	Winter 2022		Page 2 of 6		

other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see <u>http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html</u>).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines, and doing so requires permission from the copyright holder. For more information about copyright, please visit http://www.usask.ca/copyright/students/rights/index.php or contact the University's Copyright Coordinator at copyright/students/rights/index.php or contact the University's Copyright Students/rights/index.php or contact the University's Copyright Coordinator at http://www.usask.ca/copyright/students/rights/index.php or contact the University's Copyright Coordinator at <a href="http://www.usask.ca/copyright.coordinator@usask.ca/copyright.coordinator@usask.ca/copyright.students/ca/copyright.coordinator@usask.ca/copyright.students/ca

Students should be aware that the violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location:

https://www.usask.ca/secretariat/student-conduct-appeals/StudentNon-AcademicMisconduct.pdf

Course Content:

Lecture Overview						
Hours Textbook Lecture Topics						
6		Intermediate Linear Algebra and its Applications				
9		Numerical Methods				
3	9.1-9.4	Centre of Gravity and Centroid				
2	10.1-10.8	Moments of Inertia				
4	22.1-22.5	Vibrations				
24	Total					

		Lecture Details
Day	Hours	Lecture Topics
1	3	Matrix concepts & operations; rank, determinant, and inverse of a matrix
2	1.5	Systems of linear algebraic equations
3	1.5	Eigenvalues and eigenvectors, method of least squares
4	1.5	Introduction to numerical methods
5	1.5	Numerical solution of linear systems
6	1.5	Solution of nonlinear equation by iteration
7	1.5	Interpolation
8	1.5	Numerical integration
9	1.5	Numerical differentiation
10	1.5	Centre of gravity
11	1.5	Centroids
12	1.5	Moments of inertia
13	3	Vibrations
14	1.5	Vibrations

Total	24

	Laboratory Details					
Day	Lab Hours	Laboratory Topics				
3	3	SOLIDWORKS Session 1				
5	3	Solution of linear systems and non-linear equations using Matlab/Octave				
7	3	SOLIDWORKS Session 2				
9	3	SOLIDWORKS Session 3				
12	3	Numerical integration using Matlab/Octave				
14	3	Numerical differentiation using Matlab/Octave				
Total	18					

Student Conduct: Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with their colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking. However, if you have questions at any time during lectures, please feel free to ask (chances are very good that someone else may have the same question as you do).

For more information, please visit the Student Conduct and Appeals section of the University Secretary's website:

http://www.usask.ca/secretariat/student-conduct-appeals/

Academic Honesty: The latter part of the above statement from the APEGS Code of Ethics discusses giving credit where it is due. At the University, this is addressed by university policies on academic integrity and academic misconduct. In this class, students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow the rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct.

For more information on academic integrity and university policies on academic misconduct, please visit the following websites:

http://www.usask.ca/integrity/ http://www.usask.ca/secretariat/student-conduct-appeals/

Safety:	The APEGS Code of Ethics also states that Professional Engineers shall "hold paramount the safety, health and welfare of the public and the protection of the environment and promote health and safety within the workplace" (Section 20(a), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).					
	Safety is taken very seriously by the Department of Mechanical Engineering. Students are expected to work in a safe manner, follow all safety instructions, and use any personal protective equipment provided. Students failing to observe the safety rules in any laboratory will be asked to leave.					
	Preparing for emergencies protects our lives and property. An emergency response plan (ERP) posting is located in each classroom and lab near the main door of the room. Students are advised to review and be familiar with the College ERP and be aware that when an alarm sounds for more than 10 seconds, the building must be evacuated. Muster point locations are posted at each entrance of the Engineering Building. For more details about the ERP, please visit the following website:					
	https://engineering.usask.ca/documents/facilities/ERP%20-%20ENG%20- %20v%205%200%20-%2009_01_2017.pdf					
Policies:	Further information on class delivery, examinations, and assessment of student learning, can be found at the following website:					
	http://policies.usask.ca/policies/academic-affairs/academic-courses.php					
Support Services:	For Academic Advising, students can contact the department's Undergraduate Program Chair or visit the <u>Engineering Student Centre</u> . A wide range of Academic Support programs are provided by <u>Student Learning Services</u> . Other university support services are available through <u>Student Wellness Centre</u> , <u>Student Affairs and Outreach</u> , and <u>Access and Equity Services (AES)</u> . For more information, please visit the following websites:					
	http://engineering.usask.ca/service-and-support/engineering-student-centre.php					
	http://www.usask.ca/ulc/					
	https://students.usask.ca/health/centres/wellness-centre.php https://students.usask.ca/health/centres/student-affairs-and-outreach.php					
	https://students.usask.ca/health/centres/access-equity-services.php					
Learning Outcomes:	By the end of this course, students will be able to:					
	1. add, transpose, multiply, and invert matrices;					
	2. understand a range of techniques to solve linear systems of equations;					
	3. use computational tools to solve linear systems of equations;					
	4. use computational tools to solve a non-linear equation;					
	5. determine eigenvalues and eigenvectors for simple problems;					
	6. articulate various numerical methods and apply them to engineering problem solving; and					
	7. perform numerical differentiation on simple to intermediate functions;					
	8. perform numerical line integrals, area integrals, and volume integrals on simple to intermediate function;					
	9. calculate the centroid and moment of inertia for simple to intermediate shapes;					
	10. perform simple vibration analyses; and					
	11. demonstrate beginner-level skills in SOLIDWORKS.					
NE 112.2						

Graduate Attribute Mapping:

Instructional Level*												
Learning		Graduate Attribute**										
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1	D	D			D							
2	D	D										
3	D	D			D							
4	D	D			D							
5	D	D										
6	D	D										
7	D	D			D							
8	D	D			D							
9	D	D			D							
10	D	D										
11	D				D							

**Graduate Attributes:

- A1 A knowledge base for engineering
- A2 Problem analysis
- A3 Investigation
- A4 Design
- **A5** Use of engineering tools
- A6 Individual and team work
- A7 Communication skills
- A8 Professionalism
- **A9** Impact of engineering on society and the environment
- A10 Ethics and equity
- A11 Economics and project management
- A12 Life-long learning

*Instructional Level:

Introduced (I) - Students learn the working vocabulary of the area of content, along with some of the major underlying concepts.

Developed (D) - Students use their working vocabulary and major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar contexts.

Applied (A) - Students approach mastery in the area of content. They explore deeply into the discipline and experience the controversies, debate, and uncertainties that characterize the leading edges of any field. They practice, extend, or refine knowledge in unfamiliar contexts.

Accreditation Unit (AU) Mapping: (% of total class AU)

		Complementary		
Math	Natural Science	Studies	Engineering Science	Engineering Design
75%			25%	

Accreditation Data Collection and Privacy:

Undergraduate majors in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities are anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



UNIVERSITY OF SASKATCHEWAN College of Arts and Science OFFICE OF THE DEAN ARTSANDSCIENCE.USASK.CA

MEMORANDUM

То:	Undergraduate Academic Programs Committee, College of Engineering
From:	Alexis Dahl, Director of Programs, College of Arts & Science
CC:	Gordon DesBrisay, Vice-Dean Academic, College of Arts & Science
Date:	February 3, 2020
Re:	College-level approval of Science courses to be included in the revised Engineering First Year program requirements

The Academic Programs Committee (B.Sc.) has approved the proposals for the following courses, at the college-level, on behalf of the College of Arts & Science:

BIOL 102.1 Nature of Engineering

CHEM 142.1 The Global Impact of Chemistry for Engineering

CHEM 146.3 General Chemistry for Engineering

CMPT 142.3 Introduction to Computer Science for Engineers

CMPT 146.3 Principles of Computer Science for Engineers

GEOL 102.1 Introduction to Geology for Engineering

MATH 133.4 Engineering Mathematics I

MATH 134.3 Engineering Mathematics II

PHYS 152.1 Introduction to Atoms and Nuclei for Engineering

PHYS 156.3 Electromagnetism and Waves for Engineering

The College of Arts & Science Faculty Council will be informed of the approval of these courses in the Items for Information document submitted by the committee, to the February 4, 2020 meeting.

Pending approval of the program revisions by the College of Engineering, the College of Arts & Science will collaborate with your college to submit a joint proposal to the Academic Programs Committee of Council, such that the new program and the constituent courses proceed through the university-level approval processes concurrently.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Arts & Science
- 1.2 Department with academic authority: Department of Biology
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: BIOL 102
- 2.2 Academic credit units: 1
- 2.3 Course Long Title (maximum 100 characters): Nature for Engineering Course Short Title (maximum 30 characters): Nature for Engineering

2.4	Total Hours:	Lecture 9	Seminar	Lat	b 6	Tutorial	Other
2.5	Weekly Hours:	Lecture 3	Seminar	Lat	o 3	Tutorial	Other
2.6	Term in which i	t will be offer	ed: T1	T2	T1 or	T2 T1 aı	nd T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- <u>H Department Approval</u>
 - I Instructor Approval

2.8 Catalogue description (150 words or less):

Human activity is altering environments and biodiversity with profound effects on ecosystems. This course will explore foundational principles of ecology and the causes, consequences and solutions to questions about anthropogenic changes in biodiversity and ecosystems.

2.9 Do you allow this course to be repeated for credit? No

3. Please list rationale for introducing this course:

Currently a number of Arts & Science departments contribute to the <u>Common First Year</u> for the College of Engineering Bachelor of Science in Engineering (B.E.) program. The College of Engineering is in the process of redesigning this Common First Year to create the most effective first year engineering program in Canada. They are working hard to create something that will excite, engage and inspire their students, and to holistically prepare them for the challenges to come in later years. This project has been underway since 2016-2017 and has a planned launch of Fall 2021. Over this time there has been extensive consultation between the College of Engineering and specific Departments in the College of Arts & Science. A suite of new Science courses are being proposed for use in this redesigned Common First Year which will replace or complement the use of existing courses.

The College of Engineering wishes to provide their first-year students with broad exposure to four of the Natural Science disciplines in the College of Arts and Science (Biology, Chemistry, Geological Sciences, and Physics). This is to be achieved through short (1 cu) courses in each of these disciplines. Each of the four courses will be delivered in the Fall term. The first-year cohort of engineering students will be divided into four groups and these groups will progress through the four disciplines in rotation. Each course will consist of nine hours of lectures and two, 3-hour labs components. By the end of the term, all first year engineering students will have progressed through all of the courses, having received 36 hours of lecture-based instruction and twenty-four hours of lab/practicum-based instruction.

The plan outlined above necessitates that each course is focused on a subset of disciplinary topics that can be delivered consistently at four distinct times over the term. To facilitate student learning, it was agreed that the four Science courses would seek some commonality in the topics delivered. To that end, it was agreed that the "environment" and "climate change" would be logical candidates. Thus, chemistry will have lab exercises investigating warming associated with different greenhouse gases, physics will discuss blackbody radiation within their course, geological science will deal with Earth system interactions and changes over time, and biology will focus on anthropogenic effects on biodiversity and ecosystems, including human-induced climate change. The four courses will have a common final examination in December with 45 minutes allotted to each course. Beyond that, courses will have a diversity of assignments, labs, quizzes, reports, or an exam at the end of their sections.

Each of these four 1 cu courses will have "GE 102 - Introduction to Engineering" I listed as a Pre- or Co-Requisite. The Introduction to Engineering I course will focus on setting the students up to manage their time, reflect upon their study habits and work in groups – all things that will be important to each of the following courses. Perhaps more importantly, this is where the students will be learning to use TopHat, the LMS, other assessment software, and MS Office. Specifically for these Science courses it provides the lab safety training and acts as the vehicle for a reflective assessment that will incorporate what students learn in each of this 1 cu Science courses, effectively linking them together and solidifying the students' learning.

The College of Engineering is also working toward a new competency-based assessment system that will be utilized in the new First Year Engineering courses in Fall 2021. The Arts & Science departments will continue to learn more about this system through 2020-2021 and 2021-2022 as it is implemented in Engineering, and will then determine how it can be used in the Science courses attached to the Engineering Common First Year. Revisions to the courses, to implement this assessment system, will be submitted to the appropriate College Academic Programs Committee for approval, prior to use in the courses.

Currently, the Department of Biology does not have experience teaching first-year engineering students *en masse*. This means that we cannot rely on previous knowledge about student performance in their first year to calibrate our course and ensure that it is delivered at an appropriate level. An analysis of the current first year engineering cohort revealed that approximately 2/3 of the students did not complete grade 12 biology (Biology 30). This is in contrast with our current introductory biology courses (BIOL 120 and 121) where we know that the overwhelming majority of

the students will have completed Biology 30 as a prerequisite. The engineering students will have grade 12 pre-calculus, physics and chemistry as these are the current entry requirements to the College of Engineering.

The proposed Department of Biology course was developed with these student characteristics in mind. Some adjustments in our approach to the course material may be needed as we gain experience with the course, but the topics and pedagogical methods chosen for the course should allow that to be accomplished within the proposed course structure. Cased-based learning for the laboratories was selected as an alternative to our current laboratories as these can be geared to topics that engineers will likely engage with throughout their careers, and are easily adjusted if we need to recalibrate the course as we proceed. We can also leverage the technology-enhanced learning lab that was recently installed in room 122 of the Biology teaching wing. This facility allows us to offer meaningful active-learning exercises for the engineering students that focus on problem-solving and a team approach. It is also allows us to be parsimonious in the use of our precious teaching laboratories.

There is large variation possible in the cases that can be developed for the labs in the 1 cu course. This variation will be needed as the course will be offered in four sections delivered in series each year (about 150 students in each section). With 600 students in the course, plagiarism will quickly become an issue, especially for written submissions. Once the course is approved, we will have about 1.5 years to develop and refine the cases that will be used in the actual course. The proposed course syllabus sets out one way to teach the labs with a case-based approach. There are many ways to do this and some good online resources are available (two are linked below).

Finally, no textbook will be required for the course. It just did not seem reasonable to require students to purchase a text for a 1 cu course. The proposal lists an online open source text available through Rice University. The proposal for the case studies also makes use of the rich scientific literature in this area that is available through the USask library. A sample Reading List is included in the proposed syllabus. It never seems too early to have university-level students start using the scientific literature, although one does have to be careful in the expectations associated with the use of the literature. By using the literature, it is hoped that the first-year engineering students will see the USask Library as a valuable and tractable resource for their learning.

¹Additional information about case-based learning for BIOL 102 can be found at <u>http://sciencecases.lib.buffalo.edu/cs/about/</u> <u>https://serc.carleton.edu/integrate/index.html</u>

Attachments

Appendix 1: Example of a case study to be provided in week one of the lab exercises. This case will center on the key ecological topic "Invasive Species".

Glass, S.E. and L.S Eberhardt. 2018. A Trip to the Beach. Untangling the Mystery of Algal Blooms in the Great Lakes. <u>http://sciencecases.lib.buffalo.edu/cs/collection/</u>. accessed November 2019.

Appendix II: Example of a research article to be provided to the same group of students in week two of the lab exercises. This group of student would be guided (via written instructions or through interaction with the Teaching Assistants) to direct their case study highlight the ecological topic "Trophic Cascades". This group of students would have dealt "Invasive Species" in the case from their first week.

Atkins, J. L., R. A. Long, J. Pansu, J. H. Daskin, A. B. Potter, M. E. Stalmans, C. E. Tarnita, and R. M. Pringle. 2019. Cascading impacts of large-carnivore extirpation in an African ecosystem. *Science*, 364:173-177.

4. Please list the learning objectives for this course:

By the end of the course, you are expected to:

1. recall core principles and fundamental terminology associated with ecology, biodiversity and ecosystems

2. explain food-web structure and energy flow within an ecosystem, and their relevance to environmental engineering at local and global scales

3. articulate how engineers can better incorporate an understanding of biodiversity and ecosystems in their professional practice in order to minimize environmental impacts to species and human quality of life

4. apply scientific methods and evidence to understand biodiversity and ecosystems

5. work effectively within small groups to investigate multifaceted problems

6. demonstrate proficiency in disseminating your findings through writing and speech

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? This course is for the College of Engineering First Year.

If so, were these departments consulted? (Include correspondence) Yes Were any other departments asked to review or comment on the proposal? Biology, Chemistry, Physics and Geology reps met a number of times regarding these four – 1cu courses. The course also went through the Arts & Science College Challenge, which provides opportunity for responses by all departments in the College.

- 6. **Other courses or program affected** (please list course titles as well as numbers)
 - 6.1 Courses to be deleted? None
 - 6.2 Courses for which this course will be a prerequisite? None
- 6.3 Is this course to be required by your majors, or by majors in another program?

Required course in the first-year as part of revised Engineering program.

No credit allowed in BIOL or ENVB major requirements. Does not meet prerequisite requirements for other BIOL courses. Can only be used to fulfill electives.

Students with credit for all four of BIOL 102.1, CHEM 142.1, GEOL 102.1 and PHYS 152.1 will receive 3 credit units of elective credit in Arts & Science B.Sc. programs and 3 credit units of "science" or "elective" credit in B.A., B.F.A., or B.Mus. programs. Students who do not pass all 4 courses will receive no credit in Arts & Science programs.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Grade Component	%	Learning Outcomes To Be Assessed
End of Section Exam	30	1,2
Final Course Exam	30	1,2,3,4
Group Lab Reports (two)	30	4,5,6
Group Presentation & Video	10	3,4,5,6
Total	100	

9.1 How should this course be graded?

	(Grade options for instructor: Completed Requirements, Fail, IP In Progress)
Γ	N – Numeric/Percentage
	(Grade options for instructor: grade of 0% to 100%, IP in Progress)
-	P – Pass/Fail
	(Grade options for instructor: Pass, Fail, In Progress)
	S – Special
	(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? No – Final exam date may be schedule outside of the normal exam scheduling process.

10. Required text

Include a bibliography for the course.

There is no specific textbook to be purchased for this course. Students can use the following online textbook to support for their learning:

Clark, M. A., Douglas, M., & Hoi, J. (2018). Biology 2e. Houston, Texas : OpenStax, https://openstax.org/books/biology-2e/pages/1-introduction

A Reading List of current scientific research articles relevant to the course is included in the syllabus (attached). You can access these articles through the USask Library.

11. Resources

11.1 Proposed instructor: Biology Faculty (e.g. Chivers, Hudson, Lane, McLoughlin, Morrissey, Trick, Wiebe)

- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within department.
- 11.3 Are sufficient library or other research resources available for this course? Yes
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? Details have been worked out between College of Arts & Science and College of Engineering to fund laboratory costs for this course.

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use <u>tuition category</u>) TC14
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

	FNAR	Fine Arts	
	HUM	Humanities	
Γ	SCIE	Science	
-	SOCS	Social Science	
	ARNP	No Program Type (Arts and Science)	

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

3.1 Permission Required:

3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

Restricted to students in the College of Engineering.

- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course
- GE 102 Introduction to Engineering I
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: None

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here: None

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:



COURSE SYLLABUS

BIOL 102.1 NATURE FOR ENGINEERING COURSE TITLE: COURSE CODE: TERM: Fall 2021 tbd COURSE CREDITS: 1.0 DELIVERY: Lecture & Practicum (Lab) COOURSE SECTION: 01 START DATE: tbd LAB LOCATION: LECTURE LOCATION: tbd room 122 WPT Biology LECTURE TIME: LAB TIMES: tbd (maybe 1:30 to 2:50 pm T/Th) 9:00 to 11:50 am (Tuesday, Wednesday, WEBSITE: via PAWS/Blackboard Thursday or Friday)

Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Course Description

Human activity is altering environments and biodiversity with profound effects on ecosystems. This course will explore foundational principles of ecology and the causes, consequences and solutions to questions about anthropogenic changes in biodiversity and ecosystems.

Note: Restricted to students in the College of Engineering.

Learning Outcomes

By the end of the course, you are expected to

1. recall core principles and fundamental terminology associated with ecology, biodiversity and ecosystems

2. explain food-web structure and energy flow within an ecosystem, and their relevance to environmental engineering at local and global scales

3. articulate how engineers can better incorporate an understanding of biodiversity and ecosystems in their professional practice in order to minimize environmental impacts to species and human quality of life

4. apply scientific methods and evidence to understand biodiversity and ecosystems

5. work effectively within small groups to investigate multifaceted problems

6. demonstrate proficiency in disseminating your findings through writing and speech

Course Overview

The goal of this course is to provide an opportunity for first-year students in the College of Engineering to gain a basic understanding of the science of ecology, appreciate the impacts of

human activity on biodiversity and ecosystems at local, regional and global scales, and see the positive role the engineering profession can play in mitigating the negative effects of these activities. The course is scheduled for three weeks and consists of six lectures (75 minutes each) delivered on Tuesday and Thursday afternoons. In two of the weeks, there is an opportunity for students to apply their knowledge during 3-hour lab exercises. The labs involve interactive group work to study real world problems, and are taught in the Biology-Technology Enhanced Learning Lab (BTEL Lab). All instructors for the course are drawn from the Department of Biology and have a particular enthusiasm for the science of ecology. By the end of the course, we anticipate that students will be able to provide scientifically sound answers to the questions posed in the Lecture Topics listed below. Your course instructors will use their expertise, experience and enthusiasm to help you gain knowledge to answer these questions.

Learning Charter

The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. Information about the Learning Charter can be found at: https://teaching.usask.ca/about/policies/learning-charter.php

Course Schedule

Lectures:

Date	Lecture Topics to be Addressed
Week One Tuesday	Ecology, evolution, biodiversity: definitions Why is biodiversity fundamental to human existence? What is an ecosystem and how is it structured? What is the pattern of energy flow through an ecosystem?
Thursday	What are the abiotic components of terrestrial and aquatic ecosystems? What is an ecological population, what is a community? What is a food web and how are they constructed in different ecosystems? What is biomagnification and how does it relate to food webs and energy flow through ecosystems?
Week Two	What are keystone species?
Tuesday	What is trophic cascade? What are ecosystem engineers? How are habitat loss, pollution, introduced species and overharvesting influencing ecosystems and biodiversity?
Thursday	How do populations/communities respond after a disturbance? What are the similarities and differences between natural (e.g. fire, flood) vs. anthropogenic disturbance regimes? What environmental engineering solutions are there to mitigate impacts of anthropogenic disturbance? What are some lessons learned from large-scale

	engineering projects that have impacted human health and biodiversity? Examples that can be used include dam construction and mitigation: schistosomiasis, loss of agricultural productivity in the Nile Delta from the Aswan High Dam; dams of the Columbia River and elimination of and re-establishment of salmon migration; current impacts of dams along the Saskatchewan River.
Week Three	Climate Change I.
Tuesday	What is the science behind global change biology? How does global climate change interact with other types of anthropogenic disturbance? How is global climate change influencing terrestrial ecosystems? Aquatic ecosystems?
Thursday	Climate Change II. What are ecosystem services? What are some engineering solutions to reduce carbon emissions? At the local scale? At the global scale? What other roles will engineers play in societal adaptation to climate change? What is the impact of climate change from a Saskatchewan perspective? What does climate change look like from an Indigenous Peoples' perspective?

Laboratories:

The practicum will utilize case-based scenarios and require students to work in small groups (maximum four students) to analyze ecosystem functioning, and to identify interventions that will prevent or alleviate problems associated with alterations in biodiversity and ecosystems. Written lab reports and a presentation are required (see Evaluation of Student Performance below). There are a myriad of topics available for these cases. This year, cases will illustrate several key ecological topics: primary production, ecosystem engineer, trophic cascade, biomagnification, invasive species, bioremediation, keystone species, refugia, ecosystem service and ocean acidification. As you progress through the cases, keep in mind that your performance during these lab activities is being assessed by the Teaching Assistants (see Participation & Performance in Laboratory Activities below).

Week One. Each group will be given a case-based scenario to analyze that illustrates one of the ecological topics listed above. Each case will be drawn from a published source(s) and is organized in a way to help you acquire and practice the basic terminology of biodiversity and ecosystems. A structured group report will be due at the end of the lab period. The report will be submitted via the course Blackboard. The hand-in folder will close at the end of the lab period. Reports cannot be submitted after that time.

Prior to the end of the week one lab period (after the group report has been completed or nearly completed), each group will be provided with an original published research article that investigates some aspect of biodiversity and ecology. Whatever time is remaining in the lab can

be used to do an initial read of this article and ask a Teaching Assistant for their advice about the article.

Group homework for the week will be to spend additional time understanding the research article. Your group can also start to prepare a draft of a short powerpoint presentation about the case study that was completed during the week one lab period. Structure this powerpoint so that other students can use it to learn about the specific case and the key ecological topic illustrated by the case.

Week Two. This lab period will focus on the original research article provided in week one. For this week, you will work as a group to extract the salient points from the article and understand how one of the key ecological topics listed above was studied in the research article. Each group will then prepare a case study document (generally modeled on the format used in week one). This case study document should be sufficiently rigorous so that other students in the course can use your group's document to effectively learn about the key ecological topic. Teaching Assistants will select the ten best case studies from the four lab sections and post these on Blackboard for other students in the class to use as they study for the final exam. Groups that have their case study chosen as one of the ten best will receive 2 bonus marks (%) on their overall practicum scores (to a maximum of 25% overall for the practicum). The posted cases will also be used to form questions for the final exam (see Final Course Exam description below). Any remaining time in this lab period should be used to work on the powerpoint presentation from week one.

Group homework for the week will be to complete the presentation and prepare a video (five minutes maximum) of the powerpoint presentation from week one. The video is due during week three, specifically at noon on the day when your lab would normally be held. There are no other formal lab activities scheduled during week three. The presentation must also include an explanation of the role that engineers might play in mitigating the biodiversity and ecosystem effects illustrated by the research articles. The TAs will select the ten best videos from the four lab sections and post these to Blackboard for other students in the class to use as they study for the end of section and final exams. Groups that have their case study video chosen as one of the ten best will receive 2 bonus marks (%) on their overall practicum scores (to a maximum of 25% overall for the practicum).

Instructors

Contact Information

To be determined Office Hours To be determined Instructor Profiles & Other Information To be determined

Required Resources

Textbooks

There is no specific textbook to be purchased for this course. Students can use the following online textbook to support for their learning:

Clark, M. A., Douglas, M., & Hoi, J. (2018). *Biology 2e*. Houston, Texas : OpenStax, https://openstax.org/books/biology-2e/pages/1-introduction

More advanced ecology textbooks are available for purchase through the University Bookstore, but students should not need these to complete the course. The University Library also has many textbooks and other resources available if you wish to pursue the topics of this course on your own. Please feel free to contact the course instructor for further advice on these resources if you wish.

Course Website & Supplementary Resources

Your instructors may make supplementary material available to you through the course blackboard. This material will not replace the lecture experience and you are encouraged to attend all lectures and take your own notes. A supplemental reading list and other material needed for the laboratory will be available as a download from the course Blackboard. Students are responsible for keeping up-to-date with announcements and information posted on blackboard. https://bblearn.usask.ca/

Portable Electronic Device Required

The laboratory portion of this course will require the use of a laptop computer or tablet. Each student is responsible for bringing a laptop or tablet to the lab exercises.

Grade Component	%	Learning Outcomes To Be Assessed
End of Section Exam	30	1,2
Final Course Exam	30	1,2,3,4
Group Lab Reports (two)	30	4,5,6
Group Presentation & Video	10	3,4,5,6
Total	100	

Grading & Assessment Scheme

Evaluation of Student Performance

End of Section Exam

Value: 30% of final course grade

- **Date**: To be scheduled soon after lectures are completed.
- Length: 45 minutes

Format: Multiple choice questions

Description: This will be a closed book exam on material delivered in the lectures. Students may use a calculator during the exam. No phones, laptops, tablets (or other devices with storage and communication capabilities), or other material are allowed in the exam room. Note that this exam is scheduled outside of the regular course meeting times.

Final Course Exam

- Value: 30% of final course grade
- **Date**: To be scheduled during the December final exam period.
- Length: 45 minutes

Format: Multiple choice questions

Description: This will be a closed book exam. It is comprehensive in that it will cover lecture material and incorporate aspects of the laboratories. Approximately ten of the questions on the final exam will require analysis of one or more case-based scenario. Students may use a calculator during the exam. No phones, laptops, tablets (or other devices with storage and communication capabilities), or other material are allowed in the exam room. Note that this exam is scheduled outside of the regular course meeting times.

Group Lab Reports

Value: 30% of final course grade (15% for each report)

Due Date: These are due at the end of each lab period.

Format: These are group reports to be completed before the each lab period. **Description**: During first lab period, students will be directed through a case-based scenario and will provide written answers to specific questions as they analyze the case material in the form of a structured group report. In the second week, each group will analyze a research article and then prepare a case study document (generally modeled on the format they studied in week one). Additional information about the group reports will be provided on the course Blackboard. Teaching assistants for the labs will select the ten best case study for the end of section and final exams. Groups that have their case study chosen as one of the ten best will receive 2% bonus marks on their overall practicum scores (to a maximum of 40% total for the laboratory component of the course). Students are required to know what constitutes plagiarism and the University's Regulations on Academic Student Misconduct (see below). Hand-in folders will be available on the course blackboard for these reports. The folder will close immediately at the end of the lab period.

Group Presentation & Video

Value: 10% of final course grade

- **Date**: This is due in week three of the course, at noon on the day when the lab section would normally be scheduled.
- **Format**: Groups will prepare a 5-minute powerpoint presentation and record a video of their presentation.

Description: The topic for the presentation will be the case material from week two of the labs. The presentation must include an explanation of the role that the engineering profession might play in mitigating the general biodiversity and ecosystem effects illustrated by the case. Teaching Assistants will select the ten best videos from the four lab sections and post these to Blackboard for other students in the class to use as they study for the end of section and final exams. Groups that have their case study chosen as one of the ten best will receive 2% bonus marks on their overall practicum scores (to a maximum of 40% total for the laboratory component of the course). The video should be recorded at sufficient quality to enable effective viewing by other students. Students may use their own recording devices or classroom recording equipment; use of the latter must be arranged through the course instructors. It is expected that all group members will present some aspect of the group video.

Feedback to Students

The lab reports will be graded by teaching assistants who will also watch for plagiarism. Reports will be graded and returned on a schedule such that students will have feedback about their work before they need to submit their second report. Grades will be assigned based on the quality of the written report, including clarity and logic of the writing, grammar and spelling. Video presentations will be graded based on the quality of the presentation, including professionalism. A rubric for the video presentation will be provided trough the course blackboard. During the lab periods, students are encouraged to interact with their Teaching Assistants. However, working with other students in the group to find answers will be encouraged.

Attendance & Participation Expectations

Attendance at both laboratory periods is required. Absence from a lab period will result in an assignment of zero for any group activity missed in that lab period. Students who are ill on the day of the lab or who experience extenuating personal circumstances that require them to miss an lab must contact the course instructor (an email or phone call is adequate) prior to the lab and explain the reason why the lab is being missed. There are no exceptions to this policy; students who fail to proactively advise the instructor that they will miss the lab period will be subject to the penalty noted above. Depending on the situation, additional documentation may be requested from the student. Grades associated with the work that is missed will be transferred to other components of the course. The components to receive extra weighting in these situations will be chosen at the sole discretion of the instructor.

The anticipation is that the labs will be lively with conversations focused on the lab activities. Students who leave before the end of the lab period or those who spend extensive time during the lab period on activities unrelated to the lab will do less well in the course. It is expected that students will adequately prepare for the labs. This includes reading any preparatory material posted on blackboard by the instructors. Week two will require the analysis of a scientific research article. It is expected that students will arrive at this lab period with a basic understanding of the assigned article.

When a student is unable to attend both of the lab periods due to illness or personal circumstance, it is assumed that student will have also missed the lectures delivered in those weeks. This means that the student has been unable to attend a significant component of the course. The student will be referred to the Engineering Student Centre for advice on how to proceed with the rest of the course.

Late Assignments

Group lab reports are due at the end of each laboratory. These must be submitted via the course blackboard no later than the end of the lab period. Late reports will not be accepted. This means that groups must work efficiently during the lab period to complete the assignment each day. Group videos are due during the third week of the course. Videos that are submitted after the due date will have 25% deducted from their value for each day (or portion of a day, including weekends) beyond their due date. This translates into a deduction of 2% from the final course grade for each day that the video is late. Videos submitted on the fifth day (or later) after their due date will be assigned a grade of zero.

End of Section Exam and Final Course Examination Scheduling

The end of section exam will be scheduled after the last lecture. This may be during an evening or weekend, depending on the first year engineering program schedule. An alternate time to write the end of section exam will be considered for students who are ill or who have a conflict for legitimate personal reasons (e.g. employment schedule, child care duties) or with other university-related activities (e.g. practice with Huskie Athletics). Documentation supporting the scheduling conflict may be required. Deferments will not be allowed when the conflict arises from any type of social activity.

The final course examination may be scheduled at any time during the examination period (dates to be inserted here); students should therefore avoid making prior travel, employment, or other commitments for this period. If a student is unable to write an exam through no fault of her or his own for medical, compassionate or other valid reasons, documentation must be provided and an opportunity to write the missed exam <u>may</u> be given. Students are encouraged

to review all examination policies and procedures: http://students.usask.ca/academics/exams.php

Alternate times to write the final course examination cannot be accommodated by the instructor. If a student misses the final exam, application must be made to the Engineering Student Centre to write a deferred exam.

Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines (see information regarding Student Supports below).

Recording of the Course

Students are not allowed to record any aspect of this course, except with the permission of the instructor or as provided for by arrangements with AES. Any recording made under AES provisions is to only be used for the personal learning of the student who made the recording.

Copyright

Course materials are provided to students based on their registration in a class. Any material created by course instructors is the intellectual property of the instructors. This includes exams, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit http://www.usask.ca/copyright/students/rights/index.php or contact the University's Copyright Coordinator at copyright.coordinator@usask.ca.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters" (see Student Conduct section below).

Student Feedback

The Department of Biology or the course instructors may survey students regarding the course. This is generally done through an in-class assessment near the end of the course.

University of Saskatchewan Grading System

The University has established a grading system to be used in all of its courses. Information on literal descriptors for grading at the University of Saskatchewan (reproduced below) can be found at: http://students.usask.ca/academics/grading/grading-system.php Exceptional (90-100) A superior performance with consistent evidence of

- a comprehensive, incisive grasp of the subject matter;
- an ability to make insightful critical evaluation of the material given;
- an exceptional capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

Excellent (80-90) An excellent performance with strong evidence of

- a comprehensive grasp of the subject matter;
- an ability to make sound critical evaluation of the material given;
- a very good capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

Good (70-79) A good performance with evidence of

- a substantial knowledge of the subject matter;
- a good understanding of the relevant issues and a good familiarity with the relevant literature and techniques;
- some capacity for original, creative and/or logical thinking;
- a good ability to organize, to analyze and to examine the subject material in a critical and constructive manner.

Satisfactory (60-69) A generally satisfactory and intellectually adequate performance with evidence of

- an acceptable basic grasp of the subject material;
- a fair understanding of the relevant issues;
- a general familiarity with the relevant literature and techniques;
- an ability to develop solutions to moderately difficult problems related to the subject material;
- a moderate ability to examine the material in a critical and analytical manner.

Minimal Pass (50-59) A barely acceptable performance with evidence of

- a familiarity with the subject material;
- some evidence that analytical skills have been developed;
- some understanding of relevant issues;
- some familiarity with the relevant literature and techniques;
- attempts to solve moderately difficult problems related to the subject material and to examine the material in a critical and analytical manner which are only partially successful.

Failure <50 An unacceptable performance

For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's webpages: https://secretariat.usask.ca/student-conduct-appeals/appeals-in-academic-matters.php

Student Conduct

Integrity Defined

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary webpages (see below) and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

More information on what academic integrity means for students is found in the Academic Integrity webpages hosted by the University of Saskatchewan Library: https://library.usask.ca/academic-integrity.php

Code of Ethics For Engineers

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with his or her colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

Information about expectations and policies about student conduct at the University of Saskatchewan can be found at The Office of the University Secretary webpage. This webpage contains links to several important documents including the Student Discipline Policy, Student Academic Misconduct Regulations, Standard of Student Conduct in Non-Academic Matters, and Procedures for Student Appeals in Academic Matters (see weblinks below).

About Student Conduct:

https://secretariat.usask.ca/student-conduct-appeals/index.php

Appeals in Academic Matters:

https://secretariat.usask.ca/student-conduct-appeals/appeals-in-academic-matters.php Academic Misconduct:

https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php

Non-Academic Misconduct:

https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning https://policies.usask.ca/policies/academic-affairs/academic-courses.php

Safety:

Safety is of paramount importance in the College. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Student Supports

Support Services for Engineering Students

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: esc@usask.ca; Phone: 306-966-5274; https://engineering.usask.ca/contact_info/esc-office.php
- Student Wellness Centre (3rd & 4th Floors, Place Riel): https://students.usask.ca/health/
- Financial Services: https://students.usask.ca/money/

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site:

https://library.usask.ca/studentlearning/

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see https://teaching.usask.ca/about/people/vice-provost-teaching-learning-and-student-experience.php

Examinations through Access and Equity Services (AES)

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with AES if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals. In order to access AES programs and supports, students must follow AES policy and procedures. For more information, check www.students.usask.ca/aes, or contact AES at 306-966-7273 or aes@usask.ca. They are located in Rm. E1, Administrative Building.

Students registered with AES may request alternative arrangements for mid-term and final examinations.

Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Sample Reading List

Albouy, C., et al. (2019). The marine fish food web is globally connected. *Nature Ecology & Evolution* 3, 1153.

Alston, J. M., et a (2019). Reciprocity in restoration ecology: When might large carnivore reintroduction restore ecosystems? *Biological Conservation* 234, 82-89.

Axegard, P. (2019). The effect of the transition from elemental chlorine bleaching to chlorine dioxide bleaching in the pulp industry on the formation of PCDD/Fs. *Chemosphere* 236.

Baltar, F., et al. (2019). Towards Integrating Evolution, Metabolism, and Climate Change Studies of Marine Ecosystems. *Trends in Ecology & Evolution* 34, 1022-1033.

Bartholomee, O. and Lavorel, S. (2019). Disentangling the diversity of definitions for the pollination ecosystem service and associated estimation methods. *Ecological Indicators* 107.

Blanco, J., et al. Interface processes between protected and unprotected areas: A global review and ways forward. *Global Change Biology*.

Carvalho, L. M. V. Assessing precipitation trends in the Americas with historical data: A review. *Wiley Interdisciplinary Reviews-Climate Change*.

Cavan, E. L. et al. (2019). The importance of Antarctic krill in biogeochemical cycles. *Nature Communications* 10.

da Silva, B. M. and Maranho, L. T. (2019). Petroleum-contaminated sites: Decision framework for selecting remediation technologies. *Journal of Hazardous Materials* 378.

DelValls, A., et al. (2019). Integrative assessment of sediment quality in acidification scenarios associated with carbon capture and storage operations. *Environmental Reviews* 27, 333-345.

Dobson, A., Richardson, J. and Blossey, B. Effects of earthworms and white-tailed deer on roots, arbuscular mycorrhizae, and forest seedling performance. *Ecology*.

Erbe, C., et al. (2019). Managing the Effects of Noise From Ship Traffic, Seismic Surveying and Construction on Marine Mammals in Antarctica. *Frontiers in Marine Science* 6.

Freeman, L. A. et al. (2019). Impacts of Urbanization and Development on Estuarine Ecosystems and Water Quality. *Estuaries and Coasts* 42, 1821-1838.

Grudzinski, B. P., Cummins, H. and Vang, T. K. Beaver canals and their environmental effects. *Progress in Physical Geography-Earth and Environment*.

Hammerschlag, N. et al. (2019). Ecosystem Function and Services of Aquatic Predators in the Anthropocene. *Trends in Ecology & Evolution* 34, 369-383.

Hazen, E. L. et al. Marine top predators as climate and ecosystem sentinels. *Frontiers in Ecology and the Environment*.

He, W., et al . Endophyte-assisted phytoremediation: mechanisms and current application strategies for soil mixed pollutants. *Critical Reviews in Biotechnology*.

Hegel, C. G. Z. et al. (2019). Is the wild pig the real "big bad wolf"? Negative effects of wild pig on Atlantic Forest mammals. *Biological Invasions* 21, 3561-3574.

Jakoby, O., Lischke, H. and Wermelinger, B. (2019). Climate change alters elevational phenology patterns of the European spruce bark beetle (Ips typographus). *Global Change Biology* 25, 4048-4063.

Khanaposhtani, M. G. et al. (2019). Effects of highways on bird distribution and soundscape diversity around Aldo Leopold's shack in Baraboo, Wisconsin, USA. *Landscape and Urban Planning* 192.

Kopittke, P. M. et al. (2019). Soil and the intensification of agriculture for global food security. *Environment International* 132.

Kunin, W. E. (2019). Robust evidence of insect declines. *Nature* 574, 641-642.

LaRue, E. A. et al.(2019). Structural diversity as a predictor of ecosystem function. *Environmental Research Letters* 14.

Latty, T. and Dakos, V. (2019). The risk of threshold responses, tipping points, and cascading failures in pollination systems. *Biodiversity and Conservation* 28, 3389-3406.

Liu, T. et al. (2019). Earthworms Coordinate Soil Biota to Improve Multiple Ecosystem Functions. *Current Biology* 29, 3420.

Markkula, I., Turunen, M. and Rasmus, S. (2019). A review of climate change impacts on the ecosystem services in the Saami Homeland in Finland. *Science of the Total Environment* 692, 1070-1085.

Pecchi, M. et al. (2019). Species distribution modelling to support forest management. A literature review. *Ecological Modelling* 411.

Provencher, J. F. et al. (2019). Assessing plastic debris in aquatic food webs: what we know and don't know about uptake and trophic transfer. *Environmental Reviews* 27, 304-317.

Rosenberg, K. V. et al. (2019). Decline of the North American avifauna. Science 366, 120-+.

Sanchez-Bayo, F. and Wyckhuys, K. A. G. (2019). Worldwide decline of the entomofauna: A review of its drivers. *Biological Conservation* 232, 8-27.

Seibold, S., et al. (2019). Arthropod decline in grasslands and forests is associated with landscape-level drivers. *Nature* 574, 671-+.

Shao, X. J. et al. (2019). River network connectivity and fish diversity. *Science of the Total Environment* 689, 21-30.

Sharavanan, V. J. et al. Pollutants inducing epigenetic changes and diseases. *Environmental Chemistry Letters*.

Shutler, J. D. et al. Satellites will address critical science priorities for quantifying ocean carbon. *Frontiers in Ecology and the Environment*.

Vanham, D.net al. (2019). Environmental footprint family to address local to planetary sustainability and deliver on the SDGs. *Science of the Total Environment* 693.

Waisman, H., De Coninck, H. and Rogelj, J. (2019). Key technological enablers for ambitious climate goals: insights from the IPCC special report on global warming of 1.5 °C. *Environmental Research Letters* 14, 111001.

Wilcox, A. A. E. et al (2019). An Evaluation of Studies on the Potential Threats Contributing to the Decline of Eastern Migratory North American Monarch Butterflies (Danaus plexippus). *Frontiers in Ecology and Evolution* 7.

Winfree, R. et al. (2015). Abundance of common species, not species richness, drives delivery of a real-world ecosystem service. *Ecology Letters* 18, 626-635.

Zambrano, J. et al. (2019). The effects of habitat loss and fragmentation on plant functional traits and functional diversity: what do we know so far? *Oecologia* 191, 505-518.

Attachments

Appendix 1: Example of a case study to be provided in week one of the lab exercises. This case will center on the key ecological topic "Invasive Species".

Glass, S.E. and L.S Eberhardt. 2018. A Trip to the Beach. Untangling the Mystery of Algal Blooms in the Great Lakes. <u>http://sciencecases.lib.buffalo.edu/cs/collection/</u>. accessed November 2019.

Appendix II: Example of a research article to be provided to the same group of students in week two of the lab exercises. This group of student would be guided (via written instructions or through interaction with the Teaching Assistants) to direct their case study highlight the ecological topic "Trophic Cascades". This group of students would have dealt "Invasive Species" in the case from their first week.

Atkins, J. L., R. A. Long, J. Pansu, J. H. Daskin, A. B. Potter, M. E. Stalmans, C. E. Tarnita, and R. M. Pringle. 2019. Cascading impacts of large-carnivore extirpation in an African ecosystem. *Science*, 364:173-177.

NATIONAL CENTER FOR CASE STUDY TEACHING IN SCIENCE

A Trip to the Beach: Untangling the Mystery of

Algal Blooms in the Great Lakes

бу

Susan E. Gass, Environmental Science, Dalhousie University, Halifax, NS, Canada Laurie S. Eberhardt, Department of Biology, Valparaiso University, Valparaiso, IN

Part I – The Problem

Matt and Flora are college sophomores studying biology who had met in their freshman biology lab. Matt had invited Flora up to his summer cottage on Lake Michigan to spend a week with his family and was excited to show her the beautiful beach. He hadn't been to the cottage in a couple of years because he had been working in the city to save up money for college. After arriving on a hot August evening, they decided to go straight out to the beach and chatted as they walked along the path.

"I can't wait for you to see the beach. I've been walking and swimming here since before I can remember. It even inspired me to study biology," Matt explained.

"It sounds really beautiful. Maybe we can take a dip in the lake to cool down after the long drive," said Flora.

When they arrived, there was a bad smell in the air and there were piles of brown goop along the water's edge. This wasn't how Matt remembered the beach.

"What's that lined up along the shore? And that smell! Do you think there's been a sewage leak?" Flora asked.

"I'm not sure, but I don't think we should stick around to find out. Let's go back to the cottage and ask my parents if they know what's going on," Matt replied.

When they got back to the cottage, Matt's parents told them that for the past two years large quantities of green algae had washed up on the beach. The rotting algae formed stinking clumps along the shore. Fewer tourists had been coming to visit the area since the beach was so unpleasant when this happened. Their neighbors were worried about the impact on the value of their lake property.

"I wonder what's going on?" Matt asked.

"I think we should find out," Flora replied.

"My Aunt Janet works for the Department of Natural Resources. I'm going to send her an email and ask if she knows anything about this," said Flora.

"Great idea. I'm so sorry, Flora, that wasn't the romantic walk I had in mind," said Matt.

Questions

- 1. What could have caused a recent increase in the amount of algae washing up on the beach? Brainstorm a list of possibilities.
- 2. Choose three of your ideas from the above list and write a testable hypothesis for each one. Describe the data that you would need to test each hypothesis. (*Remember that a testable hypothesis is a falsifiable statement that could explain an observation. For example, when Matt and Flora see the brown piles, they think it might be fecal material. Their testable hypothesis would be that if there had been a recent sewage leak, then it could have resulted in the foul smell and rotting piles. They immediately falsify this hypothesis when they find out from Matt's parents that the piles are made up of algae and that they have been forming for several years.)*

Part II – Could It Be Phosphorus?

Flora received an email response from her Aunt Janet.

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Hi Flo,
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Great to hear from you. Yes, the algae in question are called *Cladophora* glomerata. This species of algae grows on rocks just out in the water along the shore and has had a long history here in the Great Lakes, but has recently become a problem (again) for many beaches across the basin. Back in the 1960s and '70s, a large increase in phosphorus pollution in the Great Lakes caused the algal growth to proliferate. Phosphorus is a limiting nutrient for algae in freshwater ecosystems. In the 1970s, laws were put in place to reduce the phosphorus inputs and the problem all but disappeared.

I need to run-meeting in 5 mins. More later.

Love Aunt Janet

Since Matt and Flora had internet access at the cottage, they decided to investigate further.

"Maybe there's another source of phosphorus pollution in our lake?" suggested Matt.

"Yeah, good idea. Let's see if we can find any data on recent phosphorus levels," said Flora.

Question

3. Examine the figure below and predict what the data would look like if phosphorus in Lake Michigan is the cause of the recent excessive growth (bloom) in algae.

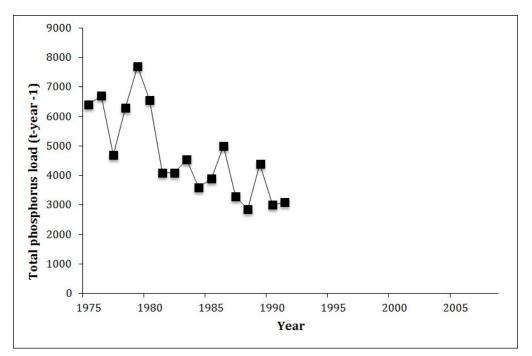


Figure 1. Total phosphorus entering Lake Michigan. (Redrawn with data from Madenjian et al., 2002.)

Part III – More about Algae

"So if it's not phosphorus then what could it be?" asked Matt.

"We know that algal growth is limited by light so maybe something is going on there. Let's look into this and see what we find," said Flora.

Flora found out that the Great Lakes also have phytoplankton, single-celled algae that float around in water and can affect water clarity. She followed this lead and found some data on what was happening with phytoplankton in the lake (see Figure 2).

Question

4. Describe in words what has happened to phytoplankton in Lake Michigan.

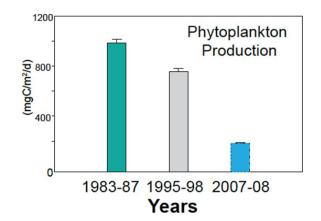


Figure 2. Springtime primary production in southern Lake Michigan has declined since the mid-1990s. Bars represent average amount of phytoplankton (measured in mg carbon/m2 /day) in repeated samples with lines above bars showing variation in the data. From: http://www.glerl.noaa.gov/pubs/brochures/mussel_dipo.pdf. Original data from Fahnenstiel et al. (2010).

Matt found a report describing 20 years of data on the water clarity of the lake. The data came from Secchi disk readings reported from a school ship program in Lake Michigan. A Secchi disk is a circle divided into alternating black and white quarters (Figure 3). As the disk is lowered into the lake water, the depth at which the distinction between the black and white quarters can no longer be made is recorded, indicating the clarity or absence of phytoplankton. In the first years of the school ship program in Grand Traverse Bay, the Secchi disk could be seen down to about 6–8 m.



Figure 3. Secchi disk being lowered into water to measure clarity. (https://www.flickr.com/photos/usace_albuquerque/5999717664)

Questions

5. Given Flora's finding, fill in the missing data on the axes of Figure 4 below to depict the data Matt found.

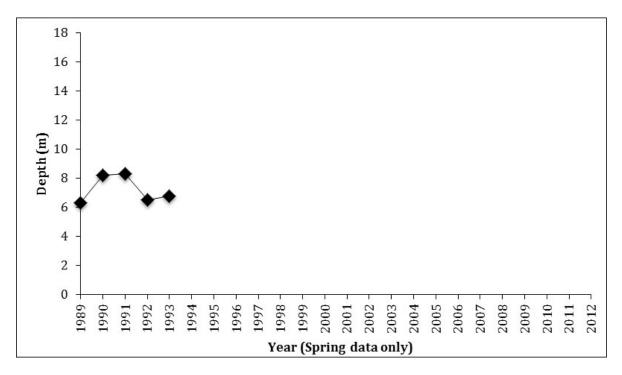


Figure 4. Secchi disk depths taken from Lower West Arm Grand Traverse Bay during a school science ship program "Inland Seas" in Sutton's Bay, Michigan.

6. What factors in the environment would make one kind of alga increase while another decreases?

Part IV – The Rest of the Story

As Matt and Flora were looking over the information that they had found and trying to make sense of it all, Flora received another email from Aunt Janet:

Hi Flo,

I wanted to follow up on your question. We've been working on some research connecting the *Cladophora* blooms with the invasion of zebra and quagga mussels in the lakes. I've attached some maps showing the invasions...

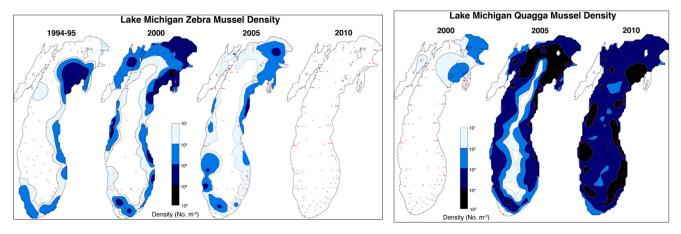


Figure 5. Zebra mussel and quagga mussel densities in Lake Michigan. Source: Figure 36 from Thunder Bay National Marine Sanctuary 2013 Condition Report, http://sanctuaries.noaa.gov/science/condition/tbnms/pressures.html.

It turns out that the mussels are so efficient at filter feeding they have removed enough phytoplankton from the lake system to significantly increase the water clarity of the lake, allowing more light in for the *Cladophora*. The mussels also may be recycling phosphorus in the water and shifting it from the water column down to the lake bed, thus directly feeding the *Cladophora*. There is still a lot more research to be done to fully understand this story but we're making headway.

Flo, I hope this info helps answer your question. You and Matt should come out with me on my next field trip!

Love, Aunt Janet

Question

7. Examine the information about these two species of filter feeding mussels. Return to Question 6 and reconsider using this new information.

Additional Questions

8. Speculate about how water temperature changes could influence the success of *Cladophora*.

- 9. Do you think recent changes in atmospheric carbon could play a role in problems with algae? Why or why not?
- 10. What actions could we take in response to these problems with *Cladophora*?
- 11. What is the likely interaction between zebra and quagga mussels?
- 12. What characteristics make an invasive species successful?
- 13. What are the likely economic impacts of the mussel invasion?
- 14. Non-native Asian carp are very close to entering Lake Michigan from the Mississippi River watershed where they have caused huge changes to the ecosystem. These fish are voracious filter feeders. Speculate on what may happen to the ecosystem of Lake Michigan if these new fish invade.

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TROPHIC CASCADES

Cascading impacts of large-carnivore extirpation in an African ecosystem

Justine L. Atkins^{1*}, Ryan A. Long², Johan Pansu^{1,3,4}, Joshua H. Daskin¹†, Arjun B. Potter¹, Marc E. Stalmans⁵, Corina E. Tarnita¹, Robert M. Pringle^{1*}

Populations of the world's largest carnivores are declining and now occupy mere fractions of their historical ranges. Theory predicts that when apex predators disappear, large herbivores become less fearful, occupy new habitats, and modify those habitats by eating new food plants. Yet experimental support for this prediction has been difficult to obtain in large-mammal systems. After the extirpation of leopards and African wild dogs from Mozambique's Gorongosa National Park, forest-dwelling antelopes [bushbuck (*Tragelaphus sylvaticus*)] expanded into treeless floodplains, where they consumed novel diets and suppressed a common food plant [waterwort (*Bergia mossambicensis*)]. By experimentally simulating predation risk, we demonstrate that this behavior was reversible. Thus, whereas anthropogenic predator extinction disrupted a trophic cascade by enabling rapid differentiation of prey behavior, carnivore restoration may just as rapidly reestablish that cascade.

he worldwide decline in populations of large mammalian carnivores is a major environmental concern (1, 2), in part because apex predators can exert a defining influence on ecosystems via trophic cascades (3). A trophic cascade occurs when predators indirectly affect plants through either of two mechanisms: by consumptively reducing prey abundance (4) or by imposing "landscapes of fear" in which prey modify their behavior to reduce predation risk. In landscapes of fear, prey are expected to forego foraging opportunities in resource-rich habitats that are risky, thereby creating spaces where palatable food plants can thrive (5, 6). Accordingly, the extirpation of top carnivores should create "landscapes of fearlessness" where large herbivores seek out the nutritional benefits of previously risky habitats, suppressing food-plant abundance in the process(5); conversely, the reestablishment of real or perceived predation risk should reverse this behavior (7). Although behaviorally mediated trophic cascades have been documented frequently for relatively small consumer species (8-10), there are few unequivocal examples involving large mammalian carnivores and herbivores (11-13). This gap reflects the difficulty of experimentally manipulating predation risk and quantifying its downstream effects at scales

relevant to large mammals. Correlative and comparative analyses generally cannot rule out potentially confounding factors, which has fueled debates (14–18) and prompted calls for stronger mechanistic inference in the study of megafaunal trophic cascades (19).

Ecosystems in which top predators have been extirpated present valuable opportunities to test predictions of trophic-cascade theory (4, 14, 20). In Mozambique's Gorongosa National Park, largemammal populations were severely reduced during the Mozambican Civil War (1977 to 1992), with >90% declines across all monitored species (21-23). Large-herbivore populations have subsequently increased, but leopards (Panthera pardus), wild dogs (Lycaon pictus), and hyenas (Crocuta crocuta) were extirpated, while lions (P. leo) persisted at low abundance (23, 24) (table S1). In this carnivore-depleted system, we evaluated evidence for a behaviorally mediated trophic cascade by using field manipulations of predator cues and herbivory, GPS telemetry of herbivore movements, spatially explicit wildlifecount data, DNA-based diet analysis, and bodycondition measurements.

Gorongosa's central valley (Fig. 1, A and B) encompasses the ~750-km² Lake Urema floodplain and surrounding savanna woodlands (25). During the dry season (May to November), the floodplain is a flat, largely treeless landscape, dominated by grasses and forbs and dotted with leguminous subshrubs. Such open habitat is typically avoided by herbivores that rely on crypsis, tree cover, and known escape trails to avoid detection and capture by predators. One such herbivore species is bushbuck (Tragelaphus sylvaticus). This midsized antelope is a closedhabitat specialist that is "dependent on thick cover" (26) and "concealment to avoid predators" (27) and "is not found on open plains or anywhere without sufficient cover to conceal it" (28) from key predators such as leopards and wild dogs (29). Previous studies of African ungulates have emphasized the comparative safety of open areas with high visibility (11, 13). For secretive forest browsers such as bushbuck, however, treeless areas should be riskier, and relaxation of predation pressure might embolden individuals to exploit what would otherwise be prohibitively dangerous open habitat. Bushbuck in Gorongosa were historically confined to woodland and thicket habitat (30), but in the largely predator-free contemporary environment, we have observed them venturing into the open Urema floodplain.

We quantified these initial observations by fitting GPS collars to 11 bushbuck in 2015 and collecting hourly locations for up to 8 months. The data revealed two broad patterns in habitat use. One subset of individuals was largely confined to densely wooded home ranges; another occupied the sparsely wooded floodplain margin and routinely foraved into treeless floodplain habitat, both at night and throughout the day (Fig. 1, C to E)-behavior never documented prior to predator extirpation (30). All available evidence indicates that this habitat shift cannot be explained by competitive interactions. In principle, carnivore extirpation might have increased woodland bushbuck densities, prompting individuals to move into the floodplain to mitigate intraspecific competition, as predicted by ideal free distribution theory (31). We explored this possibility by using data from six helicopter counts conducted between 2002 and 2016, when all ungulate populations were recovering from similarly severe war-induced declines (21-23, 30). If competition caused the habitat shift, then we would expect floodplain bushbuck densities to be negligible during the earliest counts, to increase only after woodland densities reached some threshold, and to remain lower than woodland densities throughout. To the contrary, floodplain bushbuck density was already ~50% of woodland bushbuck density in 2002, and by 2016, density was ~15% higher in the floodplain (Fig. 1F). Moreover, densities of other ungulates were also highest in the floodplain (21). Thus, the observed habitat shift cannot obviously be explained by either intra- or interspecific competition.

To directly test the hypothesis that predator extirpation has promoted the use of open habitat by bushbuck, we experimentally assessed the responses of GPS-collared floodplain (n = 7) and woodland (n = 5) bushbuck to simulated predator presence in August and September 2016. Habitat affiliations were determined on the basis of capture location and were subsequently verified with reference to GPS-collar locations and diet composition data (figs. S1 and S2). We exposed each individual to both predator and proceduralcontrol cues in separate trials (in randomized order), with collars recording locations every 15 min (32). Treatments comprised both auditory and scent cues within the home range of each collared individual (fig. S3). Because both felids and canids prey on bushbuck, we aimed to create generalized hot spots of perceived predation risk by deploying several cues that collectively simulated multiple

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^{*}Corresponding author. Email: jlatkins@princeton.edu (J.L.A.); rpringle@princeton.edu (R.M.P.)

[†]Present address: Department of Ecology and Evolutionary Biology, Yale University, New Haven, CT, USA.

predator species. Playbacks of leopard vocalizations, artificial lion scat, and generic carnivore urine (*32*) were used to mimic predator presence; white noise, locally collected herbivore dung, and saline solution were used as sham cues in procedural-control trials (*12, 33*). We restricted our analyses to data collected between 17:00 and 06:00, the period encompassing peak bushbuck activity (*32*). For each individual, we quantified two response variables in the 48 hours immediately before and after cue deployment. First, we measured the avoidance of predator and control cues by calculating the distance between each bushbuck GPS point and the soundcue location. Second, we measured whether simulated risk caused floodplain individuals to increase their use of tree cover (i.e., shift back toward a more "typical" bushbuck habitat).

Bushbuck strongly avoided predator cues in both habitats but did not avoid sham cues in either habitat (Fig. 2A and table S2). Moreover, predator cues caused a significant increase in the use of tree cover by floodplain but not woodland bushbuck, whereas sham cues did not significantly alter tree-cover use in either habitat (Fig. 2B and table S2). We evaluated the statistical significance of these responses by using mixedeffects models with random intercepts for individuals (table S2). These results were robust to both GPS and habitat classification error (*32*) (figs. S4 and S5 and table S3). That floodplain bushbuck exhibited more cautious behavior in response to even a brief exposure to simulated risk suggests that some fear of predators has been retained and is primed in more risky open habitats (7, 12). Our design does not enable us to distinguish the roles of specific predator cues in generating these responses, but future studies could test sound and scent cues separately.

Theory often assumes a nutritional opportunity cost of risk avoidance (5). We therefore hypothesized that floodplain bushbuck would consume higher-quality diets and exhibit greater size and body condition. We analyzed bushbuck diet composition by using DNA metabarcoding of

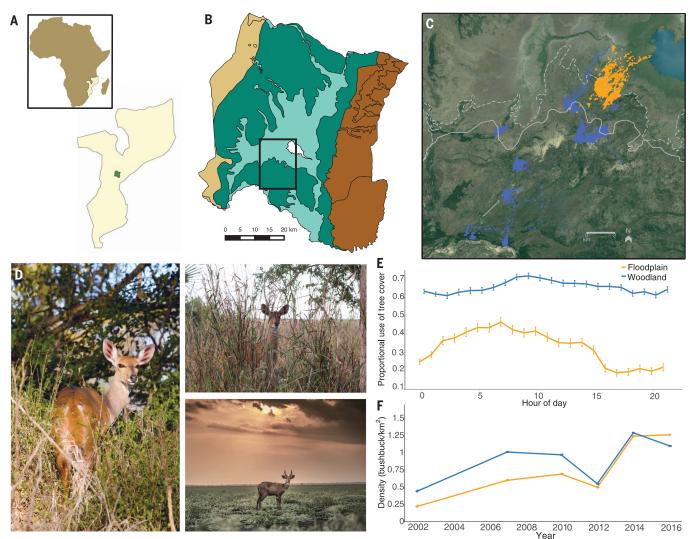


Fig. 1. Differential habitat use by bushbuck. (**A**) Map of Africa and Mozambique, showing the location of Gorongosa National Park (**B**) with its major habitat zones (*25*), from left: the western escarpment, savanna woodland (dark green), floodplain (light green), Lake Urema (white), and eastern escarpment. The boxed area indicates the region shown in the satellite image in (C). (**C**) GPS-collar locations from 11 individuals, three in the floodplain (orange) and eight in the adjoining woodland (blue), from June 2015 to March 2016. The solid line distinguishes the boundary between the floodplain and dense woodland; the dashed line distinguishes

the boundary between the sparsely wooded floodplain margin and the treeless floodplain (25). (**D**) Bushbuck in woodland (left), the floodplain margin (top right), and the open floodplain (bottom right). (**E**) Use of woody cover by the bushbuck in (C), measured as the proportion of locations falling within a pixel classified as containing tree cover (32); error bars show ± 1 SE. (**F**) Bushbuck densities in the floodplain and woodland, 2002 to 2016, determined via six aerial helicopter counts (32); here, "floodplain" refers conservatively to the treeless area surrounding Lake Urema [dashed line in (C)].

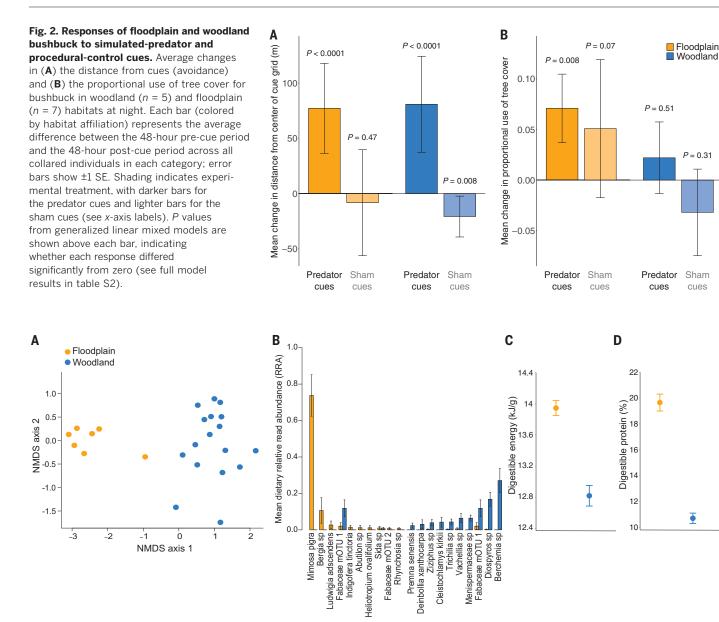


Fig. 3. Differences in composition and nutritional quality of bushbuck diets across habitats. (A) Nonmetric multidimensional scaling (NMDS) ordination, based on Bray-Curtis dissimilarities from DNA-metabarcoding data, showing that bushbuck diets clustered within each habitat and diverged between them. The distance between points (n = 7 floodplain fecal samples; n = 17 woodland fecal samples)

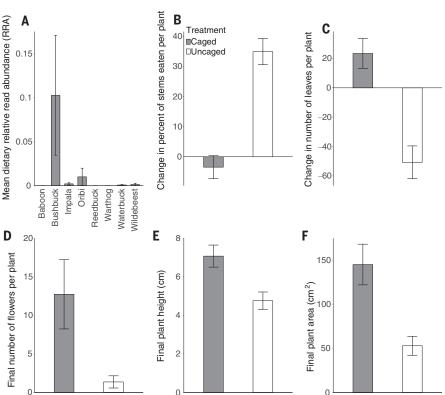
reflects compositional dissimilarity. (**B**) The 10 most abundant food-plant taxa for bushbuck in the floodplain (orange bars) and woodland (blue bars). (**C**) Mean digestible energy and (**D**) protein contents of bushbuck diets, revealing higher diet quality in floodplain individuals (Wilcoxon rank sum tests; energy, W = 76, n = 18 individuals, P = 0.0001; protein, W = 77, n = 18 individuals, P < 0.0001). Error bars show ±1 SE.

fecal samples (*32*, *34*). We also quantified the digestible-energy and digestible-protein contents of foliage from Gorongosa's most common browse plants. Of the 51 molecular operational taxonomic units (mOTUs) identified in bushbuck diets, 22 matched plant species for which we had nutritional-quality data, and those 22 species accounted for >83% of total diet [measured as the relative read abundance (RRA) of those mOTUs across all samples (*32*)]. We calculated weighted averages of digestible energy and protein in the diet of each sampled bushbuck, using the RRA of each plant species as the weighting factor. We

quantified the body condition of captured individuals by using principal components analysis to reduce multiple measurements of bushbuck morphology (e.g., body mass, body length, fat and muscle thickness, and standardized palpation scores) to two indices of condition: body size and body fat (*32*) (fig. S6 and tables S4 and S5).

We found pronounced differences in diet composition between floodplain and woodland bushbuck (Fig. 3A and fig. S2). The diets of floodplain bushbuck (21 mOTUs) were dominated by the leguminous shrub *Mimosa pigra* (mean RRA = 74% \pm 11%) (Fig. 3B and fig. S2), with the forbs *Bergia mossambicensis* (Elatinaceae; syn. *B. salaria*) and *Ludwigia adscendens* (Onagraceae; syn. *L. stolonifera*) accounting for an additional 11 and 3% of RRA, respectively. These plants had relatively high crude-protein and digestible-energy contents (fig. S2, C and D). The diets of woodland bushbuck (36 mOTUs) had greater evenness: Two tree species, *Berchemia discolor* and *Diospyros* sp., together accounted for 44% of RRA (Fig. 3B), and both species had lower crude protein and digestible energy than *M. pigra* and most other floodplain food plants (fig. S2, C and D). Overall, floodplain bushbuck diets were 8.8 and 83.6%

Fig. 4. Large herbivores suppress Bergia mossambicensis, a common floodplain plant. (A) Among all floodplain herbivore species in Gorongosa, only bushbuck consumed substantial quantities of Bergia. Shown are the mean changes in (B) the percentage of stems browsed and (C) the number of leaves per plant on caged versus uncaged Bergia plants over a minimum of 16 days (maximum of 18 days). Herbivores also reduced (D) the mean number of flowers per plant, (E) mean height, and (F) mean canopy area at the conclusion of the experiment. For (D) to (F), there was no significant difference in the initial values between caged and uncaged treatment groups. Model results of the effects of herbivore exclusion on each response variable are presented in table S7. Error bars show ±1 SE.



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richer in digestible energy and protein, respectively, than woodland bushbuck diets (Fig. 3, C and D). Consistent with these differences in diet quality, floodplain bushbuck were in better condition than woodland bushbuck, with significantly higher scores for the body size [principal component 1 (PC1)] index (table S6). The nutritional value of the most heavily utilized plant, M. pigra, may help to promote floodplain use by bushbuck, but this factor alone does not provide a plausible alternative explanation for the longterm shift in habitat use. M. pigra was also present on the floodplain before predator extirpation (30), with availability similar to that at the time of this study; if this plant drove habitat use independently of predation risk, then bushbuck should have been using the floodplain during the prewar era as well. The relative influences of risk and resource quality on bushbuck habitat use could in principle be quantified by removing M. pigra at large scales; we hypothesize that this would reduce carrying capacity but not expel bushbuck from these areas.

In a final experiment, we tested whether the expansion of bushbuck into the floodplain has measurable effects on floodplain plants. Plant community responses to herbivory can be tested by using exclosures, but it would be impossible to parse the effects of bushbuck relative to those of other floodplain ungulates with overlapping diets. Thus, to isolate the effects of bushbuck, we used our diet analysis to identify an indicator plant species consumed almost exclusively by bushbuck. The waterwort *B. mossambicensis* was the second most abundant taxon in the diets of floodplain

bushbuck but was negligible (≤1% RRA) in the diets of all other floodplain herbivores (Fig. 4A). We constructed wire-mesh herbivore exclosures around Bergia plants in a randomized, paired caged-uncaged design (fig. S7) at two different floodplain sites (with 15 total pairs) (32). Before the experiment, and again after a minimum of 16 days, we measured the dimensions of each plant and counted all leaves, flowers, and browsed stems. The percentage of browsed stems per plant increased in uncaged plants during the experiment but did not change in caged plants (Fig. 4B and table S7). Similarly, the mean number of leaves increased in caged plants but decreased in uncaged plants (Fig. 4C). The mean number of flowers, height, and canopy area at the conclusion of the experiment were all significantly greater in caged plants (Fig. 4 and table S7). Thus, the expansion of bushbuck into open habitats was accompanied by strong suppression of growth and reproduction in Bergia. Although other floodplain herbivores may have contributed somewhat to this effect, only bushbuck consumed substantial quantities of Bergia (Fig. 4A), suggesting that this plant would otherwise find refuge from large-mammal herbivory in the floodplain.

Altogether, our results provide evidence that the extirpation of large carnivores in the wake of the Mozambican Civil War has disrupted a behaviorally mediated trophic cascade. In the absence of apex predators such as leopards and wild dogs, a common ungulate prey species rapidly expanded into a high-risk, high-reward habitat, with concomitant shifts in diet composition and quality, body size and condition, and the performance of a key food plant. Despite the multidecadal absence of several apex predators in Gorongosa, we found that bushbuck retained a fear of these carnivores (7, 12): Experimental imposition of risk cues over just 48 hours shifted habitat use toward patterns that prevailed before carnivore loss (30). The next phase of trophic rewilding in Gorongosa involves carnivore reintroductions (23), beginning in 2018 with 14 wild dogs, which should eventually enable tests of our prediction that bushbuck will vacate the floodplain. Notably, the relaxation of risk after carnivore extirpation differentially affected individual behavior within a population, leading to bimodality in habitat use and perhaps some degree of reproductive separation, which could amplify preexisting individual variation (35). The influence of carnivores on behavioral variation within ungulate populations, and its potential evolutionary significance, remains largely unexplored.

Our study supports the general hypothesis that the loss of top carnivores can convert landscapes of fear into landscapes of fearlessness for large mammalian herbivores, with far-reaching consequences for prey and plant populations (6). It further shows that the effects of fear depend on the social, foraging, and antipredator behaviors of the species involved. Whereas recent work has shown that gregarious, flight-dependent grazers and mixed feeders use open, high-visibility habitat for risk avoidance (11, 13), our study of a solitary, crypsis-dependent browser reveals an opposing pattern. This distinction was appreciated by early naturalists [(36), pp. 32–33]:

It is curious to note the different ideas of safety entertained respectively by the plain and the bush dweller. Let us say a Grant's gazelle and a bushbuck are grazing near each other on the edge of a plain when something occurs to alarm them. The bushbuck lopes quickly back into the bush, sure that in this lies his only chance of safety. The Grant's turns and gallops from the bush as if it were some deadly thing

Thus, although generalizations about trophic cascades involving particular species and food chains may be possible on the basis of characteristics such as herbivore size, behavior (37, 38), and predator hunting mode (39), we suggest that community-wide cascades may be dampened in diverse African large-mammal assemblages because of the orthogonal responses of different herbivore species to predation risk (40).

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SUPPLEMENTARY MATERIALS

www.sciencemag.org/content/364/6436/173/suppl/DC1 Materials and Methods Figs. S1 to S7 Tables S1 to S8 References (42-85)

2 June 2018; accepted 22 February 2019 Published online 7 March 2019 10.1126/science.aau3561



Cascading impacts of large-carnivore extirpation in an African ecosystem

Justine L. Atkins, Ryan A. Long, Johan Pansu, Joshua H. Daskin, Arjun B. Potter, Marc E. Stalmans, Corina E. Tarnita and Robert M. Pringle

Science **364** (6436), 173-177. DOI: 10.1126/science.aau3561originally published online March 7, 2019

Ecosystems feel war's effects

War ravages human lives and landscapes, but nonhuman victims are no less affected. The Mozambican Civil War resulted in the rapid decline of predators in Gorongosa National Park and led to a trophic cascade that shifted prey behaviors and plant communities. Atkins *et al.* monitored this shift and found that the absence of wild dogs and leopards resulted in a change in habitat use and plant consumption by bushbuck, which are forest-dwelling antelopes. Experiments further showed that changes in prey behavior were reversible when signs of predator activity were introduced, supporting the impact of the predator loss. These results confirm patterns seen elsewhere and go further in providing mechanistic detail about the importance of the "landscape of fear" perceived by prey animals. *Science*, this issue p. 173

ARTICLE TOOLS	http://science.sciencemag.org/content/364/6436/173
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1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Arts & Science
- 1.2 Department with academic authority: Department of Chemistry
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: CHEM 142
- 2.2 Academic credit units: 1
- 2.3 Course Long Title (maximum 100 characters): The Global Impact of Chemistry for Engineering Course Short Title (maximum 30 characters): Global Impact of Chem for Engr
- 2.4 Total Hours: Lecture 9 Seminar Lab 6 Tutorial Other 2.5 Weekly Hours: Lecture 3 Seminar Tutorial Other Lab 3 2.6 Term in which it will be offered: (T1 T2 T1 or T2 T1 and T2
- 2.7 Prerequisite: Chemistry 30 or CHEM 90 or CHEM 100; and Mathematics B30 or Foundations of Mathematics 30 or Pre-Calculus 30

If there is a prerequisite waiver, who is responsible for signing it?

D – Instructor/Dept Approval

- H Department Approval
- I Instructor Approval

2.8 Catalogue description (150 words or less):

The course is intended as a brief introduction to general chemistry topics with emphasis on the greenhouse effect utilizing both qualitative and quantitative aspects of chemistry to investigate this global issue. You will learn practical applications of chemistry through course material and laboratory experiments.

2.9 Do you allow this course to be repeated for credit? No

3. Please list rationale for introducing this course:

Currently a number of Arts & Science departments contribute to the <u>Common First Year</u> for the College of Engineering Bachelor of Science in Engineering (B.E.) program. The College of Engineering is in the process of redesigning this Common First Year to create the most effective first year engineering program in Canada. They are working hard to create something that will excite, engage and inspire their students, and to holistically prepare them for the challenges to come in later years. This project has been underway since 2016-2017 and has a planned launch of Fall 2021. Over this time there has been extensive consultation between the College of Engineering and specific Departments in the College of Arts & Science. A suite of new Science courses are being proposed for use in this redesigned Common First Year which will replace or complement the use of existing courses.

The College of Engineering wishes to provide their first-year students with broad exposure to four of the Natural Science disciplines in the College of Arts and Science (Biology, Chemistry, Geological Sciences, and Physics). This is to be achieved through short (1 cu) courses in each of these disciplines. Each of the four courses will be delivered in the Fall term. The first-year cohort of engineering students will be divided into four groups and these groups will progress through the four disciplines in rotation. Each course will consist of nine hours of lectures and two, 3-hour labs components. By the end of the term, all first year engineering students will have progressed through all of the courses, having received 36 hours of lecture-based instruction and twenty-four hours of lab/practicum-based instruction.

The plan outlined above necessitates that each course is focused on a subset of disciplinary topics that can be delivered consistently at four distinct times over the term. To facilitate student learning, it was agreed that the four Science courses would seek some commonality in the topics delivered. To that end, it was agreed that the "environment" and "climate change" would be logical candidates. Thus, chemistry will have lab exercises investigating warming associated with different greenhouse gases, physics will discuss blackbody radiation within their course, geological science will deal with Earth system interactions and changes over time, and biology will focus on anthropogenic effects on biodiversity and ecosystems, including human-induced climate change. The four courses will have a common final examination in December with 45 minutes allotted to each course. Beyond that, courses will have a diversity of assignments, labs, quizzes, reports, or an exam at the end of their sections.

Each of these four 1 cu courses will have "GE 102 - Introduction to Engineering" I listed as a Pre- or Co-Requisite. The Introduction to Engineering I course will focus on setting the students up to manage their time, reflect upon their study habits and work in groups – all things that will be important to each of the following courses. Perhaps more importantly, this is where the students will be learning to use TopHat, the LMS, other assessment software, and MS Office. Specifically for these Science courses it provides the lab safety training and acts as the vehicle for a reflective assessment that will incorporate what students learn in each of this 1 cu Science courses, effectively linking them together and solidifying the students' learning.

The College of Engineering is also working toward a new competency-based assessment system that will be utilized in the new First Year Engineering courses in Fall 2021. The Arts & Science departments will continue to learn more about this system through 2020-2021 and 2021-2022 as it is implemented in Engineering, and will then determine how it can be used in the Science courses attached to the Engineering Common First Year. Revisions to the courses, to implement this assessment system, will be submitted to the appropriate College Academic Programs Committee for approval, prior to use in the courses.

4. Please list the learning objectives for this course:

By the end of this course, students will be expected to:

- 1. Summarize the basic chemical concepts pertaining to the Greenhouse Effect (GHE) and differentiate between atmospheric gases in terms of GHE.
- 2. Carry out calculations and understand concepts related to electromagnetic radiation and blackbody radiation
- 3. Determine quantum numbers for atomic orbitals, draw simple Lewis dot diagrams, and determine polarity and relative intermolecular forces of molecules based on structure.
- 4. Understand vibrational motion in molecules and apply knowledge to IR absorption spectra
- 5. Design and test a simple pop bottle greenhouse and measure temperatures of various gases to evaluate their Global Warming Potential (GWP).

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? This course is for the College of Engineering First Year.

If so, were these departments consulted? (Include correspondence) Yes Were any other departments asked to review or comment on the proposal? Biology, Chemistry, Physics and Geology reps met a number of times regarding these four – 1cu courses. The course also went through the Arts & Science College Challenge, which provides opportunity for responses by all departments in the College.

- 6. **Other courses or program affected** (please list course titles as well as numbers)
 - 6.1 Courses to be deleted? CHEM 114.3
 - 6.2 Courses for which this course will be a prerequisite? CHEM 146.3
- 6.3 Is this course to be required by your majors, or by majors in another program?

Required course in the first-year as part of revised Engineering program. Students with credit for all four of BIOL 102.1, CHEM 142.1, GEOL 102.1 and PHYS 152.1 will receive 3 credit units of elective credit in Arts & Science B.A.&Sc. and B.Sc. programs and 3 credit units of

"science" or "elective" credit in B.A., B.F.A., or B.Mus. programs. Students who do not pass all 4 courses will receive no credit in Arts & Science programs.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

	The methods of assessment and their respective weightings are given below:		
Assessment:			
	Assignments:	10%	
	Laboratories:	25%	
	Mid-Module Quiz:	15%	
	Final Exam:	50%	

9.1	How should this course be graded?				
	C – Completed Requirements				
	(Grade options for instructor: Completed Requirements, Fail, IP In Progress)				
	N – Numeric/Percentage				
	(Grade options for instructor: grade of 0% to 100%, IP in Progress)				
_	P – Pass/Fail				
	(Grade options for instructor: Pass, Fail, In Progress)				
	S – Special				
	(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:				

9.2 Is the course exempt from the final examination? No – Final exam date may be schedule outside of the normal exam scheduling process.

10. Required text

Include a bibliography for the course.

1. Chemistry, 5th Edition, T.A. Gilbert et al. ISBN 9780393615142

2. Access Kit for Smartwork5 on-line assignment system. This access kit is required for the homework assignments (sold in package with the text)

11. Resources

11.1 Proposed instructor: Chemistry Faculty

- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within department CHEM 142 and 146 replace CHEM 114.
- 11.3 Are sufficient library or other research resources available for this course? Yes

11.4 Are any additional resources required (library, audio-visual, technology, etc.)? Details have been worked out between College of Arts & Science and College of Engineering to fund laboratory costs for this course. All requires the use of THORV 212 as lab space. Space Planning has allocated this space to the Department of Chemistry. It will be in structural vacancy until the redesigned First Year Engineering program launches in Fall 2021. Between now and then there are some minor renovations required. Funding for these is currently being determined.

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC14
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong? FNAR Fine Arts HUM Humanities

SCIE Science

SOCS Social Science

ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required:
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

Restricted to students in the College of Engineering.

3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
 Chemistry 30 or CHEM 90 or CHEM 100; and Mathematics B30 or Foundations of Mathematics 30 or Pre-Calculus 30.

- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course
- GE 102 Introduction to Engineering I
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: None

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here: None

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:

CHEM 142.1 (01) The Global Impact of Chemistry for Engineering Fall 2021



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructor(s)	Name (include credentials; if applicable please include P.Eng. or EIT as well) Office: Email: Phone: Optional: Instructor Profile A brief (1-2 paragraphs) summary of your teaching philosophy would also be appropriate and helpful to share in this section. This should be written in first as research does show that writing the profile in the first person helps to create more of a welcoming environment for students. (Richardson, R. and Woods, S. (2009). <i>Course</i> <i>syllabus: A guide</i> . Retrieved online from http://www.smu.ca/webfiles/SyllabusGuide_000.pdf)							
Lectures:	3 hours /week (TBA)							
Laboratory:	3 hr/week- 2 lab sessions total- Dates/Times TBALab Manager:Email:Office:Phone:							
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. https://bblearn.usask.ca/							
Description:	The course is intended as a brief introduction to general chemistry topics with emphasis on the greenhouse effect utilizing both qualitative and quantitative aspects of chemistry to investigate this global issue. You will learn practical applications of chemistry through course material and laboratory experiments.							
Prerequisites:	(Chemistry 30 or CHEM 90 or CHEM 100) and (Mathematics B30 or Foundations of Mathematics 30 or Pre-Calculus 30) Note: This course is intended for students in the College of Engineering. Students with credit for CHEM 111, 112 or 114 may not take this course for credit.							
Co-requisites :	Introduction to Engineering I							
Course Reference	xxxxx (lectures), xxxxx (laboratory), xxxxx (tutorial) Available from the Dynamic Schedule once courses are built (<u>https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched</u>)							

Numbers (CRNs):

Course Learning By Outcomes:	 y the end of this course, students will be expected to: Summarize the basic chemical concepts pertaining to the Greenhouse Effect (GHE) and differentiate between atmospheric gases in terms of GHE. Carry out calculations and understand concepts related to electromagnetic radiation and blackbody radiation Determine quantum numbers for atomic orbitals, draw simple Lewis dot diagrams, and determine polarity and relative intermolecular forces of molecules based on structure. Understand vibrational motion in molecules and apply knowledge to IR absorption spectra Design and test a simple pop bottle greenhouse and measure temperatures
	5. Design and test a simple pop bottle greenhouse and measure temperatures of various gases to evaluate their Global Warming Potential (GWP).
As La M	he methods of assessment and their respective weightings are given below: assignments: 10% aboratories: 25% id-Module Quiz: 15% nal Exam: 50%
Attendance and Participation:	It is expected that students will attend all lectures, and laboratory sessions. Students are responsible for all required readings, and topics presented in lectures and laboratories. See "Laboratory" for details regarding lab attendance.
Criteria That Must Be Met to Pass:	In order to be assigned a passing final grade, you must fulfill the following conditions: 1. Obtain an overall mark greater than 50%, AND 2. Attend all laboratory sessions and complete all required lab work and obtain a 50% mark therein, AND 3. Achieve a satisfactory performance in the examinations
Final Grades:	The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at link below, click "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php For information regarding appeals of final grades or other academic matters,
	please visit <u>https://secretariat.usask.ca/student-conduct-appeals/index.php</u>
Academic Courses Policy:	More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: <u>http://policies.usask.ca/policies/academic-affairs/academic-courses.php</u>
Learning Charter:	The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: <u>https://teaching.usask.ca/about/policies/learning-charter.php</u>

Course Content/Schedule:

WEEK	То	pic	Approximate Lecture Hours	LAB
K1		▲ 	1.5	
WEEI	K Lecture Hours 1. CO2 AND THE GREENHOUSE EFFECT 1.1. What chemical concepts pertain to the Greenhouse Effect (GHE)? 1.2. Case Study on CO2 conversion 1.3. Fundamentals of light (wavelength, frequency, energy of light) 1.5 2. THE ELECTRON IS NOT AS SIMPLE AS IT LOOKS - SIR L. BRAGG 2.1. Blackbody radiation, and solar and terrestrial emission spectra 2.2. Basics of quantum mechanics, particle in a 1-D box, and the Hydrogen atom 2.3. Electronic transitions and atomic orbitals 1.5 ASSIGNMENT 1 - DUE AT BEGINNING OF LECTURE 3 3. KINDERGARTEN RULES OF BONDING AND SHAPES OF MOLECULES 3.1. Mom! Chlorine won't share equally! 3.2. Lewis Theory and VSEPR 1.5 4. RELATING STRUCTURES AND PROPERTIES 4.1. Polarity and Dipole moments 4.2. Intermolecular forces 1.5 MID-MODULE QUIZ- SCHEDULED DATE, 6PM-10PM SMARTWORK5 1.5			
WEEK 2	3.	KINDERGARTEN RULES OF BONDING AND SHAPES OF MOLECULES 3.1. Mom! Chlorine won't share equally!	1.5	LABORATORY 1- DESIGNING POP BOTTLE GREENHOUSES TO INVESTIGATE THE EFFECT OF CO2, AIR AND AR ON TEMPERATURE
	4.	4.1. Polarity and Dipole moments	1.5	LABORATORY BOTTLE G INVESTIGATE 7 AIR AND AR
		•	и-10рм	
EK 3	5.	5.1. Vibrating molecules, simple harmonic oscillator, quantized vibrational levels	1.5	30RATORY 2- INVESTIGATING ABSORPTION OF DIFFERENT GASES USING POP BOTTLE GREENHOUSES
WEI	VEEK Topic Lecture Hours 1. CO ₂ AND THE GREENHOUSE EFFECT 1.1. What chemical concepts pertain to the Greenhouse Effect (GHE)? 1.2. Case Study on CO ₂ conversion 1.3. Fundamentals of light (wavelength, frequency, energy of light) 1.5 2. THE ELECTRON IS NOT AS SIMPLE AS IT LOOKS – SRL BRAGE 2.1. Blackbody radiation, and solar and terrestrial emission spectra 2.2. Basics of quantum mechanics, particle in a 1-D box, and the Hydrogen atom 2.3. Electronic transitions and atomic orbitals 1.5 3. KINDERGARTEN RULES OF BONDING AND SHAPES OF MOLECULES 3.1. Mom! Chlorine won't share equally! 3.2. Lewis Theory and VSEPR 1.5 4. RELATING STRUCTURES AND PROPERTIES 4.1. Polarity and Dipole moments 4.2. Intermolecular forces 1.5 MID-MODULE QUIZ- SCHEDULED DATE, 6PM-10PM SMARTWORK5 1.5 SIGOMENT 2- DUE AT BEGINNING OF LECTURE 6 (6. GREENHOUSE GAS SOUP 6.1. Putting all the components together- a detailed 6. Upting all the components together- a detailed 1.5	LABORATORY 2- INVESTIGATI IR ABSORPTION OF DIFFEREI GASES USING POP BOTTLE GREENHOUSES		

Homework Assignments

The course textbook is fully supported by the Smartwork5 website. We will use Smartwork5 to assign homework assignments (see Assessments above). The homework assignments will not only help you to test if you understand the material, but it will also teach you how to solve chemical problems since some of the problems are fully tutored. Assignments should be done by all students individually. We note that students attempting to cut corners – including cheating - on assignments have always suffered in examinations.

BEFORE you can register for SmartWork5, you need the right "Registration Code" (provided with a new print/electronic textbook) and the correct "Student Set ID" for your section of the course. "Student Set IDs" are specific to each section. The link: <u>http://bit.ly/nortonregistration</u> shows a complete video on how to register and join a Student Set. Also, please see the Smartwork5 FAQ document in the course website for frequently asked questions (and answers) about Smartwork5. More important details may be given during the first week of lectures. With your "Student Set ID" (see table below), your "Student ID" (see your student card), and your "Registration Code" you can then register on the website: <u>https://digital.wwnorton.com/chem5</u>

If you have used Smartwork5 before (i.e. in another course) your login and password should still be valid, but you will need to register for the correct section of CHEM 142 using the appropriate 6-digit "Student Set ID".

CHEM 142 Section	Lecturer	Students Set ID
Section 01- TR 9:30 am	TBA	111111
Section 03- TR 10:30 am	ТВА	222222

There will be two graded assignments scheduled during the term. The due dates are listed above in the Course Schedule. Assignments are submitted on-line through the Smartwork5 system. The Introduction to Smartwork5 (non-graded) assignment will NOT be considered in your overall assignment mark.

All assignments are due by the start of class on the day indicated in the syllabus. There are NO extensions of due dates for the graded assignments. Students who have missed the deadline should continue to work on the assignment in order to practice those concepts but will not receive credit for the questions completed after the due date.

Laboratory:

The CHEM 142 labs will begin during the second week of the course. The location of your lab is available in your registration information on PAWS.

Laboratory Experiment	Dates
LABORATORY 1-	
Designing Pop Bottle Greenhouses To Investigate The Effect Of CO ₂ , Air And Ar	Week 2
On Temperature	
LABORATORY 2-	Week 3
Investigating IR Absorption of Different Gases using Pop Bottle Greenhouses	week 3

What to Bring to the Lab

- CHEM 142 Laboratory Instructions (posted on Course website)
- Safety glasses (Available in the main Bookstore and Chemistry Stores (Thorv. G46)). Prescription glasses alone do not provide sufficient eye protection. Students who wear prescription glasses must also wear safety glasses.
- Loose-leaf paper, pen

Students are expected to follow all safety considerations in the laboratory, perform the experiments during the allotted time, and complete calculations and reports during the lab.

The Laboratory will make up 20% of the Overall Course mark and each lab will be weighted equally. *Grading of each lab will be based on*

- Preparation exercise or quiz (10%),
- Performance during the experiment including Safety and Cleanliness (30%)
- Calculations and Report (50%)
- Group Participation (10%)

Absences from the Assigned Lab Period

Students are expected to attend ALL laboratory sessions. However, if an absence is unavoidable, for example, a serious illness or the death of a family member, you may apply for permission to reschedule the lab on a different day. You will have 2 business days after the missed lab period to contact the Lab Manager, Dr. Alexandra Bartole-Scott (<u>firstyear.chem@usask.ca</u>); to fill out the "Permission to Reschedule Lab" Form and arrange the make-up lab. If permission is not granted or the student does not complete the lab, the experiment will be assigned a mark of "0" and will result in a failing grade in the course.

If, due to a valid prior commitment, you cannot attend your assigned lab period, you should see the lab manager at least TWO WEEKS before to arrange an alternate time and to obtain the "Permission to Reschedule Lab" form. Examples of valid reasons for rescheduling a lab include: medical appointments that cannot be rescheduled, commitments for Huskies athletes, and observances of religious holidays. Additional documentation may be required to verify the reason for your absence from your regular lab time. Note: Tests/exams in other courses are not valid reasons for missing your lab. It is your responsibility to arrange alternate test times outside of your regularly scheduled lab.

Attendance at laboratory sessions and submission of laboratory reports is **mandatory**. Late lab reports are not permitted. Failure to meet these requirements will result in a final grade of less than 50% for the course.

Examinations: Mid-Module Quiz:

Section	Date	Time
Section 1A	Day, Month XX, 20XX	Available between 6:00 pm -10:00 pm
Section 1B	Day, Month XX, 20XX	Available between 6:00 pm -10:00 pm
Section 1C	Day, Month XX, 20XX	Available between 6:00 pm -10:00 pm
Section 1D	Day, Month XX, 20XX	Available between 6:00 pm -10:00 pm

The mid-module quiz will take place on the following dates.

The mid-module quiz will be available for 4 hrs on the Smartwork5 on-line system (to allow for scheduling conflicts), and each student will have a maximum of 2 hrs to complete all questions once they have started the quiz. Please mark this date and time on your calendar and plan now to ensure that your work and travel plans do not interfere with this schedule.

The quiz will be a combination of multiple choice, short answer/numerical answer problems. The quiz is cumulative and 'open-book'. All students are expected to work individually in accordance of academic honesty regulations. See "Integrity Defined" below.

Final Exam:

The final exam will be scheduled at the end of the Natural Sciences Module during the December final examination period. Exams can be scheduled at any time in the December 6 - 23, 2021 period. Please do not schedule travel until after the official exam schedule is released (usually by early October). If a student is unable to write an exam through no fault of his or her own for medical or other valid reasons, documentation must be provided and an opportunity to write the missed exam <u>may</u> be given. Students are encouraged to review all examination policies and procedures:

http://students.usask.ca/academics/exams.php

The Final Examination will be common to all concurrent sections of CHEM 142. All final examinations are cumulative and 'closed-book'. Data sheets and other help will be supplied at the examinations, if required. The final exam will be based on multiple-choice problems and students will have maximum of 3 hours to complete the total exam (comprised of the four Natural sciences: Biology, Chemistry, Geology, and Physics).

Examination Policies:

- The final exam is 'closed-book'. A formula sheet may be provided with the exam.
- Students will only be permitted to use a non-programmable calculator at examinations. The use of electronic devices, including programmable calculators, phones and watches, with document storage and/or communication capabilities is prohibited during exams.
- Alternate times to write final examinations cannot be accommodated. If a student misses a final exam, application must be made to the Engineering Student Centre to write a deferred exam.
- Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines.

Required Activities Outside of Class Time

The mid-module quiz will take place outside of class time on the dates provided in the schedule above. See "Mid-Module Quiz" for details.

Important Dates:

Wed., Sept. 4	First day of classes
Tues., Sept. 16	Last day for making changes in registration for T1 courses
	(100% tuition credit).
Oct.11	Thanksgiving holiday
Nov. 12 - 16	Fall Midterm Break
Thurs., Nov. 15	Last day to withdraw from T1 classes

Required Resources

Readings/Textbooks

1. Chemistry, 5th Edition, T.A. Gilbert et al. ISBN 9780393615142 2. Access Kit for Smartwork5 on-line assignment system. This access kit is required for the homework assignments (sold in package with the text)

Textbooks are available from the University of Saskatchewan Bookstore: <u>https://bookstore.usask.ca/students.php#MyTextbooks</u>

Other Required Materials

1. Safety Glasses for the laboratory. See "Laboratory" for details.

2. CHEM 142.1- Laboratory Instructions (pdfs posted in Laboratory folder in COURSE TOOLS)

Electronic Resources

General and section specific CHEM 142 information can be found on PAWS (paws.usask.ca) under the COURSE TOOLS tab. This site will contain laboratory information, important updates, answers to most common questions about the course, and any section specific information. Updates and announcements will be posted on PAWS.

Calculator Policy

You should have a simple scientific calculator and know how to use it. Students may use a basic scientific calculator (e.g. Texas Instruments TI-30X series, Hewlett-Packard HP 10s or 30S) for all CHEM 142 exams. Graphing or programmable calculators, or calculators with communication capability, are not allowed. For example, HP 35s, Casio fx-50FH, TI-83Plus calculators are not allowed. Ask your instructor if you are unsure whether your calculator is acceptable.

Email

All University of Saskatchewan students are supplied with a university email account and are strongly encouraged to use the university account instead of Hotmail or Gmail (or other free email service) for any university-related correspondence. See

<u>http://www.usask.ca/its/guides/student_guide</u> for more information about services available.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct* (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the

Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning

(http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct-appeals/academic-misconduct.php#IXXIIAPPEALS</u>)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

Safety is of paramount importance in the College. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Recording Lectures:

Recording of the course will only be allowed in certain circumstances. Please see the instructor for information on how to receive approval.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit http://www.usask.ca/copyright/students/rights/index.php or contact the University's Copyright Coordinator at copyright.coordinator@usask.ca.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with his or her colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit https://students.usask.ca/health/centres/access-equity-services.php, or contact AES at 306-966-7273 or aes@usask.ca.

Students registered with AES may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>
- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

End of day tutorial sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see <mark>X</mark> for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

Consulting and Tutors

You are encouraged to approach instructors and laboratory staff on an individual basis to discuss any aspect of the course. The Chemistry Learning Centre (Thorvaldson 162; located opposite the Chemistry main office.) will be available to CHEM 142 students; times will be posted on PAWS and outside the Centre. Other tutor opportunities may be arranged by the Chemistry Student's Society. The University of Saskatchewan Students' Union (http://www.ussu.ca) and Chemistry Students Society Please note that most CHEM 142 instructors will generally respond to emails within 24 hours, during working hours. Please first check the course outline (this document) and the CHEM 142 course website to ensure that the answer is not already posted.

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

Instructional Level [‡]												
Learning Attribute [†]												
Learning Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1	Ι								Ι			
2	Ι											
3	Ι											
4	Ι		Ι									
5		Ι		Ι		Ι			Ι			

[‡]Instructional Level:

†<u>Attributes</u>:

1100	<u>IIB ateb</u>	<u>moti dettomai neven</u>
A1	A knowledge base for engineering	Introduced (I) – Students learn the working vocabulary of the
A2	Problem analysis	area of content, along with some of the major underlying
A3	Investigation	concepts.
A4	Design	Developed (D) – Students use their working vocabulary and
A5	Use of engineering tools	major fundamental concepts to probe more deeply, to read the
A6	Individual and team work	literature, and to deepen their exploration of the concepts. They
A7	Communication skills	may begin to practice, extend, or refine knowledge in familiar
A8	Professionalism	contexts.
A9	Impact of engineering on society	Applied (A) – Students approach mastery in the area of
	and the environment	content. They explore deeply into the discipline and experience
A10	Ethics and equity	the controversies, debate, and uncertainties that characterize
A11	Economics and project	the leading edges of any field. They practice, extend, or refine
	management	knowledge in unfamiliar contexts.
A12	Life-long learning	

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
0%	100%	0%	0%	0%

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Arts & Science
- 1.2 Department with academic authority: Department of Chemistry
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: CHEM 146
- 2.2 Academic credit units: 3
- 2.3 Course Long Title (maximum 100 characters): General Chemistry for Engineering Course Short Title (maximum 30 characters): General Chemistry for Engr

2.4	Total Hours:	Lecture	34.5	Seminar		Lab	27	Tutorial	Other
2.5	Weekly Hours:	Lecture	4.5	Seminar		Lab	3	Tutorial	Other
2.6	Term in which it	will be of	ffered	T1	(T2))	T1 or 1	2	T1 and T2

2.7 Prerequisite: Chemistry 30 or CHEM 90 or CHEM 100) and (Mathematics B30 or Foundations of Mathematics 30 or Pre-Calculus 30) and CHEM 142.1

If there is a prerequisite waiver, who is responsible for signing it?

D – Instructor/Dept Approval	l
------------------------------	---

- H Department Approval
- I Instructor Approval

2.8 Catalogue description (150 words or less):

The course is intended to provide Engineering students with a fundamental understanding of core Chemistry concepts including equilibria and chemical thermodynamics. These goals are achieved and exemplified using an overarching theme of the role of carbon dioxide in the global climate change crisis.

2.9 Do you allow this course to be repeated for credit? No

3. Please list rationale for introducing this course:

Currently a number of Arts & Science departments contribute to the <u>Common First Year</u> for the College of Engineering Bachelor of Science in Engineering (B.E.) program. The College of Engineering is in the process of redesigning this Common First Year to create the most effective first year engineering program in Canada. They are working hard to create something that will excite, engage and inspire their students, and to holistically prepare them for the challenges to come in later years. This project has been underway since 2016-2017 and has a planned launch of Fall 2021. Over this time there has been extensive consultation between the College of Engineering and specific Departments in the College of Arts & Science. A suite of new Science courses are being proposed for use in this redesigned Common First Year which will replace existing courses currently used.

The College of Engineering is also working toward a new competency-based assessment system that will be utilized in the new First Year Engineering courses in Fall 2021. The Arts & Science departments will continue to learn more about this system through 2020-2021 and 2021-2022 as it is implemented in Engineering, and will then determine how it can be used in the Science courses attached to the Engineering Common First Year. Revisions to the courses, to implement this assessment system, will be submitted to the appropriate College Academic Programs Committee for approval, prior to use in the courses.

This new competency-based assessment system will use module tests in place of midterm and final exams. A few of the new courses proposed by Arts and Science departments have started to use the concept of Module Tests in their courses in these first versions. This will make it easier when they switch to the competency-based assessment system in future. Some common wording regarding module tests was created and has been used in the Arts and Science course proposals. This wording is similar to that of the Examinations Policies section of Arts and Science syllabus, but has been modified to accurately portray the concept of the module tests.

4. Please list the learning objectives for this course:

By the end of this course, students will be expected to:

- 1. Be able to assign quantum numbers to atomic orbitals and use their values to describe the size, energy and orientation of orbitals.
- 2. Write electron configurations and draw orbital diagrams of atoms.
- 3. Explain trends in the periodic table.
- 4. Predict bond angles, the shapes of molecular and the dipole moment of molecules using VSEPR theory.
- 5. Use valence bond theory to explain orbital overlap, bond angles and molecular shapes.
- 6. Calculate changes in the volume, temperature, pressure and number of moles of a gas using the ideal gas law.
- 7. Perform quantitative calculations using chemical reactions that involve gases.
- 8. Determine the mole fraction and the partial pressure of a gas in a mixture.
- 9. Correct for the non-ideal behaviour of a gas using equations of state.
- 10. Explain the first law of thermodynamics
- 11. Calculate the amount of heat transferred in physical or chemical processes.
- 12. Calculate enthalpies of reaction.
- 13. Relate the rates of change in the concentrations of reactants and products to each other and reaction rates.
- 14. Derive rate laws from initial reaction rate data.
- 15. Use integrated rate laws to identify zero-, first- and second-order reactions.
- 16. Calculate half-lives of reactions.
- 17. Calculate the activation energy of a reaction and the effect of temperature on rate constants.
- 18. Write equilibrium constant expressions and predict the direction of reversible chemical reactions.
- 19. Predict how a reaction at equilibrium will respond to changes in conditions.
- 20. Relate the strengths of acids and bases to their K_a and K_b values.
- 21. Interconvert $[H_3O^+]$, pH, pOH and $[OH^-]$.
- 22. Calculate the pH of polyprotic acids.

- 23. Prepare a buffer with a desired pH.
- 24. Calculate and interpret the results of an acid-base titration.
- 25. Relate the solubility of an ionic compound to its solubility product.
- 26. Predict the signs of entropy changes for spontaneous and non-spontaneous chemical reactions and physics processes.
- 27. Calculate entropy and free energy changes in chemical reactions using standard molar entropies and free energies.
- 28. Predict the spontaneity of a chemical reaction as a function of temperature.
- 29. Use the van't Hoff equation to calculate the values of the equilibrium constant at different temperatures.
- 30. Perform laboratory-based experiments and be proficient in practical chemistry skills.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? This course is for the College of Engineering First Year.

If so, were these departments consulted? (Include correspondence) Yes

Were any other departments asked to review or comment on the proposal? The course went through the Arts & Science College Challenge, which provides opportunity for responses by all departments in the College.

- 6. **Other courses or program affected** (please list course titles as well as numbers)
 - 6.1 Courses to be deleted? None
 - 6.2 Courses for which this course will be a prerequisite? Course revisions will be submitted separately to the UCC.
 - 6.3 Is this course to be required by your majors, or by majors in another program?

Required course in the first-year as part of revised Engineering program.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

The methods of assessment and their respective weightings are given below:

Assessment:

In-class Quizzes	5%
On-line Assignments:	10%
Laboratories:	25%
Three Module Tests	3 × 20%

9.1	How should this course be graded?
	C – Completed Requirements
	(Grade options for instructor: Completed Requirements, Fail, IP In Progress)
	N – Numeric/Percentage
	(Grade options for instructor: grade of 0% to 100%, IP in Progress)
	P – Pass/Fail
	(Grade options for instructor: Pass, Fail, In Progress)
	S – Special
	(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Yes – No final exam is proposed. As shared in the rationale section above this course will use module tests in place of midterm and final exams.

Insert from Rationale:

This new competency-based assessment system will use module tests in place of midterm and final exams. A few of the new courses proposed by Arts and Science departments have started to use the concept of Module Tests in their courses in these first versions. This will make it easier when they switch to the competency-based assessment system in future. Some common wording regarding module tests was created and has been used in the Arts and Science course proposals. This wording is similar to that of the Examinations Policies section of Arts and Science syllabus, but has been modified to accurately portray the concept of the module tests.

10. Required text

Include a bibliography for the course.

1. Chemistry, 5th Edition, T.A. Gilbert et al. ISBN 9780393615142

2. Access Kit for Smartwork5 on-line assignment system. This access kit is required for the homework assignments (sold in package with the text)

11. Resources

11.1 Proposed instructor: Chemistry Faculty

- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within department.
- 11.3 Are sufficient library or other research resources available for this course? Yes
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? Details have been worked out between College of Arts & Science and College of Engineering to fund laboratory costs for this course. All requires the use of THORV 212 as lab space. Space Planning has allocated this space to the Department of Chemistry. It will be in structural vacancy until the redesigned First Year Engineering program launches in Fall 2021. Between now and then there are some minor renovations required. Funding for these is currently being determined.

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC14
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

FNAR	Fine Arts
HUM	Humanities
SCIE	Science
SOCS	Social Science

ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required:
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

Restricted to students in the College of Engineering.

3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course

(Chemistry 30 or CHEM 90 or CHEM 100) and (Mathematics B30 or Foundations of Mathematics 30 or Pre-Calculus 30) and CHEM 142.1

- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: CHEM 115

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here: None

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

***Please note:** SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:

CHEM 146.3 (01) General Chemistry for Engineering

Winter 2022



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructor(s)	Name (include credentials; if applicable please include P.Eng. or EIT as well)Office:Email:Phone:Optional: Instructor ProfileA brief (1-2 paragraphs) summary of your teaching philosophy would also be appropriate and helpful to share in this section. This should be written in first as research does show that writing the profile in the first person helps to create more of a welcoming environment for students. (Richardson, R. and Woods, S. (2009). Course syllabus: A guide. Retrieved online from http://www.smu.ca/webfiles/SyllabusGuide_000.pdf)
Lectures:	4.5 hours /week (TBA)
Laboratory:	3 hr/week- 9 lab sessions total- Dates/Times TBALab Manager:Email:Office:Phone:
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. https://bblearn.usask.ca/
Description:	The course is intended to provide Engineering students with a fundamental understanding of core Chemistry concepts including equilibria and chemical thermodynamics. These goals are achieved and exemplified using an overarching theme of the role of carbon dioxide in the global climate change crisis.
Prerequisites:	(Chemistry 30 or CHEM 90 or CHEM 100) and (Mathematics B30 or Foundations of Mathematics 30 or Pre-Calculus 30) and CHEM 142.1 Note: This course is intended for students in the College of Engineering. Students with credit for CHEM 111, 112, 114 or 115 may not take this course for credit.
Course Reference Numbers (CRNs):	xxxxx (lectures), xxxxx (laboratory), xxxxx (tutorial) Available from the Dynamic Schedule once courses are built (<u>https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched</u>)

Course Learning	By the end of this course, stu	idents will be expected to:
Outcomes:	-	ntum numbers to atomic orbitals and use their values
		energy and orientation of orbitals.
		gurations and draw orbital diagrams of atoms.
	3. Explain trends in the	
		the shapes of molecular and the dipole moment of
	molecules using VSE	eory to explain orbital overlap, bond angles and
	molecular shapes.	to explain orbital overlap, bolid angles and
	-	the volume, temperature, pressure and number of
	moles of a gas using	
	_	e calculations using chemical reactions that involve
	gases.	
		fraction and the partial pressure of a gas in a mixture.
	10. Explain the first law	deal behaviour of a gas using equations of state.
	-	t of heat transferred in physical or chemical processes.
	12. Calculate enthalpies	
	-	ange in the concentrations of reactants and products to
	each other and react	
		n initial reaction rate data.
		aws to identify zero-, first- and second-order reactions.
	16. Calculate half-lives o	
	on rate constants.	on energy of a reaction and the effect of temperature
		nstant expressions and predict the direction of
	reversible chemical r	
	19. Predict how a reaction	on at equilibrium will respond to changes in conditions.
	0	of acids and bases to their K_a and K_b values.
	21. Interconvert $[H_3O^+]$,	
	22. Calculate the pH of p	
	23. Prepare a buffer with	ret the results of an acid-base titration.
		of an ionic compound to its solubility product.
		ntropy changes for spontaneous and non-spontaneous
	•	nd physics processes.
		d free energy changes in chemical reactions using
		opies and free energies.
		ity of a chemical reaction as a function of temperature.
	-	uation to calculate the values of the equilibrium
	constant at different	temperatures. based experiments and be proficient in practical
	chemistry skills.	sasca experiments and be proneient in practical
Assessment:		and their respective weightings are given below:
	In-class Quizzes	5%
	On-line Assignments:	
	Laboratories: Three Module Tests	25% 3 × 20%
	TILLE MOUULE TESIS	5 ^ 20 /0

Attendance and Participation:	It is expected that students will attend all lectures, and laboratory sessions. Students are responsible for all required readings, and topics presented in lectures and laboratories. Attendance may be monitored in lectures through the use of in-class quizzes. See "Laboratory" for details regarding lab attendance.
Criteria That Must Be Met to Pass:	In order to be assigned a passing final grade, you must fulfill the following conditions: 1. Obtain an overall mark greater than 50%, AND 2. Attend all laboratory sessions and complete all required lab work and obtain a 50% mark therein, AND 3. Achieve a minimum of 40% on the final exam
Final Grades:	The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at link below, click "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php For information regarding appeals of final grades or other academic matters, please visit https://secretariat.usask.ca/student-conduct-appeals/index.php
Academic Courses Policy:	More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: <u>http://policies.usask.ca/policies/academic-affairs/academic-courses.php</u>
Learning Charter:	The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: https://teaching.usask.ca/about/policies/learning-charter.php

Course Content/Schedule:

WEEK	Торіс	Approximate Lecture Hours	LAB
WEEK 1	 Chemical Bonding 1.1 Shapes and sizes of atomic orbitals 1.2 Electronic configurations, periodic properties 1.3 Extensions and limitations of Lewis theory 	3.0	No Lab
{2	<i>Chemical Bonding continued</i> 1.4 VSEPR 1.5 Introduction to Valence Bond theory 1.6 Hybridization 1.7 Pi and Sigma bonds.	3.0	D VSEPR MODELS
WEEK 2	 2. Properties of Gases – How much is a ton of CO₂ ? 2.1 Simple gas relationships 2.2 The ideal-gas law 2.3 Gas reaction stoichiometry ASSIGNMENT 1- DUE ONLINE	1.5	LAB #1: BONDING AND VSEPR MODELS
	Properties of Gases continued 2.4 Dalton's law of partial pressures 2.5 Deviations from ideal gas behavior 2.6 Other equations of state.	1.5	PERTIES OF GASES
WEEK 3	 3. Thermochemistry -Why do we burn fossil fuels ? 3.1 Heat versus work 3.2 The first law of thermodynamics 3.3 Energy changes in chemical reactions 3.4 Enthalpy 3.5 Heat capacities and calorimetry Module Test #1 ASSIGNMENT 2- DUE ONLINE	3.0	LAB #2: PRESSURE AND PROF

_	<i>Thermochemistry continued</i> 3.6 Enthalpy changes in reactions 3.7 Standard enthalpies of formation.	1.5	RIMETER TO STUDY THALPY	
WEEK 4	 4. Chemical Kinetics – At what rate can atmospheric CO₂ be depleted "naturally" ? 4.1 Rates of chemical reactions 4.2 Order of reactions, 4.3 Method of initial rates ASSIGNMENT 3 - DUE ONLINE	3.0	AB #3: DESIGN OF A CALORIMETF CHANGE IN ENTHALPY	
WEEK 5	 5. Chemical Equilibria – How do oceans moderate CO₂ levels ? 5.1 Chemical activity 5.2 Reaction quotients 5.3 Equilibrium constants 5.4 Direction of reaction 5.5 Equilibrium concentrations 5.6 Le Châtelier's principle 	4.5	LAB #4: RATES OF CHEMICAL REACTIONS LAB #3: DESIGN OF A CALORIMETER TO STUDY CHANGE IN ENTHALPY	
WEEK 6	 6. Acid-Base Equilibria – Why does increased atmospheric CO₂ lead to loss of coral reefs ? 6.1 Arrhenius acids and bases 6.2 Brønsted-Lowry and Lewis definitions; 6.3 Acid strengths 6.4 Acid dissociation constants 6.5 Auto-ionization of water 6.6 The pH scale. 6.7 Weak acid/base dissociation strong and weak acid solutions 6.8 Polyprotic acids 6.9 The pH of a polyprotic acids. 	4.5	Tutorials in the Lab	
	Module Test #2 ASSIGNMENT 5- DUE ONLINE			

WEEK 7	 7. Aqueous Equilibria – Can we trap CO2 as insoluble carbonates ? 7.1 Buffers, buffer range and buffer capacity 7.2 Calculate the pH of a buffered solution 7.3 Titrations, indicators and equivalence points 7.4 Analysis of titration curves 7.5 Solubility product constant 7.6 Solubility of sparingly soluble salts 7.7 The common ion effect 7.8 Selective precipitation 8. Chemical Thermodynamics – Why don't we 	3.0	LAB #5LE CHATELIER'S PRINCIPLE AND CHEMICAL Equilibrium	
	 8. Chemical Thermodynamics – why don't we just chemically convert CO₂ back into fuels ? 8.1 Spontaneous and non-spontaneous processes 8.2 Entropy 8.3 Second law of thermodynamics ASSIGNMENT 6- DUE ONLINE	1.5	LAB #5LE CHATI	
WEEK 8	Chemical Thermodynamics continued 8.4 Phase transitions 8.5 Entropy in chemical reactions 8.6 Standard molar entropies 8.7 Third law of thermodynamics 8.8 Gibbs free energy 8.9 Spontaneity and Gibbs free energies 8.10 Standard change in Gibbs free energy 8.11 Free energy changes for non-standard states 8.12 Gibbs free energy and the equilibrium constant 8.13 Temperature dependence on the equilibrium constant.	4.5	LAB #6: TITRIMETRIC ANALYSIS OF ACIDS AND BASES	
	Module Test #3 ASSIGNMENT7- DUE ONLINE		Γ	
WEEKS 9-11	LABS CONTINUE- SEE LAB EXPERIMENT SCHEDULE		Labs #7-9 See Lab Schedule	

Homework Assignments

The course textbook is fully supported by the Smartwork5 website. We will use Smartwork5 to assign homework assignments (see Assessments above). The homework assignments will not only help you to test if you understand the material, but it will also teach you how to solve chemical problems since some of the problems are fully tutored. Assignments should be done by all students individually. We note that students attempting to cut corners – including cheating - on assignments have always suffered in examinations.

BEFORE you can register for SmartWork5, you need the right "Registration Code" (provided with a new print/electronic textbook) and the correct "Student Set ID" for your section of the course. "Student Set IDs" are specific to each section. The link: http://bit.ly/nortonregistration shows a complete video on how to register and join a Student Set. Also, please see the Smartwork5 FAQ document in the course website for frequently asked questions (and answers) about Smartwork5. More important details may be given during the first week of lectures. With your "Student Set ID" (see table below), your "Student ID" (see your student card), and your "Registration Code" you can then register on the website: https://digital.wwnorton.com/chem5

If you have used Smartwork5 before (i.e. in another course) your login and password should still be valid, but you will need to register for the correct section of CHEM 146 using the appropriate 6-digit "Student Set ID".

CHEM 146 Section	Lecturer	Students Set ID
Section 01- TR 9:30 am	TBA	111111
Section 03- TR 10:30 am	TBA	222222

There will be seven graded assignments scheduled during the term. The due dates are listed above in the Course Schedule. Assignments are submitted on-line through the Smartwork5 system.

All assignments are due by the start of class on the day indicated in the syllabus. There are NO extensions of due dates for the graded assignments. Students who have missed the deadline should continue to work on the assignment in order to practice those concepts but will not receive credit for the questions completed after the due date.

Laboratory:

The CHEM 146 labs will begin during the second week of the course. The location of your lab is available in your registration information on PAWS.

Laboratory Experiment	Dates
BONDING AND VSEPR MODELS	Week 2
PRESSURE AND PROPERTIES OF GASES	Week 3
DESIGN OF A CALORIMETER TO STUDY CHANGE IN ENTHALPY	Week 4
RATES OF CHEMICAL REACTIONS	Week 5
LE CHATELIER'S PRINCIPLE AND CHEMICAL EQUILIBRIUM	Week 7
TITRIMETRIC ANALYSIS OF ACIDS AND BASES-	Week 8
CALCULATION OF K _{SP} IN AQUEOUS SOLUTIONS	Week 9
PH TITRATION CURVES AND INDICATORS-	Week 10
GIBB'S FREE ENERGY AND NON-SPONTANEOUS PROCESSES	Week 11

What to Bring to the Lab

- CHEM 146 Laboratory Instructions (posted on Course website)
- Safety glasses (Available in the main Bookstore and Chemistry Stores (Thorv. G46)). Prescription glasses alone do not provide sufficient eye protection. Students who wear prescription glasses must also wear safety glasses.
- Loose-leaf paper, pen

Students are expected to follow all safety considerations in the laboratory, perform the experiments during the allotted time, and complete calculations and reports during the lab.

The Laboratory will make up 20% of the Overall Course mark and each lab will be weighted equally. *Grading of each lab will be based on*

- Preparation exercise or quiz (10%),
- Performance during the experiment including Safety and Cleanliness (30%)
- Calculations and Report (50%)
- Group Participation (10%)

Absences from the Assigned Lab Period

Students are expected to attend ALL laboratory sessions. However, if an absence is unavoidable, for example, a serious illness or the death of a family member, you may apply for permission to reschedule the lab on a different day. You will have 2 business days after the missed lab period to contact the Lab Manager, Dr. Alexandra Bartole-Scott (<u>firstyear.chem@usask.ca</u>); to fill out the "Permission to Reschedule Lab" Form and arrange the make-up lab. If permission is not granted or the student does not complete the lab, the experiment will be assigned a mark of "0" and will result in a failing grade in the course.

If, due to a valid prior commitment, you cannot attend your assigned lab period, you should see the lab manager at least TWO WEEKS before to arrange an alternate time and to obtain the "Permission to Reschedule Lab" form. Examples of valid reasons for rescheduling a lab include: medical appointments that cannot be rescheduled, commitments for Huskies athletes, and observances of religious holidays. Additional documentation may be required to verify the reason for your absence from your regular lab time. Note: Tests/exams in other courses are not valid reasons for missing your lab. It is your responsibility to arrange alternate test times outside of your regularly scheduled lab.

Attendance at laboratory sessions and submission of laboratory reports is **<u>mandatory</u>**. Late lab reports are not permitted. Failure to meet these requirements will result in a final grade of less than 50% for the course.

Examinations:

Module Tests:

Three module tests will be scheduled during the term. They will be scheduled outside of class time. If a student is unable to write a test through no fault of his or her own for medical or other valid reasons, documentation must be provided. If a student misses multiple test an opportunity to write a deferred test <u>may</u> be given (see below). Students are encouraged to review all examination policies and procedures: http://students.usask.ca/academics/exams.php

The module tests will be common to all concurrent sections of CHEM 146. All module tests are 'closed-book'. Data sheets and other help will be supplied at the examinations, if required. The tests will be based on multiple-choice and/or short problems and students will have maximum of 1.5 hours to complete each test.

Examination Policies:

- **Students will only be permitted to use a non-programmable calculator.** The use of electronic devices, including programmable calculators, phones and watches, with document storage and/or communication capabilities is prohibited during exams.
- Alternate times to write module tests cannot be accommodated. If a student misses multiple module tests, application must be made to the Engineering Student Centre to write a deferred test.
- Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines.

Required Activities Outside of Class Time

The module tests will take place outside of class time on the dates provided in the schedule above. See "Module Tests" for details.

Important Dates:

Mon., Jan. 6	Classes resume						
Fri., Jan. 17	Last day for making changes in registration for T2 courses						
	(100% tuition credit).						
Feb. 17 - 22	Winter Midterm Break						
Sun., Mar. 15	Last day to withdraw from T2 classes						

Required Resources

Readings/Textbooks

1. Chemistry, 5th Edition, T.A. Gilbert et al. ISBN 9780393615142 2. Access Kit for Smartwork5 on-line assignment system. This access kit is required for the homework assignments (sold in package with the text)

Textbooks are available from the University of Saskatchewan Bookstore: <u>https://bookstore.usask.ca/students.php#MyTextbooks</u>

Other Required Materials

1. Safety Glasses for the laboratory. See "Laboratory" for details.

2. CHEM 146 - Laboratory Instructions (pdfs posted in Laboratory folder in COURSE TOOLS)

Electronic Resources

General and section specific CHEM 146 information can be found on PAWS (paws.usask.ca) under the COURSE TOOLS tab. This site will contain laboratory information, important updates, answers to most common questions about the course, and any section specific information. Updates and announcements will be posted on PAWS.

Calculator Policy

You should have a simple scientific calculator and know how to use it. Students may use a basic scientific calculator (e.g. Texas Instruments TI-30X series, Hewlett-Packard HP 10s or 30S) for all CHEM 146 exams. Graphing or programmable calculators, or calculators with communication capability, are not allowed. For example, HP 35s, Casio fx-50FH, TI-83Plus calculators are not allowed. Ask your instructor if you are unsure whether your calculator is acceptable.

Email

All University of Saskatchewan students are supplied with a university email account and are strongly encouraged to use the university account instead of Hotmail or Gmail (or other free email service) for any university-related correspondence. See

http://www.usask.ca/its/guides/student_guide for more information about services available.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct* (https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the

Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning

(http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS</u>)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

Safety is of paramount importance in the College. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Recording Lectures:

Recording of the course will only be allowed in certain circumstances. Please see the instructor for information on how to receive approval.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit http://www.usask.ca/copyright/students/rights/index.php or contact the University's Copyright Coordinator at copyright.coordinator@usask.ca.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with his or her colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit https://students.usask.ca/health/centres/access-equity-services.php, or contact AES at 306-966-7273 or aes@usask.ca.

Students registered with AES may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>
- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

End of day tutorial sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see <mark>X</mark> for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

Consulting and Tutors

You are encouraged to approach instructors and laboratory staff on an individual basis to discuss any aspect of the course. The Chemistry Learning Centre (Thorvaldson 162; located opposite the Chemistry main office.) will be available to CHEM 146 students; times will be posted on PAWS and outside the Centre. Other tutor opportunities may be arranged by the Chemistry Student's Society. The University of Saskatchewan Students' Union (http://www.ussu.ca) and Chemistry Students Society Please note that most CHEM 146 instructors will generally respond to emails within 24 hours, during working hours. Please first check the course outline (this document) and the CHEM 146 course website to ensure that the answer is not already posted.

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

Instructional Level [‡]												
Learning Outcome		Attribute [†]										
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1	Ι								Ι			
2	Ι											
3	Ι											
4	Ι		Ι									
5		Ι		Ι		Ι			Ι			

[‡]Instructional Level:

†<u>Attributes</u>:

A1	A knowledge base for engineering	Introduced (I) – Students learn the working vocabulary of the
A2	Problem analysis	area of content, along with some of the major underlying
A3	Investigation	concepts.
A4	Design	Developed (D) – Students use their working vocabulary and
A5	Use of engineering tools	major fundamental concepts to probe more deeply, to read the
A6	Individual and team work	literature, and to deepen their exploration of the concepts. They
A7	Communication skills	may begin to practice, extend, or refine knowledge in familiar
A8	Professionalism	contexts.
A9	Impact of engineering on society	Applied (A) – Students approach mastery in the area of
	and the environment	content. They explore deeply into the discipline and experience
A10	Ethics and equity	the controversies, debate, and uncertainties that characterize
A11	Economics and project	the leading edges of any field. They practice, extend, or refine
	management	knowledge in unfamiliar contexts.
A12	Life-long learning	

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
0%	100%	0%	0%	0%

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Arts & Science
- 1.2 Department with academic authority: Department of Computer Science
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: CMPT 142
- 2.2 Academic credit units: 3
- 2.3 Course Long Title (maximum 100 characters): Introduction to Computer Science for EngineersCourse Short Title (maximum 30 characters): Intro Comp Sci for Engr

2.4	Total Hours:	Lecture	25.5	Seminar		Lab	18	Tutoria	1	Other
2.5	Weekly Hours:	Lecture	4.25	Seminar		Lab	3	Tutoria	1	Other
2.6	Term in which it	will be of	ffered	T1	Т2		T1 or T	2	T1 an	d T2

2.7 Prerequisite: Mathematics B30 or Foundations of Mathematics 30 or Pre-Calculus 30

If there is a prerequisite waiver, who is responsible for signing it?

	D – Instructor/Dept Ap	proval
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- H Department Approval
- I Instructor Approval

2.8 Catalogue description (150 words or less):

Introduces essential computer science and computer programming concepts and principles, with application to problems relevant to all Engineering disciplines. Presents the context in which computational problem solving is done, including historical and elementary technical aspects. Emphasizes fundamental programming constructs, including data and data types, variables and expressions, conditional branching, repetition, functions, recursion, as well as data structures such as strings, lists, and dictionaries. Presents searching and sorting algorithms as an introduction to concepts in computer science. Emphasis throughout on the practice of basic skills needed for writing robust software, including formal design processes and documentation, internal code documentation, testing, and debugging.

2.9 Do you allow this course to be repeated for credit? No

3. Please list rationale for introducing this course:

Currently a number of Arts & Science departments contribute to the <u>Common First Year</u> for the College of Engineering Bachelor of Science in Engineering (B.E.) program. The College of Engineering is in the process of redesigning this Common First Year to create the most effective first year engineering program in Canada. They are working hard to create something that will excite, engage and inspire their students, and to holistically prepare them for the challenges to come in later years. This project has been underway since 2016-2017 and has a planned launch of Fall 2021. Over this time there has been extensive consultation between the College of Engineering and specific Departments in the College of Arts & Science. A suite of new Science courses are being proposed for use in this redesigned Common First Year which will replace existing courses currently used. CMPT 142 is essentially a specialized version of CMPT 141, with minor additions and substitutions to the CMPT 141 syllabus. Some of the changes are due to the compressed time frame for the course. For all purposes involving pre-requisites, course exclusions, and transfer credits, CMPT 142 should be considered equivalent to CMPT 141. CMPT 142 will be taken by all first year engineering students.

This course will replace CMPT 113, CMPT 116, and CMPT141 which are taken by second year students in current Engineering programs. CMPT 113 and CMPT 116 will be offered for the last time in 2021-2022 to accomodate students in those programs

The College of Engineering is also working toward a new competency-based assessment system that will be utilized in the new First Year Engineering courses in Fall 2021. The Arts & Science departments will continue to learn more about this system through 2020-2021 and 2021-2022 as it is implemented in Engineering, and will then determine how it can be used in the Science courses attached to the Engineering Common First Year. Revisions to the courses, to implement this assessment system, will be submitted to the appropriate College Academic Programs Committee for approval, prior to use in the courses.

This new competency-based assessment system will use module tests in place of midterm and final exams. A few of the new courses proposed by Arts and Science departments have started to use the concept of Module Tests in their courses in these first versions. This will make it easier when they switch to the competency-based assessment system in future. Some common wording regarding module tests was created and has been used in the Arts and Science course proposals. This wording is similar to that of the Examinations Policies section of Arts and Science syllabus, but has been modified to accurately portray the concept of the module tests.

4. Please list the learning objectives for this course:

By the end of this course, students will be expected to:

- 1. Describe, at an introductory level, the elements of modern computer architecture, the role of operating system software, and the difference between source code, compiled software applications, and interpreted software applications.
- Apply elementary programming constructs, including data and data types, variables and expressions, conditional branching, repetition, functions, recursion, as well as data structures such as strings, lists, and dictionaries
- 3. Design, implement, and test software applications in a wide variety of contexts relevant to the Engineering profession.
- 4. Explain, at an introductory level, concepts in Computer Science, such as algorithmic efficiency, specifically in the context of algorithms for searching and sorting.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? This course is for the College of Engineering First Year.

If so, were these departments consulted? (Include correspondence) Yes

Were any other departments asked to review or comment on the proposal? The course went through the Arts & Science College Challenge, which provides opportunity for responses by all departments in the College.

- 6. **Other courses or program affected** (please list course titles as well as numbers)
 - 6.1 Courses to be deleted? CMPT 113, CMPT 116
 - 6.2 Courses for which this course will be a prerequisite? CMPT 145
- 6.3 Is this course to be required by your majors, or by majors in another program?

This course is designed for the College of Engineering First Year, and will replace CMPT 113, CMPT 116, and CMPT 141 in CoE programs. Students with credit for CMPT 142 will be allowed to use CMPT 142 in place of CMPT 141 for any Arts & Science degree, e.g., students completing a Computer Science 3-year B.Sc.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Assessment:	The methods of assessment and their respective weightings are given
	below:

Lab Assignments:	24% (4 @ 6% each)
Lab Exercises:	12% (4 @ 3% each)
Homework Assignments:	24% (4 @ 6% each)
Module Test:	40%

 9.1 How should this course be graded? C – Completed Requirements (Grade options for instructor: Completed Requirements, Fail, IP In Progress) N – Numeric/Percentage (Grade options for instructor: grade of 0% to 100%, IP in Progress) P – Pass/Fail (Grade options for instructor: Pass, Fail, In Progress) S – Special (Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Module test replaces final exam. This will be scheduled at the end of the class, outside of the traditional final exam period.

10. Required text

Include a bibliography for the course.

Course Readings (textbook) are provided free of charge and are available on the course website.

11. Resources

11.1 Proposed instructor: M. Horsch, J. Long

- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within department.
- 11.3 Are sufficient library or other research resources available for this course? Yes
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? Details have been worked out between College of Arts & Science and College of Engineering.

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC03
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
CO0	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial

LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

FNAR	Fine Arts

HUM Humanities

SCIE Science

SOCS Social Science

ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required:
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

Restricted to students in the College of Engineering.

3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course Mathematics B30 or Foundations of Mathematics 30 or Pre-Calculus 30

- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: CMPT 141

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here: None

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

***Please note:** SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructors:	Name (include credentials; if applicable please include P.Eng. or EIT as well) Office Email				
Office Hours:	Dates, Times				
Lectures:	See First Year Engineering Schedule				
Laboratory:	See First Year Engineering Schedule				
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website. Students are responsible for keeping up-to-date with the information on the course website.				
Description:	Introduces essential computer science and computer programming concepts and principles, with application to problems relevant to all Engineering disciplines. Presents the context in which computational problem solving is done, including historical and elementary technical aspects. Emphasizes fundamental programming constructs, including data and data types, variables and expressions, conditional branching, repetition, functions, recursion, as well as data structures such as strings, lists, and dictionaries. Presents searching and sorting algorithms as an introduction to concepts in computer science. Emphasis throughout on the practice of basic skills needed for writing robust software, including formal design processes and documentation, internal code documentation, testing, and debugging.				
Corequisites: Prerequisites: Note:	Mathematics B30 or Foundations of Mathematics 30 or Pre-Calculus 30 Students with credit for CMPT 141 (or equivalent) cannot take this course for credit.				
Course Learning Outcomes:	 By the end of this course, students will be expected to: 1. Describe, at an introductory level, the elements of modern computer architecture, the role of operating system software, and the difference between source code, compiled software applications, and interpreted software applications. 2. Apply elementary programming constructs, including data and data types, variables and expressions, conditional branching, repetition, functions, recursion, as well as data structures such as strings, lists, and dictionaries 				

	 Design, implement, and test software applications in a wide variety of contexts relevant to the Engineering profession. Explain, at an introductory level, concepts in Computer Science, such as algorithmic efficiency, specifically in the context of algorithms for searching and sorting. 						
Assessment:	The methods of assessment and their respective weightings are given below:						
	Lab Assignments: Lab Exercises: Homework Assignments: Module Test:	24% (4 @ 6% each) 12% (4 @ 3% each) 24% (4 @ 6% each) 40%					
Attendance and Participation:	Students are expected to attend every class be short reading assignments for all lecture to class having completed the readings. The	s and students are expected to come					
	Attend all laboratory sessions. These are op material with the guidance of a teaching ass missed lab sessions, provided that the lab en date.	sistant. There is no penalty for					
Criteria That Must Be Met to Pass:	The student cannot earn a passing grade in the course without having earned a mark of 50% or higher in the module test. A student who does not pass the module test will receive a grade of 49% or the overall mark, whichever is lower.						
Final Grades:	The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php						
	For information regarding appeals of final g please visit the Student Conduct and Appea Secretary's website: <u>http://www.usask.ca/secretariat/student-c</u>	ls section of the University					
Academic Courses Policy:	More information on the Academic Courses examinations and assessment of student lea http://policies.usask.ca/policies/academice	arning can be found at:					
Learning Charter:	The University of Saskatchewan Learning C aspirations about the learning experience the and the roles to be played in realizing these and the institution. A copy of the Learning C http://www.usask.ca/university_secretary	hat the University aims to provide, aspirations by students, instructors Charter can be found at:					

Course Overview:

This course will provide first year engineering students basic skills needed to apply computational problem solving during their formal training, and during their practice of any Engineering discipline. The majority of the course will focus on the fundamental building blocks of

computation, as expressed in Python, which is currently a popular and practical language for many computational tasks. In addition, the course will introduce students to software design and development practices that will help them manage programs that are more than a few lines of code. Python programming can be fun, and many scientists and software developers use Python productively in their work. However, the underlying computational concepts covered in the course are not specific to Python, and mastery of these concepts in one language is transferable to any other programming language or environment.

Course Content/Schedule:

То	pic	Lecture Hours
1.	TOPIC 1: COMPUTING IN CONTEXT	
	1.1.A Brief History of Computing	1
	1.2. A Brief Overview of Computer Hardware and Software	Lecture
2.	TOPIC 2: COMPUTING WITH PYTHON	
	2.1. Data and Data Types	
	2.2. Variables, Values, and Expressions	C C
	2.3. Console Input and Output	6
	2.4. Strings, Tuples, and Lists	Lectures
	2.5. Conditionals	
	2.6. Functions and Modules	
	2.7. Repetition and Loops	
3.	TOPIC 3: THE PRACTICE OF COMPUTING	
	3.1. Software design	
	3.2. Testing and debugging	6
	3.3. Documenting your software	Lectures
	3.4. File Input and Output	Lectures
	3.5. Dictionaries	
	3.6. Repetition and Recursion	
4.	TOPIC 4: SEARCHING AND SORTING	
	4.1. Linear and Binary Search	2
	4.2. Merge Sort, Quick Sort	Lectures
5.	Торіс 5:	1
	5.1. Module test Take-Up	Lecture
	5.2. Course Retrospective	Lecture

Lectures are 80 minutes long, and will be held up to three times per week. They will generally consist of a combination of short technical presentations, interactive demonstrations, and guided problem-solving exercises. Short readings will be assigned before each class to ensure that lecture time is used for active learning. Lectures will be an opportunity to apply the concepts covered in the course readings, discuss them, as well as to ask questions and receive guidance in their application.

Short Lab sessions (90 minutes) are held once weekly for the duration of the course. The primary purpose of the short lab sessions is to provide an opportunity to complete **weekly laboratory exercises**. Exercises consist of several short and elementary programming problems to build technical skills and provide a foundation for more advanced problem solving. Lab exercises will be graded for successful completion; they can be repeated, corrected, and resubmitted as often as needed until a correct answer is submitted. Some short lab periods are used for presentation of technical matters such as creating projects, using the debugger, and practicing other software development skills. Students should be able to complete the required work within the short lab session, but the deadline for submitting lab exercises will be two days after the session. Lab exercises will be completed on-line, and graded electronically.

Long Lab sessions (180 minutes) are held once weekly for the duration of the course. The primary purpose the long lab sessions is to provide an opportunity to complete **weekly laboratory assignments.** Laboratory assignments consist of larger problems, and will require practice of software development skills as taught throughout the course. Lab assignments will be graded for quality of the solution, and the degree to which good software development skills have been demonstrated. Most long lab sessions are also used for presentation of technical matters such as creating projects, using the debugger, and practicing other software development skills. Students should be able to complete the required work within the long lab session, but the deadline for submitting lab exercises will be two days after the session. Lab assignments will be submitted electronically to the course website, and graded by a teaching assistant.

Homework assignments will consist of one or two practical problems per week, to be completed in addition to the weekly lab exercises and weekly lab assignments. These are opportunities to put into practice the concepts covered in the course, with less structured guidance from instructors and teaching assistants. Homework assignments will be submitted electronically to the course website, and graded by a teaching assistant.

Late Assignments:

- The deadline for lab exercises is two days after the lab session for which they were assigned. Lab exercises can be completed after the deadline for partial credit (50%) of the value, until the module test.
- The deadline for lab assignments is two days after the lab session for which they were assigned. Late lab assignments will not be accepted.
- The deadline for weekly homework assignments is Friday, 6pm. Late homework assignments will not be accepted.

Exceptions for health or compassionate reasons can be discussed with your instructor. However, the course moves quickly, and there is no room for long extensions.

Examinations:

Module test:

The module test will be scheduled by the College of Engineering (it may be scheduled in the evening in the last week of the course). The test will be 2 hours long, and will consist of multiple choice questions, and short programming problems.

Examination Policies:

If a student is unable to write an exam or test through no fault of his or her own for medical or other valid reasons, documentation must be provided and an opportunity to write the missed exam or test <u>may</u> be given. Students are encouraged to review all examination policies and procedures: <u>http://students.usask.ca/academics/exams.php</u>

- The student cannot earn a passing grade in the course without having earned a mark of 50% or higher in the module test. A student who does not pass the module test will receive a grade of 49% or the overall mark, whichever is lower.
- Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines.

Required Activities Outside of Class Time

The module test will be scheduled by the College of Engineering, according to the schedule for first year engineering modules. The module test may be scheduled during the evening of the last week of the course.

Readings/Textbooks

Course Readings (textbook) are provided free of charge and are available on the course website.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(www.usask.ca/secretariat/student-conduct-appeals/StudentAcademicMisconduct.pdf) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>http://www.usask.ca/secretariat/student-conduct-appeals/StudentNon-AcademicMisconduct.pdf</u>).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (<u>http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php</u>).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/.</u>

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning

(http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS</u>)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

Safety is of paramount importance in the College. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Recording Lectures:

Lectures will be recorded, when possible, and made available to students on the course website so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit http://www.usask.ca/copyright/students/rights/index.php or contact the University's Copyright Coordinator@usask.ca/copyright.coordinator@usask.ca/copyright

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://www.usask.ca/secretariat/student-conduct-appeals/StudentNon-AcademicMisconduct.pdf</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with his or her colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit https://students.usak.ca/health/centres/access-equity-services.php, or contact AES at 306-966-7273 or access-equity-services.php, or contact AES at 306-966-7273 or access-equity-services.php, or contact AES

Students registered with AES may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>

End of day tutorial sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see X for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

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This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

Instructional Level [‡]												
Learning		Attribute [†]										
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1	I?											
2					D							
3				Ι	D							
4	I?		Ι									

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† <u>Att</u>	<u>ributes</u> :	<u>*Instructional Level</u> :
A1	A knowledge base for engineering	Introduced (I) – Students learn the working vocabulary of the
A2	Problem analysis	area of content, along with some of the major underlying
A3	Investigation	concepts.
A4	Design	Developed (D) – Students use their working vocabulary and
A5	Use of engineering tools	major fundamental concepts to probe more deeply, to read the
A6	Individual and team work	literature, and to deepen their exploration of the concepts. They
A7	Communication skills	may begin to practice, extend, or refine knowledge in familiar
A8	Professionalism	contexts.
A9	Impact of engineering on society	Applied (A) – Students approach mastery in the area of
	and the environment	content. They explore deeply into the discipline and experience
A10	Ethics and equity	the controversies, debate, and uncertainties that characterize
A11	Economics and project	the leading edges of any field. They practice, extend, or refine
	management	knowledge in unfamiliar contexts.
A12	Life-long learning	

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
XX%	XX%	XX%	XX%	XX%

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Arts & Science
- 1.2 Department with academic authority: Department of Computer Science
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: CMPT 146
- 2.2 Academic credit units: 3
- 2.3 Course Long Title (maximum 100 characters): Principles of Computer Science for Engineers Course Short Title (maximum 30 characters): Princ Comp Sci for Engr

2.4	Total Hours:	Lecture	22.5	Seminar		Lab	22.5	Tutoria	al	Other
2.5	Weekly Hours:	Lecture	7.5	Seminar		Lab	7.5	Tutoria	al	Other
2.6	Term in which it	: will be of	ffered	: T1	(T2)	T1 or 1	2	T1 an	d T2

2.7 Prerequisite: CMPT 141.3 or CMPT 142.3

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval

I – Instructor Approval

2.8 Catalogue description (150 words or less):

Introduces computer science principles and strategies for writing correct, efficient, robust, maintainable software. Presents principles and implementations of linear data structures including stacks, queues, and linked-lists, as well as recursive data structures including binary trees, and binary search trees. Introduces algorithm analysis to determine time and space requirements, including best-case and worst-case behaviour. Presents abstract data types as implemented using object-oriented programming. Emphasizes principles of software design, development, and testing, and practical development strategies, including defensive programming, version control, and good coding style.

2.9 Do you allow this course to be repeated for credit? No

3. Please list rationale for introducing this course:

Currently a number of Arts & Science departments contribute to the Common First Year for the College of Engineering Bachelor of Science in Engineering (B.E.) program. The College of Engineering is in the process of redesigning this Common First Year to create the most effective first year engineering program in Canada. They are working hard to create something that will excite, engage and inspire their students, and to holistically prepare them for the challenges to come in later years. This project has been underway since 2016-2017 and has a planned launch of Fall 2021. Over this time there has been extensive consultation between the College of Engineering and specific Departments in the College of Arts & Science. A suite of new Science courses are being proposed for use in this redesigned Common First Year which will replace existing courses currently used. CMPT 146 is essentially a specialized version of CMPT 145, with minor additions and substitutions to the CMPT 145 syllabus. Some of the changes are due to the compressed time frame for the course. For all purposes involving pre-requisites, course exclusions, and transfer credits, CMPT 146 should be considered equivalent to CMPT 145. Specifically, this new course will be taken by students who have chosen Engineering disciplines of Computer Engineering, Electrical Engineering, and Engineering Physics, and is designed to provide these students with the preparation they need to advance to 200-level CMPT courses, especially CMPT 214, and CMPT 270.

The College of Engineering is also working toward a new competency-based assessment system that will be utilized in the new First Year Engineering courses in Fall 2021. The Arts & Science departments will continue to learn more about this system through 2020-2021 and 2021-2022 as it is implemented in Engineering, and will then determine how it can be used in the Science courses attached to the Engineering Common First Year. Revisions to the courses, to implement this assessment system, will be submitted to the appropriate College Academic Programs Committee for approval, prior to use in the courses.

This new competency-based assessment system will use module tests in place of midterm and final exams. A few of the new courses proposed by Arts and Science departments have started to use the concept of Module Tests in their courses in these first versions. This will make it easier when they switch to the competency-based assessment system in future. Some common wording regarding module tests was created and has been used in the Arts and Science course proposals. This wording is similar to that of the Examinations Policies section of Arts and Science syllabus, but has been modified to accurately portray the concept of the module tests.

4. Please list the learning objectives for this course:

By the end of this course, students will be expected to:

- 1. Be proficient at writing correct, efficient, robust, maintainable software in Python.
- 2. Analyze time and space complexity of algorithms, and to compare and evaluate algorithms and data.
- 3. Apply skills in elementary software design, development, testing, and debugging.
- 4. Explain the concept of abstract data types (ATDs) in terms of interface and encapsulation, and explain the value of ADTs in design and development of software.
- 5. Describe the use and behavior of objects in Python, as examples of the ADT concept.
- 6. Describe the principles of specific data types: stacks, queues, linked-lists, binary trees, binary search trees, and implement them as part of the solution to computational problems.
- 7. Apply recursion to computational tasks involving data structures such as lists and trees.
- 8. Describe and apply strategies such as divide and conquer, greedy algorithms, and backtracking to computational problems.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? This course is for the College of Engineering First Year.

If so, were these departments consulted? (Include correspondence) Yes

Were any other departments asked to review or comment on the proposal? The course went through the Arts & Science College Challenge, which provides opportunity for responses by all departments in the College.

- 6. **Other courses or program affected** (please list course titles as well as numbers)
 - 6.1 Courses to be deleted? None
 - 6.2 Courses for which this course will be a prerequisite? CMPT 214, CMPT 260, CMPT 270
- 6.3 Is this course to be required by your majors, or by majors in another program?

This course is designed for the College of Engineering First Year, and will replace CMPT 145 in the Computer Engineering (CME) program. Students with credit for CMPT 146 will be allowed to use CMPT 146 in place of CMPT 145 for any Arts & Science degree, e.g., students completing a Computer Science 3-year B.Sc.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: 120
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Assessment:	The methods of assessment and thei Homework Assignments: (5@5%) Quizzes: (2@5%) Lab Assignments: (13@2%) Module test:	ir respective weightings are given below: 25% 10% 26% 39%
9.1	How should this course be graded? C – Completed Requirements (Grade options for instructor: Completed N – Numeric/Percentage (Grade options for instructor: grade of 09 P – Pass/Fail (Grade options for instructor: Pass, Fail, H S – Special	% to 100%, IP in Progress)

(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Module exam replaces traditional final

exam.

10. Required text

Include a bibliography for the course.

Course Readings (textbook) are provided free of charge and are available on the course website.

11. Resources

11.1 Proposed instructor: M. Horsch, J. Long

- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within department.
- 11.3 Are sufficient library or other research resources available for this course? Yes
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? Details have been worked out between College of Arts & Science and College of Engineering.

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC03
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
CO0	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	ХСН	Exchange Program

LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

FNAR	Fine Arts
HUM	Humanities
SCIE	Science
SOCS	Social Science
	No Drogram Tuno

ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required:
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

Restricted to students in the College of Engineering.

3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course CMPT 141.3 or CMPT 142.3

- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: CMPT 145

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

• If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.

• If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here: None

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructors:	Name (include credentials; if applicable please include P.Eng. or EIT as well) Office Email			
Office Hours:	Dates, Times			
Lectures:	See First Year Engineering Schedule			
Laboratory:	See First Year Engineering Schedule			
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website. Students are responsible for keeping up-to-date with the information on the course website.			
Description:	Introduces computer science principles and strategies for writing correct, efficient, robust, maintainable software. Presents principles and implementations of linear data structures including stacks, queues, and linked-lists, as well as recursive data structures including binary trees, and binary search trees. Introduces algorithm analysis to determine time and space requirements, including best-case and worst-case behaviour. Presents abstract data types as implemented using object-oriented programming. Emphasizes principles of software design, development, and testing, and practical development strategies, including defensive programming, version control, and good coding style.			
Corequisites: Prerequisites: Note:	CMPT 141.3 or CMPT 142.3 Students with credit for CMPT 145 (or equivalent) cannot take this course for credit.			
Course Learning Outcomes:	 By the end of this course, students will be expected to: 1. Be proficient at writing correct, efficient, robust, maintainable software in Python. 2. Analyze time and space complexity of algorithms, and to compare and evaluate algorithms and data. 			

	 Apply skills in elementary software design, development, testing, and debugging. Explain the concept of abstract data types (ATDs) in terms of interface and encapsulation, and explain the value of ADTs in design and development of software. Describe the use and behavior of objects in Python, as examples of the ADT concept. Describe the principles of specific data types: stacks, queues, linked-lists, binary trees, binary search trees, and implement them as part of the solution to computational problems. Apply recursion to computational tasks involving data structures such as lists and trees. Describe and apply strategies such as divide and conquer, greedy algorithms, and backtracking to computational problems. 				
Assessment:	The methods of assessment and their respective weightings are given below:				
	Homework Assignments: (5@5%) 25% Quizzes: (2@5%) 10% Lab Assignments: (13@2%) 26% Module test: 39%				
Attendance and Participation:	Students are expected to attend every class, and participate actively. There will be short reading assignments for all lectures and students are expected to come to class having completed the readings. There is no penalty for missed lectures.				
	Attend all laboratory sessions. These are opportunities to practice the course material with the guidance of a teaching assistant. There is no penalty for missed lab sessions, provided that the lab exercises are completed by the due date.				
Criteria That Must Be Met to Pass:	Students must write the module test. A student who does not write the module test will receive a grade of at most 49 in the course.				
Final Grades:	The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). <u>https://students.usask.ca/academics/grading/grading-system.php</u>				
	For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website: <u>http://www.usask.ca/secretariat/student-conduct-appeals/</u>				

Academic Courses Policy:	More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: <u>http://policies.usask.ca/policies/academic-affairs/academic-courses.php</u>
Learning Charter:	The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: http://www.usask.ca/university_secretary/LearningCharter.pdf

Course Overview:

The purpose of this course is to deepen and broaden student skills in computer science and software development, bringing the efficient organization of data into primary focus. The course will introduce students to a few new language concepts using Python, but primarily the course will focus on skills related to organization of data, organization of software, and introductory level strategies for developing and validating software. The underlying principles and practices are transferrable to any programming language or environment. Students who diligently acquire these skills and practice them will be prepared to engage in moderately large software development projects. This course is a bridge course for first-year engineering students seeking to enter Computer Engineering, Electrical Engineering, and Engineering Physics, and successful completion is pre-requisite for 200-level Computer Science courses.

Course Content/Schedule:

This course is highly condensed, and will move quickly. The class will meet daily for three hours over 14 days. The class will be split into two ninety minute periods, with a break of 15 minutes between. The first period will consist of lecture and discussion, with some interactive demonstrations. The second period will consist of practical laboratory-type work, applying the course material. Assignments will be due on Thursdays and Mondays in the evenings. A short quiz will be held at the end of the first and the second week. Students should anticipate 2-3 hours of homework per day, including course readings, and assignments.

То	pic	Approximate Hours
1.	WEEK 1 1.1. Software Design Goals 1.2. Objects and Classes 1.3. Testing and Debugging, Defensive Programming 1.4. Programming Practices and Style 1.5. Recursion	Lecture: 7.5hours Lab: 7.5 hours
2.	WEEK 2 2.1. Algorithm Analysis 2.2. Software Development Processes; Abstract Data Types 2.3. Stacks and Queues 2.4. Nodes, Node-chains 2.5. Linked Lists 2.6. Quiz # 2	Lecture: 7.5hours Lab: 7.5 hours
3.	WEEK 3 3.1. Trees, Binary Tree Algorithms 3.2. Binary Search Trees 3.3. Tables	Lecture: 7.5hours Lab: 4.5 hours

Homework Assignments:

Five homework assignments will be completed during the course. Assignments will consist of applications of the course material, including design, development, implementation, and analysis. Assignments will be due on Thursdays and Mondays in the evening. To provide sufficient experience with the material in the course, each assignment will require 4-6 hours of work. Homework assignments will be submitted electronically to the course website, and graded by a teaching assistant.

Even a simple assignment can turn into a time-consuming affair if you get stuck on something that blocks your progress. Please make use of the teaching resources (instructors' office hours, TAs, labs, lectures, discussion forums, etc.) available to you.

Lab Assignments:

Lab work must be completed daily, and grading will be based on sufficient completion; normally, students should reasonably expect to complete the lab work successfully every day in the time allocated for the lab. Lab assignments will be submitted electronically to the course website, and graded by a teaching assistant.

Quizzes

A quiz will be scheduled at the end of each of the first two weeks of the course, during the lab period. Quizzes will consist of multiple choice or short answer questions, and will assess basic skills and concepts. Quizzes will not require significant programming effort.

Late Assignments:

- The deadline for lab assignments the evening on the day they were assigned. Late lab assignments will not be accepted.
- The deadline for homework assignments is Monday or Thursday, 10pm. Late homework assignments will not be accepted.

Exceptions for health or compassionate reasons can be discussed with your instructor. However, the course moves very quickly, and there is no room for long extensions.

Examinations:

Midterm Exam:

There will be no midterm exam. Two quizzes will be scheduled during the lecture period at the end of weeks 1 and 2.

Module test:

The module test will be scheduled by the College of Engineering (it may be scheduled in the evening in the last week of the course). The exam will be 2 hours long, and will consist of multiple choice questions, short programming problems, design problems, and algorithm analysis problems.

Examination Policies: (if applicable – edit the below as needed)

If a student is unable to write an exam through no fault of his or her own for medical or other valid reasons, documentation must be provided and an opportunity to write the missed exam <u>may</u> be given. Students are encouraged to review all examination policies and procedures: <u>http://students.usask.ca/academics/exams.php</u>

- The student cannot earn a passing grade in the course without having earned a mark of 50% or higher in the module test. A student who does not pass the module test will receive a grade of 49% or the overall mark, whichever is lower. (For Arts & Science see section above about criteria to pass)
- Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines.

Required Activities Outside of Class Time

The module test will be scheduled by the College of Engineering, according to the schedule for first year engineering modules. The module test may be scheduled during the evening of the last week of the course.

Readings/Textbooks

Course Readings (textbook) are provided free of charge and are available on the course website.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(www.usask.ca/secretariat/student-conduct-appeals/StudentAcademicMisconduct.pdf) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>http://www.usask.ca/secretariat/student-conduct-appeals/StudentNon-AcademicMisconduct.pdf</u>).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/.</u>

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning

(http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the

University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS</u>)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

Safety is of paramount importance in the College. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Recording Lectures:

Lectures will be recorded, when possible, and made available to students on the course website so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit http://www.usask.ca/copyright/students/rights/index.php or contact the University's Copyright Coordinator@usask.ca/copyright.coordinator@usask.ca/copyright

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://www.usask.ca/secretariat/student-conduct-appeals/StudentNon-</u>

AcademicMisconduct.pdf.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with his or her colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit https://students.usask.ca/health/centres/access-equity-services.php, or contact AES at 306-966-7273 or access-equity-services.php, or contact AES at 306-966-7273 or access-equity-services.php, or contact AES

Students registered with AES may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>

End of day tutorial sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see X for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

Learning						Attri	bute [†]					
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1				D								
2				D								
3					D							
4					D							
5					D							
6	D											
7					D							
8	Ι											

†<u>Attributes</u>:

A1	A knowledge base for engineering
A2	Problem analysis

A3 Investigation

- A4 Design
- **A5** Use of engineering tools
- A6 Individual and team work
- A7 Communication skillsA8 Professionalism
- **A8** Professionalism
- A9 Impact of engineering on society and the environment
- A10 Ethics and equity A11 Economics and project
- management A12 Life-long learning

<u>*Instructional Level</u>:

Introduced (I) – Students learn the working vocabulary of the area of content, along with some of the major underlying concepts.

Developed (D) – Students use their working vocabulary and major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar contexts.

Applied (A) – Students approach mastery in the area of content. They explore deeply into the discipline and experience the controversies, debate, and uncertainties that characterize the leading edges of any field. They practice, extend, or refine knowledge in unfamiliar contexts.

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design	
XX%	XX%	XX%	XX%	XX%	

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Arts & Science
- 1.2 Department with academic authority: Department of Geological Sciences
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: GEOL 102
- 2.2 Academic credit units: 1
- 2.3 Course Long Title (maximum 100 characters): Introduction to Geology for Engineering Course Short Title (maximum 30 characters): Intro Geology for Engineering

2.4	Total Hours:	Lecture 9	Seminar	Lab	6	Tutorial	Other
2.5	Weekly Hours:	Lecture 3	Seminar	Lab	3	Tutorial	Other
2.6	Term in which it	t will be offere	d: (T1)	Т2	T1 or	T2 T1 a	nd T2

2.7 Prerequisite:

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval
- I Instructor Approval

2.8 Catalogue description (150 words or less):

Introductory exploration of the Earth system for engineering students. The aim of the course is to provide students with an appreciation of global and local-scale geological processes and the influence of these processes on the Earth system through geologic time. Key topics will include plate tectonics, geologic time, the rock cycle, weathering and erosion, geologic hazards, mineral resources, and Earth science careers. Students will learn practical applications of rock and mineral identification through laboratory activities.

2.9 Do you allow this course to be repeated for credit? No

3. Please list rationale for introducing this course:

Currently a number of Arts & Science departments contribute to the <u>Common First Year</u> for the College of Engineering Bachelor of Science in Engineering (B.E.) program. The College of Engineering is in the process of redesigning this Common First Year to create the most effective first year engineering program in Canada. They are working hard to create something that will excite, engage and inspire their students, and to holistically prepare them for the challenges to come in later years. This project has been underway since 2016-2017 and has a planned launch of Fall 2021. Over this time there has been extensive consultation between the College of Engineering and specific Departments in the College of Arts & Science. A suite of new Science courses are being proposed for use in this redesigned Common First Year which will replace or complement the use of existing courses.

The College of Engineering wishes to provide their first-year students with broad exposure to four of the Natural Science disciplines in the College of Arts and Science (Biology, Chemistry, Geological Sciences, and Physics). This is to be achieved through short (1 cu) courses in each of these disciplines. Each of the four courses will be delivered in the Fall term. The first-year cohort of engineering students will be divided into four groups and these groups will progress through the four disciplines in rotation. Each course will consist of nine hours of lectures and two, 3-hour labs components. By the end of the term, all first year engineering students will have progressed through all of the courses, having received 36 hours of lecture-based instruction and twenty-four hours of lab/practicum-based instruction.

The plan outlined above necessitates that each course is focused on a subset of disciplinary topics that can be delivered consistently at four distinct times over the term. To facilitate student learning, it was agreed that the four Science courses would seek some commonality in the topics delivered. To that end, it was agreed that the "environment" and "climate change" would be logical candidates. Thus, chemistry will have lab exercises investigating warming associated with different greenhouse gases, physics will discuss blackbody radiation within their course, geological science will deal with Earth system interactions and changes over time, and biology will focus on anthropogenic effects on biodiversity and ecosystems, including human-induced climate change. The four courses will have a common final examination in December with 45 minutes allotted to each course. Beyond that, courses will have a diversity of assignments, labs, quizzes, reports, or an exam at the end of their sections.

Each of these four 1 cu courses will have "GE 102 - Introduction to Engineering I" listed as a Pre- or Co-Requisite. The Introduction to Engineering I course will focus on setting the students up to manage their time, reflect upon their study habits and work in groups – all things that will be important to each of the following courses. Perhaps more importantly, this is where the students will be learning to use TopHat, the LMS, other assessment software, and MS Office. Specifically for these Science courses it provides the lab safety training and acts as the vehicle for a reflective assessment that will incorporate what students learn in each of this 1 cu Science courses, effectively linking them together and solidifying the students' learning.

The College of Engineering is also working toward a new competency-based assessment system that will be utilized in the new First Year Engineering courses in Fall 2021. The Arts & Science departments will continue to learn more about this system through 2020-2021 and 2021-2022 as it is implemented in Engineering, and will then determine how it can be used in the Science courses attached to the Engineering Common First Year. Revisions to the courses, to implement this assessment system, will be submitted to the appropriate College Academic Programs Committee for approval, prior to use in the courses.

4. Please list the learning objectives for this course:

By the end of this course, students will be expected to:

- 1. Identify the relationships between plate tectonics and the rock cycle and recognize links between geologic hazards and processes.
- 2. Demonstrate hands-on skills with basic rock and mineral identification.
- 3. Describe how the properties of rocks and minerals can be important to engineering applications.
- 4. Recognize and interpret key vocabulary used to describe geological concepts.
- 5. Articulate examples of the roles of professional geologists and provide examples of how geologists provide information that engineers can use to solve problems.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? This course is for the College of Engineering First Year.

If so, were these departments consulted? (Include correspondence) Yes Were any other departments asked to review or comment on the proposal? Biology, Chemistry, Physics and Geology reps met a number of times regarding these four – 1cu courses. The course also went through the Arts & Science College Challenge, which provides opportunity for responses by all departments in the College.

- 6. **Other courses or program affected** (please list course titles as well as numbers)
 - 6.1 Courses to be deleted? None
 - 6.2 Courses for which this course will be a prerequisite? None
- 6.3 Is this course to be required by your majors, or by majors in another program?

Required course in the first-year as part of revised Engineering program. Students with credit for all four of BIOL 102.1, CHEM 142.1, GEOL 102.1 and PHYS 152.1 will receive 3 credit units of elective credit in Arts & Science B.Sc. programs and 3 credit units of "science" or "elective" credit in B.A., B.F.A., or B.Mus. programs. Students who do not pass all 4 courses will receive no credit in Arts & Science programs.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Assessment:

The methods of assessment and their respective weightings are given below:

Laboratories and	50%
assignments:	
Final Exam:	50%

9.1 How should this course be graded? C – Completed Requirements (Grade options for instructor: Completed Requirements, Fail, IP In Progress) N – Numeric/Percentage (Grade options for instructor: grade of 0% to 100%, IP in Progress) P – Pass/Fail (Grade options for instructor: Pass, Fail, In Progress) S – Special (Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? No – Final exam date may be schedule outside of the normal exam scheduling process.

10. Required text

Include a bibliography for the course.

Physical Geology, 1st USask Edition, K. Panchuk. https://openpress.usask.ca/physicalgeology/

11. Resources

11.1 Proposed instructor: Geology Faculty

- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within department.
- 11.3 Are sufficient library or other research resources available for this course? Yes
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? Details have been worked out between College of Arts & Science and College of Engineering.

12. Tuition

12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC14

12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

FNAR	Fine Arts
HUM	Humanities
SCIE	Science
SOCS	Social Science
ARNP	No Program Type (Arts and Science)
	HUM SCIE SOCS

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required:
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

Restricted to students in the College of Engineering.

- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course
- GE 102 Introduction to Engineering I
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: None

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here: None

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:

GEOL 102.1 (01) Introduction to geology for engineering Fall 2021



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructor(s):	 Name (include credentials; if applicable please include P.Eng. or EIT as well) Office Phone Email A brief (1-2 paragraphs) summary of your teaching philosophy would also be appropriate and helpful to share in this section. This should be written in first as research does show that writing the profile in the first person helps to create more of a welcoming environment for students. (Richardson, R. and Woods, S. (2009). Course syllabus: A guide. Retrieved online from http://www.smu.ca/webfiles/SyllabusGuide_000.pdf) 	
Office Hours:	Dates, Times	
Lectures:	3 hr/week (TBD)	
Laboratory:	3 hr/week - 2 lab sessions total, Times, LocationLab Manager:Email:Office:Phone:	
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. https://bblearn.usask.ca/	
Description:	Introductory exploration of the Earth system for engineering students. The aim of the course is to provide students with an appreciation of global and local-scale geological processes and the influence of these processes on the Earth system through geologic time. Key topics will include plate tectonics, geologic time, the rock cycle, weathering and erosion, geologic hazards, mineral resources, and Earth science careers. Students will learn practical applications of rock and mineral identification through laboratory activities.	
Prerequisites:	No prerequisites. Note: This course is intended for students in the College of Engineering.	
Pre- or Co- requisites:	GE 102 Introduction to Engineering I	

Course Reference Numbers (CRNs):	xxxx (lectures), xxxxx (laboratory), xxxxx (tutorial) Available from the Dynamic Schedule once courses are built <u>https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched</u>)	
Course Learning Outcomes:	 y the end of this course, students will be expected to: Identify the relationships between plate tectonics and the rock cycle and recognize links between geologic hazards and processes. Demonstrate hands-on skills with basic rock and mineral identification. Describe how the properties of rocks and minerals can be important to engineering applications. Recognize and interpret key vocabulary used to describe geological concepts. Articulate examples of the roles of professional geologists and provide examples of how geologists provide information that engineers can use to solve problems. 	
Assessment:	The methods of assessment and their respective weightings are given below: Laboratories and 50% assignments: Final Exam: 50%	
Attendance a Participation	i y y	
Criteria That Must Be Met Pass:		
Final Grades:	The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). <u>https://students.usask.ca/academics/grading/grading-system.php</u>	
	For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website: <u>https://secretariat.usask.ca/student-conduct-appeals/index.php</u>	

Academic Courses Policy:	More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: <u>http://policies.usask.ca/policies/academic-affairs/academic-courses.php</u>
Learning Charter:	The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: <u>https://teaching.usask.ca/about/policies/learning-charter.php</u>

Course Overview:

This course will provide engineering students with a high-level overview of concepts in physical geology. The instructor will give special consideration to aspects of the Earth system where engineers and geoscientists work together to solve problems and mitigate risks relating to Earth processes and Earth materials. These topics include earthquake hazards, mass wasting, surface and groundwater contaminants, and mine waste management. The two 3-hour hands-on labs in rock and mineral identification will provide students with an opportunity to develop a practical understanding of how chemical and physical properties of rocks and minerals can influence their utility and behavior in engineered environments. Three worksheet assignments will help students prepare for labs and reflect on the course content. Throughout the course, the instructor will share numerous examples of geoscience careers and engineering careers that require a strong background in geoscience.

Course Content/Schedule:

WEEK	Topic	Approximate Lecture Hours	LAB
WEEN	Topic 1. GEOLOGIC TIME	nouis	LAD
EK 1	 GEOLOGIC TIME 1.1. Measuring geologic time 2. Uniformitarianism THE EARTH SYSTEM	1.5	
WEEK 1	ASSIGNMENT 1- DUE AT BEGINNING OF LECTURE 2 4. THE ROCK CYCLE	1.5	

	 4.1. Types of rocks: igneous, sedimentary, metamorphic 4.2. Weathering, sedimentation, and sedimentary rock formation 4.3. Plate tectonic environments and igneous and metamorphic rock formation 4.4. Earth science careers profile, e.g., sedimentary geologist 5. MINERALS 5.1. The atomic-scale basis of mineral properties 5.2. Common rock forming minerals and their properties 5.3. Mineral weathering and chemistry 		
	5.4. Earth science careers profile, e.g., mineralogist		
	 ASSIGNMENT 2- DUE AT BEGINNING OF LAB 1 MOUNTAIN BUILDING 6.1. Types of mountain building 6.2. Relationship of different kinds of mountains to plate tectonic boundaries 6.3. Earth science careers profile, e.g., structural geologist VOLCANOES 7.1. Common types of volcanoes and characteristics 7.2. Volcanic hazards 7.3. Earth science careers profile, e.g., volcanologist 	1.5	LAB 1- MINERAL AND ROCK PHYSICAL PROPERTIES – ESSING UTILITY OF EARTH MATERIALS FOR ENGINEERING APPLICATIONS
WEEK 2	 8. EARTHQUAKES 8.1. Relationship to plate tectonic boundaries 8.2. Anthropogenic earthquakes 8.3. Earthquake hazards 9. MASS WASTING 9.1. Types of mass wasting 9.2. Mass wasting hazards and management 9.3. Earth science careers profile, e.g., groundwater hydrogeologist 	1.5	LAB 1- MINERAL ANI ASSESSING UTILITY OF EA AF
WEEK 3	 10. SURFACE WATER 10.1. Reservoirs 10.2. Surface water patterns and behavior 10.3. Relationship to weathering and erosion 10.4. Earth science careers profile, e.g., hydrologist 11. GROUNDWATER 11.1. Groundwater resources: sources, sinks, threats 11.2. Groundwater contaminants: natural vs anthropogenic 11.3. Earth science careers profile, e.g., geomicrobiologist 	1.5	LAB 2- MINERAL AND ROCK CHEMICAL PROPERTIES – CONSIDERING CHEMICAL WEATHERING BEHAVIOR OF EARTH MATERIALS AND IMPLICATIONS FOR

	MENT 3- DUE AT BEGINNING OF LAB 2		
12. MINERAL	RESOURCES		
12.1.	Mineral deposits: types, and		
relations	ships to geological processes		
12.2.	Mineral resource extraction and		
environr	nental management of wastes.		
12.3.	Earth science careers profile, e.g.	1 5	
environr	nental geochemist.	1.5	
13. GEOLOGY	AND ENGINEERING: CAREERS AND SYNERGIES		
13.1.	Engineering careers that interface with		
geologic	al processes		
13.2.	Geologists and engineers working		
together	to solve problems		
C	-		

Assignments and Labs:

The Laboratory and Assignments will make up 50% of the Overall Course mark: 20% for the three assignments (including the pre-lab worksheet assignments) and 30% for the labs (including the lab activity worksheets).

There will be three 2-page worksheet assignments in this course. Assignment 1 (10%) must be handed in by the start of the second lecture, and assignments 2 and 3 (pre-lab preparatory assignments, 5% each) are due at the start of lab 1 and lab 2, respectively. Assignments should be handed in using the homework management system (TBD).

Assignments should be done by all students individually. We note that students attempting to cut corners – including cheating - on assignments have always suffered in examinations.

All assignments are due by the start of class or lab (as specified in the syllabus) on the day indicated in the syllabus. There are NO extensions of due dates for the graded assignments. Students who have missed the deadline(s) should continue to work on the assignment(s) to practice those concepts but will not receive credit for the questions completed after the due date.

The GEOL 102 labs will begin during the second week of the course. The location of your lab is available in your registration information on PAWS.

Laboratory Experiment	Dates
LABORATORY 1-	
Mineral and rock physical properties – assessing utility of Earth materials for	Week 2
engineering applications	
LABORATORY 2-	
Mineral and rock chemical properties – considering chemical weathering	Week 3
behavior of Earth materials and implications for waste management	

What to Bring to the Lab

• GEOL 102 Laboratory Manual (posted on course website and available for purchase at the bookstore)

• Loose-leaf paper, pen, pencil, eraser, pencil sharpener

Students are expected to follow all safety considerations in the laboratory, perform the exercises during the allotted time, and complete the lab activity worksheets during the labs.

Each lab will be weighted equally.

Grading of each lab will be based on

- Performance during the lab activities (30%)
- Lab activity worksheet (50%)
- Group Participation (20%)

Absences from the Assigned Lab Period

Students are expected to attend ALL laboratory sessions. However, if an absence is unavoidable, for example, a serious illness or the death of a family member, you may apply for permission to reschedule the lab on a different day. You will have 2 business days after the missed lab period to contact the Lab Coordinator, xxxxxx, xxxxx@usask.ca; to fill out the "Permission to Reschedule Lab" Form and arrange the make-up lab. If permission is not granted or the student does not complete the lab, the experiment will be assigned a mark of "0" and will result in a failing grade in the course.

If, due to a valid prior commitment, you cannot attend your assigned lab period, you should see the lab coordinator at least TWO WEEKS before to arrange an alternate time and to obtain the "Permission to Reschedule Lab" form. Examples of valid reasons for rescheduling a lab include: medical appointments that cannot be rescheduled, commitments for Huskies athletes, and observances of religious holidays. Additional documentation may be required to verify the reason for your absence from your regular lab time. Note: Tests/exams in other courses are not valid reasons for missing your lab. It is your responsibility to arrange alternate test times outside of your regularly-scheduled lab.

Attendance and submission of laboratory activity worksheets is **mandatory**. Failure meet these requirements will result in a final grade of less than 50% for the course.

Examinations:

Final Exam:

The final exam will be scheduled at the end of the Natural Sciences Module during the December final examination period. Exams can be scheduled at any time in the December 6 - 23, 2021 period. Please do not schedule travel until after the official exam schedule is released (usually by early October). If a student is unable to write an exam through no fault of his or her own for medical or other valid reasons, documentation must be provided and an opportunity to write the missed exam <u>may</u> be given. Students are encouraged to review all examination policies and procedures:

http://students.usask.ca/academics/exams.php

The Final Examination will be common to all concurrent sections of GEOL 102. All final examinations are cumulative and 'closed-book'. Data sheets and other help will be supplied at the examinations, if required. The final exam will be based on multiple-choice problems

and students will have maximum of 3 hours to complete the total exam (comprised of the four natural sciences: Biology, Chemistry, Geology, and Physics).

Examination Policies:

- The exam for GEOL 102 is closed book.
- The use of electronic devices, including calculators, phones and watches, with document storage and/or communication capabilities is prohibited during exams.
- Alternate times to write final examinations cannot be accommodated. If a student misses a final exam, application must be made to the Engineering Student Centre to write a deferred exam.
- Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines.

Important Dates:

Wed., Jan. 3	First day of classes
Tues., Jan. 16	Last day for making changes in registration for T2 classes
	(100% tuition credit).
Feb. 19 - 23	Fall/Winter Break
Thurs., March 1	Midterm Exam
Thurs., Mar. 15	Last day to withdraw from T2 classes
Fri., March 30	Holidays (if any)
Fri., Apr. 6	Last day of classes.
April 7 - 23	Final examination period

Required Resources

Readings/Textbooks

Physical Geology, 1st USask Edition, K. Panchuk. <u>https://openpress.usask.ca/physicalgeology/</u>

Textbooks are available from the University of Saskatchewan Bookstore: <u>https://bookstore.usask.ca/students.php#MyTextbooks</u>

Other Required Materials

Lab manual (available from bookstore or download from BBlearn).

Electronic Resources

General and section specific GEOL 102 information can be found on PAWS (paws.usask.ca) under the COURSE TOOLS tab. This site will contain laboratory information, important updates, answers to most common questions about the course, and any section specific information. Updates and announcements will be posted on PAWS.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/.</u>

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning*

(http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct-appeals/academic-misconduct.php#IXXIIAPPEALS</u>)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

Safety is of paramount importance in the College. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit http://www.usask.ca/copyright/students/rights/index.php or contact the University's Copyright Coordinator@usask.ca/copyright.coordinator@usask.ca

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://www.usask.ca/secretariat/student-conduct-appeals/StudentNon-AcademicMisconduct.pdf</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with his or her colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit https://students.usask.ca/health/centres/access-equity-services.php, or contact AES at 306-966-7273 or aes@usask.ca.

Students registered with AES may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>

End of day tutorial sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see X for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

					Instruc	tional Le	evel‡					
Learning Outcome						Attri	bute [†]					
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1	Ι											
2	Ι		Ι			Ι						
3	Ι	Ι			Ι							
4	Ι						Ι					

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
0%	100%	0%	0%	0%

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Arts & Science
- 1.2 Department with academic authority: Department of Mathematics and Statistics
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: MATH 133
- 2.2 Academic credit units: 4
- 2.3 Course Long Title (maximum 100 characters): Engineering Mathematics I Course Short Title (maximum 30 characters): Engineering Mathematics I

2.4	Total Hours:	Lecture	49.5	Seminar		Lab	15	Tutorial	Other
2.5	Weekly Hours:	Lecture	4.5	Seminar		Lab	1.5	Tutorial	Other
2.6	Term in which it	t will be of	ffered	: (T1)	Т2		T1 or T	Г2 Т1 а	nd T2

2.7 Prerequisite: Mathematics B30 and C30, or Pre-Calculus 30, or MATH 102

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval

I – Instructor Approval

2.8 Catalogue description (150 words or less):

An introduction to foundational concepts and tools in calculus, linear algebra, and statistics that are essential to engineering. Topics include basic integration techniques, limits and continuity, derivatives and their applications, matrix operations and linear transformations, linear regression, and graphing data on various scales.

2.9 Do you allow this course to be repeated for credit? No

3. Please list rationale for introducing this course:

Currently a number of Arts & Science departments contribute to the <u>Common First Year</u> for the College of Engineering Bachelor of Science in Engineering (B.E.) program. The College of Engineering is in the process of redesigning this Common First Year to create the most effective first year engineering program in Canada. They are working hard to create something that will excite, engage and inspire their students, and to holistically prepare them for the challenges to come in later years. This project has been underway since 2016-2017 and has a planned launch of Fall 2021. Over this time there has been extensive consultation between the College of Engineering and specific Departments in the College of Arts & Science. A suite of new Science courses are being proposed for use in this redesigned Common First Year which will replace existing courses currently used.

The College of Engineering is also working toward a new competency-based assessment system that will be utilized in the new First Year Engineering courses in Fall 2021. The Arts & Science departments will continue to learn more about this system through 2020-2021 and 2021-2022 as it is implemented in Engineering, and will then determine how it can be used in the Science courses attached to the Engineering Common First Year. Revisions to the courses, to implement this assessment system, will be submitted to the appropriate College Academic Programs Committee for approval, prior to use in the courses.

This new competency-based assessment system will use module tests in place of midterm and final exams. A few of the new courses proposed by Arts and Science departments have started to use the concept of Module Tests in their courses in these first versions. This will make it easier when they switch to the competency-based assessment system in future. Some common wording regarding module tests was created and has been used in the Arts and Science course proposals. This wording is similar to that of the Examinations Policies section of Arts and Science syllabus, but has been modified to accurately portray the concept of the module tests.

4. Please list the learning objectives for this course:

By the end of this course, students will be expected to:

- 1. Perform integration of simple functions such as polynomials;
- 2. Compute limits, assess continuity, and find asymptotes of a given function;
- 3. Define, interpret, and evaluate derivatives of common functions;
- 4. Carry out basic matrix operations and solve simple linear systems;
- 5. Graph points and curves on non-linear axes, such as semi-log and log-log scales;
- 6. Utilize derivatives in various applications, such as finding extrema, solving problems involving related rates, and evaluating limits of indeterminate forms using L'Hospital's rule.
- 7. Compute and interpret basic summary statistics, and find the line of best fit of a given set of discrete data.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? This course is for the College of Engineering First Year.

If so, were these departments consulted? (Include correspondence) Yes

Were any other departments asked to review or comment on the proposal? The course went through the Arts & Science College Challenge, which provides opportunity for responses by all departments in the College.

- 6. **Other courses or program affected** (please list course titles as well as numbers)
 - 6.1 Courses to be deleted? MATH 123 and MATH 124
 - 6.2 Courses for which this course will be a prerequisite? MATH 133 and 134 will replace MATH 123 and 124 as a pathway into 200-level calculus courses.

6.3 Is this course to be required by your majors, or by majors in another program?

Required course in the first-year as part of revised Engineering program.

Students with credit for MATH 133 will be considered to have completed a program requirement for MATH 110, MATH 121, or MATH 125.

Also please note that students with credit for MATH 133 may not subsequently receive credit for MATH 101, MATH 102, MATH 104, MATH 110, MATH 121, MATH 125, MATH 150 and MATH 176.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Assessment:

A numerical course grade out of 100 is calculated using the following

veightings of the respective assessments:

Assignments:	10%
Laboratories:	15%
Module Test #1:	25%
Module Test #2:	25%
Module Test #3:	25%

9.1 How should this course be graded? C – Completed Requirements (Grade options for instructor: Completed Requirements, Fail, IP In Progress) N – Numeric/Percentage (Grade options for instructor: grade of 0% to 100%, IP in Progress) P – Pass/Fail (Grade options for instructor: Pass, Fail, In Progress) S – Special

(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Yes – No final exam is proposed. As shared in the rationale section above this course will use module tests in place of midterm and final exams.

Insert from Rationale:

This new competency-based assessment system will use module tests in place of midterm and final exams. A few of the new courses proposed by Arts and Science departments have started to use the concept of Module Tests in their courses in these first versions. This will make it easier when they switch to the competency-based assessment system in future. Some common wording regarding module tests was created and has been used in the Arts and Science course proposals. This wording is similar to that of the Examinations Policies section of Arts and Science syllabus, but has been modified to accurately portray the concept of the module tests.

10. Required text

Include a bibliography for the course.

The course will utilize a number of open-access textbooks that are freely available online:

 Active Calculus by Matthew Boelkins, available at <u>https://activecalculus.org/single/frontmatter.html</u>
 Linear Algebra with Applications by Keith Nicholson, available at <u>https://lyryx.com/linear-algebra-applications/</u>

Additional supplementary notes may also be provided by the course instructor.

11. Resources

11.1 Proposed instructor: Mathematics Faculty

- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within department.
- 11.3 Are sufficient library or other research resources available for this course? Yes
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? No

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use <u>tuition category</u>) TC08
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
CO0	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	<u>Pre-Clinical (Dent Only)</u>	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

FNAR	Fine Arts
HUM	Humanities
SCIE	Science
SOCS	Social Science
	No Brogram T

ARNP No Program Type (Arts and Science)

Does this course satisfy one of the official college requirements:

ELWR – English Language Writing Requirement

ILRQ – Indigenous Learning Requirement

QRRQ – Quantitative Reasoning Requirement

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required:
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

Restricted to students in the College of Engineering.

3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course Mathematics B30 and C30, or Pre-Calculus 30, or MATH 102

- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: None

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here: None

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:



Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructor:	Name: TBD Office: TBD Phone: TBD Email: TBD						
Office Hours:	TBD						
Lectures:	See Course Schedule						
Laboratory:	See Course Schedule						
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website. Students are responsible for keeping up-to-date with the information on the course website.						
Description:	An introduction to foundational concepts and tools in calculus, linear algebra, and statistics that are essential to engineering. Topics include basic integration techniques, limits and continuity, derivatives and their applications, matrix operations and linear transformations, linear regression, and graphing data on various scales.						
Prerequisites:	Mathematics B30 and C30, or Pre-Calculus 30, or MATH 102.						
Co-requisites:	N/A						
Course Reference Numbers (CRNs):	Available from the Dynamic Schedule once courses are built (https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched)						
Course Learning Outcomes:	 By the end of this course, students will be expected to: Perform integration of simple functions such as polynomials; Compute limits, assess continuity, and find asymptotes of a given function; Define, interpret, and evaluate derivatives of common functions; Carry out basic matrix operations and solve simple linear systems; Graph points and curves on non-linear axes, such as semi-log and log-log scales; Utilize derivatives in various applications, such as finding extrema, solving problems involving related rates, and evaluating limits of indeterminate forms using L'Hospital's rule. Compute and interpret basic summary statistics, and find the line of best fit 						

Assessment: A numerical course grade out of 100 is calculated using the following weightings of he respective assessments:

	Assignments:10%Laboratories:15%Module Test #1:25%Module Test #2:25%Module Test #3:25%
Attendance and Participation:	While attendance will not be taken, we expect attendance for all lectures and labs, and students will be responsible for the material presented therein.
Criteria That Must Be Met to Pass:	N/A
Final Grades:	The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website: https://secretariat.usask.ca/student-conduct-appeals/index.php
Academic Courses Policy:	More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: <u>http://policies.usask.ca/policies/academic-affairs/academic-courses.php</u>
Learning Charter:	The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: https://teaching.usask.ca/about/policies/learning-charter.php

Course Overview:

This course introduces students to a broad spectrum of both classical and modern mathematical concepts that are essential to many engineering disciplines. The scope and the sequencing of the topics have been optimized to align with the other courses taken by first year engineering students, so that they will see timely applications of the mathematical tools they acquire in this course.

Course Content/Schedule:

The following table provides an overview of the scheduling of the topics and activities in this course. A note on the distribution of the lecture hours:

- Engineering Mathematics I starts on Monday of Week 3, and ends on Wednesday Week 14.

There are three (80-minute) lectures every week (one each on Mondays, Wednesdays and Fridays), except during Week 6 (no Monday lecture due to Thanksgiving) and Week 11 (no lectures due to the Fall break).
There is an extra lecture on the Tuesday of Week 15 that is intended to be a feedback session (e.g. to take up the last module test).

Week	Topic	Activities
1	No Lectures	
2	No Lectures	
3	Module 1: Basic Differentiation and Integration – interpret a definite integral as the net area under a curve, as well as a continuous accumulation of values over an interval evaluate derivatives and integrals of polynomials	Lab 1
4	Module 2: Limits and Continuity determine whether a limit exists, and compute it if it does determine intervals on which functions are continuous identify removable and non-removable discontinuities	Lab 2 Assignment 1 due
5	 find asymptotes of functions using limits Module 3: Computing Derivatives define the derivative as a limit interpret the derivative in terms of slopes of tangent lines and instantaneous rates of change 	Lab 3
6	evaluate derivatives of common functions (e.g. trigonometric, exponential, logarithmic) using various differentiation techniques (e.g. product, quotient, and chain rule; implicit differentiation)	Lab 4 Assignment 2 due
7	Module 4: Matrices and Linear Systems model a variety of types of problems as linear systems of equations solve linear systems by hand (Gaussian/Gauss-Jordan elimination) and computationally (via Matlab) carry out basic matrix operations (addition, multiplication)	Lab 5 Module Test #1
8	 perform linear transformations (translation, stretch, rotation/reflection) calculate the inverse of a matrix – find the determinant of a matrix 	Lab 6
9	 find the eigenvalues and eigenvectors of a matrix Module 5: Graphing Data graph functions (points and curves) on non-linear axes (semi-log and log-log scales) 	Lab 7 Assignment 3 due
10	Module 6: Applications of Derivatives use first and second derivative tests to find and classify extrema, and determine concavity and inflection points of functions solve optimization problems of one variable, as well as related rates problems calculate the linearizations of simple functions	Lab 8 Module Test #2
11	Fall break	

12	find approximate solutions to equations using Newton's method evaluate limits of indeterminate forms using l'Hopital's rule recognize a differential equation	Lab 9 Assignment 4 due
13	Module 7: Summary Statistics and Linear Regression compute and interpret basic summary statistics (mean, median, percentiles, variance, standard deviation) of a given set of data find the line of best fit for a given set of discrete data using the method of least squares	Lab 10
14	obtain estimates using interpolation and extrapolation	Assignment 5 due Module Test #3
15	Feedback Session	

Assignments:

There will be 5 assignments throughout the term, due on the weeks indicated in the Course Schedule above. For each assignment, students will provide detailed solutions to a variety of problems based on the course material. The purpose of these assignments is to provide students feedback on their progress in mastering the relevant material, and to ensure that students are keeping up with the course. The assignments are weighted equally, and as a whole constitute 10% of the final grade.

Laboratory:

During each of the 10 lab sessions, students will be led by the lab instructor to solve problems that are related to the materials that were recently covered in the lectures. Students will complete and submit a short lab assignment during the lab session. The lab assignments are weighted equally, and are worth a total of 15% of the final grade.

Submitting Assignments:

Students are expected to submit their assignments electronically online.

Late Assignments and Missed Labs:

Late assignments will not be accepted, and will receive a grade of zero. There will also be no make-up lab assignments for students who miss labs. Exemptions may be granted only in exceptional circumstances (e.g. documented illness or emergency), in which case the weight of the missed work will be shifted to the Module Test most representative of the corresponding material, as determined by the course instructor.

Module Tests:

This course is comprised of 7 modules. Students' mastery of the subject material of these modules will be assessed in 3 Module Tests. Each Module Test is 2 hours long and takes place in an evening, outside of class time. The scope and schedule for the Module Tests are as follows:

- Module Test #1 (Week 7) covers Modules 1, 2, and 3;
- Module Test #2 (Week 10) covers Modules 4 and 5;
- Module Test #3 (Week 14) covers Modules 6 and 7.

Students should avoid making prior travel, employment, or other commitments at these times. Alternate times to write the module tests will not be considered except in the case of acceptable reasons, such as illness, bereavement, etc, or a conflict with other university related activities.

If a student is unable to write a module test through no fault of his or her own for medical or other acceptable reasons, the request and documentation must be provided within 3 days of the module test date and an opportunity to write the missed module test may be given at the discretion of the course instructor. Students are encouraged to review all examination policies and procedures, available at: http://students.usask.ca/academics/exams.php

Students will be allowed to bring and use a non-programmable, non-graphing scientific calculator on the module tests. The use of any other aids, such as devices with document storage and/or communication capabilities, is prohibited during all module tests for this course.

Required Activities Outside of Class Time

The three module tests will take place outside of class time, during the evening of weekdays.

Required Resources

Readings/Textbooks

The course will utilize a number of open-access textbooks that are freely available online:

 Active Calculus by Matthew Boelkins, available at <u>https://activecalculus.org/single/frontmatter.html</u>
 Linear Algebra with Applications by Keith Nicholson, available at <u>https://lyryx.com/linear-algebra-applications/</u>

Additional supplementary notes may also be provided by the course instructor.

Other Required Materials

Students may use a simple scientific calculator (non-programmable, non-graphing, with no storage capacity) during the module tests. Some eligible calculator models are TI 30Xa, TI 30XII, Casio fx260, Casio fx300MS, Sharp EL531X, and HP 10s.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct* (https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the

Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/</u>.

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning* (http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial

Safety:

Safety is of paramount importance in the College. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act

(see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit

<u>http://www.usask.ca/copyright/students/rights/index.php</u> or contact the University's Copyright Coordinator at <u>copyright.coordinator@usask.ca</u>.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: https://www.usask.ca/secretariat/student-conduct-appeals/StudentNon-AcademicMisconduct.pdf.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with his or her colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to

certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <u>https://students.usask.ca/health/centres/access-equity-services.php</u>, or contact AES at 306-966-7273 or <u>aes@usask.ca</u>.

Students registered with AES may request alternative arrangements for module tests. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>

End of day tutorial sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see X for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

I I		Instructional Level [‡]										
Learning						Attri	bute†					
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1	Ι	Ι	Ι		Ι		Ι					
2	Ι	Ι	Ι		Ι		Ι					
3	Ι	Ι	Ι		Ι		Ι					
4	Ι	Ι	Ι		D		Ι					
5	Ι	Ι	Ι		D		Ι					
6	Ι	Ι	Ι		D		Ι					
7	Ι	Ι	Ι		D		Ι					

†<u>Attributes</u>:

Instructional Level:

- A1 A knowledge base for engineering
- A2 Problem analysis
- A3 Investigation

A4 Design

Introduced (I) – Students learn the working vocabulary of the area of content, along with some of the major underlying concepts. **Developed (D)** – Students use their working vocabulary and

MATH 133.4 Course Syllabus

	Use of engineering tools Individual and team work Communication skills	major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar
A8	Professionalism	contexts.
A9	Impact of engineering on society	Applied (A) – Students approach mastery in the area of
	and the environment	content. They explore deeply into the discipline and experience
A10	Ethics and equity	the controversies, debate, and uncertainties that characterize
A11	Economics and project	the leading edges of any field. They practice, extend, or refine
	management	knowledge in unfamiliar contexts.
A12	Life-long learning	

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
100%				

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Arts & Science
- 1.2 Department with academic authority: Department of Mathematics and Statistics
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: MATH 134
- 2.2 Academic credit units: 3
- 2.3 Course Long Title (maximum 100 characters): Engineering Mathematics II Course Short Title (maximum 30 characters): Engineering Mathematics II

2.4	Total Hours:	Lecture	33	Seminar		Lab	13.5	Tutoria	al	Other
2.5	Weekly Hours:	Lecture	3	Seminar		Lab	1.5	Tutoria	al	Other
2.6	Term in which it	t will be of	fered	: T1	(T2)	T1 or 1	2	T1 an	d T2

2.7 Prerequisite: MATH 133, or [(MATH 110 or 123 or 176) and (MATH 164 or 264 or 266)]

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval
- I Instructor Approval

2.8 Catalogue description (150 words or less): This course is a continuation of Engineering Mathematics I. Topics include integration techniques and applications, dot products and cross products for vectors, polar coordinates, and complex numbers.

2.9 Do you allow this course to be repeated for credit? No

3. Please list rationale for introducing this course:

Currently a number of Arts & Science departments contribute to the <u>Common First Year</u> for the College of Engineering Bachelor of Science in Engineering (B.E.) program. The College of Engineering is in the process of redesigning this Common First Year to create the most effective first year engineering program in Canada. They are working hard to create something that will excite, engage and inspire their students, and to holistically prepare them for the challenges to come in later years. This project has been underway since 2016-2017 and has a planned launch of Fall 2021. Over this time there has been extensive consultation between the College of Engineering and specific Departments in the College of Arts & Science. A suite of new Science courses are being proposed for use in this redesigned Common First Year which will replace existing courses currently used.

The College of Engineering is also working toward a new competency-based assessment system that will be utilized in the new First Year Engineering courses in Fall 2021. The Arts & Science departments will continue to learn more about this system through 2020-2021 and 2021-2022 as it is implemented in Engineering, and will then determine how it can be used in the Science courses attached to the Engineering Common First Year. Revisions to the courses, to implement this assessment system, will be submitted to the appropriate College Academic Programs Committee for approval, prior to use in the courses.

This new competency-based assessment system will use module tests in place of midterm and final exams. A few of the new courses proposed by Arts and Science departments have started to use the concept of Module Tests in their courses in these first versions. This will make it easier when they switch to the competency-based assessment system in future. Some common wording regarding module tests was created and has been used in the Arts and Science course proposals. This wording is similar to that of the Examinations Policies section of Arts and Science syllabus, but has been modified to accurately portray the concept of the module tests.

4. Please list the learning objectives for this course:

By the end of this course, students will be expected to:

- 1. Compute dot products, cross products, and projections for vectors;
- 2. Integrate a variety of common functions using techniques such as substitutions, parts, partial fractions, and numerical approximations;
- 3. Perform computations involving complex numbers in standard and polar forms;
- 4. Utilize integration in various applications, such as computing volume and surface area of solids of revolution, and evaluating improper integrals.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? This course is for the College of Engineering First Year.

If so, were these departments consulted? (Include correspondence) Yes Were any other departments asked to review or comment on the proposal? No

- 6. **Other courses or program affected** (please list course titles as well as numbers)
 - 6.1 Courses to be deleted? MATH 123 and MATH 124
 - 6.2 Courses for which this course will be a prerequisite? MATH 133 and 134 will replace MATH 123 and 124 as a pathway into 200-level calculus courses.
 - 6.3 Is this course to be required by your majors, or by majors in another program?

Required course in the first-year as part of revised Engineering program.

Students with credit for MATH 134 will be considered to have completed a program requirement for MATH 116.

Students with credit for MATH 134 may not subsequently receive credit for MATH 101, MATH 102, MATH 104, MATH 110, MATH 116, MATH 121, MATH 125, MATH 150, MATH 176 and MATH 177.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Assessment: A numerical course grade out of 100 is calculated using the following

veightings of the respective assessments:

Assignments:	12%
Laboratories:	18%
Module Test #1:	35%
Module Test #2:	35%

9.1 How should this course be graded? C – Completed Requirements (Grade options for instructor: Completed Requirements, Fail, IP In Progress) N – Numeric/Percentage (Grade options for instructor: grade of 0% to 100%, IP in Progress) P – Pass/Fail (Grade options for instructor: Pass, Fail, In Progress) S – Special (Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Yes – No final exam is proposed. As shared in the rationale section above this course will use module tests in place of midterm and final exams.

Insert from Rationale:

This new competency-based assessment system will use module tests in place of midterm and final exams. A few of the new courses proposed by Arts and Science departments have started to use the concept of Module Tests in their courses in these first versions. This will make it easier when they switch to the competency-based assessment system in future. Some common wording regarding

module tests was created and has been used in the Arts and Science course proposals. This wording is similar to that of the Examinations Policies section of Arts and Science syllabus, but has been modified to accurately portray the concept of the module tests.

10. Required text

Include a bibliography for the course.

The course will utilize a number of open-access textbooks that are freely available online:

 Active Calculus by Matthew Boelkins, available at <u>https://activecalculus.org/single/frontmatter.html</u>
 Linear Algebra with Applications by Keith Nicholson, available at <u>https://lyryx.com/linear-algebra-applications/</u>

Additional supplementary notes may also be provided by the course instructor.

11. Resources

11.1 Proposed instructor: Mathematics Faculty

- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within department.
- 11.3 Are sufficient library or other research resources available for this course? Yes
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? No

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use <u>tuition category</u>) TC08
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
CO0	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction

IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

FNAR	Fine Arts
HUM	Humanities
SCIE	Science
SOCS	Social Science
ARNP	No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required:
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

Restricted to students in the College of Engineering.

3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course MATH 133, or [(MATH 110 or 123 or 176) and (MATH 164 or 264 or 266)]

- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: None

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here: None

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

***Please note:** SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:





Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructor:	Name: TBD Office: TBD Phone: TBD Email: TBD				
Office Hours:	TBD				
Lectures:	See Course Schedule				
Laboratory:	See Course Schedule				
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website. Students are responsible for keeping up-to-date with the information on the course website.				
Description:	This course is a continuation of Engineering Mathematics I. Topics include integration techniques and applications, dot products and cross products for vectors, polar coordinates, and complex numbers.				
Prerequisites:	MATH 133, or [(MATH 110 or 123 or 176) and (MATH 164 or 264 or 266)]. NOTE: This course is only for students in the College of Engineering.				
Co-requisites:	N/A				
Course Reference Numbers (CRNs):	Available from the Dynamic Schedule once courses are built (https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched)				
Course Learning Outcomes:	 By the end of this course, students will be expected to: Compute dot products, cross products, and projections for vectors; Integrate a variety of common functions using techniques such as substitutions, parts, partial fractions, and numerical approximations; Perform computations involving complex numbers in standard and polar forms; Utilize integration in various applications, such as computing volume and surface area of solids of revolution, and evaluating improper integrals. 				

Assessment: A numerical course grade out of 100 is calculated using the following weightings of he respective assessments:

	Assignments:12%Laboratories:18%Module Test #1:35%Module Test #2:35%		
Attendance and Participation:	While attendance will not be taken, we expect attendance for all lectures and labs, and students will be responsible for the material presented therein.		
Criteria That Must Be Met to Pass:	N/A		
Final Grades:	The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). https://students.usask.ca/academics/grading/grading-system.php For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website: https://secretariat.usask.ca/student-conduct-appeals/index.php		
Academic Courses Policy:	More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: <u>http://policies.usask.ca/policies/academic-affairs/academic-courses.php</u>		
Learning Charter:	e University of Saskatchewan Learning Charter is intended to define irations about the learning experience that the University aims to provide, I the roles to be played in realizing these aspirations by students, instructors I the institution. A copy of the Learning Charter can be found at: ps://teaching.usask.ca/about/policies/learning-charter.php		

Course Overview:

This course builds on Engineering Mathematics I. The scope and the sequencing of the topics have been optimized to align with the other courses taken by first year engineering students, so that they will see timely applications of the mathematical tools they acquire in this course.

Course Content/Schedule:

The following table provides an overview of the scheduling of the topics and activities in this course. A note on the distribution of the lecture hours:

– Engineering Mathematics II starts on Tuesday of Week 2 the Winter term (Week 19 if we start counting from the beginning of the Fall term), and ends on Tuesday Week 13.

- There are two (80-minute) lectures every week (one each on Tuesdays and Thursdays), except during Week 8 (no lectures due to the Winter break).

– There is an extra lecture on the Tuesday of Week 14 that is intended to be a feedback session (e.g. to take up the last module test).

Week	Торіс	Activities
1	No Lectures	
2	Module 1: Vector Operations compute dot products, cross products, and projections for vectors	
3	Module 2: Integration Techniques define a definite integral as a limit using sigma notation for sums	Lab 1
4	evaluate definite and indefinite integrals using substitutions, parts and partial fraction techniques	Lab 2 Assignment 1 due
5	use numerical integration to obtain approximations for integrals as well as error bounds of these approximations	Lab 3
6	determine when an integral is difficult to solve analytically	Lab 4
		Assignment 2 due
7	Module 3: Polar Coordinates and Complex Numbers convert points and equations between Cartesian and polar coordinates compute slopes and arc lengths for parametric and polar curves	Lab 5 Module Test #1
8	Winter break	
9	perform basic computations involving complex numbers in standard and polar forms	Lab 6 Assignment 3 due
10	Module 4: Applications of Integrals compute area between curves compute arc lengths of curves	Lab 7
11	compute volume and surface area of solids of revolution	Lab 8
12	define improper integrals as limits	Lab 9 Assignment 4 due
13	compute improper integrals and determine their convergence	Module Test #2
14	Feedback Session	

Assignments:

There will be 4 assignments throughout the term, due on the weeks indicated in the Course Schedule above. For each assignment, students will provide detailed solutions to a variety of problems based on the course material. The purpose of these assignments is to provide students feedback on their progress in mastering the relevant material, and to ensure that students are keeping up with the course. The assignments are weighted equally, and as a whole constitute 12% of the final grade.

Laboratory:

During each of the 9 lab sessions, students will be led by the lab instructor to solve problems that are related to the materials that were recently covered in the lectures. Students will complete and submit a short lab assignment during the lab session. The lab assignments are weighted equally, and are worth a total of 18% of the final grade.

Submitting Assignments:

Students are expected to submit their assignments electronically online.

Late Assignments and Missed Labs:

Late assignments will not be accepted, and will receive a grade of zero. There will also be no make-up lab assignments for students who miss labs. Exemptions may be granted only in exceptional circumstances (e.g. documented illness or emergency), in which case the weight of the missed work will be shifted to the Module Test most representative of the corresponding material, as determined by the course instructor.

Module Tests:

This course is comprised of 4 modules. Students' mastery of the subject material of these modules will be assessed in 2 Module Tests. Each Module Test is 2 hours long and takes place in an evening, outside of class time. The scope and schedule for the Module Tests are as follows:

- Module Test #1 (Week 7) covers Modules 1 and 2;
- Module Test #2 (Week 13) covers Modules 3 and 4.

Students should avoid making prior travel, employment, or other commitments at these times. Alternate times to write the module tests will not be considered except in the case of acceptable reasons, such as illness, bereavement, etc, or a conflict with other university related activities.

If a student is unable to write a module test through no fault of his or her own for medical or other acceptable reasons, the request and documentation must be provided within 3 days of the module test date and an opportunity to write the missed module test may be given at the discretion of the course instructor. Students are encouraged to review all examination policies and procedures, available at: http://students.usask.ca/academics/exams.php

Students will be allowed to bring and use a non-programmable, non-graphing scientific calculator on the module tests. The use of any other aids, such as devices with document storage and/or communication capabilities, is prohibited during all module tests for this course.

Required Activities Outside of Class Time

The two module tests will take place outside of class time, during the evening of weekdays.

Required Resources

Readings/Textbooks

The course will utilize a number of open-access textbooks that are freely available online:

 Active Calculus by Matthew Boelkins, available at <u>https://activecalculus.org/single/frontmatter.html</u>
 Linear Algebra with Applications by Keith Nicholson, available at <u>https://lyryx.com/linear-algebra-applications/</u>

Additional supplementary notes may also be provided by the course instructor.

Other Required Materials

Students may use a simple scientific calculator (non-programmable, non-graphing, with no storage capacity) during the module tests. Some eligible calculator models are TI 30Xa, TI 30XII, Casio fx260, Casio fx300MS, Sharp EL531X, and HP 10s.

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (<u>http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php</u>).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/</u>.

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning* (<u>http://policies.usask.ca/policies/academic-affairs/academic-courses.php</u>).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS</u>)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial

Safety:

Safety is of paramount importance in the College. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Recording Lectures:

Lectures will be recorded, when possible, and made available to students in Blackboard so students can rewatch them as needed for study purposes.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes tests, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act

(see <u>http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html</u>).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit

<u>http://www.usask.ca/copyright/students/rights/index.php</u> or contact the University's Copyright Coordinator at <u>copyright.coordinator@usask.ca</u>.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: https://www.usask.ca/secretariat/student-conduct-appeals/StudentNon-AcademicMisconduct.pdf.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with his or her colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <u>https://students.usask.ca/health/centres/access-equity-services.php</u>, or contact AES at 306-966-7273 or <u>aes@usask.ca</u>.

Students registered with AES may request alternative arrangements for module tests. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>

End of day tutorial sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see X for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see https://students.usask.ca/. Specific resources include:

- Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u>
- Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

	Instructional Level [‡]											
Learning		Attribute [†]										
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1	Ι	Ι	Ι		D		Ι					
2	Ι	Ι	Ι		D		Ι					
3	Ι	Ι	Ι		D		Ι					
4	D	D	D		D		Ι					

†<u>Attributes</u>:

- A1 A knowledge base for engineering
- A2 Problem analysis
- A3 Investigation
- A4 Design
- **A5** Use of engineering tools
- A6 Individual and team work
- A7 Communication skills
- A8 Professionalism
- **A9** Impact of engineering on society and the environment
- A10 Ethics and equity
- A11 Economics and project management
- A12 Life-long learning

*Instructional Level:

Introduced (I) – Students learn the working vocabulary of the area of content, along with some of the major underlying concepts.

Developed (D) – Students use their working vocabulary and major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar contexts.

Applied (A) – Students approach mastery in the area of content. They explore deeply into the discipline and experience the controversies, debate, and uncertainties that characterize the leading edges of any field. They practice, extend, or refine knowledge in unfamiliar contexts.

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
100%				

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Arts & Science
- 1.2 Department with academic authority: Department of Physics and Engineering Physics
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: PHYS 152
- 2.2 Academic credit units: 1
- 2.3 Course Long Title (maximum 100 characters): Introduction to Atoms and Nuclei for Engineering Course Short Title (maximum 30 characters): Intro Atoms and Nuclei

2.4 Total Hours: Lecture 9 Seminar Lab 6 Tutorial Other 2.5 Weekly Hours: Lecture 3 Tutorial Other Seminar Lab 3 2.6 Term in which it will be offered: T1 T2 T1 or T2 T1 and T2

2.7 Prerequisite: Physics 30 or PHYS 90; and (Mathematics B30 and C30; or Foundations of Mathematics 30; or Pre-Calculus 30).

If there is a prerequisite waiver, who is responsible for signing it?

D – Instructor/Dept Approval

- H Department Approval
- I Instructor Approval

2.8 Catalogue description (150 words or less):

Provides a brief introduction to quantum physics, atomic physics and nuclear physics for students of engineering. Topics include evidence for wave-particle duality of photons and electrons, blackbody radiation, photoelectric effect, Compton effect, line spectra, atomic models, nuclear models, radioactivity, nuclear fission and fusion.

2.9 Do you allow this course to be repeated for credit? No

3. Please list rationale for introducing this course:

Currently a number of Arts & Science departments contribute to the <u>Common First Year</u> for the College of Engineering Bachelor of Science in Engineering (B.E.) program. The College of Engineering is in the process of redesigning this Common First Year to create the most effective first year engineering program in Canada. They are working hard to create something that will excite, engage and inspire their students, and to holistically prepare them for the challenges to come in later years. This project has been underway since 2016-2017 and has a planned launch of Fall 2021. Over this time there has been extensive consultation between the College of Engineering and specific Departments in the College of Arts & Science. A suite of new Science courses are being proposed for use in this redesigned Common First Year which will replace or complement the use of existing courses.

The College of Engineering wishes to provide their first-year students with broad exposure to four of the Natural Science disciplines in the College of Arts and Science (Biology, Chemistry, Geological Sciences, and Physics). This is to be achieved through short (1 cu) courses in each of these disciplines. Each of the four courses will be delivered in the Fall term. The first-year cohort of engineering students will be divided into four groups and these groups will progress through the four disciplines in rotation. Each course will consist of nine hours of lectures and two, 3-hour labs components. By the end of the term, all first year engineering students will have progressed through all of the courses, having received 36 hours of lecture-based instruction and twenty-four hours of lab/practicum-based instruction.

The plan outlined above necessitates that each course is focused on a subset of disciplinary topics that can be delivered consistently at four distinct times over the term. To facilitate student learning, it was agreed that the four Science courses would seek some commonality in the topics delivered. To that end, it was agreed that the "environment" and "climate change" would be logical candidates. Thus, chemistry will have lab exercises investigating warming associated with different greenhouse gases, physics will discuss blackbody radiation within their course, geological science will deal with Earth system interactions and changes over time, and biology will focus on anthropogenic effects on biodiversity and ecosystems, including human-induced climate change. The four courses will have a common final examination in December with 45 minutes allotted to each course. Beyond that, courses will have a diversity of assignments, labs, quizzes, reports, or an exam at the end of their sections.

Each of these four 1 cu courses will have "GE 102 - Introduction to Engineering" I listed as a Pre- or Co-Requisite. The Introduction to Engineering I course will focus on setting the students up to manage their time, reflect upon their study habits and work in groups – all things that will be important to each of the following courses. Perhaps more importantly, this is where the students will be learning to use TopHat, the LMS, other assessment software, and MS Office. Specifically for these Science courses it provides the lab safety training and acts as the vehicle for a reflective assessment that will incorporate what students learn in each of this 1 cu Science courses, effectively linking them together and solidifying the students' learning.

The College of Engineering is also working toward a new competency-based assessment system that will be utilized in the new First Year Engineering courses in Fall 2021. The Arts & Science departments will continue to learn more about this system through 2020-2021 and 2021-2022 as it is implemented in Engineering, and will then determine how it can be used in the Science courses attached to the Engineering Common First Year. Revisions to the courses, to implement this assessment system, will be submitted to the appropriate College Academic Programs Committee for approval, prior to use in the courses.

4. Please list the learning objectives for this course:

By the end of this course, students will be expected to:

- 1. Recognize the importance of quantitative laws of nature as a basis for science and technology.
- 2. Solve quantitative problems in physics, including independent recognition of which equation or set of equations applies to a problem.
- 3. Describe the observational evidence that led to the inception of quantum mechanics.
- 4. Solve basic problems in quantum, atomic and nuclear physics.
- 5. Recognize applications of quantum, atomic and nuclear physics in science and engineering.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? This course is for the College of Engineering First Year.

If so, were these departments consulted? (Include correspondence) Yes

Were any other departments asked to review or comment on the proposal? Biology, Chemistry, Physics and Geology reps met a number of times regarding these four – 1cu courses. The course also went through the Arts & Science College Challenge, which provides opportunity for responses by all departments in the College.

- 6. **Other courses or program affected** (please list course titles as well as numbers)
 - 6.1 Courses to be deleted? None
 - 6.2 Courses for which this course will be a prerequisite? None
- 6.3 Is this course to be required by your majors, or by majors in another program?

Required course in the first-year as part of revised Engineering program.

Students with credit for all four of BIOL 102.1, CHEM 142.1, GEOL 102.1 and PHYS 152.1 will receive 3 credit units of elective credit in Arts & Science B.Sc. programs and 3 credit units of "science" or "elective" credit in B.A., B.F.A., or B.Mus. programs. Students who do not pass all 4 courses will receive no credit in Arts & Science programs.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Assessment:

The methods of assessment and their respective weightings are given below:

Assignments:	25%
Laboratories:	25%
Final Exam:	50%

9.1	How should this course be graded?
	C – Completed Requirements
	(Grade options for instructor: Completed Requirements, Fail, IP In Progress)
	N – Numeric/Percentage
	(Grade options for instructor: grade of 0% to 100%, IP in Progress)
	P – Pass/Fail
	(Grade options for instructor: Pass, Fail, In Progress)
	S – Special
	(Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? No – Final exam date may be schedule outside of the normal exam scheduling process.

10. Required text

Include a bibliography for the course.

This resource is used both for PHYS 152.1 in term 1 and PHYS 156.3 in term 2 You need the electronic resource including the textbook and WebAssign for <u>10 months</u>: Raymond A. Serway/John W. Jewett Physics for Scientists and Engineers <u>with Modern Physics</u>, 10th edition WebAssign for Physics for Scientists and Engineers <u>10 Months</u> ISBN: 9781337699297

11. Resources

11.1 Proposed instructor: Rainer Dick, Tom Steele, Rob Pywell

- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within department.
- 11.3 Are sufficient library or other research resources available for this course? Yes

11.4 Are any additional resources required (library, audio-visual, technology, etc.)? None

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use <u>tuition category</u>) TC14
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
CO0	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

FNAR	Fine Arts
HUM	Humanities
SCIE	Science
SOCS	Social Science
ARNP	No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required:
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

Restricted to students in the College of Engineering.

- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
- Physics 30 or PHYS 90; and (Mathematics B30 and C30; or Foundations of Mathematics 30; or Pre-Calculus 30).
- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course
- GE 102 Introduction to Engineering I
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: None

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here: None

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:

PHYS 152.1 Introduction to Atoms and Nuclei for Engineering



Fall 2021

Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructor:	Name (include credentials): TBA Office: TBA Email: TBA Phone: TBA Optional: Instructor Profile
Office Hours:	3 hours/week – TBA
Lectures:	3 hours/week – TBA
Laboratory:	Two 3-hour lab sections in weeks 2 and 3 of the course – Dates/Times TBALab Instructor:Email:Office:Phone:
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. Students are expected to use at least one notification option for new material on the course website (email or text). <u>https://bblearn.usask.ca/</u>
Description:	Provides a brief introduction to quantum physics, atomic physics and nuclear physics for students of engineering. Topics include evidence for wave-particle duality of photons and electrons, blackbody radiation, photoelectric effect, Compton effect, line spectra, atomic models, nuclear models, radioactivity, nuclear fission and fusion.
Prerequisites:	Physics 30 or PHYS 90; and (Mathematics B30 and C30; or Foundations of Mathematics 30; or Pre-Calculus 30). Note: This course is only open for students in the College of Engineering.
Pre- or co- requisites:	GE 102: Introduction to Engineering I
Course Reference Numbers (CRNs):	3 (lectures), 2 (laboratory) Available from the Dynamic Schedule once courses are built (https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched)

Course Learning Outcomes:	 he end of this course, students will be expected to: Recognize the importance of quantitative laws of nature as a basis for science and technology. Solve quantitative problems in physics, including independent recognition of which equation or set of equations applies to a problem. Describe the observational evidence that led to the inception of quantum mechanics. Solve basic problems in quantum, atomic and nuclear physics. Recognize applications of quantum, atomic and nuclear physics in science and engineering. 						
	The methods of assessment and their respective weightings are given below:Assignments:25%Laboratories:25%Final Exam:50%						
Attendance ar Participation:	Students are expected to attend all lectures, and all laboratory sessions in their lab section.						
Criteria That Must Be Met t Pass:	Students must have attended the labs and submitted the lab reports to achieve a passing grade in this class. If the lab reports have not been submitted by the end of the class, a final grade of less than 50% will be submitted.						
Final Grades:	The final grades will be consistent with the "literal descriptors" specified in the university's grading system (at the link below, click on "for undergraduate students"). <u>https://students.usask.ca/academics/grading/grading-system.php</u>						
Academic Courses Policy	For information regarding appeals of final grades or other academic matters, please visit the Student Conduct and Appeals section of the University Secretary's website: https://secretariat.usask.ca/student-conduct-appeals/index.php More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: http://policies.usask.ca/policies/academic-affairs/academic-courses.php						
Learning Charter:	The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: https://teaching.usask.ca/about/policies/learning-charter.php						

Course Content/Schedule:							
То	pics	Lecture					
1.	INTRODUCTION TO THE COURSE 1.1. Overview of the course 1.2. The nature of physics and relation to other sciences 1.3. Relation of the course to the other 1cu science courses 1.4. Basic description of oscillations and waves	1					
2.	INTRODUCTION TO QUANTUM PHYSICS: EVIDENCE FOR WAVE-PARTICLE DUALITY FOR PHOTONS 2.1. Interpretation of spectra 2.2. Blackbody radiation, Wien's law and Planck's law 2.3. Photoelectric effect 2.4. Compton effect 2.5. Planck's and Compton's relations of wave-particle duality: $E = hf$, $p = h/\lambda$	2					
3.	INTRODUCTION TO ATOMIC PHYSICS AND WAVE- PARTICLE DUALITY FOR ELECTRONS I 3.1. Qualitative discussion of the Rutherford experiment 3.2. Line spectra 3.3. Bohr Model 3.4. de Broglie's observation 3.5. Electron diffraction, Davisson-Germer experiment	3					
4.	INTRODUCTION TO ATOMIC PHYSICS AND WAVE-PARTICLE DUALITY FOR ELECTRONS II 4.1. Applications of electron diffraction in electron microscopy and LEED 4.2. Double slit experiments 4.3. Qualitative discussion of the wave function and the Schrödinger equation 4.4. Heisenberg uncertainty relation	4					
5.	INTRODUCTION TO NUCLEAR PHYSICS 5.1. Properties of atomic nuclei, size, composition 5.2. Nuclear binding energies 5.3. Nuclear models 5.4. Radioactivity and decay laws 5.5. Radioactive dating	5					
6.	INTRODUCTION TO NUCLEAR REACTIONS 6.1. Notation for nuclear reactions 6.2. Q values 6.3. Nuclear fission 6.4. Nuclear fusion 6.5. Advantages and difficulties of nuclear energy sources	6					

Assignments:

There will be three online assignments posted in the first week of the course. The first online assignment will cover topics from the first two lectures, the second online assignment will cover topics from lectures 3 and 4, and the third online assignment will cover topics from lectures 5 and 6. Final submissions for online assignments are due on the Monday (4 pm) following the second, fourth and sixth lecture, respectively. E.g. after the second lecture on Thursday, you have until the

following Monday 4 pm to submit the first online assignment. Late assignment submissions will not be accepted.

Laboratory:

Students need to attend and complete two 3-hour lab periods, one each in the second and third week of the course. See the laboratory manual for details. Students are expected to have studied the descriptions and manuals for the hands on labs before the lab period.

Examinations:

- The Final Examination will be common to all concurrent sections of PHYS 152.1. All final examinations are cumulative and 'closed-book'. A Physics formula sheet will be provided. The final exam will be based on multiple-choice problems and students will have maximum of 3 hours to complete the total exam (comprised of the four Natural Sciences: Biology, Chemistry, Geology, and Physics).
- The final exam will be scheduled at the end of the Natural Sciences Modules through the Engineering Student Centre. Exams can be scheduled at any time between the end of the Natural Sciences Modules and December 23. Please do not schedule travel until after the official exam schedule is released. If a student is unable to write an exam through no fault of his or her own for medical or other valid reasons, documentation must be provided and an opportunity to write the missed exam <u>may</u> be given. Students are encouraged to review all examination policies and procedures:

http://students.usask.ca/academics/exams.php

- Exams are closed book. A formula sheet will be provided with the exam.
- The use of electronic devices, including calculators, phones and watches, with document storage and/or communication capabilities is prohibited during exams.
- Alternate times to write final examinations cannot be accommodated. If a student misses a final exam, application must be made to the Engineering Student Centre to write a deferred exam.
- Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines.

Required Activities Outside of Class Time

The common final examination for the four 1cu Natural Science courses will be scheduled at the end of the four courses through the Engineering Student Centre.

Required Resources

(This is just one option. It must be coordinated between the PHYS 152.1 (T1) and the PHYS 156.3 instructors):

You need the electronic resource including the textbook and WebAssign for <u>10 months</u>:

Raymond A. Serway/John W. Jewett Physics for Scientists and Engineers <u>with Modern Physics</u>, 10th edition

WebAssign for Physics for Scientists and Engineers <u>10 Months</u> ISBN: 9781337699297

Textbooks and access codes for electronic resources are available from the University of Saskatchewan Bookstore: <u>https://bookstore.usask.ca/students.php#MyTextbooks</u>

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct* (https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (https://secretariat.usask.ca/student-conduct-appeals/nonacademic-misconduct.php).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/.</u>

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning

(http://policies.usask.ca/policies/academic-affairs/academic-courses.php).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS</u>)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

Safety is of paramount importance in the College. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Recording Lectures:

Lecture may be recorded, when possible, and made available on Blackboard. Lecture recordings are property of the instructor and must not be made available outside of the course website.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit http://www.usask.ca/copyright/students/rights/index.php or contact the University's Copyright Coordinator at copyright/students/rights/index.php or contact the University's Copyright Coordinator at copyright/students/rights/index.php or contact the University's Copyright Coordinator at copyright/students/rights/index.php or contact the University's Copyright Coordinator at copyright/students/rights/index.php or contact the University's Copyright Coordinator (weask.ca/copyright) and (weask

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997). The first part of this statement discusses an engineer's relationships with his or her colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit https://students.usask.ca/health/centres/access-equity-services.php, or contact AES at 306-966-7273 or access-equity-services.php, or contact AES at 306-966-7273 or access-equity-services.php, or contact AES

Students registered with AES may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

- Engineering Student Centre (Rm. 2A05 Engineering Building)
 - Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>

End of day tutorial sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>. Specific resources include:

• Student Wellness Centre (3rd & 4th Floors, Place Riel): <u>https://students.usask.ca/health/</u> Financial Services: <u>https://students.usask.ca/money/</u>

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

Learning Outcome		Attribute [†]										
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1	Ι											Ι
2	Ι	Ι	Ι									
3	Ι											
4	Ι	Ι	Ι									
5	Ι								Ι			Ι

[‡]Instructional Level:

Instructional Level[‡]

†<u>Attributes</u>:

A1	A knowledge base for engineering	Introduced (I) – Students learn the working vocabulary of the
A2	Problem analysis	area of content, along with some of the major underlying
A3	Investigation	concepts.
A4	Design	Developed (D) – Students use their working vocabulary and
A5	Use of engineering tools	major fundamental concepts to probe more deeply, to read the
A6	Individual and team work	literature, and to deepen their exploration of the concepts. They
A7	Communication skills	may begin to practice, extend, or refine knowledge in familiar
A8	Professionalism	contexts.
A9	Impact of engineering on society	Applied (A) – Students approach mastery in the area of
	and the environment	content. They explore deeply into the discipline and experience
A10	Ethics and equity	the controversies, debate, and uncertainties that characterize
A11	Economics and project	the leading edges of any field. They practice, extend, or refine
	management	knowledge in unfamiliar contexts.
A12	Life-long learning	

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design	
0%	100%	0%	0%	0%	

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.



1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: College of Arts & Science
- 1.2 Department with academic authority: Department of Physics and Engineering Physics
- 1.3 Term from which the course is effective: 202105

2. Information required for the Catalogue

- 2.1 Label & Number of course: PHYS 156
- 2.2 Academic credit units: 3
- 2.3 Course Long Title (maximum 100 characters): Electromagnetism and Waves for Engineering Course Short Title (maximum 30 characters): Electromagnetism and Waves

2.4	Total Hours:	Lecture	34.5	Seminar	La	ab	12	Tutorial	Other
2.5	Weekly Hours:	Lecture	4.5	Seminar	L	ab	3	Tutorial	Other
2.6	Term in which it	t will be of	ffered	: T1	T2	٦	T1 or T	⁻ 2 T1 ar	nd T2

2.7 Prerequisite: PHYS 152; GE 102: Introduction to Engineering I; and MATH 133: Engineering Mathematics I

If there is a prerequisite waiver, who is responsible for signing it?

- D Instructor/Dept Approval
- H Department Approval
- I Instructor Approval

2.8 Catalogue description (150 words or less): Provides an introduction to electromagnetism, oscillations and waves. Topics include electric fields and potentials, electric conductivities, magnetic fields, Lorentz force, inductance, superposition and interference of waves, electromagnetic waves.

2.9 Do you allow this course to be repeated for credit? No

3. Please list rationale for introducing this course:

Currently a number of Arts & Science departments contribute to the <u>Common First Year</u> for the College of Engineering Bachelor of Science in Engineering (B.E.) program. The College of Engineering is in the process of redesigning this Common First Year to create the most effective first year engineering program in Canada. They are working hard to create something that will excite, engage and inspire their students, and to holistically prepare them for the challenges to come in later years. This project has been underway since 2016-2017 and has a planned launch of Fall 2021. Over this time there has been extensive consultation between the College of Engineering and specific Departments in the College of Arts & Science. A suite of new Science courses are being proposed for use in this redesigned Common First Year which will replace existing courses currently used.

PHYS 156.3 will replace our current course PHYS 155.3 in the new first year program for Engineering. PHYS 156 will provide the necessary introduction to electricity, magnetism, and oscillations and waves for all first-year Engineering students. This is necessary basic physics knowledge that all engineering students need to succeed in their programs.

The College of Engineering is also working toward a new competency-based assessment system that will be utilized in the new First Year Engineering courses in Fall 2021. The Arts & Science departments will continue to learn more about this system through 2020-2021 and 2021-2022 as it is implemented in Engineering, and will then determine how it can be used in the Science courses attached to the Engineering Common First Year. Revisions to the courses, to implement this assessment system, will be submitted to the appropriate College Academic Programs Committee for approval, prior to use in the courses.

This new competency-based assessment system will use module tests in place of midterm and final exams. A few of the new courses proposed by Arts and Science departments have started to use the concept of Module Tests in their courses in these first versions. This will make it easier when they switch to the competency-based assessment system in future. Some common wording regarding module tests was created and has been used in the Arts and Science course proposals. This wording is similar to that of the Examinations Policies section of Arts and Science syllabus, but has been modified to accurately portray the concept of the module tests.

4. Please list the learning objectives for this course:

By the end of this course, students will be expected to:

- 1. Recognize the importance of quantitative laws of nature as a basis for science and technology.
- 2. Solve quantitative problems in physics, including independent recognition of which equation or set of equations applies to a problem.
- 3. Use the laws of Coulomb, Ampère and Faraday to calculate electromagnetic fields for highly symmetric source configurations.
- 4. Define capacitance, conductivity, and inductance and calculate them in model systems.
- 5. Describe the scientific principles underlying the function of electric generators and electric motors.
- 6. Analyze the transient behavior of charge or current in simple RC and RL circuits, respectively.
- 7. Relate the concepts of oscillation period, frequency, wavelength, wave number and wave speed to one another.
- 8. Apply quantitative descriptions of wave motion to problems involving waves, including superposition and interference of waves.
- 9. Describe the basic properties of electromagnetic waves and quantitative features of the different parts of the electromagnetic spectrum.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? This course is for the College of Engineering First Year.

If so, were these departments consulted? (Include correspondence) Yes

Were any other departments asked to review or comment on the proposal? The course went through the Arts & Science College Challenge, which provides opportunity for responses by all departments in the College.

6. **Other courses or program affected** (please list course titles as well as numbers)

- 6.1 Courses to be deleted? PHYS 155 (only if both PHYS 156 and the new first year program in engineering are approved)
- 6.2 Courses for which this course will be a prerequisite? EP 202: Replace "PHYS 155 or PHYS 115" with "PHYS 155 or PHYS 156 or PHYS 115" in the list of prerequisites.
- 6.3 Is this course to be required by your majors, or by majors in another program?

Required course in the first-year as part of revised Engineering program.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See attached syllabus.

8. Enrolment

- 8.1 Expected enrollment: up to 600
- 8.2 From which colleges? Engineering

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

Assessment: The methods of assessment and their respective weightings are given below:

Assignments:	20%
Laboratories:	20%
Module 1 Test:	20%
Module 2 Test:	20%
Module 3 Test:	20%

 9.1 How should this course be graded? C – Completed Requirements (Grade options for instructor: Completed Requirements, Fail, IP In Progress) N – Numeric/Percentage (Grade options for instructor: grade of 0% to 100%, IP in Progress) P – Pass/Fail (Grade options for instructor: Pass, Fail, In Progress) S – Special (Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

9.2 Is the course exempt from the final examination? Yes – No final exam is proposed. We would like to use module exams instead of a final exam. These exams will test the three different modules of the course (electricity, magnetism, oscillations and waves). We anticipate that module exams may serve the students better in courses which (like this one) naturally comprise different modules of knowledge, because students can focus on their recent learning instead of cramming the material from more than 30 lecture hours before a final exam.

10. Required text

Include a bibliography for the course.

This resource is used both for PHYS 152.1 in term 1 and PHYS 156.3 in term 2 You need the electronic resource including the textbook and WebAssign for <u>10 months</u>: Raymond A. Serway/John W. Jewett Physics for Scientists and Engineers <u>with Modern Physics</u>, 10th edition WebAssign for Physics for Scientists and Engineers <u>10 Months</u> ISBN: 9781337699297

11. Resources

11.1 Proposed instructor: Lenaic Couedel, Chijin Xiao, Sasha Koustov, Michael Bradley, Rainer Dick, Andrei Smolyakov

- 11.2 How does the department plan to handle the additional teaching or administrative workload? Within department.
- 11.3 Are sufficient library or other research resources available for this course? Yes
- 11.4 Are any additional resources required (library, audio-visual, technology, etc.)? None

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) TC14
- 12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" <u>http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees</u> No

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description

CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes

Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit

0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

FNAR	Fine Arts
HUM	Humanities

SCIE Science

SOCS Social Science

ARNP No Program Type (Arts and Science)

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required:
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program

Restricted to students in the College of Engineering.

3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course PHYS 152, GE 102: Introduction to Engineering I, MATH 133: Engineering Mathematics I

- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: PHYS 155

An equivalent course can be used in place of the course for which this form is being completed, specifically for the purposes of prerequisite and degree audit checking. Credit will be given for only one of the equivalent courses.

4.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be equivalent:

*Please note: If the equivalent courses carry an UNEQUAL number of credit units, DegreeWorks will automatically enforce the following, unless otherwise stated:

- If a 3 credit unit course is considered to be equivalent to a 6 credit unit course, it will fulfill the 6 credit unit requirement and the student will not have to complete another 3 credit units toward the overall number of required credit units for the program.
- If a 6 credit unit course is considered to be equivalent to a 3 credit unit course, ALL 6 of the credit units may be used to fulfill the 3 credit unit requirement.

5. List Mutually-Exclusive Course(s) here: PHYS 115

Mutually exclusive courses have similar content such that students cannot receive credit for both.

5.1 If this is a recently-repurposed course number, please list the courses that are no longer considered to be mutually exclusive:

*Please note: SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes:



winter 2022

Land Acknowledgement

At the University of Saskatchewan, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

Instructor:	Name (include credentials) Office Email Phone Optional: Instructor Profile
Office Hours:	3 hours/week – TBA
Lectures:	4.5 hours/week in 8 weeks - TBA
Laboratory:	Four 3-hour lab sections in alternate weeks – Dates/Times TBALab Instructor:Email:Office:Phone:
Website:	Assignments, solutions, lab schedules, general course information, and announcements will be posted on the course website (PAWS/Blackboard). Students are responsible for keeping up-to-date with the information on the course website. Students are expected to use at least one notification option for new material on the course website (email or text). https://bblearn.usask.ca/
Description:	Provides an introduction to electromagnetism, oscillations and waves. Topics include electric fields and potentials, electric conductivities, magnetic fields, Lorentz force, inductance, superposition and interference of waves, electromagnetic waves.
Prerequisites:	Physics 152.1, GE 102: Introduction to Engineering I, MATH 133: Engineering Mathematics I Note: This course is only open for students in the College of Engineering.
	4.5 (lectures), 1.5 (laboratory) Available from the Dynamic Schedule once courses are built (https://pawnss.usask.ca/ban/bwckschd.p_disp_dyn_sched)

Course Learning		
Outcomes: By t	the end of this course, stude	-
		nce of quantitative laws of nature as a basis for
	science and technology	
		elems in physics, including independent recognition of
	-	of equations applies to a problem.
		b, Ampère and Faraday to calculate electromagnetic
		etric source configurations.
	-	iductivity, and inductance and calculate them in
	model systems.	
		principles underlying the function of electric
	generators and electric	
	-	ehavior of charge or current in simple RC and RL
	circuits, respectively.	
		oscillation period, frequency, wavelength, wave
	number and wave spee	
	8. Apply quantitative des	criptions of wave motion to problems involving
	waves, including super	position and interference of waves.
	9. Describe the basic prop	perties of electromagnetic waves and quantitative
	features of the differen	t parts of the electromagnetic spectrum.
Assessment: The	methods of assessment an	d their respective weightings are given below:
	signments:	20%
	boratories:	20%
	odule 1 Test:	20%
	odule 2 Test:	20%
	odule 3 Test:	20%
1.10		20,0
Attendance and	Students are expected to	attend all lectures, and all laboratory sessions in their
Participation:	lab section.	
•		
Criteria That	Students must have atten	ded the labs and submitted the lab reports to achieve
Must Be Met to	a passing grade in this cla	ss. If the lab reports have not been submitted by the
Pass:		ade of less than 50% will be submitted.
	5	
Final Grades:	The final grades will be co	onsistent with the "literal descriptors" specified in the
	university's grading syste	m
	(at the link below, click or	n "for undergraduate students").
	https://students.usask.ca	/academics/grading/grading-system.php
	For information regarding	g appeals of final grades or other academic matters,
	please visit the Student C	onduct and Appeals section of the University
	Secretary's website:	-
	https://secretariat.usa	sk.ca/student-conduct-appeals/index.php
Academic		Academic Courses Policy on course delivery,
Courses Policy:		nent of student learning can be found at:
5		policies/academic-affairs/academic-courses.php
		······································
Learning	The University of Saskatc	hewan Learning Charter is intended to define
Charter:		ning experience that the University aims to provide,
	-	

and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: <u>https://teaching.usask.ca/about/policies/learning-charter.php</u>

Course Content/Schedule:

The course comprises three thematic modules:

- 1. Electricity (8 lectures)
- 2. Magnetism (8 lectures)
- 3. Oscillations and Waves (7 lectures)

Module tests will be scheduled outside of class time as 1.5 hour tests after the conclusion of each module.

To	pics	Approximate
		Lecture Hours
1.	ELECTRIC CHARGES AND FIELDS I	3
	1.1. Overview of the course	
	1.2. Properties of electric charges	
	1.3. Charges by induction	
	1.4. Coulomb's law	
	1.5. Electric field lines	
	1.6. Motion of charges in uniform electric fields	
2.	ELECTRIC CHARGES AND FIELDS II	1.5
	2.1. Electric field of continuous charge distributions	
	2.2. Electric flux and relation to charge	
	2.3. Electric fields of symmetric charge distributions	
3.	ELECTRIC POTENTIALS I	1.5
	3.1. Definition of electric potential	
	3.2. Potential difference in a uniform electric field	
	3.3. Electric potential and potential energy for point charges	
4.	ELECTRIC POTENTIALS II	1.5
	4.1. Relation to electric fields	
	4.2. Electric potential of continuous charge distributions	
	4.3. Conductors in electrostatic equilibrium	
5.	CAPACITANCE AND DIELECTRICS	3
	5.1. Definition of capacitance	
	5.2. Combinations of capacitors	
	5.3. Energy stored in capacitors	
	5.4. Capacitors with dielectrics	
	5.5. Electric dipoles	
	5.6. Atomic description of dielectrics	
6.	CURRENT AND CONDUCTIVITY	1.5
	6.1. Definitions of current (review) and current density	
	6.2. Review of Ohm's law	
	6.3. Temperature behavior of resistance	
	6.4. Power	
	6.5. RC transients: Charging and discharging of capacitors	
7.	MODULE 1 TEST: 1.5 HOURS OUT OF CLASS TIME	

8.	PARTICLES IN MAGNETIC FIELDS I	1.5
	8.1. Units for magnetic fields	
	8.2. Lorentz force and right hand rule	
	8.3. Motion of charged particles in a uniform magnetic field	
	8.4. Cyclotron frequency	
9.	PARTICLES IN MAGNETIC FIELDS II	1.5
	9.1. Mass spectrometers	
	9.2. Magnetic forces on current-carrying conductors	
	9.3. Torque on current loops	
	9.4. Hall effect	
10.	SOURCES OF MAGNETIC FIELDS I	1.5
10.	10.1. Biot-Savart law	110
	10.2. Magnetic forces between parallel wires	
	10.3. Ampère's law	
11.	SOURCES OF MAGNETIC FIELDS II	1.5
	11.1. Magnetic fields of solenoids	
	11.2. Absence of magnetic monopoles	
	11.3. Magnetic materials	
	11.4. Sources of magnetism in materials	
12.	FARADAY'S LAW OF INDUCTION	1.5
	12.1. Induction for loops	
	12.2. Motional emf	
	12.3. Lenz's law	
13.	ELECTRIC GENERATORS AND MOTORS	1.5
	13.1. Generators	
	13.2. Electric motors	
	13.3. Eddy currents	
14.	INDUCTANCE	3
	14.1. Self-induction and definition of inductance	
	14.2. Units for inductance	
	14.3. RL transients: Switching of currents in circuits with inductance	
	14.4. Energy in magnetic fields	
15.	MODULE 2 TEST: 1.5 HOURS OUT OF CLASS TIME	
	OSCILLATIONS I	1.5
-0.	16.1. Springs and Hooke's law	210
	16.2. Particle in harmonic motion	
	16.3. Energy in harmonic motion	
	16.4. Simple pendulum	
17	OSCILLATIONS II	1.5
±/.	17.1. Oscillations in damped systems	1.0
	17.2. Forced oscillations	
	17.3. Resonance	
18	WAVES	1.5
10.	18.1. Waves as propagating disturbances	1.J
	18.2. Harmonic waves	
	1 1 5 6	
10	18.4. Energy transfer on a string	4 5
19.	Sound Waves	1.5
	19.1. Sound waves in liquid and solid media	
	19.2. Speeds of sound waves	

19.3.	Intensity of sound waves	
19.4.	Doppler effect	
20. SUPER	POSITION AND INTERFERENCE	3
20.1.	Superposition principle	
20.2.	Interference as a consequence of the superposition principle	
20.3.	Standing waves	
20.4.	Resonant excitation of waves	
20.5.	Beats from superposition of waves with different frequencies	
21. ELECTI	ROMAGNETIC WAVES	1.5
21.1.	Ampère's law with time-dependent electric fields	
21.2.	Electromagnetic waves as a consequence of Ampère & Faraday	
21.3.	Electromagnetic spectrum	
22. Modul	LE 3 TEST: 1.5 HOURS OUT OF CLASS TIME	

Assignments:

There will be 6 homework assignments to practice problem solving related to the lecture material. The assignments are due one week after posting on the course website. Late submissions will not be accepted.

Laboratory:

Students need to attend and complete four 3-hour lab periods. See the laboratory manual for details. Students are expected to have studied the descriptions and manuals for the hands on labs before the lab period.

Module Tests:

- This course comprises 3 modules. Each module will end with a module test conducted outside of class time as a required activity outside class time. The module test will only assess the content of the particular module specified for that test. The schedule for the Module Tests is: (Note: Dates and Times TBA)
 - Module on Electricity Test #1: Month, Day, Year, start time-end time
 - \circ $\:$ Module on Magnetism Test #2: Month, Day, Year, start time-end time $\:$
 - Module on Oscillations and Waves Test #3: Month, Day, Year, start timeend time
- Students should avoid making prior travel, employment, or other commitments at these times. If a student is unable to write a module test through no fault of his or her own for medical or other acceptable reasons, the request and documentation must be provided within 3 days of the module test date and an opportunity to write the missed exam <u>may</u> be given. Students are encouraged to review all examination policies and procedures: <u>http://students.usask.ca/academics/exams.php</u>
- Alternate times to write Module Tests will not be considered except in the case of acceptable reasons, such as illness, bereavement, etc., or a conflict with other university related activities.
- The use of electronic devices, including calculators, phones and watches, with document storage and/or communication capabilities is prohibited during exams for this course.

- Students planning on registering with the office for Access and Equity Services for Students (AES) must do so in accordance with AES procedures and deadlines.
- Module tests are closed book. A formula sheet will be provided with the tests.

Required Activities Outside of Class Time

After each of the three modules (electricity, magnetism, oscillations and waves) a Module Test will be scheduled as a 1.5-hour test.

Required Resources

(This is just one option. It must be coordinated between the PHYS 152.1 and the PHYS 156.3 instructors): You need the electronic resource including the textbook and WebAssign for 10 months:

Raymond A. Serway/John W. Jewett Physics for Scientists and Engineers <u>with Modern Physics</u>, 10th edition

WebAssign for Physics for Scientists and Engineers <u>10 Months</u> ISBN: 9781337699297

Textbooks and access codes for electronic resources are available from the University of Saskatchewan Bookstore: <u>https://bookstore.usask.ca/students.php#MyTextbooks</u>

Policies on Academic Dishonesty, Academic Appeals and Course Delivery:

Students are expected to undertake all aspects of their academic work in an ethical manner. Students are expected to submit their own individual work for academic credit, properly cite the work of others, and to follow all rules for examinations. Academic misconduct, plagiarism, and cheating will not be tolerated. Students are responsible for understanding the university's policies on academic integrity and academic misconduct. If any form of academic misconduct is discovered, appropriate disciplinary action will be taken.

For more information on what constitutes academic misconduct, please consult the University Council *Regulations on Student Academic Misconduct*

(https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (https://secretariat.usask.ca/student-conduct-appeals/nonacademic-misconduct.php).

For information regarding appeals of a final grade or other academic matters, please consult the University Council document on *Student Appeals of Evaluation, Grading and Academic Standing* (http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php).

Additional policies and procedures related to student conduct and appeals are provided on the University Secretariat website (<u>www.usask.ca/secretariat/student-conduct-appeals</u>) and on the University website <u>http://www.usask.ca/integrity/.</u>

A summary of University of Saskatchewan polices relating to academic courses is provided in the document: *Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student*

Learning (<u>http://policies.usask.ca/policies/academic-affairs/academic-courses.php</u>).

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php</u>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<u>https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS</u>)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <u>https://library.usask.ca/academic-integrity#AboutAcademicIntegrity</u>

You are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <u>https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial</u>

Safety:

Safety is of paramount importance in the College. Students are expected to work in a safe and responsible manner, to follow all safety instructions, and use any specified personal protective equipment. Students failing to behave in a safe manner will be asked to leave.

Recording Lectures:

Lecture may be recorded, when possible, and made available on Blackboard. Lecture recordings are property of the instructor and must not be made available outside of the course website.

Copyright:

Course materials are provided to students based on their registration in a class. Any materials created by course instructors is the intellectual property of the instructors. This includes exams, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to students based on license terms and educational exceptions in the Canadian Copyright Act (see http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

Before copying or distributing others' copyright-protected materials, students need to ensure that their use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at http://www.usask.ca/copyright/basics/copyright-policy/fair-dealing-guidelines/index.php. For example, posting others' copyright-protected materials on the internet is not covered under the University's Fair Dealing Copyright Guidelines; doing so requires permission from the copyright holder. For more information about copyright, please visit

<u>http://www.usask.ca/copyright/students/rights/index.php</u> or contact the University's Copyright Coordinator at <u>copyright.coordinator@usask.ca</u>.

Students should be aware that a violation of the university's copyright policies could be an instance of non-academic misconduct. For example, the practice of uploading or posting copyright-protected materials to course-sharing websites, depositories, or "drop boxes", without the permission of the copyright holder, could result in a charge of non-academic misconduct under the university's "Standard of Student Conduct in Non-Academic Matters", found at the following location: <u>https://secretariat.usask.ca/student-conduct-appeals/non-academic-misconduct.php</u>.

Student Conduct:

Ethical behaviour is an important part of engineering practice. Each professional engineering association has a Code of Ethics, which its members are expected to follow. Since students are in the process of becoming Professional Engineers, it is expected that students will conduct themselves in an ethical manner.

The APEGS (Association of Professional Engineers and Geoscientists of Saskatchewan) Code of Ethics states that engineers shall "conduct themselves with fairness, courtesy and good faith towards clients, colleagues, employees and others; give credit where it is due and accept, as well as give, honest and fair professional criticism" (Section 20(e), The Engineering and Geoscience Professions Regulatory Bylaws, 1997).

The first part of this statement discusses an engineer's relationships with his or her colleagues. One of the ways in which engineering students can demonstrate courtesy to their colleagues is by helping to maintain an atmosphere that is conducive to learning, and minimizing disruptions in class. This includes arriving on time for lectures, turning cell phones and other electronic devices off during lectures, not leaving or entering the class at inopportune times, and refraining from talking to others while the instructor is talking.

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit https://students.usask.ca/health/centres/access-equity-services.php, or contact AES at 306-966-7273 or access-equity-services.php, or contact AES at 306-966-7273 or access-equity-services.php, or contact AES

Students registered with AES may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Support Services for Engineering Students:

• Engineering Student Centre (Rm. 2A05 Engineering Building)

 Email: <u>esc@usask.ca</u>; Phone: 306-966-5274; <u>https://engineering.usask.ca/contact_info/esc-office.php</u>

End of day tutorial sessions will be offered by the College of Engineering for the Common First Year and will provide support for all courses. Please see X for more details.

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <u>https://library.usask.ca/studentlearning/</u>.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <u>https://students.usask.ca/</u>.

College of Engineering Attribute Mapping:

This information shows the relationship of the learning outcomes of this course to the graduate attributes intended upon students' completion of the degree program. This information is used for accreditation purposes.

Learning	Attribute [†]											
Outcome	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
1	D											D
2	D	D	D									
3	Ι	Ι	Ι									
4	Ι	Ι	Ι									
5	Ι	Ι	Ι									
6	Ι	Ι	Ι									
7	D	D	D									
8	Ι	Ι	Ι									
9	Ι											Ι

†<u>Attributes</u>:

- A1 A knowledge base for engineering
- A2 Problem analysis
- A3 Investigation
- A4 Design
- **A5** Use of engineering tools
- A6 Individual and team work
- A7 Communication skills
- A8 Professionalism
- A9 Impact of engineering on society and the environment
- A10 Ethics and equity
- A11 Economics and project management
- A12 Life-long learning

[‡]Instructional Level:

Introduced (I) – Students learn the working vocabulary of the area of content, along with some of the major underlying concepts.

Developed (D) – Students use their working vocabulary and major fundamental concepts to probe more deeply, to read the literature, and to deepen their exploration of the concepts. They may begin to practice, extend, or refine knowledge in familiar contexts.

Applied (A) – Students approach mastery in the area of content. They explore deeply into the discipline and experience the controversies, debate, and uncertainties that characterize the leading edges of any field. They practice, extend, or refine knowledge in unfamiliar contexts.

Accreditation Unit (AU) Mapping: (% of total class AU)

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
0%	100%	0%	0%	0%

Accreditation Data Collection and Privacy:

Undergraduate programs in the College of Engineering are accredited by the Canadian Engineering Accreditation Board. Student performance data may be collected in this course to support accreditation and continuous program improvement processes. Anonymous samples of student work may also be collected for accreditation purposes. All data provided to the accreditation body or external entities is anonymized and reported in aggregate form to protect your information and identity. If you have any concerns about how your personal information is used or maintained, please contact the Associate Dean Academic, College of Engineering.

UNIVERSITY COUNCIL ACADEMIC PROGRAMS COMMITTEE REPORT FOR INFORMATION

PRESENTED BY:	Susan Detmer, chair, academic programs committee
DATE OF MEETING:	June 18, 2020
SUBJECT:	Bachelor of Science (Biomedical Science) in Interdisciplinary Biomedical Science

COUNCIL ACTION: For Information Only

SUMMARY:

Approval for new degree-level programs for which an approved template exists has been delegated to the academic program committee by University Council. The template for majors for the Bachelor of Science (Biomedical Science) program was approved at University Council in April 2020.

At its May 27, 2020 meeting, the academic programs committee approved the following motions:

• That the Academic Programs Committee approve the Bachelor of Science (Biomedical Science) in Interdisciplinary Biomedical Sciences program, effective May 2021.

Since 2018, the departments and programs in the biomedical sciences have been merged to create more robust and multidisciplinary programs. The new major in Interdisciplinary Biomedical Sciences is a collaboration between the departments to create a novel multi-disciplinary undergraduate program that will position students for careers in the biomedical sciences and health-related professions.

The new program will be attractive for students seeking entry into health-related professional programs, like Medicine, Pharmacy, and Dentistry, as it will focus on a greater breadth of learning across the biomedical disciplines.

The new program adheres to the program requirements outlined in the template for Bachelor of Science (Biomedical Science) programs.

ATTACHMENTS:

1. Proposal for Academic or Curricular change – Major in Interdisciplinary Biomedical Sciences



Proposal for Academic or Curricular Change

PROPOSAL IDENTIFICATION

Title of proposal: Major in Interdisciplinary Biomedical Sciences

Degree(s): Bachelor of Science

Field(s) of Specialization: Interdisciplinary Biomedical Sciences

Level(s) of Concentration: Honours, Four-year

Degree College: Arts & Science

Contact person(s) (name, telephone, fax, e-mail):

Dr. Scott Napper

Faculty; Department of Biochemistry, Microbiology, and Immunology; College of Medicine Scientist and Science Management; Vaccine and Infectious Disease Organization-International Vaccine Research Center University of Saskatchewan Tel: (306) 966-1546; e-mail: scott.napper@usask.ca

Dr. Thomas Fisher

Department Head; Department of Anatomy, Physiology, and Pharmacology College of Medicine University of Saskatchewan Tel: (306) 966-6528; e-mail: <u>thomas.fisher@usask.ca</u>

Dr. Bill Roesler

Department Head; Biochemistry, Microbiology, and Immunology College of Medicine University of Saskatchewan Tel: (306) 966-4375; e-mail: bill.roesler@usask.ca

Proposed date of implementation: May 2021

In 2018, the five biomedical science departments merged to form two departments (Anatomy, Physiology, and Pharmacology (APP) and Biochemistry, Microbiology, and Immunology (BMI)) of more robust structure and multi-disciplinary capacity. These departments now seek to collaborate towards the creation of a novel undergraduate program of Interdisciplinary Biomedical Sciences (ID BMSC) that will enable cutting-edge, multi-disciplinary training that position our students for careers in the biomedical sciences as well as health-related professions.

i) Program Objectives:

- provide learners with student-centric, multidisciplinary training.
- inspire and enable careers within a spectrum of science-based activities.
- develop skills that will serve them well in the workplace, namely critical thinking skills, communication (written and oral), collaboration and teamwork.
- provide students with a strong basis in the foundational sciences (anatomy, physiology and pharmacology) that are critical to success in studying health professional programs.
- provide a strong foundational basis in biomedical sciences and research skills as well as serve as an inspiration for those students considering graduate training.
- provide students with experiential learning opportunities.
- reflect modern priorities in biomedical science education.
- attract top-tier students, both nationally and internationally.
- bolster the research capacities of our faculty.
- enable enrollment growth for the U of S.
- **ii) Demand:** On average, about 180 students enter the second year of the current biomedical science programs with about 800 students total in years 2-4 of the various biomedical sciences majors. These numbers have remained fairly steady for the last 6 years. Students who are seeking entry into health-related professional programs (like Medicine, Pharmacy, and Dentistry) are likely better served by a greater breadth, as opposed to depth, of biomedical sciences training within their undergraduate programs. As such, the Interdisciplinary Biomedical Sciences program is anticipated to be popular with a significant portion of our current students as well as to attract new students.
- iii) Uniqueness: Many Canadian Universities, in particular those with Medical Schools, offer majors/degrees within the biomedical sciences. Further, many Canadian Universities have moved towards a multidisciplinary approach to biomedical science education. Several Canadian Universities have already adopted biomedical science structures which are similar to the program proposed here. These models show a shared priority for multidisciplinary training, including the introduction of Interdisciplinary Biomedical Sciences or Interdisciplinary Medical Science degrees that are similar in scope and philosophy to this proposal. The ID BMSC program is essential for us to compete with these schools, both for retention of local students as well as to attract students on national and international scales. When we are clearly part of this group, there is the opportunity to differentiate our program and campus by virtue of infrastructure strengths, including the Canadian Light Source (CLS), the Vaccine and Infectious Disease Organization-International Vaccine Centre (VIDO-InterVac), and the new Health Sciences building.
- iv) Student Outcomes (employment or academic opportunities): Within this new major there is enhanced priority on multi-disciplinary training, critical thinking, and experiential learning with

the goal to inspire and enable careers within a spectrum of science-based activities as well as providing an educational foundation for entry in health-related professional colleges.

- v) Expertise of Sponsoring Unit: Within the two newly merged biomedical science departments there is a wealth of collective expertise, and established courses, to serve as the foundation an Interdisciplinary Biomedical Science program. Further, the ID BMSC program also introduces two new core courses in Epidemiology and Pathology, courses that will be enabled through partnerships within the Departments of Community Health and Epidemiology and Pathology.
- vi) Relationship to Strategic Plans of the College and University: The proposed BMSC program reflects the strategic priorities of the University and participating Colleges. Specifically, the ID BMSC Program is a shining example of the University priority towards collaboration. This new major have tremendous potential to increase enrollment and additional efforts will be made to increase the number of Indigenous students. Finally, the ID BMSC Program enables University and College priorities for strengthening research capacity by implementing a strong biomedical science program that better stimulates graduate student and faculty research programs.

The ID BMSC major directly aligns with the strategic plans of the university and COM, in particular to strengthen research capacity and to grow a strong cohort of excellent learners/researchers who will enhance both health science professional and graduate programs. Our goal is to implement undergraduate majors that stimulate graduate student and faculty research programs. The ID BMSC program builds upon an existing infrastructure of classes so the introduction of the program can be achieved within current teaching assignments.

Resources:

Resources will be handled within the current budgets of the Biomedical Sciences Departments (Anatomy, Physiology, and Pharmacology; and Biochemistry, Microbiology and Immunology) in the College of Medicine.

See Multi-year Budget and Financial Analysis in the B.Sc. (BMSC) template proposal.

Supporting documents:

The Notice of Intent, letters of support from the Colleges, and response from the Planning and Priorities Committee of Council are included in the B.Sc. (BMSC) template proposal.

College Statement

From Gordon DesBrisay, Vice Dean Academic

I am pleased to confirm that the College of Arts and Science supports the creation of a new Bachelor of Science (Biomedical Science), Type M, template to be used for the Biochemistry, Microbiology, and Immunology; Biomedical Foundations; Biomedical Neuroscience; Cellular, Physiological, and Pharmacological Sciences; and (proposed) Interdisciplinary Biomedical Sciences majors.

The College of Arts and Science is working to provide innovative program options that meet student need and demand. The new, template will allow the link between the Biomedical Science programs to be more evident to those not familiar with these programs, and will allow these programs to implement admissions requirements which differ from those in place for the Bachelor of Science, Type C, programs.

The Academic Programs Committee (BSc) approved the proposals to create the Type M template and the Interdisciplinary Biomedical Sciences major on February 27, 2020, as did the College Faculty Council through remote voting held on March 19-20, 2020.

Program Description

Interdisciplinary Biomedical Sciences

The Departments of Anatomy, Physiology, and Pharmacology and Biochemistry, Microbiology, and Immunology offer a program that enables cutting-edge, multi-disciplinary training that positions graduates for careers in the biomedical sciences as well as health-related professions. This program includes necessary courses for students who wish to enter graduate studies in biomedical sciences and into health-related professional schools such as Medicine, Dentistry, Veterinary Medicine and Pharmacy.

The five B.Sc. degree programs listed below share a set of courses (the Biomedical Science Common Core) which are to be taken in years 1 & 2. These courses have been incorporated into the M1, M3, and M4 requirements.

Biochemistry, Microbiology & Immunology Biomedical Foundations Biomedical Neuroscience Cellular, Physiological and Pharmacological Sciences Interdisciplinary Biomedical Sciences

Major Average

The major average in Interdisciplinary Biomedical Sciences programs includes the grades earned in:

- All courses listed in the Core Requirement M4
- All courses listed in the Major Requirement M5.

Residency Requirements in the Major

To receive a degree in Interdisciplinary Biomedical Sciences, students must complete at least two-thirds of the following coursework (to the nearest highest multiple of 3 credit units) from the University of Saskatchewan.

• Minimum requirements in Core Requirement M4 and the Major Requirement M5.

See <u>Residency</u> for additional details.

Bachelor of Science (BMSC) Honours (B.Sc. (BMSC) Honours) – Interdisciplinary Biomedical Sciences

No more than 6 credit units from one subject may be used in Requirements M1 to M3.

M1 College Requirement (15 credit units)

English Language Writing

Choose 6 credit units from the following:

Approved list

Indigenous Learning

.

Choose 3 credit units from the following:

Approved list

Quantitative Reasoning

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

- MATH 110.3 Calculus I
- MATH 125.3 Mathematics for the Life Sciences

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

- <u>STAT 245.3</u> Introduction to Statistical Methods
- <u>STAT 246.3</u> Introduction to Biostatistics
- <u>PLSC 214.3</u> Statistical Methods

M2 Breadth Requirement (3 credit units)

Choose **3 credit units** from the following areas.

Fine Arts Humanities Social Sciences Courses with No Program Type

M3 Cognate Requirement (21 credit units)

- BIOL 120.3 The Nature of Life
- <u>CHEM 112.3</u> General Chemistry I Structure Bonding and Properties of Materials
- <u>CHEM 115.3</u> General Chemistry II Chemical Processes
- PHYS 115.3 Physics and the Universe
- <u>PHYS 117.3</u> Physics for the Life Sciences or <u>PHYS 125.3</u> Physics and Technology

Required Cognate Courses

• PHIL 140.3 Critical Thinking

Choose 3 credit units from the following:

- HLST 110.3 Introduction to Health Studies
- <u>PSY 120.3</u> Biological and Cognitive Bases of Psychology
- <u>PSY 121.3</u> Social Clinical Cultural and Developmental Bases of Psychology
- <u>SOC 111.3</u> Foundations in Sociology Society Structure Process
- <u>SOC 112.3</u> Foundations in Sociology Social Construction of Everyday Life

M4 Core Requirement (24 credit units)

- BMSC 200.3 Biomolecules
- BMSC 207.3 Human Body Systems I
- BMSC 208.3 Human Body Systems II
- BMSC 210.3 Microbiology
- BMSC 220.3 Cell Biology
- BMSC 230.3 Metabolism
- <u>BMSC 240.3</u> Laboratory Techniques
- <u>CHEM 250.3</u> Introduction to Organic Chemistry

M5 Major Requirement (42 credit units)

- <u>BMSC 320.3</u> Nucleic Acids from Central Dogma to Human Disease
- BMSC 350.3 Introduction to Epidemiology
- CPPS 405.3 (Current Topics in Cellular Physiological and Pharmacological Sciences) or NEUR 405.3 Current Topics in Neuroscience
- CPPS 337.3 Evidence Based Medicine
- MCIM 321.3 Principles of Immunology
- PATH 205.3 Survey of Pathology
- PHPY 304.3 Pharmacology I

Choose 3 credit units from the following:

- <u>ACB 331.3</u> Methods in Cell and Developmental Biology
- BIOC 310.3 Proteins and Enzymes
- BMIS 340.3 Introduction to Experimental Molecular Biology
- <u>MCIM 390.3</u> Experimental Microbiology and Immunology
- <u>PHPY 308.3</u> Experimental Basis of Physiology and Pharmacology

Choose 6 credit units from the following :

- <u>BMIS 489.6</u> Research Project in Biochemistry Microbiology and Immunology
- <u>CPPS 432.6</u> Undergraduate Research Project in Cellular Physiological and Pharmacological Sciences
- <u>NEUR 432.6</u> Undergraduate Research Project in Neuroscience

Within the following requirements, at least 6 credit units must be at the 400-level: Choose **6 credit units** from the following:

- ACB 300-Level, 400-level
- CPPS 300-Level, 400-Level
- NEUR 300-Level, 400-level
- PHPY 300-Level, 400-level

Choose 6 credit units from the following:

- BIOC 300-Level, 400-level
- BMIS 300-Level, 400-level
- BMSC 300-Level, 400-level
- MCIM 300-Level, 400-level

M6 Electives Requirement (15 credit units)

Arts and Science courses, or those from other Colleges that have been approved for Arts and Science credit, to complete the requirements for 120 credit unit Four-year program, of which at least 66 must be at the 200-level or higher.

Students are recommended to choose at least one of the following courses:

- <u>BINF 200.3</u> Introduction to Bioinformatics
- BINF 210.3 Introduction to Bioinformatics Applications

Bachelor of Science (BMSC) Four-year (B.Sc. (BMSC) Four-year) – Interdisciplinary Biomedical Sciences

No more than 6 credit units from one subject may be used in Requirements C1 to C3.

M1 College Requirement (15 credit units)

English Language Writing

Choose 6 credit units from the following:

Approved list

Indigenous Learning

.

.

Choose 3 credit units from the following:

Approved list

Quantitative Reasoning

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

- MATH 110.3 Calculus I
- <u>MATH 125.3</u> Mathematics for the Life Sciences

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

- <u>STAT 245.3</u> Introduction to Statistical Methods
- <u>STAT 246.3</u> Introduction to Biostatistics
- PLSC 214.3 Statistical Methods

M2 Breadth Requirement (3 credit units)

Choose 3 credit units from the following areas.

Fine Arts Humanities Social Sciences Courses with No Program Type

M3 Cognate Requirement (21 credit units)

- BIOL 120.3 The Nature of Life
- <u>CHEM 112.3</u> General Chemistry I Structure Bonding and Properties of Materials
- <u>CHEM 115.3</u> General Chemistry II Chemical Processes
- PHYS 115.3 Physics and the Universe
- <u>PHYS 117.3</u> Physics for the Life Sciences or <u>PHYS 125.3</u> Physics and Technology

Required Cognate Courses

• PHIL 140.3 Critical Thinking

Choose 3 credit units from the following:

- HLST 110.3 Introduction to Health Studies
- <u>PSY 120.3</u> Biological and Cognitive Bases of Psychology
- <u>PSY 121.3</u> Social Clinical Cultural and Developmental Bases of Psychology
- <u>SOC 111.3</u> Foundations in Sociology Society Structure Process
- <u>SOC 112.3</u> Foundations in Sociology Social Construction of Everyday Life

M4 Core Requirement (24 credit units)

- BMSC 200.3 Biomolecules
- BMSC 207.3 Human Body Systems I
- BMSC 208.3 Human Body Systems II
- BMSC 210.3 Microbiology
- BMSC 220.3 Cell Biology
- BMSC 230.3 Metabolism
- <u>BMSC 240.3</u> Laboratory Techniques
- <u>CHEM 250.3</u> Introduction to Organic Chemistry

M5 Major Requirement (36 credit units)

- BMSC 320.3 Nucleic Acids from Central Dogma to Human Disease
- BMSC 350.3 Introduction to Epidemiology
- CPPS 405.3 (Current Topics in Cellular Physiological and Pharmacological Sciences) or NEUR 405.3 Current Topics in Neuroscience
- CPPS 337.3 Evidence Based Medicine
- MCIM 321.3 Principles of Immunology
- PATH 205.3 Survey of Pathology

• PHPY 304.3 Pharmacology I

Choose 3 credit units from the following:

- ACB 331.3 Methods in Cell and Developmental Biology
- <u>BIOC 310.3</u> Proteins and Enzymes
- BMIS 340.3 Introduction to Experimental Molecular Biology
- <u>MCIM 390.3</u> Experimental Microbiology and Immunology
- <u>PHPY 308.3</u> Experimental Basis of Physiology and Pharmacology

Within the following requirements, at least 6 credit units must be at the 400-level: Choose **6 credit units** from the following:

- ACB 300-Level, 400-level
- CPPS 300-Level, 400-Level
- NEUR 300-Level, 400-level
- PHPY 300-Level, 400-level

Choose 6 credit units from the following:

- BIOC 300-Level, 400-level
- BMIS 300-Level, 400-level
- BMSC 300-Level, 400-level
- MCIM 300-Level, 400-level

M6 Electives Requirement (21 credit units)

Arts and Science courses, or those from other Colleges that have been approved for Arts and Science credit, to complete the requirements for 120 credit unit Four-year program, of which at least 66 must be at the 200-level or higher.

Students are recommended to choose at least one of the following courses:

- BINF 200.3 Introduction to Bioinformatics
- BINF 210.3 Introduction to Bioinformatics Applications

UNIVERSITY COUNCIL GOVERNANCE COMMITTEE REQUEST FOR DECISION

PRESENTED BY:	Stephen Urquhart, chair, Governance Committee
DATE OF MEETING:	June 18, 2020
SUBJECT:	Principles for federation and affiliation with the University of Saskatchewan (USask)

DECISION:

(URQUHART/MOUSSEAU): It is recommended that Council approve the principles for federation and affiliation with USask as Part III Section X.3 of the Council Bylaws as attached, effective June 30, 2020, and recommend to the Board of Governors and Senate the adoption of these principles.

PURPOSE:

The purpose of this notice of motion is to request that University Council approve the principles for federation or affiliation with the USask and incorporate them into Council's bylaws, thereafter recommending their adoption also the Board of Governors and Senate.

Upon approval by University Council, requests for new federations or affiliations with USask would be considered in alignment with these principles.

DISCUSSION SUMMARY:

The Governance Committee of Council is responsible for periodically "reviewing the Bylaws of Council and recommending to Council revisions to the Bylaws." Within the purview of the Council Bylaws are the agreements with the federated and affiliated colleges. The motivation for this submission is a commitment to continuing these relationships and strengthening them into the future.

Through federations and affiliations, there is the potential to develop new academic, administrative and cultural arrangements and partnerships to enhance the student experience, research pre-eminence, and the reputation of the university. However, it is not apparent that any guiding principles or criteria have previously been used by the university when deciding to enter into a new partnership. Over its history, the University of Saskatchewan has entered into a number of relationships with other post-secondary institutions in the province. At present, there is one federated college – St. Thomas More College – and there are seven affiliated colleges. The genesis and evolution of the relationships show considerable variation, and the components of each relationship are distinctive.

By way of background, in May 2017, the Governance Committee of Council requested that an examination of the current relationships between USask and the federated and affiliated colleges. The review was completed in August 2017 by Dan Perrins. This report was the subject of discussion at several meetings of the Governance Committee through 2018/19. Partly in response to the findings, but more so in the overall interest of the university, principles for federation and affiliation were then drafted and considered at two meetings of the Governance Committee in 2019/20.

On December 19, 2019, the Governance Committee presented these draft principles as a request for input to University Council. On January 28, 2020, the Governance Committee shared the "Perrins Report" on federation and affiliation along with the draft principles with the federated and affiliated colleges, specifically requesting their input and feedback.

In February 2020, the Governance Committee received feedback from the federated college, St. Thomas Moore, and three of the affiliated colleges, i.e. St. Andrew's College, Horizon College & Seminary, and Lutheran Theological Seminary. In summary, the response was supportive of the principles, and positive about the relationship between USask and the federated and affiliated colleges. A few suggestions will require follow-up for the operationalization of the principles:

- An office/officer should be identified for the maintenance of the relationship between institutions. This will be referred to the provost and vice-provost, teaching learning and student experience.
- Commitments to the principles should be expressed in formal MOUs between the university and these colleges.
- A Council of Affiliated and Federated Institutions (CAFI) will be established. This is expressed and committed under principle 8.

On April 21, 2020, the Governance Committee approved a motion to recommend to Council that the attached principles for federation and affiliation be adopted, and that they be similarly recommended by Council to the Board of Governors and Senate for adoption.

The notice of motion of a change to the Council Bylaws was properly presented to University Council on May 21, 2020.

FURTHER ACTION REQUIRED:

• The principles will also be presented to the university Board of Governors and Senate for input and adoption.

ATTACHMENT:

1. Draft principles for federation and affiliation (see agenda item 10.5 for incorporation of the principles into the revisions to the Council Bylaws)

ATTACHMENT 1

UNIVERSITY OF SASKATCHEWAN Statement of Principles for Affiliation and Federation Relationships

At present, USask has one federated college and seven affiliation relationships as follows:

- St. Thomas More College (federated);
- Gabriel Dumont College (affiliated);
- St. Peter's College (affiliated);
- St. Andrew's College (affiliated);
- Briercrest College and Seminary (affiliated);
- Horizon College and Seminary (affiliated);
- Lutheran Theological Seminary (affiliated); and
- College of Emmanuel and St. Chad (affiliated).

The following principles are representative of the current relationships with federated and affiliated colleges, and are suggested as a basis for considering future requests to enter into a relationship of affiliation or federation.

General Principles

1. Relationships of affiliation or federation should be based on academic interests shared by the university and the candidate institution. Though it is possible to conceive of many reasons for entering into partnerships or collaborative relationships with other institutions – sharing space or other resources or joining together in government relations initiatives, for example – the particular relationship of affiliation or federation should be founded in common academic goals and interests, such as programming for students or advancing a research agenda.

2. Relationships of affiliation or federation should be based on shared support for the university's vision, mission and values. The governing bodies of the University of Saskatchewan have adopted a statement setting out the vision, mission and values that will guide the institution. Though the university cannot require that other institutions are guided by identical values or an identical mission, the university can only enter into relationships of affiliation or federation on terms that are consistent with the values held by the university and the vision it has adopted.

3. The university should approach the request for a relationship of federation or affiliation in a spirit of respect for the distinctive history, traditions and achievements of the candidate institution. Though the university should not enter into relationships of affiliation or federation on terms that undermine the stated vision, mission and values of the institution, the university should not demand that an affiliated or federated institution conform in all respects to the university's established practices and procedures. The rationale for creating relationships of affiliation or federation is in part that the university is enriched by the distinctive perspectives brought by the partner institutions.

4. The significant elements of a relationship of affiliation or federation should be reflected, insofar as possible, in written agreements. Though strong partnerships are marked by flexibility,

informality and vigorous personal connections, it is important that the basic terms to which the partners have agreed are clearly documented in writing.

5. Consideration should be given to the reciprocal contributions that can be made by the university and the candidate institution. Though the university is likely to be the larger partner in these relationships, the formation of the partnership should take into account fully the contributions both parties can make to the lives of their respective institutions.

6. Provision should be made for regular review of the relationship with the candidate institution. The potential for refreshing and reforming the relationship should be provided for through a regular cycle of reviews. Academic institutions are not stagnant, and their relationships should be examined on occasion to ensure that the goals for the partnerships are being met effectively.

7. Consideration should be given to developing clear pathways for students between programs offered by the university and the candidate institution. In keeping with the obligation of post-secondary institutions to support the career aspirations of their students, the question of whether a relationship of affiliation or federation provides an opportunity to establish academic pathways or ladders for students should be a factor in defining the relationship.

8. Consideration should be given to the role the candidate institution might play in the governing bodies of the university. The *University of Saskatchewan Act 1995* provides that affiliated and federated institutions have representation on both Council and the Senate. The partners should consider how this opportunity to participate in university governance can be most effectively deployed. A Council of Affiliated and Federated Institutions (CAFI) will be established to that effect.

9. Consideration should be given to whether an alternative form of partnership might be more appropriate. Given the involvement of affiliated and federated institutions in university governance, it is clearly contemplated that these relationships will be of a comprehensive nature. Where the interest of the parties is restricted to individual programs or projects, there may be other forms of relationship that are more appropriate.

10. The academic standards and integrity of the candidate institution should be a factor in determining whether the university will enter into a relationship of affiliation or federation. It is important to the university that any candidate institution be able to demonstrate standards of academic attainment and institutional integrity that will be consonant with the level of expectation to which the university holds itself.

UNIVERSITY COUNCIL GOVERNANCE COMMITTEE REQUEST FOR DECISION

PRESENTED BY:	Stephen Urquhart, chair Governance Committee	
DATE OF MEETING:	June 18, 2020	
SUBJECT:	Revisions to Council Bylaws	

DECISION REQUESTED:

(URQUHART/MOUSSEAU): It is recommended that Council approve the changes to standing committees' terms of reference, the removal of gendered language, and typographical, formatting, and organizational refinements in the Council Bylaws as attached, effective June 30, 2020.

PURPOSE:

To update the University Council Bylaws, including standing committee's terms of reference, and to remove gendered language. (The Governance Committee's terms of reference are considered separately under item 11.3 in this June 18, 2020 agenda package.)

DISCUSSION SUMMARY:

The governance committee of Council is responsible for periodically "reviewing the membership, powers and duties of committees of Council and recommending to Council revisions to the membership, powers and duties of committees." In keeping with this responsibility, on November 19, 2020, the Governance Committee asked the chairs of all of the standing committees of Council to undertake a review of their terms of reference with the goal of presenting the recommended changes to Council for approval before the end of the 2019-20 academic year.

Council committees were asked to contemplate changes with an eye to the following principles:

1) Membership reflecting shared governance

Committee membership should reflect the principle that academic governance is shared governance, with membership consisting of the academic administrators, faculty and students. Composition of committee membership should not greatly deviate from the overall membership of council (for USask members, approximately 2/3 faculty members, and the remaining 1/3 consisting of academic administrators and students, as determined by the University of Saskatchewan Act, 1995).

Any restrictions on membership should be consistent with the committee's mandate and the principles of shared academic governance. Voting and non-voting membership should be clearly identified.

2) Action-oriented governance role

The terms of reference of Council committees should reflect the committee's purpose to facilitate the work of Council in overseeing and directing the university's academic affairs. Terms of reference should be 'action oriented' towards this governance role, but not stray into administrative work.

Committees were asked to consider how their terms of reference may result in an action (report to Council, advice provided, policy review and revision, program or centre approval, etc.) or are passive functions (receipt of reports and presentations).

In summary, the following changes were made to standing committee terms of reference:

- All administrator position titles were updated
- The Planning and Priorities Committee updated the language used to describe financial information it reviews and added a statement that it is responsible for considering EDI in all processes and matters coming before it
- RSAW's membership removed one of two associate deans of research, and added the dean of the Library as an *ex officio* voting member

A notice of motion to amend the University Council Bylaws was duly presented to Council on May 21, 2020.

FURTHER ACTION REQUIRED:

Following approval, to update the Council Bylaws on the University Council website.

ATTACHMENT:

1. Tracked changes of updates to University Council Bylaws



Council Bylaws and Regulations

April 15, 1999 with revisions September 1999; October 2000; May, September 2001;
February, March, June, October, November, December 2002; February, May, June, Sept.
2003; January, May, June, September 2004; January, February, April, June, September 2006; January, May, June, October, December 2007; March, June, October 2008;
February, March 2009; May, October 2010; January, February, May, June 2011; March, June, September 2012; January, April, June, December 2013; June, December 2014; January, February, March, May, September 2015; January, February, April, May, November 2016; February, March, August, November, December 2017; April, May, July 2018; September, December 2019; February 2020, June 2020 (TBC)

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PART ONE

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PART ONE

I. CONSTITUTIONAL POWERS AND DUTIES OF COUNCIL

The University of Saskatchewan Act, 1995, S.S. 1995, c. U-6.1 prescribes the constitution, powers_ and duties of Council. Section 60 of the Act provides that Council is responsible for "overseeing and directing the university's academic affairs." Section 61 provides a list of specific matters that fall within the jurisdiction of Council.¹ These include the following: (the list is not exhaustive)

- grant academic degrees, diplomas and certificates of proficiency;
- grant scholarships, prizes, fellowships, bursaries and exhibitions;
- authorize the Board on academic grounds to establish or disestablish a college, school, department, chair or institute;
- authorize the Board on academic grounds to provide for or to dissolve affiliation or federation with another educational institution;
- prescribe curricula, programs of instruction and courses of study;
- prescribe methods and rules for evaluating student performance;
- discipline students for academic dishonesty;
- prescribing academic and other qualifications for admission;
- hear appeals by students or former students concerning academic decisions affecting them;
- prescribe the number of students to be admitted to a college or program;
- review library policies;
- review the physical and budgetary plans for the university and make recommendations respecting those matters to the President or the Board;
- exercise power that the Board or Senate may delegate to it;
- appoint members to committees composed of members of Council and any or all of the Board, the Senate and the General Academic Assembly;
- make bylaws governing election of members;
- make bylaws respecting any matter over which it has jurisdiction;
- make recommendations to the President, the Board or Senate respecting any matter that Council considers to be in the interests of the University;
- do anything that it considers necessary, incidental or conducive to the exercise of its powers to promote the best interests of the University or to carry out the purposes of the Act.

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¹ The exercise of some of these powers is subject to review by the General Academic Assembly and, in some cases, involves the Board of Governors or the Senate.

II. ELECTION OF FACULTY MEMBERS TO COUNCIL

- The University Secretary will oversee the call for nominations and election of members of Council as provided in section 57(1) of *The University of Saskatchewan Act*, 1995.
- 2. The Act defines a faculty member as "a person who is employed on a full-time basis by the university or an affiliated or federated college and who serves as a professor, associate professor, assistant professor, lecturer, full-time special lecturer, full-time instructor, or librarian."
- A faculty member may choose to stand for election under <u>one</u> of the following sections:
 - (a) Section 53(2)(b), [53(2)(d) in the case of Librarian]

"one faculty member representing each college or affiliated and federated college who is a member of the college and who has been elected by the members of the college;"

(b) Section 53(2)(c), [53(2)(e) - in the case of Librarian]

"one representative, in addition to the member mentioned in clause (b), representing each college or affiliated and federated college who is either:

(i) the dean of the college, or a member of the college, who has been	
elected by the members of the college; or	

(ii) if there is no election, the dean of the college;"

(c) Section 53(2)(i)

"54 faculty members who have been elected by faculty members."

- Nominations will be made using the form provided by the Secretary A nomination will be endorsed by the nominee and will confirm their eligibility and willingness to stand for election.
- 5. Once the deadline for nominations has passed, the Secretary will conduct elections by making ballots available to all eligible voters for positions referenced in sections 53(2)b, c, d, e, and i.
- If there is a nomination or nominations under section 53(2)(c), or 53(2)(e), the dean of the college or Dean, University Library, as the case may be, will be so informed and asked if <u>they</u> wish to stand for election under this section.
- 7. In the event that insufficient nominations are received for faculty members at large under Section 53(2)(i) to fill the vacant positions, then those nominees whose nominations were received by the deadline will be considered elected by acclamation, and a second call for nominations will be sent.
- 8. In the event that insufficient nominations are received to fill the vacant positions for faculty members at large under Section 53(2)(i) following a second call for

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- 9. In the event that no nominations are received by the deadline for a College representative under Section 53(2)(b) or for a librarian under Section 53(2)(d), then a second call for nominations will be sent.
- 10. If after two calls for nominations no candidate comes forward for a College representative under Section 53(2)(b) or for a librarian under Section 53(2)(d), then the dean or the college committee charged with nominations will be asked to ensure that a candidate is nominated. The Secretary will run the election in the event that more than one nominee comes forward for a position from that process.
- 11. In the event that two or more nominees with the most votes receive the same number of votes, the Secretary will select the elected member from among those nominees by lot.
- 12. Candidates on the voting list who receive the greatest number of votes are elected to Council effective July 1 Should candidates so elected decline or otherwise be unable to accept a position on Council, such positions shall continue to be filled by those unelected candidates that received the greatest number of votes.
- 13. A vacancy on Council for a college representative under Section 53 (2) (b) or (c), a librarian under Section 53 (2) (d) or (3) or a faculty member under Section 53 (2) (i) shall be filled by an election held within 90 days of the vacancy, if the vacancy occurs within 27 months of that member being elected A vacancy arising after that time shall be filled at the next annual election.

III. PROCEDURAL BYLAWS OF COUNCIL

1. Quorum for Meetings

(a) The quorum for regular and special meetings will be 40%.

2. The Duties of <u>Chair</u> and Vice-<u>Chair</u>

- (a) The duties of the <u>Chair</u> will be carried out by the Vice-<u>Chair</u> when, for any reason, the <u>Chair</u> is unable to discharge these duties.
- (b) If the Vice-<u>Chair</u> is required to act as <u>Chair</u> for more than one month, the Nominations Committee shall present to Council for approval the name of a person to be acting Vice-<u>Chair</u> until the Vice-<u>Chair</u> is able to resume the position of Vice-<u>Chair</u>.
- (c) If the <u>Chair</u>, the Vice-<u>Chair</u> and the acting Vice-<u>Chair</u> are all unable to discharge the duties of the Chair, the Governance Committee shall name a member of Council to serve as Chair for a specified period of time.

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(d)	The Chair will preside over all meetings of Council. The Chair's duties are to	Deleted: Chairperson
. ,	preserve order and decorum and, subject to appeal, to decide all questions of order and other questions as provided in these bylaws.	Deleted: Chairperson
(e)	The <u>Chair</u> will prepare a draft agenda for each meeting of Council and will present it for approval at the meeting.	Deleted: Chairperson
(f)	The <u>Chair</u> will not vote on a motion before Council except when there is an equal number of voting members supporting and opposing the motion.	Deleted: Chairperson
(g)	The <u>Chair</u> may seek the guidance and assistance of the governance committee	Deleted: Chairperson
	with respect to matters pertaining to the role of the Chair.	Deleted: Chairperson
(h)	The <u>Chair</u> will be the spokesperson for <u>Council in communications</u> with the	Deleted: Chairperson
	Board, the Senate, the General Academic Assembly and the public. In this	Deleted: the
	respect, the role of the <u>Chair</u> is to explain the activities and to communicate the policies of Council.	Deleted: Chairperson
3.	Selection and Removal of the <u>Chair</u> and Vice- <u>Chair</u>	Deleted: Chairperson
		Deleted: Chairperson
(a)	The Chair and Vice-Chair will be selected as hereinafter provided.	Deleted: Chairperson
(b)	Thirty days prior to the deadline for receipt of nominations, the Secretary will	Deleted: Chairperson
(2)	inform all members of Council that nominations for the position of <u>Chair are being</u> requested and will provide a nomination form for this purpose.	Deleted: Chairperson
(c)	A Council member is nominated for the position of <u>Chair</u> when the nomination form referred to in (b) containing the consent of the nominee is endorsed by three members of <u>Council</u> and returned to the Secretary on or before the date specified by the Secretary <u>The nomination form will contain a brief description of the</u> nominee stating the nominee's qualifications for the position of <u>Chair</u> of <u>Council</u> .	Deleted: Chairperson Deleted: the Deleted: Deleted: Deleted: Deleted: Chairperson
(d)	Ten days prior to the date of the election, the Secretary will provide to all	Deleted: the
(u)	members of Council a ballot setting out the names of the nominees and the brief	Deleted: the
	description of each nominee referred to in $(c)_{\star}$ Information accompanying the ballot will indicate that the ballot is to be returned to the Secretary on or before the specified date.	Deleted:
(e)	All ballots received by the Secretary on or before the date referred to in (d) will be	
	reported by the Secretary to the next meeting of Council, The <u>Chair</u> of the Nominations Committee will determine whether an irregular ballot will be counted	Deleted: the
	and the effect of any other election irregularities. The Chair's decision will be	Deleted:
	final.	Deleted: Chairperson
		Deleted:
(f)	In the event that the two or more nominees with the most votes receive the same	Deleted: Chairperson
	number of votes, the <u>Chair</u> of the Nominations Committee will select the <u>Chair</u> by lot.	Deleted: Chairperson
		Deleted: Chairperson
(g)	In the event that no nominations are received by the deadline for nominations for Chair, a second call for nominations will be sent. If the second call for nominations does not elicit a nomination, then the Nominations Committee will be select to pominate a member of Council to some as Chair for a one year torm	Deleted:
	asked to nominate a member of Council to serve as Chair for a one-year term, and a call for nominations will go out the following year.	

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(h)	The Nominations Committee will nominate a member of Council to serve as Vice- Chair.	Deleted: Chairperson
(i)	The Chair and Vice-Chair will normally hold office for a period of 2 years.	Deleted: Chairperson
()		Deleted: Chairperson
(j)	Council may remove the Chair or Vice-Chair by a vote of 2/3 of the members of	Deleted: Chairperson
	Council present and voting.	Deleted: Chairperson
(k)	If the <u>Chair</u> is unable to discharge the duties associated with the position for	Deleted: Chairperson
	three months, the Governance Committee will present a motion to a meeting of Council asking for the removal of the <u>Chair</u> . A vote of 2/3 of the members of	Deleted: Chairperson
	Council present and voting shall be necessary for the passage of such a motion.	Deleted: the
	In the event such a motion is passed, an election will be held for a new <u>Chair</u> according to the procedures laid out in these bylaws.	Deleted: Chairperson
4.	Council Membership	
(a)	Annual elections for Council will be completed by March 31.	
(b)	Term of office for Council membership begins July 1 of the year of the member's election or appointment, other than student members.	
(c)	Terms of student members will be one year beginning May 1.	
(d)	When a person appointed to Council under Section 53 (2)(c)(ii) of the Act ceases to be a dean, the acting dean or a new dean appointed during the term of the incumbent dean will occupy the position of dean with voice and vote until the expiration of the incumbent dean's term on Council when a new election or appointment occurs.	
(e)	A vacancy occurs on Council when:	
	 a member resigns from Council or ceases to be an employee of the University, or 	
	(ii) a member is unavailable to attend meetings of Council for a period of	Deleted:
	greater than six months during their term.	Deleted: Deleted: his or her
(f)	All Council members, other than <i>ex officio</i> members, are also members of the student academic hearing and appeals committee, from which representatives for student disciplinary and appeal boards are selected. Members may decline to serve on a board when asked.	
5.	Council Meetings	
(a)	Council meetings will be open except when Council decides to have them closed.	
(b)	Council will meet monthly during the academic term (September - June) except	
	in February, The Chair can call a meeting during a month when a meeting is not normally scheduled,	Deleted:
		Deleted:
(c)	Attendees at Council meetings are expected to refrain from unauthorized audio or video recording of the proceedings and to respect the rulings of the Chair.	Deleted: Chairperson

(d) Special meetings of Council can be called by the <u>Chair</u> or by petition of 20% of the members of Council.

- (e) A motion to amend the bylaws will be preceded by a notice of motion presented in writing to the members not less than 30 days prior to the date of the meeting at which the motion is considered.
- (f) Except as provided in bylaws (e) and (h), a motion will be preceded by a notice of motion presented in writing to the members of Council not less than 10 days prior to the date of the meeting at which the motion is to be considered. This bylaw applies only to a motion dealing with a substantive matter which requires consideration by members of Council prior to the meeting at which the motion is presented. Whether or not a motion falls within this bylaw will be determined by the <u>Chair</u>.
- (g) The requirement of bylaw (f) may be suspended upon vote of two-thirds of the members present and voting at a meeting.
- (h) A recommendation to Council contained in a committee report is deemed to be a notice of motion if the report containing the recommendation is included with the agenda of the meeting at which the report is considered.
- (i) In the event of an emergency situation as declared jointly by the president and chair of Council or their respective delegates, if Council is unable to meet or attain quorum, Council may decide urgent matters by alternative means, Procedures governing such decisions are the responsibility of the governance committee.

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- (j) The meetings of Council and of committees of Council will be conducted in accordance with the rules of order contained in *Procedures for Meetings and Organizations, Third Edition by Kerr and King.*
- (k) Unless Council decides otherwise, the secretary of Council meetings shall be the University Secretary, or a member of the University Secretary's office as designated by the University Secretary.

IV. THE COMMITTEES OF COUNCIL

1. Creation and Composition of Council Committees

- (a) Council has the statutory power to establish committees to facilitate its work. There is no requirement that these committees be composed entirely of Council members.²_cCouncil is also empowered to appoint members of joint committees involving the Board, the Senate or the General Academic Assembly.
- (b) The committees specified in Part Two of these bylaws are created as standing committees.

² The only statutory restriction on the committee structure is prescribed by section 61(2) of the *Act* which requires that a committee established to discipline students or hear appeals with respect to student discipline must contain members of Council who are students.

(c) The governance committee will nominate the members and <u>Chair</u> of the Nominations Committee.

- (d) The Nominations Committee will nominate members, including the <u>Chairs</u>, of Council committees, <u>Except</u> where the chair is required to be a member of Council, the Nominations Committee shall first consider Council members for the position of Chair and if a suitable nominee cannot be obtained, then the Chair will be selected from the General Academic Assembly members.
- (e) The Nominations Committee will present its nominations to Council at the May meeting and otherwise as required when vacancies occur.

It is the responsibility of the Nominations Committee of Council to present a slate of candidates for all committee positions except the Nominations Committee itself_wThe Committee will take into consideration the abilities and experience of the proposed nominees and the balance of representation from the various sectors of the campus_wIt will review the names of potential nominees submitted by faculty, department heads and deans and if necessary canvas additional individuals in order to develop an able, representative slate.

The Nominations Committee will present the slate to Council with sufficient names to fill the available positions. The <u>Chair</u> of Council will call for any further nominations from the floor, If there are none, the slate will be elected. If there are nominations from the floor there will be an election held within two weeks. The election will be held only for those committees that have received nominations exceeding the available positions. The ballot will be prepared and distributed by the University Secretary. The ballot will include the names of the slate presented by the Nominations Committee and the nominations from the floor indicating the Council status of each. It will indicate the positions to be filled and the eligibility requirements for the positions. Voters will indicate choices up to the number of positions available. Eligible candidates with the greatest number of votes will be declared elected.

- (f) The President and the <u>Chair</u> of Council are *ex officio*, non-voting members of all Council committees. They are not counted when determining the quorum of a committee meeting.
- (g) An ex officio member may designate an individual to serve in their place on a committee of Council with the same powers as the designator. Such designations shall last for twelve months and are subject to renewal. In the event that the individual is unable to complete the full term, another individual can be designated in their place. To initiate the designation, the ex officio member will inform the Chair of Council and the Chair of the committee involved. During the period of designation, the ex officio member who initiated the designation may still attend the Committee meeting from time to time with a voice but no vote.
- (h) The USSU and GSA will name their appointees to Council committees for the year from May 1 to April 30.
- Resource personnel and offices providing administrative support are non-voting members of the committees and are not counted when determining the quorum of a committee meeting.

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- (j) Terms of office for Council committee members will begin July 1 unless otherwise provided by the Nominations Committee, except for student committee members whose terms of office will begin May 1.
- (k) The term of office of a faculty member of a standing committee is three consecutive years, renewable once for up to an additional three years, for a maximum of six consecutive years of service. Once the maximum term of service has been reached, one year must lapse prior to the commencement of a new term on that same committee. The term of office of the <u>Chair</u> will be one year, renewable annually for up to two additional one-year terms. Once the <u>Chair</u> has served for a maximum of three consecutive years of service, one year must lapse before the member may serve as <u>Chair</u> of that same committee. The renewal of the <u>Chair</u> is subject to the six consecutive years of service a faculty member may serve on a standing committee. For greater certainty, the maximum six years of a committee.
- (I) The terms of student and sessional lecturer members will be one year.
- (m) When a committee member is appointed as a member of Council, <u>their term</u> will be completed even if <u>they</u> cease to be a member of Council provided they are and remain a faculty member.
- (n) In the event of a vacancy on a Council committee, the vacancy will be filled so that the balance between Council and General Academic Assembly members on the committee as specified in Part Two of the bylaw is maintained.

2. Committee Responsibilities

- (a) The responsibilities of the standing committees are set out in Part Two of this document.
- (b) All standing committees will meet and report to Council at least once each academic year.
- (c) Standing committees may create subcommittees, including subcommittees composed of persons who are not members of Council.
- (d) The quorum for standing committee meetings is a majority of the voting members. The quorum for the Nominations Committee is two-thirds of the voting members.
- (e) Unless a motion of Council specifically provides otherwise, all recommendations of committees will be brought to Council for approval or change. Generally, committee recommendations are presented to Council in the form of reports.
- (f) Council has statutory power to make recommendations to the President, the Board, or the Senate respecting matters that <u>Council</u> considers to be in the interests of the University <u>A</u> matter may be referred to a Council committee by Council to develop recommendations to be presented to the President, the Board, or the Senate.
- (g) The constitutional structure of the University provides for shared jurisdiction over matters. Consequently, it may be necessary for the President, acting as the chief 8

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administrator of the University, or the Board to seek the advice or assistance of a Council committee with respect to a particular matter. The power of a committee to provide advice or assistance to the President or <u>the</u> Board is specified in Part Two of these Bylaws or will be given by Council. The advice and assistance will not contradict or conflict with <u>the bylaws</u> of Council.

(h) A committee that provides advice and assistance pursuant to clause (f) will report to Council the general nature of the advice, However, the Committee need not report to Council on matters the disclosure of which would be inimical to the interests of the University, These matters will be disclosed to the governance committee at the request of the Chair of Council.

V. CONFLICT OF INTEREST

1. Council Proceedings

- (a) It is necessary to distinguish between the roles of the "representative" members of <u>Council</u>, on the one hand, and the "at large" and *ex officio* members, on the other, with respect to their obligations to bring pertinent information to <u>Council</u> or to committees of <u>Council</u> and to report back to their constituents, However, there is no distinction with respect to the exercise of judgment and decision-making in Council meetings and in deliberations of a committee of <u>Council</u> <u>Ambers of</u> <u>Council</u> and members of committees of <u>Council</u> will have as their principal concern the welfare of the University community, They will exercise independent judgment and may not act as agents of any person or organization.
- (b) There are no restrictions on the rights of a Council member to participate in debate and to vote on any matter that comes before <u>Council</u>, However, a Council member who has a conflict of interest with respect to a matter that comes before <u>Council</u> will disclose the conflict when speaking on the matter in Council proceedings.

2. Committees of Council

- (a) A member of a committee of <u>Council</u> will conduct <u>themselves</u> so as to avoid conflict of interest or the appearance of conflict of interest.
- (b) A member of a committee will disclose and identify any conflict of interest or perceived conflict of interest affecting that member.
- (c) A member of a committee will abstain from voting in committee proceedings on matters on which <u>they have</u> a conflict of interest. When appropriate, the member will withdraw from all committee deliberations with respect to the matter.
- (d) The <u>Chair</u> or a member of a committee will be entitled to raise the question <u>of</u> whether another member has a conflict of interest or perceived conflict of interest on a matter before the committee.
- (e) The <u>Chair</u> or a member of a committee is entitled to ask another member who has or is perceived to have a conflict of interest to withdraw from the deliberations of the committee <u>and/</u>or to refrain from voting on a matter before the committee.
- (f) If a request referred to in paragraph (e) to withdraw from the deliberations of the

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9 9 committee or to refrain from voting on a matter before the committee is denied by the member to whom the request is directed, the fact that the request was made and was denied will be recorded in that portion of the committee's report relating to the matter.

3. Conflict of Interest Defined

A conflict of interest exists for a member of Council or a member of a Council committee when, with respect to a matter being considered by Council or the committee:

- (a) the decision being made is such that the member could not reasonably be expected to exercise independent judgment because of the effect the decision would or would be likely to have on the member or a person closely related or closely associated with the member; or
- (b) as a result of occupying a position or holding an office in an organization, the person is legally obligated to subordinate the interests of the University to the interests of the organization when dealing with the matter.

PART TWO

COUNCIL COMMITTEES

I. ACADEMIC PROGRAMS COMMITTEE

<u>Membership</u>

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Elev	en members of the General Academic Assembly, at least five of whom will be elected		
	bers of Council, normally one of whom will be chair		Deleted:
One sessional lecturer			Deleted: At least one member from the General Academic
One undergraduate student appointed by the USSU			Assembly with some expertise in financial analysis will be nominated
One	graduate student appointed by the GSA		Deleted:
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	-Provost, Teaching_Learning, and Student Experience		Deleted:
Vice	-President, Finance & Resources or designate (non-voting member)		Deleted: .
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	r of Council (non-voting member)		Deleted: .
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Res	purce Personnel (Non-voting members)		Deleted:
Assi	stant Vice-Provost, Strategic Enrolment Management		Deleted: and
	ciate Provost, Institutional Planning and Assessment		Deleted: The
Asso	ociate Registrar, Academic		Deleted: and Director of Student Services
Adm	inistrative Support		Deleted: The
The Office of the University Secretary			Deleted: president
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The	Academic Programs Committee is responsible for:		Deleted:)
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1)	Recommending to Council policies and procedures related to academic programs and sustaining program guality.		Deleted: The
	sustaining program quality.		Formatted: Font: Not Italic
2)	Recommending to Council on new programs, major program revisions and program		Deleted: The
	deletions, including their budgetary implications,		Deleted: The
2)	Appreciate minor program abandon including additions of pow courses and revisions to		Deleted: The
3)	Approving minor program changes, including additions of new courses and revisions to or deletions of existing courses and reporting them to Council.		Formatted: Font color: Red
4)	Considering outreach and engagement aspects of programs.		Deleted: <u>The</u> Director of Enrolment and Student Affairs¶ The Director of Institutional Planning¶ The Director of Budget Planning¶
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5)	Reporting to Council <u>on</u> processes and outcomes of academic program review, following	Ì	Deleted:
	consultation with <u>the</u> planning and priorities <u>committee</u> and other Council committees as appropriate.		

6) Undertaking the academic and budgetary review of proposals for the establishment, disestablishment or amalgamation of any college, school, department or any unit responsible for the administration of an academic program, and forwarding recommendations to the planning and priorities committee.

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- Undertaking the academic and budgetary review of the proposed or continuing affiliation or federation of other institutions with the University and forwarding recommendations to the planning and priorities committee.
- 8) Reporting to Council on the academic implications of quotas and admission standards.
- 9) Approving the annual academic schedule and reporting the schedule to Council for information, and recommending to Council substantive changes in policy governing dates for the academic sessions.
- Approving minor changes (such as wording and renumbering) to rules governing examinations, and reviewing and recommending to Council substantive changes.
- 11) Recommending to Council classifications and conventions for instructional programs.
- 12) Designating individuals to act as representatives of the committee on any other bodies, when requested, where such representation is deemed by the committee to be beneficial.
- 13) Consider the priorities of the University, such as Indigenization and internationalization, when assessing current and new academic programs and policies.
 - 14) Carrying out all the above in the spirit of a philosophy of equitable participation and an appreciation of the contributions of all people, with particular attention to rigorous and supportive programs for Indigenous student success, engagement with Indigenous communities, inclusion of Indigenous knowledge and experience in curricular offerings, and intercultural engagement among faculty, staff and students.

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III. COORDINATING COMMITTEE

Membership

Chair of Council, who shall be Chair Vice-Chair of Council Chairs of Council Committees

Resource Personnel and Administrative Support Office of the University Secretary

The Coordinating Committee is responsible for:

- 1) Setting the agenda for Council meetings.
- 2) Receiving and determining the disposition of written motions from individual members of Council, The coordinating committee will either include the motion on the Council agenda or refer the matter to a standing committee(s), which will then report back on the matter to the coordinating committee and Council.
- 3) Facilitating the flow of information between Council committees and the Administration, and between Council committees and the Senate.
- 4) Coordinating the work of Council committees.
- 5) Advising the Chair of Council on matters relating to the work of Council.
- 6) Designating individuals to act as representatives of the committee on any other bodies, when requested, where such representation is deemed by the committee to be beneficial.

Strategic Coordination Subcommittee

Membership:

- Chair of University Council (chair)
- Chairs of the Research, Scholarly, and Artistic Work, Planning and Priorities and Academic Programs Committees of Council
- Provost <u>& Vice-President Academic</u>
- Associate Provost, Institutional Planning and Assessment
- Vice-President, Finance and Resources
- Other individuals, including Council chairs, Council members, and members of the
- University administration can be invited as guests, as required
- Office of the University Secretary

This committee will meet a minimum of 2 times per year, or otherwise as needed.

This committee will consider the development of strategic academic initiatives in support of the University Plan. This committee will facilitate communication channels in this context, and provide advice and counsel on the progress of these initiatives through Council oversight.

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IV. NOMINATIONS COMMITTEE

<u>Membership</u>

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Nine elected members of Council, not more than three members from Arts and Science and not more than two members from each of the other colleges, one of whom will be Chair.

Ex Officio Members (non-voting)	Formatted: Font: Not Italic
President	Deleted: The
Chair of Council	Deleted: The
Administrative Support	
Office of the University Secretary	Deleted: The
The Nominations Committee is responsible for:	
 Nominating members of the General Academic Assembly and Council to serve on all standing and special committees of Council, other than the nominations committee, and 	
nominating the Chairs of these committees.	
 Nominating members of Council to serve on other committees on which Council representation has been requested. 	
3) Nominating individuals to serve as <u>Chair</u> and/or Vice- <u>Chair</u> of Council, or as members of	Deleted: Chairperson
Council, as required, in accordance with the Bylaws.	Deleted: Chairperson
4) Nominating sessional lecturers to Council committees as required.	Deleted: S
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5) Nominating eligible members of the General Academic Assembly to serve on appeal and	Deleted: C
review committees as required by the Collective Agreement with the University of Saskatchewan Faculty Association.	
 Nominating individuals to serve on search and review committees for senior administrators. 	Deleted: the
Advising the University Secretary on matters relating to Council elections.	
8) Designating individuals to act as representatives of the committee on any other bodies, w requested, where such representation is deemed by the committee to be beneficial.	vhen
Note: (a) Members of the nominations committee will be permitted to serve on other Counc committees.	il
(b) To the greatest extent possible the nominations committee should attempt to ensure that no member of Council or the General Academic Assembly serves on more than one of the following committees; academic programs committee or planning and priorities committee.	Deleted:
(c) Members of affiliated and federated colleges may not serve on the planning and priorities committee.	
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- (d) To the greatest extent possible, the nominations committee should attempt to include on committees members who are broadly representative of the disciplines of the University.
- (e) The nominations committee will attempt to solicit nominations widely from <u>Council</u> and the General Academic Assembly.

- (f) When a member of Council is appointed to a Council committee, the term of membership on the Council committee will be completed even if the individual ceases to be a member of Council provided the member is and remains a faculty member.
- (g) Nominees will be selected for their experience, demonstrated commitment <u>and/or their</u> potential for a significant contribution to committee functions.
- (h) To the extent possible, considerations will be given to equity in representation.

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V. PLANNING AND PRIORITIES COMMITTEE

<u>Membership</u>

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Eleven members of the General Academic Assembly, at least six of whom will be elected	
members of Council, normally one of whom will be chair. At least one member from the	· Deleted:
General Academic Assembly with some expertise in financial analysis will be nominated.	Deleted: D
One dean appointed by <u>Council</u>	Deleted: the Council
One undergraduate student appointed by the USSU	Deleted:
One graduate student appointed by the GSA One sessional lecturer	Deleted: .
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Ex Officio Members	Deleted:
Provost & Vice-President, Academic or designate	Deleted:
Vice-President, Finance & Resources or designate	Deleted:
Vice-President_Research or designate	Deleted:
Vice-Provost, Indigenous Engagement	Formatted: Font: Not Italic
President (non-voting member) Chair of Council (non-voting member)	Deleted: The
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Resource Personnel (Non-voting members)	Deleted: The
Associate Provost, Institutional Planning and Assessment	Deleted:
Director of Resource Allocation and Planning	Deleted: (
Director of Assessment and Analytics	Deleted:)
Chief Information Officer and Associate Vice-president Information and Communications Technology	Deleted: The
Executive Director, International – Office of the Vice President Research	Deleted: p
Vice-Provost, Indigenous Engagement,	Deleted:
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Administrative Support	Deleted:)
Office of the University Secretary	Deleted: The
The Planning and Priorities Committee is responsible for:	Deleted: p
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1) Conducting and reporting to Council on university-wide planning and review activities in	Deleted: The
consultation with the Provost and Vice-President Academic.	Formatted: Font: Not Italic
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 Evaluating college and unit plans and reporting the conclusions of those evaluations to Council. 	Deleted: The
Council.	\succ
3) Recommending to Council on academic priorities for the University.	Deleted: The
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4) Recommending to Council on outreach and engagement priorities for the University.	Deleted: The
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5) Seeking advice from other Council committees to facilitate university-wide academic	Deleted: The
 Seeking advice from other Council committees to facilitate university-wide academic planning. 	Deleted:
planning.	Deleted: Deleted:
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planning.6) Recommending to Council on the establishment, disestablishment or amalgamation of any	Deleted: Deleted: 1 Formatted: Font: Not Italic Deleted: The
planning.6) Recommending to Council on the establishment, disestablishment or amalgamation of any college, school, department or any unit responsible for the administration of an academic	Deleted: Deleted: ¶ Formatted: Font: Not Italic
planning.6) Recommending to Council on the establishment, disestablishment or amalgamation of any college, school, department or any unit responsible for the administration of an academic	Deleted: Deleted: 1 Formatted: Font: Not Italic Deleted: The

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8) Providing advice to the President on budgetary implications of government funding		Deleted: the
requests and reporting to Council.		Deleted: Operations Forecast
0) Considering the main elements of the comprehensive hydrot and financial reports and	(
 Considering the main elements of the <u>comprehensive budget</u> and <u>financial reports and</u> reporting to Council. 	(Deleted: Operating Budget and the Capital Budget
 Advising the academic programs committee on the fit with University priorities and the general budgetary appropriateness of proposals for new academic programs and program deletions. 		
11) Integrating and recommending to Council on matters referred to it from other Council committees.		
12) Advising the President and senior executive on operating and capital budgetary matters, including infrastructure and space allocation issues, referred from time to time by the		
President, providing the advice is not inconsistent with the policies of Council_The		Deleted:
planning and priorities committee will report to Council on the general nature of the advice		
and, where practicable, obtain the guidance of Council, However, the committee need not		Deleted:
disclose to Council matters the disclosure of which would be <u>contrary</u> to the interests of the University.	(Deleted: inimical
13) Designating individuals to act as representatives of the committee on any other bodies, when requested, where such representation is deemed by the committee to be beneficial.		
14) Proactively supporting equity, diversity, and inclusion in all processes and matters coming -	(Formatted: Font color: Red
before the committee.	X	Formatted: Indent: Left: 0 cm, Hanging: 0.63 cm
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VI. RESEARCH, SCHOLARLY, AND ARTISTIC WORK COMMITTEE

<u>Membership</u>

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Nine members of the General Academic Assembly, at least three of whom will be elected,	Deleted:
members of Council, normally one of whom will be chair,	Deleted:
One of the nine members will be an assistant or associate dean with responsibility for research.	Deleted: Two
One undergraduate student appointed by the USSU	Formatted: Indent: Left: 0 cm, First line: 0 cm
One graduate student appointed by the GSA	Deleted: A
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Vice-President, Research	Deleted: s
Dean of the College of Graduate and Postdoctoral Studies	Deleted: D
Dean of the University Library (or designate)	Deleted: The
President (non-voting member)	Deleted: p
Chair of Council (non-voting member)	Deleted: The
Dessures Members (non unting)	Deleted: The
Resource Members (non-voting) Director, Research Services and Ethics	
Director, Strategic Research Initiatives	Deleted: The
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Administrative Support	Formatted: Font: Not Italic
Office of the University Secretary	Deleted: Assistant Vice-President, Research
The Research, Scholarly, and Artistic Work Committee is responsible for oversight of	Deleted: The Office of the Vice-president Research
research, scholarly, and artistic activity at the University, as academic activities under	Formatted: Left
Council's purview. It is responsible for:	
 Recommending to Council on issues and strategies to support research, scholarly, and artistic work. 	
 Recommending to Council on policies and issues related to research integrity and ethics in the conduct of research, scholarly, and artistic work. 	
3) Recommending to Council and providing advice to the Vice-President, Research on	
community engagement and knowledge translation activities related to research, scholarly,	
and artistic work.	
4) Providing advice to the Vice-President Research and reporting to Council on issues	
relating to the granting agencies that provide funding to the University.	Deleted: which
5) Providing advice to the Vice-President, Research, the Vice-Provost, Teaching, Learning,	Deleted: and
and Student Experience, and the Dean of the College of Graduate and Post-Doctoral	Deleted: dD
Studies on the contributions of undergraduate and graduate students and post-doctoral	
fellows to the research activity of the University.	Deleted: Graduate Studies and Research
6) Examining proposals for the establishment of any institute or centre engaged in research,	
scholarly, or artistic work at the University, and providing advice to the planning and	
priorities committee of Council.	
7) Receiving an annual reports from the Vice-President, Research and the Dean of College	Deleted: dD
of Graduate and Post-Doctoral Studies.	Deleted: Graduate Studies and Research

8)	Receiving and	reporting to	Council the L	Jniversity's resear	ch ethics boards	' annual reports.

- 9) Designating individuals to act as representatives of the committee on any other bodies, when requested, where such representation is deemed by the committee to be beneficial, Deleted: 1
- 10) Considering the priorities of the University community, such as Indigenization and internationalization, when assessing current and new research, scholarly, and artistic work activities.

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VII. SCHOLARSHIPS AND AWARDS COMMITTEE

<u>Membership</u>

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Nine members of the General Academic Assembly, at least three of whom will be elected	Formatted: Indent: Left: 0 cm, First line: 0 cm
members of Council, normally one of whom will be chair.	Deleted: chair
Vice-President, Academic of the USSU	
Vice-President, Finance of the GSA	
An Indigenous representative from the Aboriginal Students' Centre or a college undergraduate	Deleted: he
affairs office.	Formatted: Indent: Left: 0 cm, First line: 0 cm
	Deleted: president
Ex Officio	Deleted: The
Provost & Vice-President, Academic or designate Dean of the College of Graduate and Postdoctoral Studies or designate	Deleted: p
Vice-Provost, Teaching, Learning, and Student Experience or designate	Deleted: Aboriginal
Vice-President, University Relations or designate (non-voting member)	Deleted: C
President (non-voting member)	Deleted:
Chair of Council (non-voting member)	Deleted: U
	Deleted: Affairs
Resource Personnel (non voting members)	Deleted: Office
Director of Graduate Awards and Scholarships	Deleted: The
Director of Finance and Trusts, University <u>Relations</u> University Registrar	Deleted: p
Associate Registrar (Bursar)	Deleted: The
A recording Logicity Paradia	Deleted: and Research
Administrative Support	Deleted: The
Office of the Registrar	Deleted: p
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The Scholarships and Awards Committee is responsible for:	Deleted: The
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1) Recommending to Council on matters relating to the awards, scholarships and bursaries	Deleted: Advancement
under the control of the University.	Deleted: The
2) Recommending to Council on the establishment of awards, scholarships and bursaries.	Deleted: The
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3) Granting awards, scholarships, and bursaries that are open to students of more than one	Formatted: Font: Not Italic
college or school.	Deleted: The
	Deleted: The
4) Recommending to Council rules and procedures to deal with appeals by students with	Deleted: Advancement
respect to awards, scholarships and bursaries.	Deleted: The
5) Designating individuals to act as representatives of the committee on any other bodies,	Deleted: and Director of Student Services
when requested, where such representation is deemed by the committee to be beneficial.	Deleted: The Assistant
	Deleted: and Manager, Awards and Financial Aid (Secretary)
	Deleted: Vice-Provost, Awards and Financial Aid, Student and Enrolment Services DivisionTeaching, Learning, and Student Experience

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VIII. TEACHING, LEARNING AND ACADEMIC RESOURCES COMMITTEE

Membership

Eleven members of the General Academic Assembly, at least five of whom will be members of Council, and among the members from the General Academic Assembly there will be some expertise in Indigenous teaching and learning. Normally one of the five members of Council will be appointed chair of the committee. One sessional lecturer

One graduate student appointed by the <u>GSA</u>

One undergraduate student appointed by the USSU

Vice-<u>Provost</u>, Teaching, Learning, and Student Experience <u>Resource Personnel (non-voting)</u> Chief Information Officer and Associate Vice-<u>P</u>resident, ICT Dean, University Library Director, Distance Education Unit Director, Gwenna Moss Centre for Teaching <u>and Learning</u> Director, <u>Academic Technology</u> Director, <u>Indigenous</u> Initiatives

Administrative Support

Office of the Vice-Provost, Teaching, Learning, and Student Experience

The Teaching, Learning and Academic Resources committee is responsible for:

- Commissioning, receiving and reviewing scholarship and reports related to teaching, learning and academic resources, with a view to supporting the delivery of academic programs and services at the University of Saskatchewan.
- 2) Making recommendations to Council and the planning and priorities committee on policies, activities and priorities to enhance the effectiveness, evaluation and scholarship of teaching, learning and academic resources at the University of Saskatchewan.
- 3) Promoting student, instructor and institutional commitments and responsibilities, as set out in the University of Saskatchewan Learning Charter and as reflected in the priority areas of the University of Saskatchewan integrated plans.
- <u>4)</u> Designating individuals to act as representatives of the committee on any other bodies, when requested, where such representation is deemed by the committee to be beneficial.
- 5) The committee will carry out all of the above in the spirit and philosophy of equitable participation and an appreciation of the contributions of all people. As one of the university's priority areas is Indigenization, this includes rigorous and supportive programs for Indigenous student success, engagement with Indigenous communities, and the creation of learning outcomes tied to Indigenous content and experiences grounded in Indigenous world views. In this context, Indigenous refers to First Nations, Métis and Inuit people of Canada. In addition, the prioritization of internationalization calls the committee to a focus on intercultural and international engagement among students, educators, and staff.

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	Deleted: Director, Planning and Development, Facilities Management Division¶
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IX. JOINT COMMITTEE ON CHAIRS AND PROFESSORSHIPS

<u>Membership</u>

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Provost & Vice-President, Academic or designate (chair)	Deleted: The provost
One member of Council appointed by Council	Deleted: and
One member of the Board of Governors appointed by the Board	Deleted: v
One member of the Research Scholarly and Artistic Work Committee appointed by Council;	Deleted: p
University Secretary or designate;	Deleted: a
<u>Vice-President, Research or designate;</u> <u>Vice-President, University Relations or designate;</u>	Deleted:
Vice-President, Finance & Resources or designate	Deleted: -
Administrative Support	Deleted:
Office of the Vice-Provost, Faculty Relations	Deleted: ;
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The Joint Committee on Chairs and Professorships is responsible for:	Deleted: ;
	Deleted: research
1) Developing and reviewing procedures and guidelines relating to the establishment,	Deleted: ,
funding, and ongoing administration of chairs at the University of Saskatchewan.	Deleted: s
	Deleted: ,
2) Receiving and reviewing proposals for the establishment of all chairs and	Deleted: artistic
professorships, assessing compliance with university aims and objectives, administrative processes, and financial integrity.	Deleted: work
processes, and individual megny.	Deleted: committee
3) Recommending to Council the approval of proposed chairs, and subsequently	Deleted: of Council
recommending to the Board of Governors that the Board authorize the establishment of	Deleted: The university
chairs and changes to the structure of chairs as may be required from time to time.	Deleted: secretary
4) Receiving notice of proposed changes to the names of chairs in accordance with the	Deleted: The vice
university's policy on Naming of University Assets.	Deleted: president
	Deleted: r
5) Submitting an annual report to Council and the Board on the activities of the joint	Deleted: The vice
committee on chairs and professorships.	Deleted: president
	Balabadi Tha visa

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PART THREE

COUNCIL REGULATIONS

INTRODUCTION

Following are the academic regulations of the University of Saskatchewan enacted by Council, Prior to 1995, these regulations were approved by the University of Saskatchewan Deleted: Senate, Under The University of Saskatchewan Act, 1995, (hereinafter referred to as "the Deleted: Act"), the authority over these academic regulations was transferred to Council. Specific instances where procedures are mandated by the Act are identified. I. DEGREES, DIPLOMAS AND CERTIFICATES Commented [A1]: Degree, diploma and certificate changes, additions and deletions as approved by University Council from 2018-2020 are reflected in the updates below. (a) The following degrees are authorized by Council to be granted by the 1. University: Bachelor and Master of Arts - B.A. & M.A. Master of Mathematics - M.Math. Deleted: Bachelor of Science in Kinesiology - B.Sc. (Kin.) Bachelor and Master of Fine Arts - B.F.A. & M.F.A. Master of Physical Therapy - M.P.T. Bachelor and Master of Science - B.Sc. & M.Sc. Bachelor of Science in Engineering - B.E. (Chemical, Civil, Computer, Electrical, Environmental, Geological, Mechanical, Engineering Physics) Master of Engineering - M.Eng. Bachelor of Science in Agriculture - B.S.A. Bachelor of Science in Agribusiness - B.Sc. (Agbus) Bachelor of Science in Animal Bioscience (B.Sc.(An.Biosc.)) Master of Agriculture - M.Agr. Bachelor and Master of Education - B.Ed. & M.Ed. Bachelor of Commerce - B.Comm. Master of Business Administration - M.B.A. Master of Professional Accounting - M.P.Acc. Master of Public Health - M.P.H. Doctor of Pharmacy (Pharm.D.) Bachelor of Science in Nursing - B.S.N. Master of Nursing - M.N. Deleted: Juris Doctor and Master of Laws - J.D. & LL.M. Bachelor of Science in Dentistry [B.Sc.(Dent.)] Doctor of Dental Medicine - D.M.D. Deleted: Doctor of Medicine - M.D. Bachelor of Science in Nutrition - B.Sc.(Nutr.) Bachelor and Master of Music - B.Mus. & M.Mus.

Dechalar of Music in Music Education D Mus (Mus Ed.)		
Bachelor of Music in Music Education - B.Mus.(Mus.Ed.) Doctor of Veterinary Medicine - D.V.M.		
Master of Veterinary Science - M.Vet.Sc.		
Bachelor of Science in Renewable Resource Management – B.Sc.(R.R.M.)		
Bachelor of Arts and Science – B.A.&Sc.		
Master of Public Administration – M.P.A.		
Master of Governance and Entrepreneurship in Northern and Indigenous Areas -		
M.G.E.N.I.A		
Master of International Public Management and Administration (M.I.P.M.A)		
Master of Northern Governance and Development - M.N.G.D		
Master of Public Policy – M.P.P.		
Master of Environment and Sustainability – M.E.S. Master of Sustainable Environmental Management – M.S.E.M.		
Master of Water Security – M.W.S.	C	- • • • • • • • • • • • • • • • • • • •
Doctor of Education (Ed.D.)	and the second s	Deleted:
Doctor of Philosophy – Ph.D.		
Doctor of Science - D.Sc.	C	
Doctor of Letters - D.Litt.		Deleted:
(h) The following line are dependent on a sthering day. Constants to be assured by the		
(b) The following Honorary degrees are authorized by Senate to be granted by the		
University:		
Doctor of Civil Law, honoris causa, D.C.L.		
Doctor of Laws, honoris causa - LL.D. Doctor of Science, honoris causa - D.Sc.		
		Pulutu di
Doctor of Letters, honoris causa - D.Litt		Deleted:
(c) The following Degree-Level Diplomas and Certificates are authorized by	C	Balabada arra da Calabada I. P. I
		Deleted: certificates of proficiency and diplomas
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Council to be granted by the University: Certificates: Aboriginal Business Administration Certificate - ABAC Aboriginal Teacher Associate Certificate – Cert.		Deleted:
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Council to be granted by the University: Certificates: Aboriginal Business Administration Certificate - ABAC Aboriginal Teacher Associate Certificate - Cert. <u>Certificate in Biological Research</u> <u>Certificate in Business</u> Certificate in Classical and Medieval Latin – Cert. <u>Certificate in Computing</u> Certificate in Criminology and Addictions – Cert. <u>Certificate in Early Childhood Education</u> <u>Certificate in Entrepreneurship</u> Certificate in Global Health – Cert. <u>Certificate in Indigenous Governance and Politics – Cert.</u> Certificate in Indigenous Governance and Politics – Cert. Certificate in Indigenous Languages – ILC <u>Certificate in the Study of Indigenous Storytelling</u> Certificate in Jewish and Christian Origins – Cert. <u>Certificate in One Health</u> <u>Certificate in Politics and Law</u> <u>Certificate in Politics and Law</u> <u>Certificate in Post-Secondary Technical Vocational Education – C.S.T.V.E</u> Certificate in Professional Communication – Cert.		Deleted: Deleted: Certificate in Applied and Professional Ethics – Cert.¶
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Internationally Educated Teachers Certificate - IETC	
Certificate in wîcêhtowin Theatre- Cert.	
Kanawayihetaytan Askiy Certificate, "Let us Take Care of the Land" – Cert.	
Post-Degree Specialization Certificate - P.D.S.C. in Economics	
Post-Degree Certificate in Education: Special Education – P.D.C.	
Post-Degree Certificate in Career and Guidance Studies – P.D.C.	
Post-Degree Certificate in English as and Additional Language – P.D.C.	
Certificate in Leadership in Post-Secondary Education – Cert.	
Certificate in Practical and Applied Arts – PAA	
Certificate in Jazz – Cert.	
Certificate in Ethics, Justice, and Law – Cert.	
Graduate Certificate in Economic Analysis for Public Policy	
Graduate Certificate in Improving Teaching and Learning in Health	
Professions Education	
Graduate Certificate in Non-Profit Management	
Undergraduate and Graduate Certificates in One Health – Cert.	
Graduate Certificate in Public Management	
Graduate Certificate in Public Policy Analysis	
Graduate Certificate in Rotating Small Animal Veterinary Internship	
Graduate Certificate in Social Economy and Co-operatives – Cert.	
Graduate Certificate in Speciality Internship in in Veterinary Internship	
Graduate Certificate in Quality Teaching in Health Professions Education	
Postgraduate Degree Specialization Certificate – P.G.D.S.C.	
Diplomas:	
Post-Graduate Diploma – P.G.D. (College of Graduate and Postdoctoral	
Studies)	
Diploma in Agribusiness – Dip.(Agbus.)	
Diploma in Agronomy – Dip.(Agrn.)	
Kanawayihetaytan Askiy Diploma in Indigenous Lands Governance -	Deleted: Aboriginal
K.A.J.L.G.	Deleted: Ab
Kanawayihetaytan Askiy Diploma in Indigenous Resource Management –	
K.A.J.R.M.	Deleted: Aboriginal
(d) The following New Degree Level Cartificates are sutherized by the Drayest and	
(d) The following <u>Non-Degree Level Certificates</u> are authorized by the Provost and	Deleted: certificates of successful completion
Vice-president Academic to be granted by the University:	
Certificate in Adult and Continuing Education	Deleted: Business Administration Certificate¶
Certificate in Dental Assisting	Deleted: 1
<u>Executive Business Administration Certificate</u> Certificate in English of Academic Purposes	Deleted: →→ Certificate in Teaching English as a
Prairie Horticulture Certificate	Second Language
Graduate Pathways Certificate	
Graduate Professional Skills Certificate – G.P.S.C.	
STEM Accelerator Certificate	
(e) The following <u>Community-Level Certificates</u> are authorized by the <u>dean of a</u>	Deleted: certificates of attendance
college (after consultation with the Provost and Vice-president Academic) to be	Deleted: D
granted by the University:	Deleted: C
Master Gardener Certificate	
Certified Crop Science Consultant	
Certificate in Teaching English as a Foreign Language	
Certificate of Art and Design	

2.	Deqi	rees, Certificates and Diplomas may be conferred at the annual meeting of	
	Conv	vocation or at any other meeting of Convocation. The formal admission of	Deleted:
		lidates to degrees, certificates and diplomas shall, in the absence of the	
		ncellor, be made by the President (Vice-Chancellor), or by a member of the ncil, appointed for that purpose.	Deleted:
	Coul		Deleteu.
3.	Degi	rees may be conferred upon persons in absentia	Deleted:
, CAI	ICELI	ATION OF DEGREES	Deleted:
		voke the degree or degrees, diplomas, certificates and distinctions of the	Deleted: D
		Il privileges connected therewith of any holder of the same for cause or where	Deleted: D
		he holder, in the opinion of Council and following due process under the onduct regulations, shall constitute a breach of any agreement made with the	Deleted: D
		condition of the conferment of such degree or degrees, diplomas, certificates	Deleted: C
		Council may restore, on cause being shown, any person so deprived to the	Deleted: D
		ion or privileges previously enjoyed by that person without further examination	Deleted: U
			Deleted:
II. UNI		ITY SCHOLARSHIPS	Deleted: →¶
authorize V. THE 1.	EST	ouncil. ABLISHMENT OF COLLEGES AND DIVISIONS e University the following Colleges and Schools shall be established, namely:	
1.	(a) (b)	The College of Arts and Science The College of Agriculture and Bioresources	
	(c)	The College of Law	
	(d) (e)	The College of Engineering The College of Pharmacy and Nutrition	
	(C) (f)	The College of Education	
	(g)	The Edwards School of Business	
	(h)	The College of Graduate and Postdoctoral Studies	
	(i)	The College of Medicine	
	(j) (k)	The Western College of Veterinary Medicine The College of Dentistry	
	(I)	The College of Kinesiology	
	(m)	The College of Nursing	
	(n)	The Johnson-Shoyama Graduate School of Public Policy	
	(0) (D)	The School of Public Health	
	(p)	The School of Environment and Sustainability	
2.	(a)	Within the College of Medicine, and subject to its oversight, the following	
		school and program shall be established;	Deleted:
		The School of Rehabilitation Science	
2.	(b)	Within the College of Engineering, and subject to its oversight, the following	
		school shall be established:	
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	The School of Professional Development, College of Engineering	
3.	In the University the following Departments and Divisions shall be established, and	Deleted:
	such other departments as may from time to time be authorized by the Board on	
	the recommendation of Council;	Deleted:
	Agriculture and Bioresources	
	Departments	
	- Animal and Poultry Science	
	- Agricultural and Resource Economics	
	- Food and Bioproduct Sciences	
	- Plant Sciences	
	- Soil Science	· Deleted:
	Arts and Science	
	Departments	
	- Archaeology and Anthropology	
	- Art and Art History	
	- Biology	
	- Chemistry	
	- Computer Science	
	- Drama	
	- Economics	
	- English	
	- Geography and Planning	
	- Geological Sciences	
	- History	
	- Languages, Literatures and Cultural Studies	
	- Linguistics and Religious Studies	
	- Mathematics and Statistics	
	- Music	
	- Indigenous Studies	
	- Philosophy	
	- Physics and Engineering Physics	
	- Political Studies	
	- Psychology	
	- Sociology	Deleted:
	- Sociology,	
	Business	
	Departments	
	- Accounting	
	 Finance and Management Science Human Resources and Organizational Behaviour 	
	 Human Resources and Organizational Behaviour Management and Marketing 	Deleted:
	Dentistry	
	No departments	
	Education	
	Departments	
	- Curriculum Studies	
	- Educational Administration	
	- Educational Foundations	
	- Educational Psychology and Special Education	 Deleted:
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Engineering	
Departments	
- Chemical and Biological	
- Civil, Geological and Environmental	
- Electrical and Computer	
- Mechanical	
Divisions	
- Division of Biomedical Engineering	
Kinesiology	
no departments	
Law	
no departments	
Madiate	
Medicine Departments	
- Anesthesiology, Perioperative Medicine and Pain Management	
- Biomedical Sciences	
- <u>Anatomy, Physiology and Pharmacology</u>	Deleted: and Cell Biology
Biochemistry, <u>Microbiology and Immunology</u>	
- Community Health and Epidemiology	Formatted: Indent: First line: 1.27 cm
- Emergency Medicine	
- Family Medicine	
- Medical Imaging	
- Medicine	Deleted: 1
 Obstetrics and Gynecology 	Deleted: ¶ -→Microbiology and Immunology
- Ophthalmology	
 Pathology and Laboratory Medicine 	
	Deleted: 1
- Pediatrics	Deleted: ¶ - → Pharmacology
- Physical Medicine and Rehabilitation	Deleted: 1
- Psychiatry	-→Physiology
- Surgery	
_Divisions	
- Continuing Professional Development	Formatted: Indent: Left: 1.9 cm, Hanging: 0.35 cm
- Division of Oncology	Deleted:
- Division of Social Accountability	Deleted:
Nursing	Deleted:
no departments	Deleted:
•	Deleted:
Pharmacy and Nutrition	
no departments	
Votorinany Modicino	
Veterinary Medicine Departments	
•	
- Large Animal Clinical Sciences	
- Small Animal Clinical Sciences	
- Veterinary Biomedical Sciences	
- Veterinary Microbiology	
- Veterinary Pathology	

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- 4. Under section 49 (1) (k) and (l) of the Act, the Board of Governors may provide for the establishment or disestablishment of any college, school, department, chair, endowed chair or institute if authorized by Council.
- 5. Under section 49(1) (I), the Board may provide for the disestablishment of any college, school, department, chair, endowed chair or institute if authorized by Council on academic grounds. If the Board considers disestablishment necessary because of financial exigency, section 49 (2) requires the Board to consult with Council, and section 49 (3) restricts implementation of the decision until (a) the Board has reported the decision to Council, and (b) Council has advised the Board respecting the effect of the decision on the academic program of the university or 60 days have passed from the date the Board reported the decision to the Council, whichever is earlier.
- 6. Under section 62 (3) (c), a decision of Council to authorize the disestablishment of any college, school, department, chair, institute or endowed chair is to be reported to the Senate at its next meeting and is not to be implemented until either the Senate confirms the decision or 12 months have passed following the end of the fiscal year in which the decision was made, whichever is earlier.
- 7. Under section 23 (j), Senate may receive proposals respecting the establishment of any college, school, department or institute and recommend to the Board and the Council whether or not it should be established. Under section 23(I), Senate may consider and recommend to the Board and the Council whether or not any college, school, department or institute should be disestablished because of lack of relevance to the province.

V. CONSTITUTION AND DUTIES OF FACULTY COUNCILS

- 1. Membership of the Faculty Councils
 - A. In addition to those members listed in (B) below as members of Faculty Councils of each college and school, the Faculty Council of all colleges and schools shall include the following (*denotes non-voting members),
 - The President of the University* (a) The Provost and Vice-President, Academic* (b) The Vice-President, Research* (c) The Vice-President, Finance and Resources* (d) The Vice-President, University Relations* (e) The Vice-Provost, Teaching, Learning, and Student Experience* (f) The Vice-Provost, Indigenous Engagement* (g) Chief Information Officer and Associate Vice-President Information and (h) Communications Technology* The dean of the college, or the executive director of the school, when the (i) school is not encompassed within a college The Dean of the College of Graduate and Postdoctoral Studies or designate (j) The Dean of the University Library or designate* (k) The University Secretary or designate* (I) The University Registrar or designate* (m)
 - Such other persons as University Council may, from time to time, appoint in a voting or non-voting capacity;
 - (o) Such other persons as the Faculty Council may, from time to time appoint in a non-voting capacity*

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- (p) Those professors, Associate Professors, Assistant Professors, fulltime Lecturers, Instructors and Special Lecturers who, for administrative purposes, are assigned to the dean of the college of...
- B. The Faculty Councils shall be comprised as follows:

<u>Faculty Council of the College of Agriculture and Bioresources</u> See 1.A., sections (a) to (o)

- (p) Those Professors, Associate Professors, Assistant Professors, full-time Lecturers, Instructors and Special Lecturers who, for administrative purposes, are assigned to the Dean of the College of Agriculture and Bioresources;
- (q) Faculty members of other colleges holding a position as Associate Member ir a constituent department of the College of Agriculture and Bioresources;
- (r) Chemical and Biological Engineering (2) Biology (2), Chemistry (1), Business (2), Economics (1); Geography (1), Microbiology and Immunology (1), Veterinary Medicine (2).
- (s) Seven student representatives from the degree and diploma programs in the College of Agriculture and Bioresources to serve on the Faculty Council and its standing committees to take part in all discussions, including student matters, Representation will include one student from: the Bachelor of Science in Agriculture program, the Bachelor of Science in Agribusiness program, the Diploma in Agriculture program, the Bachelor of Science in Renewal Resource Management program, the Bachelor of Science in Animal Bioscience, the Agricultural Students Association president and the Agricultural Students Association vice-president (Academic).

Faculty Council of the College of Arts and Science

- See 1.A, sections (a) to (o)
- (p) Those Professors, Associate Professors, Assistant Professors, full-time Lecturers, Instructors and Special Lecturers in the College of Arts and Science;
- (q) All full-time faculty, instructors and special lecturers from St. Thomas More College teaching courses recognized for the BA, BSc or BA/BSc degrees (voting rights to be limited as set out in the terms of federation);
- All full-time faculty from departments within the Division of Biomedical Sciences of the College of Medicine that offer BSc degree programs through the College of Arts and Science (voting rights to be limited as per College of Arts and Science Bylaws);
- (s) College of Arts and Science vice-deans, Associate Dean (Students); Associate Dean Division of Biomedical Sciences; Dean and Associate Dean of St. Thomas More College;
- (t) Five representatives of the sessional lecturers;
- Ten Arts and Science student representatives (full participation in meetings except when the discussion relates to individual students or faculty);
- (v) The deans of all other colleges, or their designate (non-voting member);
- (w) Director, University Learning Centre (non-voting member).

Faculty Council of the College of Dentistry

See 1.A, sections (a) to (o)

- (p) Those Professors, Associate Professors, Assistant Professors, full-time Lecturers, Instructors and Special Lecturers who, for administrative purposes, are assigned to the Dean of the College of Dentistry,
- (q) Associate Provost of Health

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(r)	Il clinical Professors, clinical Associate Professors, clinical Assistant	
	rofessors, clinical Lecturers, Clinical Instructors, and Sessional Lecture	rs

- (s) Three community-based members of the dental profession holding the traditional, honorific role of Clinical Professor, Clinical Associate Professor, Clinical Assistant Professor, Clinical Lecturer, and Clinical Instructor as appointed by the Assistant Dean, Clinics
- (t) <u>The Registrar, or designate, of the College of Dental Surgeons of</u> Saskatchewan
- (u) President of the Saskatchewan Dental Student Society (SDSS), or designate from the SDSS Executive, who will be entitled to attend and vote on all nonconfidential matters.
- (v) Director, Finance and Administration*,
- (w) Director, Academic and Student Affairs'
- (x) Executive Officer to the Dean*
- (y) Business Manager, Clinical Affairs*

Faculty Council of the College of Education,

- See 1.A., sections (a) to (o)
- (p) Those Professors, Associate Professors, and Assistant Professors who, for administrative purposes, are assigned to the Dean of the College of Education;
- (q) Dean of Arts and Science (or nominee) and the <u>vice-deans of Arts and</u> Science (or nominees); Dean of Agriculture and Bioresources (or nominee); Dean of Kinesiology (or nominee); Education Head Librarian (or nominee); as non voting members.
- (r) Five undergraduate students comprised of the president of the Education Students Society and two named ESS officers (or named designates); the president of the SUNTEP student society (or named designate); the president of the ITEP student society (or named designate); and three education graduate students named by the Education Graduate Student Association, to have noting privileges on all matters at meetings of the Faculty Council.
- (s) Directors (or designates) of the Indian Teacher Education Program (ITEP), Northern Teacher Education Program (NORTEP), and Northwest Territories Teacher Education Program (NWTEP); Coordinator (or designates) of the Saskatchewan Urban Native Teacher Education Program (SUNTEP) Prince Albert and SUNTEP Saskatoon, to have voting privileges on all matters at meetings of the Faculty Council.

Faculty Council of the College of Engineering

See 1.A., sections (a) to (o)

(t)

- (p) Those Professors, Associate Professors, Assistant Professors, Lecturers, Instructors and Special Lecturers who, for administrative purposes, are assigned to the Dean of the College of Engineering or hold joint appointments in the College of Engineering;
- (q) A faculty representative from each of Agriculture and Bioresources, Chemistry, Geological Sciences, Mathematics and Statistics, Computer Science, Biology and Edward School of Business;
- (r) Those Professors, Associate Professors, Assistant Professors, Lecturers, Instructors and Special Lecturers in the Department of Physics and Engineering Physics who deliver the Engineering Physics program;
- (s) Two representatives from the undergraduate student association as voting members and the president of each engineering undergraduate program students association as non-voting members.
 - Two Engineering graduate student representatives as voting members.

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at meetings of the Faculty Councit;¶ (u)→ Manager, Finance and Administration (non-voting);¶ (v)→ Director, Academic and Student Affairs (non-voting);¶ (w)→ Executive Assistant to the Dean (non-voting).¶

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- See 1.A., sections (a) to (o)
- (p) All faculty members who hold a standard, 100%, in scope appointment in the School
- (q) All faculty members holding a primary-joint and secondary-joint appointments in the School
- The president of the School of Environment and Sustainability Students' Association
- (s) The following members may be heard in faculty council, but may not vote:
- i. Associate members
- ii. Adjunct members

Faculty Council of the College of Graduate and Postdoctoral Studies See 1.A., sections (a) to (o)

- (p) The deans of colleges and executive directors of schools involved with graduate work and research, and any associate or assistant deans appointed to support graduate studies and research;
- (q) The Dean of the University Library, as a voting member;
- (r) The Manager, International Students and Study Abroad Centre;
- (s) The heads of those departments which are involved with graduate studies and research;
- (t) For a five year renewable term, all faculty members involved in graduate teaching, supervision of graduate students, or in research, Minimal requirements for membership of faculty members shall be established by the College of Graduate and Postdoctoral Studies;
- (u) Five graduate students representing different divisions of the college, including the president and two Vice-presidents of the Graduate Students' Association.

<u>Faculty Council of The Johnson-Shoyama Graduate School of Public Policy</u> See 1.A., sections (a) to (o)

- (p) Associate Director, Johnson-Shoyama Graduate School of Public Policy
- (q) Faculty members (professors, associate professors, and assistant professors) who hold a standard appointment in the school
- (r) Faculty members (professors, associate professors, and assistant professors) who hold a primary joint appointment or a secondary joint appointment of 0.25FTE or more in the school
- (s) Faculty members from the University of Regina who are appointed as Adjunct members in the Johnson-Shoyama Graduate School of Public Policy
- (t) Two Johnson-Shoyama Graduate School of Public Policy students
 (u) Director, Outreach and Training, Johnson-Shoyama Graduate School of Public Policy
- (v) Johnson-Shoyama Advisory Council chair or representative
- (w) The following members may be heard in faculty council but may not vote: i. Faculty members (professors, associate professors, and assistant professors) who hold a joint appointment in the school of less than 0.25FTE

Faculty Council of the College of Kinesiology See 1.A., sections (a) to (o) Deleted:

- (p) Those Professors, Associate Professors, Assistant Professors, full-time Lecturers, Instructors and Special Lecturers who, for administrative purposes, are assigned to the Dean of the College of Kinesiology
- (q) Arts & Science Biology (1), Psychology (1); Medicine Physiology (1), Anatomy and Cell Biology (1), Physical Therapy (1); Education (1), as nonvoting members
- (r) One full-time Kinesiology undergraduate student, one full-time Kinesiology graduate student, and one Kinesiology postdoctoral fellow (PDF) (if available) will be entitled to attend and vote on all non-confidential matters at meetings of the Faculty Council.

Faculty Council of the College of Law

- See 1.A., sections (a) to (o), Add (or nominee) after each of 1.A. (f-h)
- (p) Those Professors, Associate Professors, Assistant Professors, full-time Lecturers, Instructors and Special Lecturers who, for administrative purposes, are assigned to the Dean of the College of Law;
- (q) Research Director of Native Law Centre;
- (r) Programs Director of Native Law Centre;
- (s) Law Librarian or Assistant Law Librarian;
- (t) One student representative of the Aboriginal Law Students' Association;
- (u) Five student representatives of the Law Students' Association;
- (v) One student from a graduate degree program in Law.

Faculty Council of the College of Medicine

See 1.A., sections (a) to (o)

- (p) Associate deans of the college;
- (q) Assistant deans of the college;
- (r) The department head of each academic department of the college and the Director of the School of Physical Therapy;
- (s) One university faculty member of the college representing each department of the college, or the School of Physical Therapy, who is a member of that department or school;
- (t) Two community faculty members of the college representing each clinical department, or the School of Physical Therapy; who are members of that department or school, at least one of whom will be based outside of the Saskatoon Health Region;
- (u) Twenty university faculty members of the college;
- (v) One medical student from each year of the undergraduate medical program; one physical therapy student from each year of the physical therapy program; four postgraduate medical students, at least one of whom must be registered in the family medicine program of the College; and two graduate students enrolled in graduate programs delivered in the College;
- (w) The following persons are entitled to attend and participate in meetings of the Faculty Council but, unless they are members of the Faculty Council, are not entitled to vote:
 - i. All other directors of the College of Medicine;
 - ii. The dean and associate deans, or designates, of all other health science colleges at the university;
 - The dean and the vice-deans of academic programs, humanities and fine arts, social sciences, and science, or designates, of the College of Arts and Science at the university;
 - iv. The librarian in charge of the health sciences library;

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- v. The Registrar, or designate, of the College of Physicians and Surgeons of Saskatchewan;
- vi. The Chief Executive Officer, or designate, of the Saskatchewan Medical Association;
- vii. The Chief Executive Officer, or designate, of each health region in the province of Saskatchewan;
- viii. The presidents and academic Vice-presidents of the undergraduate medical student society; the postgraduate medical student society; the physical therapy student society, and the College of Medicine graduate student society.

Faculty Council of the N. Murray Edwards School of Business See 1.A, sections (a) to (o)

- (p) Those Professors, Associate Professors, Assistant Professors, full-time Lecturers, Instructors and Special Lecturers who, for administrative purposes, are assigned to the Dean of the Edwards School of Business;
- (q) Agriculture and Bioresources (1), Economics (1), Mathematics and Statistics (1), Social Science or Humanities including Economics (1), Computer Science (Head plus four others);
- (r) Five undergraduate students and two graduate students who shall be entitled to vote on all matters at Faculty Council meetings,

Faculty Council of the College of Nursing

See 1.A., sections (a) to (o)

- (p) Those professors, associate professors, assistant professors, full-time lecturers, instructors, and special lecturers who for administrative purposes, are assigned to the Dean of the College of Nursing;
- (q) Department heads or their designated representatives from the Department of Biomedical Sciences (1); the Department of Biochemistry, Microbiology & Immunology (1); the Executive Director or the Executive Director's designate from the School of Public Health (1); the Director or the director's designate from the School of Rehabilitation Science (1); deans of Arts and Science, Dentistry, Medicine, Pharmacy and Nutrition, Kinesiology, Veterinary Medicine;
- (r) Up to four full-time undergraduate nursing students. One from each Nursing Association in Regina, Saskatoon, and Prince Albert, and one from the Post-Degree BSN. Undergraduate student representatives will be named by the undergraduate Nursing Society.
- (s) Up to four full-time nursing graduate students preferably from the Masters of Nursing (1), Masters of Nursing (Nurse Practitioner) (1), and Ph.D. in Nursing (1). Graduate student representatives will be named by the Graduate Student Association of the College of Nursing or through consultation with the Graduate Chair.
- (t) A Postdoctoral Fellow (if available) in Nursing nominated by the Postdoctoral Fellows in the College of Nursing and/or through consultation with the Graduate Chair;
- (u) Clinical Coordinators,* Director of Operations and Strategic Planning*, Director of Finance & Administration,* UCAN Representatives* Research Facilitator,*Communications Officer*

Faculty Council of the College of Pharmacy and Nutrition

See 1.A., sections (a) to (o)

(q)

- (p) Associate Dean (Research and Graduate Affairs) of the College;
 - Associate Dean (Academic) of the College;

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(r)- Clinical Coordinators (3) and Provincial Clinical Coordinator (1): Director of Continuing Nursing Education; Director of Operations, College of Nursing; Development Officer, College of Nursing, Financial Officer, College of Nursing, IT Manager, College of Nursing; NAPN representatives – Regina (1), Saskatoon (1); Research Facilitators, College of Nursing – Regina (1), Saskatoon (1);¶

(s) Four full-time undergraduate Nursing students, one from each nursing society and one from the post registration option, and one second degree entry option student;¶

(t)→Three full-time nursing graduate students: Master of Nursing (1), Master of Nursing (Nurse Practitioner) (1), Ph.D. (1).¶

- (r) those Professors, Associate Professors, Assistant Professors, full-time Lecturers, Instructors and Special Lecturers who, for administrative purposes, are assigned to the Dean of the College of Pharmacy and Nutrition
- (s) Representatives from the following Colleges and Departments:
 - College of Arts and Science: Dept. Head or Designate of: Chemistry
 (1); Mathematics and Statistics (1)
 - College of Medicine: Dean or Designate (1); Dept. Head or Designate of: Anatomy and Cell Biology (1); Biochemistry (1); Community Health and Epidemiology (1); Microbiology and Immunology (1); Pathology and Laboratory Medicine (1); Pharmacology (1); Physiology (1)
 - College of Agriculture and BioResources: Dept. Head or Designate of: Animal and Poultry Science (1); Food and Bioproduct Sciences (1)
 - College of Kinesiology: Dean or Designate (1)
 - College of Nursing: Dean or Designate (1)
 - College of Dentistry: Dean or Designate (1)
 - School of Public Health: Executive Director or Designate (1)
 - Edwards School of Business: Dept. Head or Designate of: Management and Marketing (1)
 - Toxicology: Director or Designate (1)
 - Western College of Veterinary Medicine: Dean or Designate (1) Student Representatives:
 - One student for every 100 students in the Pharmacy Undergraduate
 Program
 - One student for every 100 students in the Nutrition Undergraduate Program
 - One graduate student from either the Pharmacy or Nutrition graduate program

Faculty Council of the School of Public Health

See 1.A, sections (a) to (o).

- (p) All faculty members who hold a standard appointment in the School.
- (q) Faculty members with a primary joint appointment in the school with a 0.25FTE or more time commitment to the school or a secondary joint appointment in the school with a 0.25FTE or more time commitment to the school.
- Up to two clinical community-based faculty, at least one of whom will be based outside of the Saskatoon Health Region;
- (s) The following members may be heard in faculty council, but may not vote:
 - i. Associate members;
 - ii Adjunct members;
 - iii Faculty members who hold a primary appointment in the school or a secondary appointment in the school with a less than 0.25FTE commitment to the school.

Faculty Council of the School of Rehabilitation Science

See (i), Sections (a) to (o) above.

- (p) Those Professors, Associate Professors, Assistant Professors, fulltime Lecturers, Instructors and Special Lecturers holding appointments in the School of Rehabilitation Science
- (q) The Director of the School of Rehabilitation Science
- (r) The Associate Dean of Physical Therapy and Rehabilitation Sciences, as Chair
- (s) The Assistant Dean Graduate Studies, College of Medicine

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- (t) Clinical Specialists in the School of Rehabilitation Science
- (u) The Director of Continuing Physical Therapy Education
- (v) No more than six members of the faculty of the School of Rehabilitation Science, holding a clinical faculty appointment at the rank of Clinical Lecturer, Clinical Assistant Professor, Clinical Associate Professor or Clinical Professor shall be voting members of the School of Rehabilitation Science Faculty Council
- (w) No more than eight Master of Physical Therapy student members
- (x) No more than a total of two people who can be either Master of Science students, Ph.D. students or postdoctoral fellows
- (y) Head of the Health Science Library or designate
- (z) The following persons are entitled to attend and participate in meetings of the School of Physical Therapy Faculty Council but, unless they are members of the School of Physical Therapy Faculty Council are not entitled to vote: Professor Emeriti, Clinical Faculty who are not represented under (u), Adjunct Faculty, Professional Affiliates, Associate Members, Representative of the Saskatchewan College of Physical Therapists (SCPT), Representative of the Saskatchewan Physiotherapy Association (SPA)

Faculty Council of the Western College of Veterinary Medicine See 1.A., sections (a) to (o)

- (p) Those Professors, Associate Professors, Assistant Professors, full-time Lecturers, Instructors and Special Lecturers who, for administrative purposes, are assigned to the Dean of the Western College of Veterinary Medicine;
- (q) Agriculture and Bioresources (2), Biology (1), Chemistry (1), Dentistry (1), Medicine (2), Pharmacy and Nutrition (1).
- Six full-time undergraduate students to attend and vote on all nonconfidential matters at meetings of the Faculty;
- (r) Two graduate students registered in Veterinary Medicine through the College of Graduate and Postdoctoral Studies to attend and vote on all nonconfidential matters at meetings of the Faculty.
- C. The University Secretary, or an assigned deputy, shall act as Secretary of each Faculty Council.

2. Roles and Responsibilities of the Faculty Councils

A. The Faculty Council of each college or school, subject to the provisions of the Act, the Bylaws of University Council and the general control of University Council, shall have charge of matters of scholarship and discipline.

Among the duties delegated by University Council to the faculty councils are the following:

- (a) To make recommendations to University Council concerning the requirements for admission to programs offered by the college or school;
- (b) To establish and report to University Council on the number of students who may be admitted to a college or program of study and to report to University Council on the number of students admitted each year;

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	(c) To make recommendations to University Council concerning addition, deletion	Deleted: the
	or modification of courses and programs of study, and concerning the requirements for successful completion of such programs;	
	(d) To establish and publish rules and methods for the progression and graduation of students and for their suspension or requirement to withdraw permanently for failure to meet the requirements for progression;	
	(e) Subject to University Council's examination regulations, to establish and publish rules and standards with respect to the assessment and examination of students in courses and programs offered by the college or the school;	Deleted: the
	(f) To make decisions concerning progression of students and concerning their suspension or requirement to withdraw, in accordance with the rules approved by the faculty council, and to hear appeals of such decisions;	
	(g) To approve candidates for degrees, diplomas and certificates;	
	(h) To approve candidates for scholarships, prizes, and other awards and honours;	
	 (i) To establish a mechanism for appointing hearing boards to hear allegations of academic misconduct as provided for under University Council's regulations governing academic misconduct; 	Deleted: the
	(j) To consider appeals from students in accordance with University Council's regulations governing student appeals in academic matters.	Deleted: the
B.	The chair or the secretary of the Faculty Council of any college or school shall transmit to University Council for consideration and review all matters which belong to the care of University Council or which from their nature concern more than one college or school.	Deleted: the Deleted: the
C.	Each Faculty Council shall establish bylaws for the purpose of regulating the conduct of its meetings and proceedings and may establish standing committees and their terms of reference. Authority that has been delegated by University Council to the Faculty Councils, either in accordance with these bylaws or through policies approved by University Council, may not be further delegated without the	Deleted:
	permission of University Council.	Deleted: the
D.	Each Faculty Council shall keep a record of its proceedings and this record shall be open to any member of the faculty council. A copy of the proceedings shall, upon request, be furnished by its secretary to the <u>Chair</u> of University Council and/or to the president of the university.	Deleted: Deleted: Cchairperson
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VI. PRO	GRAMS OF STUDY	
	tion 61(1)(f) of the Act, Council is authorized to prescribe curricula, programs of and courses of study in colleges, schools or departments.	Deleted: C
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	ege or school Faculty Council shall prepare its program or programs of study, he curriculum for any degree of that college or school, and shall submit them to	Deleted: C
	r approval under regulations established for that purpose by Council. Upon the	Deleted: S
	of Council, they may be published and go into effect.	Deleted: the
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VII. ENROLMENT MANAGEMENT

The University reserves the right to restrict the registration of students in programs, courses and classes. Council delegates to colleges, schools and departments, in consultation with the University Registrar and Director of Student Services, authority to restrict and to control registration in any or all courses and classes where such restriction is necessary or advisable.

Subject to the approval by Council and confirmation by Senate of a strategic enrolment management plan, Council delegates to colleges and schools the management of enrolment in accordance with the approved plan.

VIII. ADMISSION OF STUDENTS

Under section 61(1)(i) and (l) of the Act, Council is authorized to prescribe academic and other qualifications required for admission as a student, and to prescribe and limit the number of students who may be admitted to a college or a program of study. Subject to the authority given to Senate under the Act, Council will approve admission qualifications for all programs. Upon the approval of Council and subject to any necessary approvals by Senate, these may be published and go into effect.

- 1. Council may establish policies, regulations and procedures concerning admission of students and granting of credit for prior learning.
- In accordance with these regulations, Council may delegate to Faculty Councils and/or to the Admissions Office responsibility for setting application deadlines and for the assessment of applications and for making admission offers in accordance with the admission qualifications approved by Council.

IX. EXAMINATIONS, GRADING AND ASSESSMENT OF STUDENTS

Under section 61(1)(g) and (j) of the Act, Council is authorized to prescribe methods and rules for evaluating student performance, including prescribing examination timetables and the conduct of examinations, and to hear appeals by students or former students concerning academic decisions affecting them.

- 1. The Examiners of the University shall be:
 - (a) The Professors, Associate Professors, Assistant Professors, Lecturers, Special Lecturers, Sessional Lecturers and Instructors of the University.
 - (b) Such other Lecturers or teachers of the University as Council may appoint.
 - (c) By delegation from Council, such adjunct faculty, professional affiliates, professors emeriti and external and independent examiners, not included in (a) or (b), as the College of Graduate and Postdoctoral Studies may appoint to serve on graduate studies examining committees and boards for the purpose of assessing candidates for graduate-level degrees and diplomas.
- Council may establish policies, regulations and procedures concerning the examination, grading and assessment of students and concerning the degrees and distinctions to be conferred by the University, as well as policies, regulations and

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procedures governing student appeals in academic matters Such policies, regulations and procedures may include delegation of authority by Council and shall be published and made available to students.

 Section 23 (g) of the Act authorizes the Senate to appoint examiners for and make bylaws respecting the conduct of examinations for professional societies or other bodies if the university or any of its agencies is required or authorized by any act to do so.

X. AFFILIATION AND FEDERATION

- 1. Under section 61 (1) (e) of the Act, Council has the power to authorize the Board to provide for affiliation or federation with any educational institution, or the dissolution of any affiliation or federation with any educational institution, <u>Under 62 (3) (d)</u>, a decision to authorize the dissolution of any affiliation or federation is to be reported to the Senate at its next meeting and is not to be implemented until either the Senate confirms the decision or 12 months have passed following the end of the fiscal year in which the decision was made, whichever is earlier.
- 2. Under 23 (k) and (l), the Senate may receive proposals respecting the affiliation or federation of any educational institution with the university and recommend to the Board and <u>Council</u> whether or not the proposed affiliation or federation should be made Senate may also consider and recommend to the Board and Council whether or not any affiliation or federation should be dissolved because of lack of relevance to the province.
- 3. Principles for federation and affiliation with the University of Saskatchewan, which are representative of the current relationships with federated and affiliated colleges, and are the basis for considering future requests, are as follows.
 - (a) Relationships of affiliation or federation should be based on academic interests shared by the university and the candidate institution. Though it is possible to conceive of many reasons for entering into partnerships or collaborative relationships with other institutions – sharing space or other resources or joining together in government relations initiatives, for example – the particular relationship of affiliation or federation should be founded in common academic goals and interests, such as programming for students or advancing a research agenda.

(b) Relationships of affiliation or federation should be based on shared support for the university's vision, mission and values. The governing bodies of the University of Saskatchewan have adopted a statement setting out the vision, mission and values that will guide the institution. Though the university cannot require that other institutions are guided by identical values or an identical mission, the university can only enter into relationships of affiliation or federation on terms that are consistent with the values held by the university and the vision it has adopted.

(c) The university should approach the request for a relationship of federation or affiliation in a spirit of respect for the distinctive history, traditions and achievements of the candidate institution. Though the university should not

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	enter into relationships of affiliation or federation on terms that undermine the	
	stated vision, mission and values of the institution, the university should not	
	demand that an affiliated or federated institution conform in all respects to the	
	university's established practices and procedures. The rationale for creating	
	relationships of affiliation or federation is in part that the university is enriched by	
	the distinctive perspectives brought by the partner institutions.	Formatted, List Davagraph, Loft, No buildte er numbering
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(d)	The significant elements of a relationship of affiliation or federation	Formatted: Font: (Default) Arial, 11 pt
	should be reflected, insofar as possible, in written agreements. Though	Formatted: Indent: Left: 2.54 cm, No bullets or numbering
	strong partnerships are marked by flexibility, informality and vigorous personal	
	connections, it is important that the basic terms to which the partners have	
	agreed are clearly documented in writing.	
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	Consideration should be given to the reciprocal contributions that can be	Formatted: Indent: Left: 2.54 cm, No bullets or numbering
	made by the university and the candidate institution. Though the university is likely to be the larger partner in these relationships, the formation of the	
	partnership should take into account fully the contributions both parties can	
	make to the lives of their respective institutions.	
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(f)	Provision should be made for regular review of the relationship with the	Formatted: No bullets or numbering
	candidate institution. The potential for refreshing and reforming the	
	relationship should be provided for through a regular cycle of reviews.	
	Academic institutions are not stagnant, and their relationships should be	
	examined on occasion to ensure that the goals for the partnerships are being	
	met effectively.	(Formath et Fort (Defoult) Arial 11 at
(n)	Consideration should be given to developing clear pathways for students	Formatted: Font: (Default) Arial, 11 pt
	between programs offered by the university and the candidate institution.	Formatted: Indent: Left: 2.54 cm, No bullets or numbering
	In keeping with the obligation of post-secondary institutions to support the	
	career aspirations of their students, the question of whether a relationship of	
	affiliation or federation provides an opportunity to establish academic pathways	
	or ladders for students should be a factor in defining the relationship.	
(1-)		Formatted: Font: (Default) Arial, 11 pt
	Consideration should be given to the role the candidate institution might	• (Formatted: No bullets or numbering
	play in the governing bodies of the university. The University of Saskatchewan Act 1995 provides that affiliated and federated institutions have	
	representation on both Council and the Senate. The partners should consider	
	how this opportunity to participate in university governance can be most	
	effectively deployed. A Council of Affiliated and Federated Institutions (CAFI)	
	will be established to that effect.	
		Formatted: Font: (Default) Arial, 11 pt
	Consideration should be given to whether an alternative form of	Formatted: No bullets or numbering
	partnership might be more appropriate. Given the involvement of affiliated	
	and federated institutions in university governance, it is clearly contemplated that these relationships will be of a comprehensive nature. Where the interest	
	of the parties is restricted to individual programs or projects, there may be other	
	forms of relationship that are more appropriate.	
		Formatted: Font: (Default) Arial, 11 pt
(i)	The academic standards and integrity of the candidate institution should	Formatted: No bullets or numbering
	be a factor in determining whether the university will enter into a	Formatted: Numbered + Level: 1 + Numbering Style: a, b
	relationship of affiliation or federation. It is important to the university that	+ Start at: 1 + Alignment: Left + Aligned at: 1.9 cm +
	any candidate institution be able to demonstrate standards of academic	Indent at: 2.54 cm

attainment and institutional integrity that will be consonant with the level of expectation to which the university holds itself.

4. Affiliation

(a) The aim of affiliation is to associate with the University for the purposes of promoting the general advancement of higher education in the province, those institutions which are carrying on work recognized as of university grade by <u>Council</u> of the University, where such association is of mutual benefit to the University and the institution seeking affiliation.

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- (b) The following theological colleges are affiliated with the University; College of Emmanuel and St. Chad Lutheran Theological Seminary St. Andrew's College Horizon College and Seminary Briercrest Bible College and Biblical Seminary
- (c) The requirements for the affiliation and continued affiliation of theological colleges with the University are:
 - (i) That the theological college may offer at least three courses for which credit is given by the University toward a degree.
 - (ii) That the normal admission requirements of the theological college be at least equal to those of the University.
 - (iii) That students who receive the graduation diploma of the college shall normally have a minimum of one year of Arts credit other than theological options beyond senior matriculation.
 - (iv) That the qualifications of the faculty including graduate work, the expected proportion of holders of PhDs on the faculty, and the adequacy of the library facilities be approved by <u>Council</u> of the University.
 - (iv) That, except in cases of emergency as recognized by <u>Council</u> of the University, the minimum number of full-time students who qualify under regulation (b) above be not less than an average of twelve students per year over any or every period of three consecutive years.
 - (v) That, the course of studies leading to the graduate diploma of the college should normally require a period of at least three academic years for completion.
 - (vi) That an institution which is seeking affiliation with the University of Saskatchewan must institute tenure provisions acceptable to the University but not necessarily equivalent to the University academic tenure regulations.
- (d) Gabriel Dumont College of Metis Studies and Applied Research is an Affiliated College with the University.
- (e) St. Peter's College is an Affiliated College with the University.

St. Peter's College Students taking courses at St. Peter's College for university credit must be admitted to the University of Saskatchewan as well as to St. Peter's College, Deleted: For work done in St. Peter's College, the University may give credit provided that the following conditions are met: That the courses to be credited to the University are considered by the (i) University to be equivalent in quality to its own courses. That the offering of each course and the appointment of its instructor are (ii) approved by the appropriate official of the University, with the concurrence of the University of Saskatchewan department head, dean or director concerned. (iii) That the library and other facilities of the College for a given course are judged adequate by the University, with the concurrence of the University of Saskatchewan department head, dean or director concerned. (iv), That the final examinations are conducted by examiners appointed or Formatted: Indent: Left: 2.54 cm, Hanging: 0.96 cm accepted by the University in accordance with university examination Deleted: regulations; that the examination papers are approved in advance by the University department, faculty, or school concerned, which may also review the marked answer papers before the final results are reported to the University Registrar and Director of Student Services. That an upper-year student of the University is permitted to register at the (v) College only part-time i.e. for a maximum of two full courses. (vi) That a student may not receive credit for more than two years (10 courses) of work at the College, of which not more than one year (5 courses) may consist of upper-year courses. (vii) Colleges which have been or shall be recognized by Council as federated colleges of the University shall be considered to be in affiliation with the University. Deleted: 4 Federation (a) The requirements for recognition as a federated college of the University shall include the following: The College must be authorized by the University to give courses (i) recognized for credit toward a Bachelor of Arts degree in the subjects of at least four departments of the College of Arts and Science. The members of the College teaching staff, teaching the above University (ii) courses or classes, must possess qualifications sufficiently high to be recognized as members of the Faculty of Arts and Science and shall be so recognized. (iii) The College must be situated on or adjacent to the campus at Saskatoon.

(b) St. Thomas More College is a Federated College with the University.

St. Thomas More College, Saskatoon

St. Thomas More College, Saskatoon, which is hereinafter referred to as the College, shall be recognized as a federated college upon the following terms and conditions:

The officers and faculty of the College, as indicated, are entitled to full membership with power to vote, on the following academic bodies:

The Senate: The President to be a member.

The General Academic Assembly: The Dean, Professors, Associate Professors, Assistant Professors, full-time lecturers, special lecturers and instructors to be members.

The Council: either two elected representatives, or the Dean and one elected representative. The President to be a non-voting member.

The Faculty Council of the College of Arts and Science: The Dean, Professors, Associate Professors, Assistant Professors, full-time lecturers, special lecturers and instructors teaching courses recognized for the B.A. or B.Sc. degrees to be members.

Students enrolled in the College who have satisfied the University requirements for admission shall be admitted to such University courses as they are qualified to enter and continue therein on the same terms as other University students, provided the fees required for such courses have been paid. Students enrolled in the University may, with the permission of the College, take courses in the College recognized for the B.A. and B.Sc. degrees provided that the fees required for such courses have been paid. The conditions will apply provided the same tuition fee is required by both the College and the University.

The foregoing provision with regard to the tuition fee for the Arts and Science courses applies to the pre-professional courses.

All students enrolled in a professional college or school must pay the University the full tuition fee required for each year of the professional program, though the University may grant credit for any course or courses taken in the College and accepted by the College of Arts and Science for the corresponding course required in a professional program.

Academic appointments to and promotions within the College shall be made by the Board of Governors of the College, on the recommendation of the President of the College but prior to making such appointments or promotions, the President of the College shall secure the approval of the President of the University.

The University will recognize the instruction given by the College in subjects in the divisions of the humanities and social sciences, and such other subjects as may from time to time be agreed upon with the College of Arts and Science, or other appropriate college, provided that the instruction is given by competent teachers and that the work done in each course is equivalent in extent and standards to that given by the University. This equivalence is to be determined by the Head of the Department in the College and the Head of the Department

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in the University working out in cooperation the extent of the courses, the standard and all the particulars pertaining to the subjects, including the examinations to their mutual satisfaction or, in cases of difficulties, to the satisfaction of the President of the University.

The University shall confer the B.A. or B.Sc. Degree on such students of the College as have satisfied the requirements prescribed by the University for admission and for the B.A. or B.Sc. curriculum.

AGENDA ITEM NO: 11.3

UNIVERSITY COUNCIL GOVERNANCE COMMITTEE REQUEST FOR DECISION

PRESENTED BY:	Stephen Urquhart, chair Governance Committee
DATE OF MEETING:	June 18, 2020
SUBJECT:	Revisions to Council Bylaws – Governance Committee

DECISION REQUESTED:

(URQUHART/MOUSSEAU): It is recommended that Council approve the changes to the Governance Committee's terms of reference effective June 30, 2020.

PURPOSE:

To update (and consider separately) the Governance Committee's terms of reference in the University Council Bylaws.

DISCUSSION SUMMARY:

As per item 11.2 in this June 18, 2020 Council agenda package, the governance committee undertook a review of "the membership, powers and duties of committees of Council and recommending to Council revisions to the membership, powers and duties of committees." It followed that the Governance Committee considered its own terms of reference in the Council Bylaws. Again, with a view to membership reflecting shared governance, and an action-oriented governance role.

In summary, the following was clarified in the governance committee's terms of reference:

- The Governance Committee clarified that the University Secretary is an *ex officio* non-voting member.
- The committee considered the voting status of USSU and GSA representatives in the Governance Committee (see attached memo). Student representatives had been added to the Governance Committee as non-voting members in November 2019. The Governance Committee weighed the question of students voting status and sought the input of the Coordinating Committee of Council. The consensus view of both committees was that the work of the Governance Committee was unique

within the work of University Council., and no change to the voting status is recommended. The Governance Committee appreciates the important and powerful voice student representatives exercise in the committee.

A notice of motion to amend the University Council Bylaws was duly presented to Council on May 21, 2020. The motion was divided into two for the June 18, 2020 Council meeting, but with no substantive changes to the recommended revisions to the Council Bylaws. This change was made in order to consider independently the GSA's and USSU's request to reconsider the voting status of the student representatives on the committee.

FURTHER ACTION REQUIRED:

Posting of the Council Bylaws on the Council website.

ATTACHMENT:

- 1. Memo from the USSU and GSA regarding voting status on the Governance Committee
- 2. Tracked changes of updates to University Council Bylaws Governance Committee terms of reference

Attachment 1





April 29, 2020

RE: Student Membership on Governance Committee of Council and Student Engagement on COVID-19 Crisis Management Teams

To the Governance Committee and USask administration,

We are disappointed that the Governance Committee, on April 21, 2020, voted to not proceed forward with assigning voting membership for students on the Governance Committee of Council. This decision was made on the basis that the Governance Committee is different to other Council Committees, and therefore does not warrant voting membership for students. The basis of this decision is contrary to the values of our university, and therefore, is unacceptable.

Students have played integral roles in Council Committees and have shaped many of the discussions that have taken place. With this decision, we continue to build a wall between students, administration and faculty, and with this wall, we are pushing students away. We continue to be one of the few U15 institutions that attempts to legitimize a lack of student engagement on institutional governing bodies.

Furthermore, the university administration continues to exclude students, appointed by the USSU and GSA executive, on any of the COVID-19 Crisis Management Teams. Student leaders are at the forefront of addressing the needs and concerns of their membership and it is critical that we have open and direct lines of communication every step of the way so that we can properly inform our members of the actions taken as well as directly advocate for them.

As student leaders, we are disheartened to see these decisions move forward; as an institution it seems we are taking one step forward and two steps back. We can certainly do better to ensure students are part of the shared governance structure and part of the decision making process. In keeping with our university's mission, we again request the rightful inclusion of our student representatives on these committees.

USSU Executives and GSA Executives

Attachment 2

II. <u>GOVERNANCE COMMITTEE</u>

Membership

Three elected members of Council, one of whom will be Chair President's designate Chair of Council Chair, academic programs committee of Council Chair, planning and priorities committee of Council

<u>Ex Officio (non-voting)</u> University Secretary

Student members (non-voting) One graduate student appointed by the GSA USSU President or designate

Administrative Support Office of the University Secretary

The Governance Committee is responsible for:

1) Reviewing the Bylaws of Council and recommending to Council revisions to the Bylaws.

2) Reviewing the Bylaws of Faculty Councils and recommending to Colleges and Schools changes to the Bylaws.

3) Reviewing the membership, powers, and duties of committees of Council and recommending to Council revisions to the membership, powers and duties of committees.

4) Recommending to Council regulations and procedures for Council and Council committees.

5) Advising Council with respect to its responsibilities and powers under *The University of Saskatchewan Act, 1995* and recommending to Council on proposed changes to the Act.

6) Nominating members and Chair of the Nominations Committee of Council.

7) Providing advice to the Chair of Council on the role of the Chair.

8) Recommending to Council rules and procedures, including the penalties as prescribed by section 61(1)(h) of *The University of Saskatchewan Act, 1995*, to deal with allegations of academic misconduct on the part of students.

9) Recommending to Council rules and procedures to deal with appeals by students and former students concerning academic decisions affecting them as provided in section 61 (1) (j) of *The University of Saskatchewan Act, 1995*.

10) Designating individuals to act as representatives of the committee on any other bodies, when requested, where such representation is deemed by the committee to be beneficial.

AGENDA ITEM NO: 11.4

UNIVERSITY COUNCIL

GOVERNANCE COMMITTEE

REQUEST FOR DECISION

PRESENTED BY:	Stephen Urquhart, chair, Governance committee of Council
DATE OF MEETING:	June 18, 2020
SUBJECT:	Nominations for the nominations committee of Council for 2020/21
DECISION REQUESTED:	It is recommended that Council approve the nomination of Keith

It is recommended that Council approve the nomination of Keith Walker to the nominations committee of Council, effective July 1, 2020 to June 30, 2021, as attached.

DISCUSSION SUMMARY:

The Governance Committee recommends the 2020/21 membership of Keith Walker, Department of Education Administration to the Nominations Committee.

ATTACHMENT:

1. Nominations Committee recommended membership (new member in red).

NOMINATIONS COMMITTEE

- Recommends nominations for Council committees and panels, search and review committees, some collective agreement committees and panels, and other vacancies.
- Membership restricted to members of Council (9 members), with no more than 3 members from the College of Arts and Science and no more than 2 members from any other college.

Name

Paul Jones (chair)	SENS/Toxicology	2022
Tom Steele	Physics	2023
Eric Lamb	Plant Sciences	2023
Teresa Paslawski	College of Medicine	2023
Kara Somerville	Sociology	2022
Petros Papagerakis	Dentistry	2021
Yvonne Shevchuk	Pharmacy & Nutrition	2023
Keith Walker	Education Administration	2021
Jaswant Singh	WCVM	2022

Resource Members

Jacquie Thomarat	Associate Secretary, Academic Governance
Michelle Kjargaard	Administrative Assistant, Office of the University Secretary

UNIVERSITY COUNCIL

GOVERNANCE COMMITTEE

REPORT FOR INFORMATION

PRESENTED BY:	Stephen Urquhart, chair Governance committee
DATE OF MEETING:	June 18, 2020
SUBJECT:	Governance Committee Annual Report to Council
COUNCIL ACTION:	For information only

GOVERNANCE COMMITTEE TERMS OF REFERENCE

- 1. Reviewing the Bylaws of Council and recommending to Council revisions to the Bylaws.
- 2. Reviewing the Bylaws of Faculty Councils and recommending to Colleges and Schools changes to the Bylaws.
- 3. Reviewing the membership, powers, and duties of committees of Council and recommending to Council revisions to the membership, powers and duties of committees.
- 4. Recommending to Council regulations and procedures for Council and Council committees.
- 5. Advising Council with respect to its responsibilities and powers under *The University of Saskatchewan Act, 1995* and recommending to Council on proposed changes to the Act.
- 6. Nominating members and Chair of the Nominations Committee of Council.
- 7. Providing advice to the Chair of Council on the role of the Chair.
- 8. Recommending to Council rules and procedures, including the penalties as prescribed by section 61(1)(h) of *The University of Saskatchewan Act, 1995*, to deal with allegations of academic misconduct on the part of students.

- 9. Recommending to Council rules and procedures to deal with appeals by students and former students concerning academic decisions affecting them as provided in section 61 (1) (j) of The University of Saskatchewan Act, 1995.
- 10. Designating individuals to act as representatives of the committee on any other bodies, when requested, where such representation is deemed by the committee to

GOVERNANCE COMMITTEE MEMBERSHIP 2018/19

Council Members Stephen Urquhart (chair) Mark Boland Terry Wotherspoon Darrell Mousseau Susan Detmer Jay Wilson	Chemistry Physics & Engineering Physics Sociology Chair, planning and priorities committee Chair, academic programs committee Chair, Council	2020 2022 2022 2020 2020 2020 2020
Ex officio Members Chelsea Willness	University Secretary	
Other Members Tamara Larre (vice-chair)	President's designate	2022
Student Members Regan Ratt-Misponas Naheda Sahtout	USSU representative GSA representatives	2020 2020
Resource Members Jacquie Thomarat	Associate Secretary, Academic Governance	

GOVERNANCE COMMITTEE ANNUAL REPORT FOR 2019/20

Introduction

The governance committee reports regularly to Council on changes to the *Council Bylaws*, changes to the membership of faculty councils, and the number of student appeals under Council's regulations governing academic misconduct and academic appeals. Each September the committee reviews and approves a yearly work plan which may include new initiatives or work on projects begun previously. A summary of the committee's work in 2019/20 follows.

The governance committee generally meets once per month for two hours, with the exception of December and March.

Principles for federation and affiliation with USask

The committee worked to clarifying the principles for the university's affiliation and federation with other institutions. Currently, St. Thomas More College is the university's federated college, and the university's affiliated institutions are the College of Emmanuel and St. Chad, St. Andrew's College, Lutheran Theological Seminary, St. Peter's College, Horizon College and Seminary, Briercrest College and Seminary, and the Gabriel Dumont Institute. Following Dan Perrins' report on the matter which was completed in 2018, the committee undertook to develop draft principles for federation and affiliation with USask.

The committee requested input from Council in December 2020, and from the university's affiliated and federated colleges in January 2020. The inclusion of these principles in Council bylaws is presented as a notice of motion in May 2020, with the intention of a motion for decision in June 2020 council meeting.

International Activities Committee (IAC)

Following a report from a working group of the IAC, in 2018 the IAC recommended that the committee be disbanded. In the 2018-19 year, the governance committee sought the feedback of the other committees of Council regarding the place of internationalization in their terms of reference.

A motion to approve the dissolution of the IAC was approved by Council in November 2019, along with a separate set of revisions to the terms of reference of PPC, RSAW, TLARC and APC.

Standing Committees' Terms of Reference and Council Bylaws

The governance committee is responsible for periodically "reviewing the membership, powers and duties of committees of Council and recommending to Council revisions to the membership, powers and duties of committees."

In November 2019, Council committees were asked to contemplate and propose revisions to their terms of reference with a view to the principles of shared academic governance, and their action-oriented governance roles. Draft revisions were presented to Council as a notice of motion in May 2020, and as a request for decision in June 2020. The governance committee's terms of reference were presented separately to allow for the consideration of student non-voting membership on the committee.

Strategic coordination subcommittee

The governance committee considered a change to the terms of reference of what had been known as the standing sub-committee of the Coordinating Committee. This committee used to meet with the Provost's Committee on Integrated Planning (PCIP) to discuss planning and coordination around emerging management issues.

After discussion with the Coordinating Committee, the Provost, and the Institutional Planning and Assessment office, the terms of reference and title of this committee were altered. This was approved by Council in December 2019.

Student Appeals in Academic Matters

The Governance Committee of Council is responsible for periodically "Recommending to Council rules and procedures, including the penalties as prescribed by section 61(1)(h) of *The University of Saskatchewan Act, 1995*, to deal with allegations of academic misconduct on the part of students."

In January 2020, the governance committee requested feedback from the colleges' associate deans academic on the Student Academic Misconduct Regulations. Limited feedback was received. Further feedback will be solicited and revisions considered in the 2020/21 academic year.

In addition, as it does annually, in June the University Secretary reported to the governance committee and University Council on the number and nature of student appeals in academic matters and appeals of decisions related to academic misconduct.

Faculty Council Bylaws

The governance committee offers assistance to college and schools in the development and review of their bylaws. As Council has delegated to colleges and schools the authority to approve their own bylaws, the committee's role is advisory. However, Council retains the authority to approve any membership changes, and these are first submitted for review to the governance committee.

This year the committee reviewed and made suggested revisions to the bylaws of the colleges of Dentistry and Nursing, whose membership revisions were approved by Council in May 2020.

Emergency Powers

Council Bylaws allow, in the event of an emergency situation, for decisions in urgent matters to be made by alternative means and that procedures governing such decisions be the responsibility of the governance committee (III.5.i).

Given the COVID-19 pandemic and the urgent need to move to remote course delivery, the governance committee determined by way of an electronic vote on March 13, 2020 to empower the coordinating committee to make emergency decisions, e.g. allowing instructors to make alternations to course syllabi.

Acknowledgements

I wish to thank the former university secretary, Beth Bilson for her wisdom, humour and patience, and Katelyn Wells for her expert support for university governance. I wish them both well in their new positions.

I wish to acknowledge and thank Michelle Kjargaard's support for the committee, the leadership of Chelsea Willness, university secretary and chief governance officer, and support of Jacquie Thomarat, associate secretary, academic governance.

Respectfully submitted,

Stephen Urquhart, chair

UNIVERSITY COUNCIL

GOVERNANCE COMMITTEE ITEM FOR INFORMATION

SUBJECT:	Number of student appeals from 2019/20
DATE OF MEETING:	June 18, 2020
PRESENTED BY:	Stephen Urquart; Chair, governance committee

CONTEXT AND BACKGROUND:

The governance committee requested that the University Secretary, as a matter of course, report on the nature and number of student appeals under Council's regulations on Student Appeals in Academic Matters, as well as appeals of decisions related to Academic Misconduct.

SUMMARY:

1. Student appeals in academic matters

From May 1, 2019 to April 30, 2020 there were seven applications for appeals in academic matters that were submitted to the University Secretary. This compares to four applications for appeals received from May 1, 2018 to April 30, 2019. Of the seven applications received, five went forward to an appeal board. Two of the appeals were successful on limited grounds and three were dismissed. Both of the applications for appeal that did not go forward to an appeal board were dismissed by the University Secretary as not meeting the allowable grounds of appeal.

2. Appeals of decisions related to academic misconduct

From May 1, 2019 to April 30, 2020 there were nine applications for an appeal of a decision of a college hearing board under the Student Academic Misconduct Regulations and five went forward to a hearing. This compares to three applications for appeal received from May 1, 2018 to April 30, 2019. Of the five appeals that went forward to an appeal hearing, one was successful on limited grounds and a portion of the sanctions imposed by the original hearing board was overturned. The four applications for appeals that did not go forward to an appeal board were dismissed by the University Secretary as not meeting the allowable grounds of appeal.

Under Council's regulations on student misconduct, allegations of academic misconduct are heard first at the college level.

UNIVERSITY COUNCIL

PLANNING AND PRIORITIES COMMITTEE

REQUEST FOR DECISION

PRESENTED BY:	Darrell Mousseau, chair, Planning and Priorities Committee of Council
DATE OF MEETING:	June 18, 2020
SUBJECT:	Acceptance of the Indigenous Engagement Strategy
DECISION REQUESTED:	

(OTTMANN/MOUSSEAU) It is recommended that Council accept the "Indigenous Strategy."

DISCUSSION SUMMARY:

The Planning and Priorities Committee (PPC) recommends the acceptance of the gift of the *Indigenous Strategy*, as attached.

On April 22, 2020 PPC received the draft Indigenous Engagement Strategy for review, and also considered it on May 2, 2020. On May 7, 2020, the draft strategy was presented to the President's Executive Committee where a discussion about the appropriate protocols and process for moving the plan forward took place. Following this consultation, on May 12, 2020 PPC passed an electronic motion recommending the acceptance of the strategy. On May 13, 2020 at the President's Executive Committee breakfast meeting with the Council Chairs, the strategy was also a topic of discussion.

This Indigenous Engagement Strategy is presented to University Council as a gift from the Indigenous community. Information regarding the process for its development is included in the attached document.

Changes that have been made since the last version (circulated for the May 21, 2020, meeting of University Council) are as follows:

- 1. Page 2: Canadian Constitution, Section 35 has been added;
- 2. Page 4: All the Elders, Traditional Knowledge Keepers, Language Teachers that contributed to the strategy have been listed;
- 3. Names on many of the quotes on the left have been added;
- 4. Page 9: "Our Connection to Land" has been added;
- 5. Page 15: Gordon Oakes Red Bear Student Centre story;

- 6. Page 39: Glossary of Terms is now completed;
- 7. Page 44: Appendix: Wise Practices As suggested by the Elders, inclusion of more land-based initiatives and programs have been added.

On June 15, 2020, PPC voted (electronically) in favour of accepting these changes and presenting the document to University Council as a request for decision.

NEXT STEPS:

The document will be presented for acceptance to the Board of Governors at its early July 2020 meeting, and at the October 2020 Senate meeting.

ATTACHMENT:

1. Indigenous Strategy



As we gather here today, we acknowledge we are on Treaty 6 Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

We also acknowledge the lands and Treaty territories that constitute kisiskâciwan (Saskatchewan), and the Indigenous Peoples that call kisiskâciwan home. The University of Saskatchewan is ultimately intertribal in spirit. **University of Saskatchewan**

Indigenous Strategy

Section 35 of the Constitution Act

- (1) The existing aboriginal and treaty rights of the aboriginal peoples of Canada are hereby recognized and affirmed.
- (2) In this Act, "aboriginal peoples of Canada" includes the Indian, Inuit and Métis peoples of Canada.
- (3) For greater certainty, in subsection (1) "treaty rights" includes rights that now exist by way of land claims agreements or may be so acquired.
- (4) Notwithstanding any other provision of this Act, the aboriginal and treaty rights referred to in subsection (1) are guaranteed equally to male and female persons.



That is the fundamental nature of gifts: they move, and their value increases with their passage. The more something is shared, the greater its value becomes. The essence of the gift is that it creates a set of relationships based on respect and reciprocity. In the gift economy, gifts are not free... They are a "bundle of responsibilities".



nuhha ho?ą Taŋyaŋ yahipī dąyą́ wacímnaga tawā taanishi tawāw welcome

It is an honour to gift this strategy to the University of Saskatchewan on behalf of the Indigenous peoples who created it.

This strategy uplifts Indigenous voices. It presents *our* stories. It honours seven generations of our ancestors and seven generations of our children not yet born. As an act of self-determination, this strategy expresses the creativity, the aspirations and the expectations of Indigenous peoples. It testifies. It teaches. It guides.

This strategy is a gift to non-Indigenous peoples. We are indebted to the generosity of Indigenous peoples across Saskatchewan who dedicated such care and effort in creating this document. We are hopeful the university community, in accepting this gift, will dedicate reciprocal care and effort in embracing the responsibilities this gift entails.

This strategy invites non-Indigenous peoples to walk with us and celebrate the harmony of parallel journeys. As the Indigenous Strategy for the University of Saskatchewan, this document is a companion to the University Plan 2025, shining a light on the university's reconciliation journey and helping to pave paths for Indigenous and non-Indigenous peoples alike to work collaboratively and willingly to reach a shared destination. The presentation of this document also reflects parallel journeys: the left

kēhtē-ayak (Elders) and Traditional Knowledge Keepers

- Eugene Arcand
- Lorna Arcand
- Bob Badger
- Marie Battiste
- Anthony Blair-Dreaver Johnston
- Monica Buffalo
- Maria Campbell
- Mona Creely-Johns
- Nora Cummings
- Roland Duquette
- Norman Fleury
- Louise Halfe
- Murray Hamilton
- May Henderson
- The late Frank Kayseas
- Enola Kayseas

Margaret Keewatin

- Kevin Lewis
- Lyndon J. Linklater
- Maria Linklater
- Randy Morin
- Larry Oakes
- Harriet Oakes-St.Pierre
- Jacob Pete
- Jacob Sanderson
- Senator Sol Sanderson
- Myrna Severight
- Edwin St. Pierre
- Cy Standing
- Sonia Starblanket
- Wendell Starblanket
- Leona Tootoosis
- Rosalie Tsannie-Burseth

Indigenous Language Translators

- Bob Badger (Saulteaux)
- Norman Fleury (Michif)
- Kenneth Helgeson (Nakota)
- Kelvin Dale Mckay (Dakota)
- Randy Morin (Cree)
- Rosalie Tsannie-Burseth (Dene)

side narrates the plan; and together, they illuminate the wholeness of the strategy. *This strategy acknowledges the university's participation—historical and persistent*,

overt and subtle—in colonialism and reflects the university's conviction to decolonize. This strategy is powerful because it is honest, not tokenistic. It required courage to write. It requires courage to read. And, most importantly, it will require courage to implement.

side of each page teaches us about Indigenous ways of knowing and being; the right

This strategy challenges all of us to engage in the difficult work of resetting relationships. Getting to this point has not been easy for the diverse communities of Indigenous stakeholders who have wrestled with this strategy and what it means for a university to decolonize, to reconcile, to Indigenize. The gifting of this strategy does not signal the end of struggle; it signals the resurgence of a process of awakening and renewal.

This strategy is alive. We have put forward a framework of commitments, principles and calls to action that institutional bodies, offices, colleges and units will need to interpret and build into their own strategic and operational plans. The markers associated with each commitment indicate the change we expect to see, forming the basis for indicators that the Office of Institutional Planning and Assessment, in collaboration with senior leadership portfolios, will develop and use to monitor our progress. This strategy is not a prescription; it is not static. It represents a living, cyclical process of learning, measuring and adapting—as dynamic and resilient as the Indigenous voices it embodies.

I am so grateful to our kehte-ayak (Elders) and Traditional Knowledge Keepers, Indigenous language translators, and the scores of Indigenous students, staff and faculty who have given so much to create this strategy. We honour you with this document—and with our commitment to getting the job done in a good way.

Miigwetch



Dr. Peter Stoicheff

President and Vice-Chancellor



mąsi pidamaya pinámaya miigwetch marsee hiy thank you

On behalf of the University of Saskatchewan, I accept the gift of this strategy with profound gratitude, respect and hope.

I am proud to lead a university with the humility to embrace the responsibility this gift entails; the readiness to learn from and be guided by the wisdom of the Indigenous peoples who will lead us on the journey toward right relations; and the conviction to grow and do better as a community.

The University of Saskatchewan's aspiration, as expressed in our University Plan 2025, is nīkānītān manācihitowinihk | ni manachīhitoonaan (to lead with respect) and to be *The University the World Needs*. More than ever, the world needs a university in which decolonization, reconciliation and Indigenization are an animating force. The Indigenous Strategy presented in these pages uplifts decolonization, reconciliation and Indigenization at the University of Saskatchewan because it was written by, with and for Indigenous peoples. It does not read as a traditional strategy—nor should it. It speaks with the power of Indigenous voices.

I am personally committed to upholding the vitality and urgency of this document through meaningful action. Over the coming weeks, months and years, this foundational strategy will guide the choices we make as a university community. It will distinguish us as an institution and set the benchmark for how an Indigenous Strategy should be created, received and implemented. It will help the University of Saskatchewan *Lead with Respect* and become *The University the World Needs*.

Miigwetch





Strategy Through Indigenous Perspectives

I have strong hopes that the work done to date is not done for nothing, that this office must "survive" or continue no matter what government comes in to power in order for Indigenization to have sustainability and continue its good work at the U of Sask; and to move forward for the betterment of all... To be mindful that "nehiyaw education" is different from "white education" and both are beneficial. Keep thinking and moving outside the box!

Wendell Starblanket

Strategy as Gift. We gift this strategy to the University of Saskatchewan. Indigenous peoples from the city of misâskwatômina (Saskatoon), the province of kisiskâciwan (Saskatchewan) and beyond; Indigenous students, staff, faculty, and leaders with a direct connection to the university; and kēhtē-ayak (Elders), oskâpêwak (Elder's Helpers), Knowledge- and Language-Keepers who recognize the university's role in building communities across this province have given voice to this strategy as an expression of self-determination, an invitation to reset relationships and a framework for the University of Saskatchewan's reconciliation journey.

Strategy as Reciprocity. As a gift, this strategy is a symbol of reciprocity and requires acknowledgement of our responsibilities. For Indigenous peoples, this strategy embodies a spirit of belonging, empowerment and hope that change is possible. For non-Indigenous peoples who have received and accepted this gift, this strategy should enlighten and guide. It creates the ethical space to imagine new models of scholarship, research, teaching and engagement that will uplift Indigenous ways of knowing and being for everyone, embolden a new kind of University of Saskatchewan student, and enrich the University's role in building resilient communities across the province, Canada and the globe.

Strategy as Voice. Written by and with Indigenous peoples, this strategy's voice represents Indigenous languages, philosophies and spirituality. Four questions central to Indigenous ways of understanding our connections to place, time and community—and our role in honouring our ancestors and shaping our shared destiny—underpin the conceptual framework of this document:

- Who are we?
- Where do we come from?
- Where are we going?
- What are our responsibilities?

An Indigenous Strategy: The 'Right Thing to Do'

The development of an Indigenous Strategy is the 'right thing to do' for the University of Saskatchewan. We have constitutional/treaty rights (e.g. Constitutional Act 1982, UN Declaration on the Rights of Indigenous Peoples), human rights (e.g. Universal Declaration of Human Rights, 1948; Canadian Human Rights Act, 1977; Canadian Charter of Rights and Freedoms, 1982), moral and ethical obligations to ensure this work is "done in a good way", with integrity. Moral obligation refers to individual values and internal interpretations (i.e., internal compass) of what is right and wrong in relation to standards of behaviour—the focus is on 'right relations' and doing the 'right' thing. Ethical responsibilities refer to community/collective responsibilities to fairness and justice—the obligations to humanity. The Indigenous Strategy will guide and help ensure that the work done with and alongside Indigenous peoples is driven by legal, ethical and moral responsibilities.

At their core, these questions embody a doctrine of relationships: wâhkôhtowin. We do not simply inhabit a physical place at a moment in time. One's sense of wholeness derives from the seven generations that preceded us, the seven generations yet to come (those children not yet born), and the unassailable connections, inextricable interconnections, and relationality to our community, our environment and the cosmos that sustain life. This strategy, then, is not an attempt to recover something we've lost. It is an affirmation of the history, rights, sovereignty, vitality, strength, voice, and brilliance that have always made Indigenous peoples whole. It is an act of self-determination.

Strategy as Metaphor. Throughout this document, we have employed the double helix as a visual metaphor. The double helix is dynamic and resilient. Continuous and non-linear. Each strand is defined by a single, unbroken line, but the path is not singular: together, the strands can stretch or compress like a coil; they can spin around each other clockwise toward the future or be reset in the opposite direction. But despite these forces, despite this change, the helix remains whole. A helix embodies the collision of chaos and order at the heart of creativity. A helix helps us to imagine the connections across space and across generations whose integrity is central to the wholeness of Indigenous self-determination.

Strategy as Responsibility. If we have been successful, this strategy will awaken understanding, build relationships and inspire collaborative and respectful action driven by the spirit and intent of Treaty agreements—historic, current and future. We Are All Treaty People. If we have been successful, this strategy will coexist with the University Plan 2025 and allow us to walk parallel journeys toward a common future. If we have been successful, this gift will be received in the spirit intended by the Indigenous peoples who created it.

The Many Voices of Indigenous Peoples

The Indigenous Strategy reflects the voices of Indigenous peoples from across Saskatchewan, specifically those who have a deep connection to the University and its history; primary languages groups in Saskatchewan include Plains Cree, Woodland Cree, Swampy Cree, Dene, Dakota, Lakota, Nakota, Saulteaux, and Michif. We have communicated key Indigenous principles and terms throughout this strategy in several Indigenous languages native to Saskatchewan as a sign of respect to the voices that created this strategy and to uphold our linguistic and cultural history. Each main section of the Strategy is introduced in six Indigenous languages in order of appearance, Dene, Dakota, Nakota, Saulteaux, Michif and Plains Cree—in addition to English. Further, use of Indigenous terms in the body of the strategy is denoted with the Indigenous language group in parentheses.

Our Connection to Land

While the conventional interpretation of the land is something that is immovable or inert, an Indigenous perspective of the term 'land' is something more. Land is viewed in a more 'wholistic' sense as a living, breathing ecosystem and territory; a kin connection in an Indigenous worldview; and a place that we must learn from, nurture and sustain. For many of the kēhtē-ayak (Elders) engaged in developing this Strategy,
Indigenous languages, protocols, stories, histories, and ways of knowing and being are intrinsically tied to the land. The land has always been our first teacher.



ëdłąghį?at'į?a? ountounwapi he? dúwebi he? wenan neenawint? awayna niiyaanaan? awīna ōma kiyānaw? who are we?

We are Indigenous peoples. We are Indigenous peoples whose ancestors entered into the sacred treaties with the British sovereign that laid the foundations for provinces, including kisiskâciwan (Saskatchewan). The Constitution Act of 1982 recognized and affirmed our existing aboriginal and treaty rights, which comprise our Indigenous constitutions. The Constitution of Canada recognized Indians (First Nations), Inuit, and Métis as the Indigenous Peoples of Canada. As the original peoples of this land, represented as Turtle Island to some of us, we represent diverse knowledges, including a diversity of cultures, languages, traditions, and histories of our Indigenous ancestors, coming from many parts of the continent, and live as vibrant, distinctive, and sovereign nations and peoples throughout Canada. Our knowledges are distinctive to the unique ecosystems and territories in which we live, and we are thus deeply embedded in the fabric of the land and territories, its histories, and its development. Our nations across Canada continue to grow, with over 1.6 million people living in all of the provinces and territories across Canada. While the Constitution Act recognizes three distinctive groups, Indians (First Nations), Inuit, and Métis, it overlooks our inherent diversity; with over 700 Metis, First Nations and Inuit nations across Canada, possessing a rich linguistic history that includes over 60 distinct Indigenous languages within 12 linguistic families.

Let us lead with respect Developing the Indigenous Strategy

The development of the Indigenous Strategy is rooted in the Indigenous principles of nīkānītān manācihitowinihk (Cree) and ni manachīhitoonaan (Michif) – which translates to "Let us lead with respect". By leading with respect, we ensure that the Indigenous strategy reflects the voices of Indigenous peoples. Eight gatherings were held with Indigenous peoples over a seven-month period: a kēhtē-ayak (Elder) and Traditional Knowledge Keeper Gathering began our strategic process "in a good way", convening the largest gathering in University history. Other gatherings were held at the request of kēhtē-ayak (Elders) and Knowledge Keepers in attendance, as well as an Indigenous Community Gathering of more than 80 Indigenous peoples from 29 organizations at Wanuskewin Heritage Park. The voices of Indigenous staff, faculty, and students were also heard during gatherings at the University.

The Indigenous Strategy was written by and with Indigenous peoples—the answers to "Who are we?", "Where do de come from?", "Where are we going?" and "What are our responsibilities?" represents the voice of Indigenous peoples across Saskatchewan as an expression of self-determination and a framework to support the University's journey towards Indigenization, decolonization and reconciliation. *We are integral to the University of Saskatchewan community.* Indigenous peoples have lived on the land known as Saskatchewan—in the tip of a vast maskotew (prairie ecosystem) that blends into ayapâskweyâw (a northern bush ecosystem)—since time immemorial. Indigenous peoples comprise more than 16% of Saskatchewan's population (>175,000 people)¹, having grown 22% since 2006 and representing over 70 nations. We have a deep connection to the University of Saskatchewan. Indigenous peoples made important contributions early in the University's history. As examples, <u>Edward Ahenakew</u> (Cree, from the Ahtahkakoop First Nation) was USask's first Indigenous graduate in 1910; <u>James McKay</u>, the first Indigenous (Métis) judge appointed to the Saskatchewan court in 1914, served on the University's first Board of Governors; and <u>Annie Maude "Nan" McKay</u>, the first Métis student and Indigenous women to graduate from USask in 1915, was one of USask's earliest Indigenous hires and instrumental in forming the alumni association.



Indigenous Community Gathering at Wanuskewin Heritage Park



Photo of kēhtē-ayak (Elders), Knowledge Keepers and Language Keepers who have contributed to our new journey.

Image back row: Senator Sol Sanderson, Cy Standing, Sonia Starblanket, Wendell Starblanket, Rosalie Tsannie-Burseth, Eugene Arcand, Larry Oakes, Anthony Blair-Dreaver Johnston, Roland Duquette, Jacob Sanderson, Lorna Arcand, Louise Halfe, (the late) Frank Kayseas, Myrna Severight, Bob Badger, Enola Kayseas, Lyndon J. Linklater, Marie Battiste.

Image front row: Jacob Pete, Leona Tootoosis, Margaret Keewatin, Maria Linklater, Monica Buffalo, Nora Cummings, Mona Creely-Johns.

Not pictured: Maria Campbell, May Henderson, Norman Fleury, Murray Hamilton, Edwin St. Pierre, Harriet Oakes-St. Pierre.

Over the past century, the University's connections with Indigenous peoples, cultures, histories and traditions have vastly expanded and strengthened, helping to advance understanding of the history of Indigenous peoples and issues affecting all Canadians. Today, Indigenous peoples' strong connections with the University of Saskatchewan and integral contributions to the University's innovative Indigenous programming, research, scholarship, community engagement and governance are uplifting the experience of reconciliation and helping to deepen the University's Indigenization, reconciliation and decolonization efforts.

We are All Our Relations. Our relations with our families, our communities, our nations, our cultures and our territories are fundamental to Indigenous ways of knowing and integral to Indigenous self-determination. Our connections transcend time and space; we have relations with and are responsible for the seven generations that came before us and the seven generations yet to come. Indigenous peoples appreciate that everyone and everything in the world has a purpose and is worthy of our respect and compassion. We have a responsibility to be stewards of all that is Mother Earth—to learn from the land and its ecosystems, to understand the nature of things, and to nurture and sustain the place that has given us our life and our livelihood.



ëdłįni?ots'į?ait'į?á? tokitahan ounhipi he? dókiya ecídayabi he? ahndi gaa ondosayang? taanday ooshchiiyaahk? tāntē ōma ē ohtohtēyahk? where do we come from?

We come from Creator. We are original peoples, distinct peoples, as depicted through our stories of creation and life.

We come from Turtle Island and its unique ecosystems and territories. We have lived on Turtle Island since time immemorial. We built sophisticated settlements and nurtured thriving communities across this great land. As stewards of Mother Earth, we have a special relationship with this land and all the beings that live here—all have spirit. We hunt, gather and fish on this land. We cultivate the soil and harvest food for our families. We respect and revere the land and take care to sustain it so that future generations can enjoy its beautiful gifts.

We come from a legacy of resilience and self-determination. We have stood strong in the face of injustice. Ever since the arrival of the "newcomer" some 500 years ago, Indigenous peoples have experienced unspeakably harsh realities. Our land was and continues to be colonized by settlers. Our communities were displaced. Our languages, cultures and belief systems were challenged. We were and are subject to racism and oppression. Here, in Canada, our children were forcibly apprehended from their families and placed in Indian residential schools or Métis residential or

The following legislation, declarations and reports—among many treaties and agreements over the centuries—support our resolve and collective responsibility to right relations and peaceful coexistence, as well as our moral and ethical responsibilities to develop an Indigenous Strategy and ensure the work is done "in a good way":

- Aboriginal and treaty rights in Constitution Act 1867 (originally known as the British North America Act)
- Indian Control of Indian Education, National Indian Brotherhood (1972)
- Section 35 of the Canadian Constitution ensuring Aboriginal Rights (1982)
- Royal Commission on Aboriginal Peoples (1996)
- United Nations Declaration on the Rights of Indigenous Peoples (2007)
- Association of Canadian Deans of Education: Accord for Indigenous Education (2010)
- Indian Residential School Truth and Reconciliation Commission Final Report (2015)

We're not just carrying a document, we're carrying a home and our children. The very essence and center of our culture is our children. We carry our kids and make a place for our people. Especially if we think of reconciliation, that came about because of the way that children were treated. There'd be no university without young people. They're going to inherit whatever we're carrying.

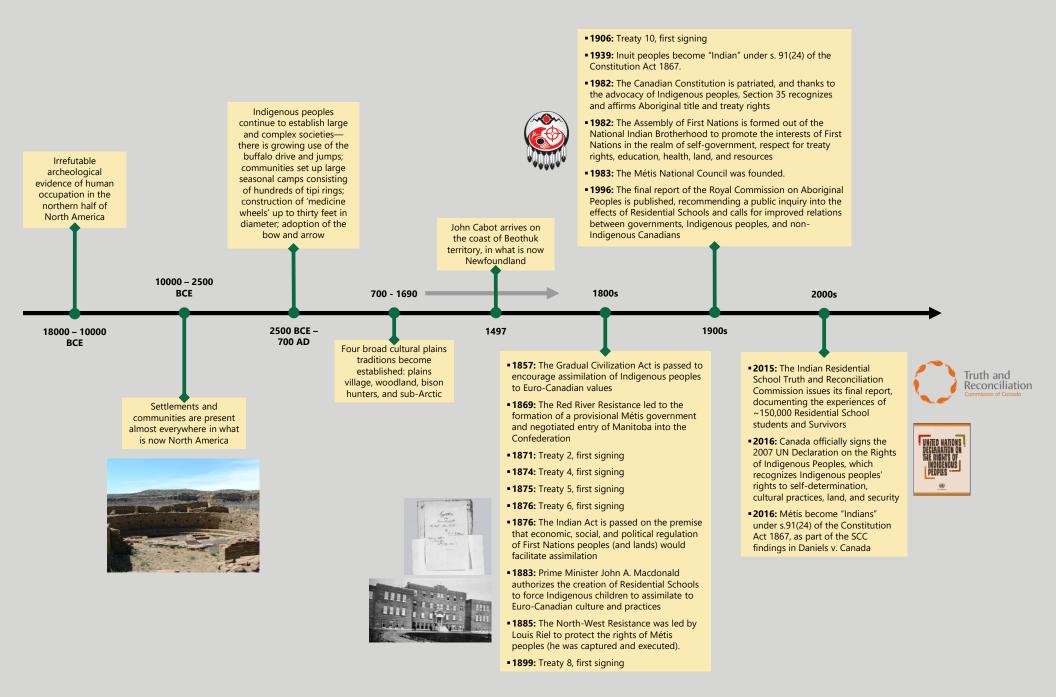
kēhtē-ayak (Elder) Maria Campbell

day schools where they experienced severe cultural, emotional, spiritual, physical, and sexual abuse. Canada used education as a weapon of cultural genocide.

We come from a place that values relationships. With deep appreciation for the interconnectedness of all things, we recognize the value of maintaining right relations with our families, our communities and all peoples who inhabit Turtle Island and its unique ecosystems and territories. Throughout history there are many examples of fruitful collaboration between Indigenous and non-Indigenous communities. We have traded goods. We have learned from each other's cultures. We have established historic treaties for peaceful coexistence. Through transformative decolonization that creates space for Indigenization and reconciliation, we have an opportunity and an obligation to reset damaged relationships and rebuild trust between Indigenous and non-Indigenous peoples—rooted in mutual recognition, mutual respect, sharing and mutual responsibility (the four principles of the Royal Commission on Aboriginal Peoples, 1996).

We come from a past, present and future shaped by hope. We have long hoped for peace and prosperity. Despite the challenges that our communities have faced, we continue to believe in the promise of a brighter tomorrow. Fulfilling this promise will require us to challenge deep rooted structures and thinking to promote decolonization, reconciliation and Indigenization. We are hopeful about the University of Saskatchewan's commitment to these three principles and welcome the opportunity to support you in this mission.

Western Timeline of the Indigenous Peoples of Turtle Island



Gordon Oakes Red Bear Student Centre

Opened in January 2016 as an intercultural gathering place, the Gordon Oakes Red Bear Student Centre brings together the teachings, traditions and cultures of the peoples of kisiskâciwan (Saskatchewan). Grounded in the teachings of collaboration, cooperation, humility, reciprocity and sharing, the Centre aims to enhance First Nations, Métis, and Inuit student success.

The Centre's purpose is to facilitate the coordination of effective student services for First Nations, Métis, and Inuit students and build relationships within and outside the University with Indigenous peoples. The Centre provides a home for Indigenous undergraduate and graduate student leadership and allows for mutual learning opportunities for students and faculty. The Centre also functions as the University's hub for oncampus Indigenous engagement and initiatives.

The design of the Gordon Oakes Red Bear Student Centre was envisioned by Douglas Cardinal and RBM Architects. Cardinal is an internationally-renowned architect of Métis and Blackfoot heritage, and is a forerunner in philosophies of sustainability, green buildings and ecological design in community



planning. Cardinal's architecture is inspired by his observations of nature and grounded within his cultural beliefs.

The man the building was named after, Gordon Oakes Red Bear was a spiritual and community leader who guided many in his community and across kisiskâciwan (Saskatchewan). He was born in 1932 in what is now the Nekaneet First Nation, and passed away in early 2002. Oakes believed in Indigenous and non-Indigenous peoples working together for each other's mutual benefit, using the analogy of a team of horses pulling together and living in balance to impart this teaching. Because he held a strong belief in education and honouring one's culture and traditions, this building is named in his memory.



ëdłasit'as?a? tokiya ounyanpi he? udókina he? ahndi eazang? taanday itoohtayaahk? tāntē ōma ē itohtēyahk? where are we going?

The University of Saskatchewan's Strategic Plan (University Plan 2025) has defined a bold new ambition to become the university the world needs. As part of this aspiration, USask has renewed its commitment to Indigenous peoples and communities that have always been integral to the University's history, evolution and future.

The University Plan 2025 weaves together commitments, goals, principles and values that aspire to advance Indigenization and support transformative decolonization leading to reconciliation. Through this commitment, the University of Saskatchewan seeks to embrace and embody the essence of the Indigenous name bestowed upon its strategy: nikanitan manacihitowinihk (Cree) | ni manachihitoonaan (Michif), which means "Let us lead with respect".

A number of *wise practices* have been implemented over the years to realize USask's commitment to Indigenous peoples through research, teaching and community engagement efforts, in particular those that highlight the importance of land- and place-based education. Many of these efforts have involved Indigenous community organizations, cultural centres, student bodies, staff and faculty—spearheading efforts or partnering on initiatives to advance Indigenization. It is important to identify and

The university can't do it alone. The community has to be involved. That helps everyone gain their proudness. The university can coordinate everyone involved and bring in good people.

kēhtē-ayak (Elder)

recognize these efforts and successes within our units, departments, colleges and the University as we look to the future. For instance:¹

- Through the work of Indigenous community and cultural centres, the creation of the Indian Teacher Education Program, the largest First Nations-specific program in Canada that has served over 16 First Nation communities/partners since 1974.
- Formation of the Indigenous Law Centre (formerly the Native Law Centre) to facilitate access to legal education and information for Indigenous peoples and promote evolution of the Canadian legal system to better accommodate Indigenous peoples and communities.
- Establishment of the Rawlinson Centre for Aboriginal Business Students, one of the only such dedicated spaces for Aboriginal business students in the country.
- Development of Indigenous-led/focused research and education initiatives and programs.
- Concerted efforts to elevate the proportion of Indigenous students and faculty.
- Creation of committees to address topics of relevance to Indigenous students, staff, faculty and leaders (including racism and oppression).

While these—and other—*wise practices* are evident, a more strategic and concerted effort needs to be made in the future to realize the full potential of the University's renewed commitment and aspiration to Indigenization outlined in its strategic plan. **This Indigenous Strategy is intended to unite with the University Plan 2025 and inspire meaningful and respectful action to advance Indigenization and support transformative decolonization leading to reconciliation.** This strategy is a gift to

¹ Selected examples of *wise practices* only; a more comprehensive list of the University's activities and actions to advance Indigenization can be found in the Appendix.

Indigenization, we can't do it without the land.

kēhtē-ayak (Elder) Eugene Arcand

the University that draws upon the wisdom, knowledge, cultures, traditions, histories, lived experiences and stories of Indigenous peoples.

Colonization has affected Indigenous communities and Indigenous peoples in numerous ways and to varying degrees (i.e. sixties scoop, residential schools, day schools, etc.); the effects of which have resulted in dispossession of land, language, and culture for many of our people. In an act of self-determination, this strategy is for all Indigenous peoples, the University of Saskatchewan makes space for all, and this strategy invites you into the circle.

Our strategy is grounded in seven fundamental commitments—interdependent, mutually reinforcing, interconnected in time and space. These commitments reflect important concepts to Indigenous peoples, our ways of knowing and being. These commitments are central to the wholeness of Indigenous self-determination:

- Safety. Creating and realizing inviting, welcoming and safe spaces for Indigenous peoples, free from racism and oppression.
- Wellness. Integrating wholistic healing supports for the University's Indigenous community, including students, staff, faculty and leaders.
- **Stewardship**. Preserving and amplifying Indigenous cultures, languages and protocol learnings.
- Representation. Uplifting Indigenous peoples in University spaces and places.
- Right Relations. Supporting active and respectful partnerships and engagement with Indigenous peoples—ethical and relational spaces.
- Creation. Acknowledging, resourcing and investing in wise practices and activities—conjuring the creative spirit that inspires innovation.
- Renewal. Strengthening and sustaining pathways of access and success— connecting with Indigenous youth.

Below, we expand on the seven commitments central to this Indigenous Strategy. We describe the *Guiding Principles* that reflect the beliefs, values and philosophies that underpin each of our commitments. Importantly, we empower the University to deliver on its commitment to Indigenization, decolonization and reconciliation through concrete *Calls to Action* that reflect the voices and aspirations of Indigenous students, faculty, staff, and members of broader Indigenous communities. Finally, we have identified a series of *Markers* that can serve as guideposts for the University to better understand the impact that implementing these actions can have on the University community, monitor and evaluate progress, and ensure accountability to this Indigenous Strategy and the larger University commitment. Just as *We Are All Treaty People*, we are all responsible for bringing life to this Strategy and applying its Guiding Principles, Calls to Action and Markers across the diverse USask community.

We are all in this together.

- "Nothing about us, without us" as an antidote to exclusion. Indigenous inclusion and voices are key to matters that relate to Indigenous peoples.
- Belonging as a healing practice. Creating a sense of belonging is to communicate and demonstrate appreciation and value, and to build relationships that are restorative, reciprocal and caring.
- Allyship as a demonstration of humility. Allyship is a lifelong process of building relationships that are based on trust, compassion, and respect. It is grounded in action, in commitment, and in enduring leadership. It is not paternalistic or tokenistic. Allies actively engage in and advocate for decolonization; they take the lead from Indigenous peoples.

Safety: Creating and realizing inviting, welcoming and safe spaces for Indigenous peoples, free from racism and oppression.

Settler colonialism brought with it historic violence, racism, and a significant impact on the safety and wellbeing of Indigenous peoples. Racism and oppression still exist both within our communities and beyond. It is evident in the overt or covert actions (e.g. microaggressions) and words of people, evident in the policies that determine how we interact with each other. On their website, the Saskatchewan Human Rights Commission notes: "[Racism] attacks an individual's dignity. It is demeaning and debilitating. Having to live and work in an environment of overt or covert discrimination can cause victims to suffer a range of physical and mental health problems. Racism is hurtful behaviour that can scar people for life". Racism and oppression inhibit meaningful learning and relationships between people, undermine belonging, and challenge the journey of self-determination for Indigenous peoples, which can benefit and strengthen our communities.

Calls to Action

- Promoting system-wide learning for students, staff, faculty and leaders focused on embedding principles of anti-racism and anti-oppression across the University/community (e.g. through curricula, educational resources, anti-racism campaigns, cultural awareness, and unconscious bias training that is developed and approved by Indigenous peoples).
- Developing and implementing systems (e.g. organizational models and frameworks, clear policies, procedures and practices) to confront and address

racism and discrimination, and to do so in a safe, protective and constructive manner.

- Establishing standards (e.g. annual performance review measures) and support systems (e.g. wellness networks) that address the unique complexities of providing anti-racism and anti-oppression education.
- Creating and/or facilitating access to support services (e.g. Indigenous Ombudsman, Indigenous counsellors, 'caring' and protective processes of disclosure) and safe spaces for Indigenous students, staff, faculty and leaders who have faced or are facing racism and discrimination.
- Creating mechanisms, processes or systems outside unions to support Indigenous faculty in the identification of barriers and/or racism (e.g. by creating an Indigenous Observer role to represent faculty rights).

Markers

- A deep understanding of the challenging realities experienced by many Indigenous peoples as a result of discriminatory laws and policies by non-Indigenous peoples on campus.
- Growth in the relevance, breadth and number of student/staff/faculty support services focused on addressing racism and oppression.
- Increase in the number of educational/training resources and opportunities focused on racism and oppression.
- Increase in the number of Buffalo Circle members—people that are nominated by an Indigenous student, staff, faculty member and/or leader for demonstrated allyship.
- Greater comfort and confidence in the ability to report incidents of racism and oppression against Indigenous peoples.

Increase in the number of policies and practices that are congruent with Universities Canada and the University of Saskatchewan's Equity, Diversity and Inclusion (EDI) principles.

Wholistic wellness as self-determination. For Indigenous peoples, wellness embodies intellectual, physical, emotional and spiritual health; wholistic balance leads to strong expressions of political, economic, social and cultural determination.

Wellness: Integrating wholistic healing supports for the University's Indigenous community, including students, staff, faculty and leaders.

Today, the University of Saskatchewan has the privilege of learning from Indigenous leaders, faculty, staff and students. As of March 31st, 2019, we had 52 Indigenous scholars and instructors, and 165 Indigenous staff/administrative support.² Our Indigenous student numbers continue to grow beyond the 3,600 that now grace the University's campus. With a growing Indigenous population at USask, what do we know about the current realities of Indigenous peoples in Saskatchewan, realities that would directly affect learning, teaching, experiences, and overall wellness of Indigenous peoples on campus? Do our systems and policies support Indigenous health and wellness practices that are culturally specific? For many Indigenous peoples, wellness embodies intellectual, physical, emotional and spiritual care, and this balance will lead to forms of self-determination.

Calls to Action

- Developing culturally appropriate/sensitive health and wellness supports for Indigenous students, staff, faculty and leaders (e.g. access to Indigenous counsellors, physicians, therapists, as well as traditional Indigenous approaches).
- Facilitating knowledge of and access to broader wholistic wellness support for Indigenous students, staff, faculty and leaders (e.g. partnering with the City of Saskatoon to familiarize individuals to the campus and city—

 $^{^2}$ The University recognizes Indigenous people as those who self-identify as First Nations, Métis or Inuit. All data gathered on Indigenous representation is based on voluntary self-declaration, which can be completed any time post-hire. It is important to note that USask's workforce may have better representation than the statistics indicate.

childcare, counselling services, housing, recreation, transportation, financial support).

- Implementation of culturally sensitive and appropriate retention, induction, orientation, and mentorship experiences for Indigenous students, staff, faculty and leaders that are responsive to their unique experiences.
- Ensuring that Indigenous faculty members have access to each other and, in particular, Indigenous mentors and advocates.

Markers

- Greater integration of and access to diverse, culturally relevant, and alternative health and wellness supports across the University.
- Improvement in the experiences and efficacy of new Indigenous students, staff, faculty and leaders—experiences that foster a strong sense of belonging.
- Collective Agreements that are inclusive of Indigenous peoples' traditional forms of health and wellness.
- Increase in the number of Indigenous mentors for Indigenous faculty.

- Ceremony as sanctification. Ceremony evokes a spiritual connection to the Creator, humanity (past, present and future), all creation and cosmos—to All my Relations. Appropriate protocols are carefully and mindfully practiced with great humility and respect.
- Land as first teacher. Indigenous ways of knowing, being and doing come directly from the time immemorial relationship with the first teacher—the land. Cultural philosophies, traditions, practices and languages are a reflection of this intimate relationship.
- Language as expression of life. Indigenous languages are action-oriented, they are fluid, and they capture the inextricable, interconnected relationship with the land—the source of all life.

Stewardship: Preserving and amplifying Indigenous cultures, languages and protocol learnings.

Indigenous peoples—Métis, First Nations, and Inuit—on Turtle Island and its unique ecosystems and territories are diverse and rich in knowledges that are reflected in cultures, languages, traditions, protocols, practices, and histories that have evolved over thousands of years, primarily reflected by the relationship with the land and specific ecosystems that constituted territories. According to the 2016 Statistics Canada census, the Indigenous population is growing—1,673,785 peoples, representing 4.9% of the overall Canadian population and 16% of Saskatchewan's population. Tremendous diversity exists across Métis, First Nation, and Inuit peoples, and this is captured within and unfolds through our languages. There are over 60 distinct Indigenous languages across Canada that fall within 12 language families. In Saskatchewan, the languages that are predominately evident are Plains Cree, Woodland Cree, Swampy Cree, Dene, Dakota, Lakota, Nakota, Saulteaux, and Michif.

Calls to Action

- Embracing diversity through the approaches used to offer teachings on Indigenous cultures, languages and protocols (e.g. integrating practices in kinesthetic, multi-sensory, experiential teaching of Saskatchewan's primary Indigenous languages; utilizing teachers who are fluent in these languages; teaching land-based education physically out on the land and certifying students on the land).
- Establishing a Centre of Excellence for Indigenous Languages and Cultures, which will be a repository of Indigenous stories and languages and a space for Indigenous cultural and protocol learning and practice.

- Strengthening the integration of meaningful, Indigenous-led and developed content into University courses across programs, departments and colleges (e.g. on Indigenous laws about land).
- Establishing a dedicated multi-disciplinary degree program in Indigenous Sovereignty, Treaty and Inherent Rights.
- Supporting opportunities for multi-sensory and experiential education across the University and broader community (e.g. accredited land- and place-based learning; advocacy for Mother Earth; Indigenous Oracy and storytelling approaches).
- Promoting capacity-building, skill and knowledge development in Indigenous histories and contemporary realities (challenges and successes) for non-Indigenous educators and leaders.
- Continuing to engage in processes that promote partnerships and agreements (e.g. MOUs) with Indigenous communities.

Markers

- Growth in the number of Indigenous policies, programs, curricula and initiatives that focus on strengthening and implementing Indigenous cultures, languages and protocols across campus.
- Increase in the number of experiential cultural and language learning opportunities for University students, staff, faculty and leaders.
- Growth in the breadth and number of training/educational opportunities incorporating Indigenous cultures, languages, traditions, protocols, practices, and histories.
- Growth in the number of Indigenous and non-Indigenous scholars fluent (or knowledgeable) in Indigenous languages, cultures and traditions.

- Growth in the number of Indigenous and non-Indigenous student graduates across all subjects/programs with an appreciation for, and understanding of, Indigenous history and current Indigenous realities in Canada ('growth attributes').
- Increase in the number of partnerships and agreements with Indigenous communities.

- Indigenous presence as validation. Indigenous presence in all our spaces and places enriches and strengthens the USask community as a whole. Indigenous peoples will validate Indigenous strategies, programming, curricula, policies, and initiatives through their words and actions of affirmation.
- Teaching and learning as "coming to know". In many Indigenous languages, there is no word for schooling, and education is translated into 'coming to know'. Coming to know is boundaryless, lifelong learning; it is fluid, active, and elicits heightened awareness and interaction with self and surroundings.
- Art and architecture as symbols of respecting and honouring seven generations. Time is not linear, but circular, a spiral in fluid motion where the past, present and future are in a dynamic relationship within each moment. We learn from our ancestors, from stories and patterns seven generations into our past, so we understand our current reality and can plan for seven generations into the future. We honour *All My Relations* through expressions, including and beyond the written word.
- Indigenous ceremonies as community and identity/spirit builders. Ceremony draws people together for reverent occasions and evokes the questions: Who am I/we? Where do I/we come from? Where am/are I/we going? What are my/our responsibilities? Ceremony asks all to be 'sanctified kindness'. Increasing spaces for ceremony elevates USask to valuing the multifaceted journeys that students, staff, faculty and leaders bring to its spaces and places.

Representation: Uplifting Indigenous peoples in University spaces and places.

Indigenous peoples have ways of being, knowing and doing that have been expressed in methodologies, pedagogies, stories, protocols, ceremonies, art, and architecture for thousands of years. Throughout kisiskâciwan (Saskatchewan), the vibrancy of the complexity, sophistication, intellect and thought—beauty—can be learned through respectful inquiry, seeking and protocols. By being open to discovery, dreaming, designing and a destiny (appreciative inquiry) that is meaningfully inclusive of Indigenous peoples, new learning and appreciation will be gained. What will one find?

- A place called Wanuskewin, where Indigenous peoples have visited for more than 6,000 years to gather food, strengthen social bonds, and practice ceremony.
- A medicine wheel near Moose Mountain that is 2,000+ years old; these sites signify a deep understanding of the earth-sky relationship.
- A pictograph (rock art) documenting significant points in history, which can be found in northern Saskatchewan.
- Ancient and current sweat lodge frames dot the land, indicating the importance of wholistic, spiritual balance.
- Teachings that embody 'all my relations'.

Calls to Action

Championing respectful practices that support the participation of Indigenous students, staff and faculty in traditional ceremonies.

- Promoting Indigenous storytelling and celebrating the success of Indigenous peoples through respectful dedications, remembrances and events across the University and broader community (e.g. art/architecture, imagery, naming of landmarks, streets, buildings and facilities, ceremonial spaces to pay homage to the land).
- Creating new Indigenous spaces for gatherings across the University and broader community (e.g. covered outdoor smudging bowl, sweat lodge, teepee ground).
- Allocating space and financial support to embedding local Indigenous artistry and cultural outputs across University spaces (i.e. dedicated funding envelope for the purchases of Indigenous art).
- Implementing focused efforts to recruit and retain Indigenous students, staff, faculty and leaders (including those who are experts on the land).
- Acknowledging the role of Indigenous faculty members' research, body of work, and global reputation in benefiting the University in multiple and diverse ways (e.g. attracting Indigenous students).

Markers

- Increase in the number of physical spaces that recognize Indigenous peoples, cultures and practices, demonstrating an interconnected and respectful community.
- Success in attracting and retaining Indigenous students, staff, faculty and leaders.
- Increase in the number of Indigenous leadership positions across the University.

- Respectful, reciprocal relationships as restoring, renewing, rejuvenating and (re)conciliating. Healthy relationships are the foundation of all creation—they move individuals and organizations from simply surviving to thriving. We are encouraged to embrace manācihitowin, to strengthen the bonds of respect, trust and shared benefit. This is done by creating dynamic, inclusive spaces that encourage ethical relationality.
- Active and respectful communication with Indigenous peoples (on- and off-campus) as bridge- and nationbuilding. Quality, active and respectful, communication is a force that can connect, nurture, inspire, motivate, and heal. It can build bridges between people from diverse and disparate worldviews, bridges that can be pathways to stronger communities.
- Research as sacred. Indigenous peoples have engaged in forms of research since time immemorial. Research begins with humility and respectful relationships, then engaging appropriate protocols, active listening and astute observation, Oracy and storytelling. The sacredness and tremendous responsibility embedded in research is ever present.
- Systemic and structural transformation as valuing and uplifting Indigenous knowledges. Creating innovative and bold solutions to barriers experienced by Indigenous peoples through radical systems and structural change demonstrates to Indigenous peoples a deep commitment.

Right Relations: Supporting active and respectful partnerships and engagement with Indigenous peoples—ethical and relational spaces.

Indigenous peoples on Turtle Island have always had complex forms of governance, social organizations, and economic systems, which were focused on sustainability. Treaties and trade agreements were secured between Indigenous peoples across this land. Large gatherings of diverse Indigenous populations formed for economic, social, entertainment, and ceremonial purposes. The spirit of these systems—the inspiring, exciting, masterful oration, dynamic negotiations, and dynamic political interactions—are alive today. These forms of partnerships and engagement practices have been challenged by colonial laws and mindsets that sought to dismiss, overpower, assimilate, and annihilate them, but they remain—providing insight into democracy, sustainability, and 'right relations'.

Michael Coyle and Anishinaabe legal scholar John Borrows (2017) state that a question has to be asked and "tackled" in order to reconcile Indigenous and non-Indigenous relationships is "what is the right relationship...?" (p. 3). Coyle and Borrows look to the treaty making process as a framework of relationships based on right relations, as "the real importance of treaties was the relationship to which both sides had agreed" (p. 3). This strategy asks of each one of us: what are we agreeing to? Cree scholar Willie Ermine encourages Indigenous and non-Indigenous peoples to lean into ethical spaces, which are ripe with creative possibility, if people agree to respectfully work together towards a common goal. nīkānītān manācihitowinihk (Cree), ni manachīhitoonaan (Michif), let us lead with respect (English).

Calls to Action

- Committing to uplifting relationships through an engaging framework based on Right Relations and an active commitment to earn and nurture trust and faith in relationships across the University.
- Adapting institutional protocols and foundational documents (e.g. those related to job promotion, academic tenureship) to recognize and reward work, service and merit that go beyond conventional job expectations and profiles (e.g. community and advocacy work).
- Establishing standards and guidelines for research ethics and intellectual properties that integrate Indigenous ways of knowing and research beyond OCAP^{®3} and TCPS 2—Chapter 9⁴.
- Enabling the inclusion and engagement of këhtë-ayak (Elders) and Knowledge Keepers in research studies (e.g. community-based/led research) through institutional policies and practices (student këhtë-ayak [Elders] ambassadors, increased këhtë-ayak [Elders] parking near doors); being cognizant that academics and researchers can work with këhtë-ayak (Elders) and Knowledge Keepers, but that their knowledge needs to be earned.
- Instituting mechanisms that will provide an open, transparent and welcoming bridge for Indigenous peoples into the University's ecosystem (e.g. single point of access, integrated website).
- Developing policies and processes to support and empower Indigenous selfidentification (e.g. when applying to programs, for scholarships) as well as monitor and enable access to information by relevant groups (e.g. Indigenous Student Council).

³ Ownership, control, access, and possession.

⁴ Research Involving the First Nations, Inuit and Métis Peoples of Canada

- Investing in short- and long-term resourcing (i.e. core support vs. soft financial commitments) to support Indigenization, decolonization and reconciliation initiatives.
- Ensuring that proper protocol training is a part of all research involving Indigenous peoples; respecting that traditional ceremony may be a part of the Indigenous research process.

Markers

- Increase in the number of Métis, First Nations, and Inuit agreements driven by Indigenous communities.
- Decolonized systems and structures—including those related to job promotion, academic tenure, and the recognition of work, service and merit—that support and recognize Indigenization, reconciliation, and Indigenous knowledges and scholarship.
- Increase in the confidential sharing of Indigenous information (e.g. selfidentification) with University groups that support Indigenous peoples.
- Increase in the integration of Indigenous content on traditional (e.g. print, film, television) and digital media.
- Increase in resource support (e.g. financial, accounting) and visible acts of appreciation towards Indigenous cultures, learnings, practices and protocols.
- Increase in the number of research studies conducted and published in collaboration with kehte-ayak (Elders) and Traditional Knowledge Keepers.
- Update approval processes to enable self-identified Indigenous students to choose to have their Indigenous identification information shared across campus (to allow Indigenous student groups to engage them more effectively).

- Creativity as life giving. Ethical spaces are ripe with creative possibility—possibilities become endless when people respectfully work together towards common goals. Creativity, the gatekeeper to innovation, is animate and spirit. Through nihtawihcikewin (Cree), nihtaooshchikaywin (Michif), creativity explores, pushes boundaries, and is brought to life by synergies, multi-sensory, multi-reality experiences; it invites individuals to courageously participate in a collective journey to new and unfamiliar lands, spaces and places, uncovering and proclaiming truths that will enrich life—and for Indigenous peoples today, survivance.
- Wise Practices as affirmation. The creative spirit leads to wise practices that recognize and uplift the wisdom that resides in Indigenous communities. Wise practices affirm Indigenous cultures, traditions and stories.

Creation: Acknowledging, resourcing and investing in wise practices and activities— conjuring the creative spirit that inspires innovation.

Tewa Pueblo scholar Dr. Gregory Cajete teaches that "Native Science is a reflection of creative participation, a dance with chaos and her child, the creative spirit" (1999, p. 19). Creativity is animate. The University Plan 2025 recognizes creativity as a principle—nihtāwihcikēwin (Cree), nihtaooshchikaywin (Michif). The plan reads, "At its core, our university is a creative organism. The principle of creativity testifies that we are curious about the unexplored possibilities for growth, enrichment, and justice around us; attentive to the needs and opportunities for change that inspire imagination and invention; and intentional about the future to which we aspire to contribute. The creative spirit is experiential; it invites participation in individual and collective journeys to discover truth and seek balance within the chaotic dynamism of the universe. Nihtāwihcikēwin | Nihtaooshchikaywin requires both discipline and optimism—knowing that our efforts can bring to fruition the possibilities we envision for learning and discovery."

Working with the Creative spirit should engage wise practices. Cree thought-leader Brian Calliou explains that "wise practices recognize the wisdom in each Indigenous community and their own stories of achieving success. It recognizes that culture [and identity] matters".⁵ Where does our wisdom lie? How are we acknowledging, celebrating, resourcing work that is 'done in a good way'?

⁵ https://ccednet-rcdec.ca/sites/ccednet-

rcdec.ca/files/wise_practices_in_indigenous_community_economic_development.pdf.

Calls to Action

- Continued support for wise practices (e.g., Graduation Powwow, Indigenous programming [e.g. ITEP, SUNTEP, wîcêhtowin], Aboriginal Student Centre, Sharing Circles, Indigenous advisors, staff, faculty and leaders).
- Ongoing creative, innovative, culturally responsive forms of programming and evaluation for Indigenous students, staff, faculty and leaders.
- Adapting existing or creating novel financial mechanisms to recognize and reward Indigenous research, scholarship and unique forms of engagement and dissemination by departments, colleges and units (e.g. adjusting the transparent, activity-based budget system [TABBS] model to include an Indigenization bin).

Markers

- The University of Saskatchewan is recognized by Indigenous students, faculty, staff and leaders at USask and other universities globally as an organization that shifts or changes age-old systems and structures to be responsive and strengthened by Indigenous knowledges through the weave metaphor.
- Increase in the number of Indigenous storytelling about activities and accomplishments across varied platforms (e.g. event presentations, print, digital).
- Implementation of University standards that are respectful of Indigenous scholarship.

Indigenous youth as our strength, our hope, our future. Indigenous peoples recognize that our youth are humanity's most sacred gift, so we collectively work to nurture and support them—see each child as our own—by actively listening, being keenly aware, and astutely observing and responding to their non-verbal communication. What are their stories? What are their destinies? Our youth hold the future in their hands, they are a promise to those children not yet born seven generations into the future. Our hope is that they walk past us to deeper forms of self-determination. What is good for Indigenous youth is good for all!

We're looking at changing the tune that we sing together.

Michelle Whitstone Diné Nation PhD Candidate, Educational Administration

Renewal: Strengthening and sustaining pathways of access and success—connecting with Indigenous youth.

In 2016, Statistics Canada reported that the average age of the Indigenous population in Saskatchewan was 28.2 years, while the non-Indigenous population was 40.6 years. At present, Indigenous children aged 14 and under represent 33% of the total Indigenous population, while for the non-Indigenous population it is 17.4%. The Indigenous population is youthful and abundant. USask has an opportunity to nurture the development of this significant and important population, even before they enter post-secondary education. As our Indigenous youth transition to postsecondary students, there are continued opportunities to strengthen the integration, involvement and success of our future generations across the University community.

Calls to Action

- Cultivating leadership experiences for Indigenous students and youth by developing and strengthening mentorship programming for Indigenous students on- and off-campus (e.g. in-person and virtual peer-mentorship for Indigenous students; College prep institutions and University mentorship programs for Indigenous high school students).
- Evaluating and adjusting institutional programs, policies and curricula (where appropriate) to be responsive, current and innovative for Indigenous students (e.g. elimination of registration fees, e-learning).
- Creating an environment for Indigenous students and youth to learn while retaining (or reconnecting with) their cultural identity through land-based

learning and interactions with kēhtē-ayak (Elders), such as student kēhtēayak (Elders) ambassadors.

• Examining, improving and evaluating systems of accessibility and pathways for post-secondary entrance for Indigenous youth.

Markers

- Growth in Indigenous student enrollment, retention, and graduation across diverse departments/colleges at the University.
- Growth in the number of overall student applications to the University.
- Growth in Indigenous student enrolment and retention in graduate, postgraduate and professional programs.
- Growth in membership of the Indigenous Student Council.
- Growth in the number of partnerships/collaborations established between the Indigenous Student Council and other student bodies.



... the idea of the ethical space, produced by contrasting perspectives of the world, entertains the notion of a meeting place, or initial thinking about a neutral zone between entities or cultures. The space offers a venue to step out of our allegiances, to detach from the cages of our mental worlds and assume a position where human-to-human dialogue can occur. The ethical space offers itself as the theatre from cross-cultural conversation in pursuit of ethically engaging diversity and disperses claims to the human order.

Cree Scholar Willie Ermine, 2007. Indigenous Law Journal. 6:202.

ëdłaghë nųhla?a? taku hec'eh cwac'amin? wozuye dágu he? wayganayn tsi dotamang? kaykwy chi tootamaahk? kīkwaya ōhi kā wī itasihkamahk? what are our responsibilities?

We all have a responsibility—both individually and collectively—to support the work of reconciliation, redress past wrongs, mend and heal broken relationships between Indigenous peoples and Canadian educational institutions, and lay the foundation for our shared future. This responsibility is rooted in acknowledging and understanding the sophistication and complexity of Indigenous histories, knowledges, cultures, teachings, practices, and philosophies, and ensuring that this richness and diversity remains interwoven within the fabric of the University's and broader community's research, learning and engagement efforts. We are all responsible to the seven generations before us and the seven generations yet to come; to all our relations; and to sharing the truths that are embedded within our stories. **Rooted in the principles of respect, responsibility, reciprocity and sustainability, we look forward to working hand-in-hand with the University of Saskatchewan to build on its commitment and aspiration for Indigenization and its Wise Practices in order to bring this strategy to life.**

The *Calls to Action* and *Markers* provide a powerful framework for translating our *Commitments* into impact, but the success of our collective efforts will ultimately be measured against a future in which the following principles and practices are embedded within our mindset and behaviours:

Everyone who is here [at the University] has a responsibility to learn [about Indigenization], and they have a responsibility to use this knowledge. [Non-Indigenous people] put a big weight on our shoulders as Indigenous people to teach... [the] Indigenization movement is often placed on our shoulders as Indigenous people, but that's not ours to carry.

Faculty & Staff Forum, January 31st, 2019

- The relationship between Indigenous peoples and all Canadians is based on the principles of recognition, respect, sharing and mutual responsibility.
- The stories told will be vastly different—embedded with possibility, hope and strength.
- Indigenous knowledges live in Indigenous languages, elders, and knowledge holders with knowledge of the land and nature, and can be accessed respectfully through formal, informal, and nonformal learning programming, curricula, and practices.
- There is an increased understanding of the terms Indigenization, decolonization and reconciliation across all members of the University, and greater integration into current administrative structures.
- Indigenous leadership is secured in governance structures—role models for everyone are evident and commonplace, at all levels.
- Learning and relationships are richer because of Indigenous methodologies and pedagogies.
- "Why?" is replaced with "When?" and "Now what?"
- Our children anticipate the University experience and look forward to being agents of change.
- The University of Saskatchewan is a place and space of transformation and great influence (teachers, artists, lawyers, nurses, doctors, engineers, scientists, entrepreneurs), and will be known as the epicenter of Indigenization and Reconciliation.



Appendix: Glossary of Terms

Antiracism is a study and theory about systems of power and how it is enacted, naturalized and invisible to those with power across classifications of race, class, gender expression and sexual identities, and abilities that diminish and subject groups to oppression. The awareness of power and contributing ideologies that hold power is what antiracism helps to uncover for both the empowered elite groups and the disempowered or oppressed groups. It is needed for everyone to unlock, unpack and deconstruct those ideas, ideologies, and limitations on society.

Decolonization practices contest divisive and demeaning actions, policies, programming, and frameworks. Indigenization is the healing, balancing force; it calls us to action, inspires opportunities for mutual cultural understanding, and helps us to find comfort in the discomfort decolonization can entail.

Ethical spaces arise when competing worldviews or 'disparate systems' come together for 'engagement' purposes. The connecting space, the overlapping space between the groups is the binding ethical space. Coined by Cree Scholar Willie Ermine, he notes that the convergence of these groups "can become a refuge of possibility in cross-cultural relations ... The new partnership model of the ethical space, in a cooperative spirit between Indigenous peoples and Western institutions, will create new currents of thoughts that flow in different directions and overrun the old ways of thinking" (Indigenous Law Journal, 2007, 6:202-203).

Indigenization challenges us to amplify the forces of decolonization. Indigenization strengthens the fabric of the university. It involves the respectful, meaningful, ethical weaving of First Nations, Métis, and Inuit knowledges, lived experiences, worldviews, and stories into teaching, learning, and research. Indigenization is a gift that benefits every member of our community.

Reconciliation is a goal that may take generations to realize. It "is about forging and maintaining respectful relationships. There are no shortcuts" (Senator Murray

Sinclair, Chair of the Truth and Reconciliation Commission). As a community, we have a shared responsibility to honour and join in the journey of reconciliation; to repair, redress and heal relationships; and nurture an ethical space in which we can explore how we relate to each other through the lenses of history, culture, and lived experience.

Settler colonialism⁶ is a term that is used to describe the history and ongoing processes/structures whereby one group of people (settlers) are brought in to replace an existing Indigenous population, usually as part of imperial projects. Settler colonialism can be distinguished from other forms of colonialism by the following characteristics:

- 1. Settlers intend to permanently occupy, and assert their sovereignty, over Indigenous lands.
- 2. This invasion is structural rather than a single event, designed to ensure the elimination of Indigenous populations and control of their lands through the imposition of a new governmental/legal system.
- 3. The goal of settler colonialism is to eliminate colonial difference by eliminating Indigenous peoples, thereby establishing settler right to Indigenous lands.

Though often assumed to be a historical process, settler colonialism as a project is always partial, unfinished, and in-progress. Examples include Canada, the United States, Australia, New Zealand, and South Africa.

"Wholistic" is a term that is used throughout this document and has been intentionally spelled with a "w" to represent the spiritual wholeness that defines Indigenous ways of being and gives life to this strategy.



Appendix: Wise Practices—Institutional Priorities

We have to respect the land as if it were a teacher. It's not just a subject area. It has to be respected as a credit.

kēhtē-ayak (Elder) Eugene Arcand

The following list presents additional examples of *wise practices* implemented by the University—in many cases, in collaboration with Indigenous community organizations, student bodies, staff and faculty—to realize its commitment to Indigenization.

- Integration of Indigenous knowledges and experiences directly into the learning charter.
- Creation of an Indigenous Voices Program (through the Gwenna Moss Centre for Teaching and Learning) that is led by Indigenous leaders who are dedicated to creating a shared space for dialogue, learning, and collaborative action to catalyze individual and systemic change at USask related to Indigenization, reconciliation, and decolonization.
- Establishment of an Indigenous Learning Activities Fund—a Universityaccessible fund to support student learning activities in the classroom or beyond that involves Indigenous kēhtē-ayak (Elders), knowledge keepers, and/or community leaders. This support is provided for Experiential Learning opportunities that engage learners purposefully in direct experience, focused reflection, and authentic assessment in order to increase knowledge, develop skills and strategies, clarify values, and apply prior learning.
- Creation of Experiential Learning Opportunities for Indigenous students or with Indigenous communities/organizations. The University of Saskatchewan has been a lead for the development of Experiential Indigenous programs and courses for over 50 years For example, the University established the Indian and Northern Education Program in 1961, the Indian

and Northern Curriculum Resources Centre in 1964, Cree language courses in 1968, and Native Law in 1973. Since then, our capacity and progress in supporting the Indigenous Peoples of Saskatchewan has grown extensively and resulted in the significant number of Indigenous faculty, staff, students, and community who are regularly consulted in our program and curriculum development and design. We use a combination of joint development with an Indigenous community or organization, joint delivery with an Indigenous post secondary institution, oversight or consultation with Indigenous elders or old ones (which includes Knowledge Keepers and community leaders and organizations). Currently, we offer over 170 courses that focus on learning outcomes tied to Indigenous knowledge and experience grounded in Indigenous world views.

Formation of Building Bridges, a partnership between the Aboriginal Students' Centre and the International Student and Study Abroad Centre that provides programming with a focus on Indigenous and international relations and cultural understanding.



Appendix: Wise Practices—OVPIE

The following list presents additional examples of *wise practices* implemented by the Office of the Vice-Provost Indigenous Engagement (OVPIE).

- Development of an Oracy fund a financial system that recognizes the cultural gifting aspects of Indigenous research.
- Integration of fundamental and systemic changes to Indigenize standards for promotion and tenure.
- Hosting of an annual Internal Truth and Reconciliation Forum for the USask community.
- Formation of a committee on Anti-racism and anti-oppression education and research.
- Establishment of MOUs with Federation of Sovereign Indigenous Nations, Prince Albert Grand Council, the Saskatoon Tribal Council, Canada Roots Exchange, and the Métis Nation of Saskatchewan.



Appendix: Wise Practices—Colleges/Units

The following list presents additional examples of *wise practices* implemented by Colleges/Units—in many cases, in collaboration with Indigenous community organizations, student bodies, staff and faculty—to realize its commitment to Indigenization.

Agriculture & Bioresources

- Creation of the Kanawayihetaytan Askiy (KA; let us take care of the land) Program, focused on providing a broad range of topic areas specific to the management of lands and resources (including examining basic environmental, legal and economic aspects of land and resource management in Aboriginal communities).
- Creation of the Kanawayihetaytan Askiy Diploma in Indigenous Lands Governance (Indigenous Lands Governance Diploma) that provides students with a broad background in governance, management, administration and political science as they relate to Indigenous communities and has a strong focus on experiential learning.
- Creation of the Kanawayihetaytan Askiy Diploma in Indigenous Resource Management (Indigenous Resource Management Diploma) that provides a broad background in resource management for Indigenous communities. The diploma builds on the Kanawayihetaytan Askiy Certificate and prepares students to become land managers in their own communities and for leadership roles in local, provincial and national settings.
- Over \$160,000 in Connection Grants from the Social Sciences and Humanities Research council for four USask researchers for projects aimed at revitalizing agriculture on Indigenous lands, fostering reconciliation, ensuring safe water supplies, and designing sustainable communities.

Arts & Science

- Establishment of the Gabriel Dumont Chair in Métis Studies in April 2018, which will increase research and teaching capacity in Métis studies at USask and further develop academic engagement between the university and GDI.
- Implementation of Indigenous Learning Requirements. In 2011, the College approved the following Learning Goal for all of its students: to cultivate an understanding and appreciation for the unique socio-cultural position of Aboriginal peoples in Canada. Since the time the College has determined, with extensive consultation, that every Arts & Science undergraduate student must, by graduation, successfully complete three credit units from a diverse but carefully selected list of Indigenous Requirement courses. Criteria have been developed against which courses will be assessed to determine if they will qualify for fulfilling the Indigenous learning requirement. As of March 2019, nine courses were approved for the list.
- Concerted efforts to recruit Indigenous, allocating up to 3 new faculty positions annually over the next 10 years to elevate the proportion of Aboriginal faculty members to 15% (on par with population demographics).
- Creation of Indigenous Student Achievement Pathways (ISAP) to welcome Métis, First Nations and Inuit students to the College through academicallygrounded programming that builds confidence, knowledge and skills, while connecting students to one another and to the campus community.
- Establishment of a senior leadership position—Vice-Dean, Indigenous, who is responsible for all matters relating to Indigenous engagement and direction over the development and implementation of Indigenous-related strategies.
- Facilitation of land-based experiential learning and historical knowledge transmission: Wanuskewin trip. In 2016, a class trip to Wanuskewin was implemented in INDG 262, Aboriginal Narratives of Historical Memory. The visit to Wanuskewin, supported by the Experiential Learning Fund, had the

goal of grounding Indigenous histories in histories of the land. The course, which relied heavily on Indigenous historians and story, allowed students to think deeply about place and memory. By firstly establishing the connection to land at Wanuskewin, the class together built together a respectful appreciation for Indigenous histories, and a critical understanding of place.

- Creation of Becoming Water: Collaborative Learning with Art and Science. The studio-based course, ART356.3: Becoming Water, will provide students with the opportunity to consider WATER as subject matter and produce artwork in response. Emphasis will be on connecting water as an external and internal element (water in the river and water in our bodies).
- Establishment of the Trish Monture Centre for Student Success Indigenous Student Advising. The Trish Monture Centre provides students in both the Indigenous Student Achievement Pathways and the University Transition Program with academic advising and studying support. The program uses a holistic approach to advising that addresses the student as a whole person from a place of peace, friendship and respect.
- Establishment of degrees/certificates with an Indigenous focus, including:
 - Master and Doctoral Programs in Indigenous Studies
 - Bachelor of Arts Indigenous Studies;
 - Bachelor of Arts Sociology with a concentration in Indigenous Justice and Criminology (this program is only open to Indigenous students; intended to prepare Indigenous students for careers in corrections, public safety, advocacy, and other areas related to criminal or social justice);
 - Certificate in Indigenous Governance and Politics;
 - Certificate in Indigenous Languages; and
 - Certificate in wîcêhtowin Theatre.

Dentistry

The college is committed to recruiting applicants that reflect the cultural diversity of Saskatchewan's population and is dedicated to increasing the success of Indigenous applicants who wish to obtain a dental education by allocating 11-14% of available seats in the admission of Indigenous students.

Education

- Creation of the Saskatchewan Urban Native Teach Education Program (SUNTEP), with the primary goal of ensuring people of Métis ancestry are equitably represented in the teaching profession.
- Establishment of Onikaniwak: For Those Who Lead: Supporting Culturally Relevant Teaching, Learning and Leading Through Indigenous Perspectives. This study tour, supported by the Experiential Learning Fund, is situated in the boreal forest of Northern Manitoba on Opaskwayak Cree Nation territory. The summer institute helps develop understanding and knowledge of Indigenous histories, worldviews and cultures by engaging students in a variety of experiences that are authentic, land and experience based. The learning institute focuses on developing leadership capacity to support educational outcomes of growing numbers of First Nations, Métis and Inuit students in educational contexts.
- Creation of the Indian Teacher Education Program (ITEP), which has been serving First Nations education since 1972 and is the largest First Nationsspecific teacher education program in the country.
- Establishment of Land-Based and Aboriginal Education Master's Cohorts. This Master of Education course based graduate program offers intensive land-based institutes where students take graduate level courses framed within an Indigenous paradigm.

- Establishment of Indigenous Land-Based Education Cohort MED, Educational Foundations. Students learn the Indigenous ethics of relationality and accountability with Indigenous faculty by studying Indigenous approaches to the research, teaching and learning in educational institutions.
- Requirement for Reconciliation and Treaty Education. The College has created two courses, one of which will be required in year 2 for all BEd students. The courses will focus on the study of school purposes and practices, including teaching and learning processes, assessment, course content, and familial and community relations. The intent of these courses is to provide teacher candidates with a deep appreciation for the knowledge, experiences and perspectives of First Nations, Métis, and Inuit peoples, students in their classrooms, as well as provide them with confidence and knowledge on how to incorporate First Nations, Métis, and Inuit perspectives in curricula, instruction, and assessment. The College has created mandatory treaty training for all students in year 3 and has formally instituted the Office of the Treaty Commissioner 2-day Treaty Workshop training for all students in the Sequential program EDST 322 course.
- Offers a number of other longstanding and new certificate programs to assist current educators to deepen their knowledge in a chosen area, including the Certificate in Indigenous Languages.

Edwards School of Business

- Creation of an Aboriginal Business Administration Certificate (ABAC) that offers self-declared Métis, First Nations and Inuit students with a springboard to a successful career in business and with the option to transfer into the Bachelor of Commerce degree program upon completion.
- Establishment of the Indigenous Business Students' Society (IBSS), focused on bringing Indigenous students together so there is a system of support.

Engineering

- Formation of the Indigenous People's Initiatives Community (IPIC) Engineering Access Program to engage students with Indigenous ancestry and facilitate access to engineering professions.
- Formation of the Indigenous Resource Centre to offer support to aspiring Indigenous engineers and provide educational opportunities for non-Indigenous students, staff and faculty.

Graduate and Postdoctoral Studies

Creation of an Indigenous Studies PhD Program in September 2017.

Johnson-Shoyama Graduate School of Public Policy

- Formation of the Indigenous Peoples' Health Research Centre (IPHRC) to build capacity for community-based Indigenous health research in Saskatchewan, and create networks of Indigenous health researchers regionally, nationally, and internationally.
- Launch of Building Research Relationships with Indigenous Communities (BRRIC) training modules for researchers and their teams seeking to engage Indigenous communities in research.
- Creation of an Indigenous Research and Engagement Expertise Platform (*ongoing*).
- Creation of a Joint Masters of Governance and Entrepreneurship in Northern and Indigenous Areas (GENI) designed to prepare students in northern and Indigenous communities to take on leadership roles in supporting their communities with economic development by using innovative and entrepreneurial approaches.
- Creation of an Indigenous Leadership Program, in partnership with the First Nations University of Canada.

Kinesiology

- Creation of a required course in Indigenous ways of knowing and understanding wellness—KIN 306: Introduction to Indigenous Wellness.
- \$120,000 in funding from the Saskatchewan Health Research Foundation (over three years) for Dr. Heather Foulds to assess the fitness potential of Métis jigging.
- Development of one of Canada's first undergraduate kinesiology courses in Indigenous Wellness: KIN 306.3: Introduction to Indigenous Wellness

Law

- Establishment of the Indigenous Law Centre (formerly the Native Law Centre), which aims to facilitate access to legal education for Indigenous peoples, to promote the development of the law and the legal system in Canada in ways which better accommodate the advancement of Indigenous peoples and communities, and to disseminate information concerning Indigenous peoples and the law.
- Implementation of Indigenous Learning Requirements. The College requires that all students accepted into the program are required to take a first-year course and one of 12 upper-year courses or self-directed seminars for a total of 6 credits.
- Additional investments to enhance learning for Indigenous students, including: expanded credited transsystemic law course offerings, land-based learning opportunities, a graduate program, more traditional teachers involved in course delivery, web-based courses, as well as a focus for those students interested in becoming paralegals.

Medicine

- Development of an Indigenous-led national research plan to guide a \$43M investment through the National Institute of Indigenous Peoples' Health.
- Appointment of Dr. Alexandra King as the first Cameco Chair in Indigenous Health at USask; Dr. King works with Indigenous communities and relevant stakeholders to understand the health and wellness needs of First Nations and Métis peoples in Saskatchewan and the structural changes that needed for improved Indigenous health outcomes.
- Allocation of 10% of the annual positions available in the Pathways to Medicine (MD) Program to individuals of Indigenous ancestry.
- Creation of the Indigenous Student Mentorship Program that connects current medical students with Indigenous high school students in a mentorship capacity.
- Allocation of annual scholarships to continuing students of Indigenous ancestry in premedical studies through the College of Medicine Pathway Support for Indigenous students.
- Formation of the Aboriginal Health Committee to strengthen culturally based linkages between Indigenous world views and the medical community.

Nursing

- Largest number of self-declared Indigenous nursing students in any nursing program in the country.
- Creation of the University of Saskatchewan Community of Aboriginal Nursing (UCAN) Program whereby Aboriginal nursing advisors in Saskatoon, Regina and Prince Albert work with students at all sites to build community, provide advice and support.

Pharmacy & Nutrition

- Provides students a series of opportunities in various communities throughout Saskatchewan and beyond to gain hands-on experience and develop skills in cultural competency.
- Offers an education equity program to maintain and increase the number of Indigenous students in its programs.

School of Environment & Sustainability

Establishment of the UNESCO Chair in Biocultural Diversity, Sustainability, Reconciliation and Renewal, engaging in research in partnership and friendship with communities and Indigenous peoples in the areas of environmental stewardship and governance, community-engaged research practices, Indigenous food systems, and gender and youth in environmental management.

School of Public Health

Launch of six new co-led projects through Global Water Future—the world's largest university-led freshwater research program—that integrates Indigenous partners from across Canada to address urgent and growing water quality issues for Indigenous communities.

Veterinary Medicine

- Allocation of position in the Doctor of Veterinary Medicine (DVM) Program for Indigenous students from British Columbia, Saskatchewan, Manitoba and the territories (through the Education Equity Program).
- 4th year students at the WCVM are given two opportunities to participate in Community Engaged Service Learning in an Indigenous community in Northern Saskatchewan. The approach aims to equip students with tools to demonstrate cultural humility and competence.

Appendix: Further Reading

- Association of Canadian Deans of Education: Accord for Indigenous Education (2010).
- Borrows, John & Coyle, Michael (2017). The Right Relationship: Reimagining the Implementation of Historical Treaties.
- Cajete, Gregory. (Ed.). (1999). A people's ecology: Explorations in sustainable living. Santa Fe, NM: Clear Light Publishers.
- Indian Control of Indian Education, National Indian Brotherhood (1972).
- Kimmerer, Robin W. (2015). Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants.
- $\bullet \quad \underline{\text{OCAP}}^{\text{TM}}.$
- Royal Commission on Aboriginal Peoples (RCAP) (1996). Final Report of the Royal Commission on Aboriginal Peoples. Ottawa, ON: Canada Communications Group.
- TCPS2 Chapter 9.
- TRC Final Report
- <u>United Nations Declaration on the Rights of Indigenous Peoples (2007).</u>
- Ermine, Willie. (2007). The Ethical Space of engagement.

UNIVERSITY COUNCIL

PLANNING AND PRIORITIES COMMITTEE

REPORT FOR INFORMATION

PRESENTED BY:	Darrell Mousseau, chair
DATE OF MEETING:	June 18, 2020
SUBJECT:	Planning and Priorities Committee Annual Report to Council for 2019-20

COUNCIL ACTION: For information only

COMMITTEE TERMS OF REFERENCE

- 1. Conducting and reporting to Council on university-wide planning and review activities in consultation with the Provost and Vice-president Academic.
- 2. Evaluating College and Unit plans and reporting the conclusions of those evaluations to Council.
- 3. Recommending to Council on academic priorities for the University.
- 4. Recommending to Council on outreach and engagement priorities for the University.
- 5. Seeking advice from other Council committees to facilitate university-wide academic planning.
- 6. Recommending to Council on the establishment, disestablishment or amalgamation of any college, school, department or any unit responsible for the administration of an academic program, with the advice of the Academic Programs Committee.
- 7. Balancing academic and fiscal concerns in forming its recommendations.
- 8. Providing advice to the President on budgetary implications of the government funding requests and reporting to Council.
- 9. Considering the main elements of the comprehensive budget and financial reports and reporting to Council.
- 10. Advising the Academic Programs Committee on the fit with University priorities and the general budgetary appropriateness of proposals for new academic programs and program deletions.
- 11. Integrating and recommending to Council on matters referred to it from other Council committees.
- 12. Advising the President and senior executive on budgetary matters, including infrastructure and space allocation issues, referred from time to time by the President, providing the advice is not inconsistent with the policies of Council. The Planning and Priorities Committee will report to Council on the general nature of the advice and, where practicable, obtain the guidance of Council. However, the Committee need not disclose to Council matters the disclosure of which would be inimical to the interests of the University.
- 13. Designating individuals to act as representatives of the committee on any other bodies, when requested, where such representation is deemed by the committee to be beneficial.
- 14. Proactively supporting equity, diversity, and inclusion in all processes and matters coming before the committee.

COMMITTEE MEMBERSHIP FOR 2019-20

Council Members	Department/Unit	Term Expiry
Darrell Mousseau (Chair)	Psychiatry	2020
Vince Bruni-Bossio	Management and Marketing	2022
Alec Aitken	Geography and Planning	2022
Louise Racine	Nursing	2020
David Burgess	Education	2022
Terry Wotherspoon	Sociology	2022
5 1		
General Academic Assembly Member	—	
Angela Bedard-Haughn (vice chair)	Soil Science	2020
Maxym Chaban	Economics	2020
Lynn Lemisko	Educational Foundations	2021
Marie Lovrod	English	2021
Keith Da Silva	Dentistry	2022
Andrew Grosvenor	Chemistry (on leave until Jan 2020)	2021
Haizen Mou	JSGS (leave begins Jan 2020)	2022
<u>Dean</u>		
Keith Willoughby	Dean, Edwards School of Business	2020
Cassianal Lastruca		
<u>Sessional Lecturer</u> Anita Ogurlu	Women's and Gender Studies	2020
Ainta Oguriu	Women's and Genuer Studies	2020
<u>Undergraduate Student Member</u>		
Jamie Bell	VP Operations & Finance, USSU	2020
	•	
<u>Graduate Student Member</u>		
Mery Mendoza	President, GSA	2020
Ex Officia (Vatina)		
Ex Officio (Voting)	Drouget & Vice Dresident Academic	
Tony Vannelli	Provost & Vice-President Academic	
Greg Fowler	Vice-President, Finance and Resources	
Jacqueline Ottmann	Vice-Provost Indigenous Engagement	
<u>Ex Officio (Non-voting)</u>		
Peter Stoicheff	President	
Chelsea Willness	Chair, University Council	
<u>Resource Personnel (Non-voting) – a</u>	ttend all committee meetings	
Dena McMartin	Associate Provost, Institutional Planning an	d Assessment
Jennifer Beck	Director, Resource Allocation and Planning,	IPA
Troy Harkot	Director, Institutional Effectiveness	
Shari Baraniuk	Chief Information Officer (CIO) and AVP, Inf	formation and
	Communications Technology	
Jim Lee	Executive Director, International	

Administrative Support Jacquie Thomarat

This report for Information also includes:

- 1. *Centres* Subcommittee membership and Terms of Reference 2019-2020
- 2. *Capital & Finance* Subcommittee membership and Terms of Reference 2019-2020
- 3. Planning and Priorities Committee Annual Report for 2019-20

PPC Centres Subcommittee Membership & Terms of Reference 2019-20

Plan for 2019/20

- The "subcommittee" will function as a **working group** for the 2019/20 academic year
- It will be responsible for reviewing, revitalizing or revising the mandate and terms of reference per Section 8 of the Centres Policy (<u>https://policies.usask.ca/policies/research-and-scholarly-activities/centres.php#Policy</u>) (outlined below)
- The above will be conducted in the context of the current policy landscape
- Based on progress during 2019/20, the working group will propose the plan/mandate for 2020/21
- The working group will report back to PPC

Terms of reference (updated from Centres Policy)

Mandate:

- To develop and review the Centres Policy and Guidelines
- To assess the scope and feasibility in practice of the Centres sub-committee
- To monitor adherence to the Policy
- To monitor annual performance/metrics (as applicable)
- To oversee the establishment and disestablishment of centres
- To maintain a list of active centres

Membership on this Subcommittee will be drawn from the Planning and Priorities, the Research, Scholarly and Artistic Work, and the Academic Programs Committees of Council, the Offices of the three vice presidents academic, research, and finance and resources, and will be supported by the University Secretary's Office. The Subcommittee will report to Council through the Planning and Priorities Committee.

<u>Membership</u> Darrell Mousseau (chair) Jon Farthing – RSAW representative Ryan Brook – APC representative Irena Creed – OVPR representative on PPC David Burgess – PPC VP Academic - USSU VP Academic – GSA Ken Wilson, Provost designate (ex officio) VP Finance (ex officio)

Resource personnel (non-voting)

Dena McMartin, Associate Provost, Institutional Planning and Assessment Janelle Hutchinson, Chief Strategic Officer, People & Resources Troy Harkot, Director, Assessment & Analytics, Institutional Planning and Assessment Laura Zink, Director, Strategic Research Initiatives Jacquie Thomarat, Associate Secretary, Academic Governance

PPC Capital and Finance Subcommittee Membership & Terms of Reference 2019-20

Plan for 2019/20

- The "subcommittee" will function as a **working group** for the 2019/20 academic year
- It will be responsible for drafting and evaluating the mandate and terms of reference
- Members will assess the scope and feasibility in practice of the sub-committee
- The above will be conducted in the context of the current policy landscape
- Based on the work of 2019/20, the working group will propose a plan/mandate for 2020/21
- The working group will report back to PPC

Mandate/scope of work

- To provide feedback and advice to proponents and PPC on the following standing business items of the planning and priorities committee:
 - Government funding request
 - \circ Tuition
 - o TABBS
 - Comprehensive budget and financial reporting
 - Resource allocation
 - Capital plans

<u>Membership</u>

Angela Bedard-Haughn (chair) VP Operations and Finance – USSU/GSA Keith Willoughby – PPC Lynn Lemisko - PPC OVPR representative – Irena Creed Provost designate – Patti McDougall VP Finance (ex officio)

Resource personnel (non-voting)

Terry Summers, Controller Dena McMartin, Associate Provost, Institutional Planning and Assessment Jennifer Beck, Director, Resource Allocation & Planning, Institutional Planning and Assessment Trever Batters, Director, Operations and Finance, People and Resources Jacquie Thomarat, Associate Secretary, Academic Governance

PLANNING AND PRIORITIES COMMITTEE ANNUAL REPORT FOR 2019-20

The Planning and Priorities Committee (PPC) met on 16 occasions throughout 2019-20 (includes the last scheduled meeting; June 10, 2020). The chair and some members of the committee also served on subcommittees of PPC (*e.g.* the Centres subcommittee; the Capital & Finance subcommittee), as well as on other University Council committees, including the Coordinating Committee, the Governance Committee, and the Information Systems Steering Committee.

COUNCIL ITEMS

The committee presented the following items to University Council for approval:

- the Learning, Teaching and Student Experience Plan (Sept 19, 2019);
- the Living Our Values Policy (Sept 19, 2019);
- the establishment of the *Jane and Ron Graham School for the Scholarship of Teaching and Learning* (April 16, 2020);
- the name change of the "Native" Law Centre in the College of Law to the "Indigenous" Law Centre (May 21, 2020);
- the Indigenous Engagement Strategy (June 18, 2020).

STRATEGIC AND INTEGRATED PLANNING

The PPC received presentations and provided feedback on the following university-level initiatives and plans:

- Enrolment reports and enrolment planning
- Resource allocation process
- Tuition rate setting

UNIVERSITY POLICIES, FINANCES and CAPITAL

The committee considered the following:

- Academic program reviews
- The PPC terms of reference
- The PPC's *Centres* subcommittee policy, mandate and terms of reference
- The PPC's Capital & Finance subcommittee mandate and terms of reference
- The University Finances & Financial Report 2018/19 (Greg Fowler)
- The University's Capital Plan (Greg Fowler, Janelle Hutchinson)
- TABBS model refinement update (Troy Harkot, Jennifer Beck)
- Comparative USask Investment Returns (Greg Fowler)
- Indigenous Procurement Strategy (Rick LeBlanc, Cheryl Carver)
- The Indigenous Engagement Strategy (Jackie Ottmann)
- Tuition rates 2020/21 (Dena McMartin, Jennifer Beck)
- Tuition motion from University Council, re: International student differential (Marcel D'Eon, Regan Ratt-Misponas, Mery Medoza)
- Government Funding Request Provincial Budget (Greg Fowler, Tony Vannelli)

(continued)

• University's COVID-19 Update (Greg Fowler)

ACADEMIC MATTERS

Regarding the workings of the PPC itself, the members of PPC agreed that *equity, diversity and inclusion* (EDI) will be proactively supported in the processes, matters, templates and guidelines that come before the PPC. This was underscored by addition of a guiding statement in the PPC's terms of reference. Furthermore, any proposals coming before PPC for consideration must include consultation with the office of the Vice-Provost Indigenous Engagement as well as the International Office (on all matters that would have a significant internationalization component). The notice of intent for the disestablishment of the School of Public Health was coordinated through the Office of the Provost, with input from PPC.

Notices of Intent (NoI)

The committee discussed and provided feedback to proponents on the following NoIs for new programs:

College of Agriculture and BioResources

• Bachelor of Science (Food and Nutrition).

College of Education

- Early Childhood Education (Wallin);
- Language Teacher Education Program;
- Masters of Education in Indigenous Land-Based Education;
- School for the Scholarship of Teaching and Learning.

College of Medicine and the College of Arts & Science

• Undergraduate Program in Biomedical Sciences (Phase II).

Johnson-Shoyama Graduate School of Public Policy

• Certificate in Indigenous Nation Building.

School of Environment and Sustainability (SENS)

• Master of Sustainable Environmental Management: Energy Security.

Items for consideration in the 2020-2021 Academic Year:

- A suite of graduate certificates in Environment and Sustainability (SENS)
- A graduate certificate in Synchrotron Sciences
- Department of Psychology; name change
- Microcredentials
- USASK's Sustainability Strategy/Plan

ACKNOWLEDGEMENTS

I thank my co-Chair, Angela Bedard-Haughn (AgBio), and all members of PPC for their time and effort in preparing thoughtful comments and critical appraisals of the various program proposals submitted to PPC. The in-depth discussions regarding University academic and non-academic issues, finances, and strategies were always well received by the offices of our Vice-Presidents. I also want to thank those committee members who helped populate the *Centres* and the *Capital and Finance* Subcommittees of PPC. As importantly, I cannot stress the importance of the support provided by Jacquie Thomarat (Committee Secretary) and how her efforts made the running of the PPC that much more efficient and effective. Finally, I must thank all PPC members for their ability to adapt so quickly and professionally to a platform for remote meeting in these trying times.

Respectfully submitted,

Darrell D. Mousseau, PhD Chair, Planning and Priorities Committee University of Saskatchewan tel: (306) 966-8824

BE WHAT THE WORLD NEEDS

UNIVERSITY COUNCIL

NOMINATIONS COMMITTEE

REQUEST FOR DECISION

PRESENTED BY:	Vicki Squires, Chair, Nominations Committee of Council
DATE OF MEETING:	June 18, 2020
SUBJECT:	Collective Agreement Committee Nominations for 2020/21
DECISION REQUESTED:	(SQUIRES/JONES) It is recommended that Council approve the outstanding nominations to the slate of Collective Agreement committees for 2020/21, as outlined in the attached list.

DISCUSSION SUMMARY:

Each year, the nominations committee reviews the membership of committees constituted under the Faculty Association Collective Agreement and submits a list of nominees to Council for consideration of appointment. The attached report contains the outstanding nominees for this year's nominees to collective agreement committees. On May 27, the nominations committee met specifically to consider membership vacancies due to these four vacancies not being filled in time for the May 21, 2020 Council meeting.

ATTACHED: 2020/21 List of collective agreement committees and members

UNIVERSITY REVIEW COMMITTEE

Reviews college recommendations for awards of tenure, renewals of probation, and promotions to professor; reviews and approves college standards for promotion and tenure. This committee is mandated by the **Collective Agreement (15.8.4)**:

15.8.4 <u>University Review Committee</u>. The University shall have a review committee to consider tenure and other matters specifically assigned to this committee in the Agreement. The University Review Committee shall be made up of nine tenured or continuing employees plus the Vice-President Academic and Provost who shall be chair. The nine employees shall be nominated to this committee by the Nominations Committee of Council and approved by Council with the length of their term specified so as to ensure a reasonable turnover of membership. Employees shall not be nominated for membership if they have served on the University Review Committee in the previous three years or if they have agreed to serve on a College review committee in that academic year. In addition to those members mentioned above, two nominees of the Association shall serve as observers on the University Review Committee with voice, but without vote.

Ken Wilson (Chair)	Vice-Provost, Faculty Relations	
Michael Bradley	Physics and Engineering Physics	2021
Karen Lawson	Psychology	2023
Scott Napper	Medicine – Biochemistry, Micobiology	2023
	& Immunology	
Joshua Lawson	Medicine	2022
Xulin Guo	Geography & Planning	2022
Maureen Bourassa	Management & Marketing	2022
Louise Humbert	Kinesiology	2021
Dwight Makaroff	Computer Science	2021
Jacque Zinkowski	Office of the Vice-Provost, Faculty Relations	

PROMOTIONS APPEAL PANEL

From this roster, the members are chosen for Promotion Appeal Committees (promotion appeals), Sabbatical Leave Appeal Committee (sabbatical appeals), and for the President's Review Committee (salary review appeals). This panel is mandated by Collective Agreement (16.3.5.1):

16.3.5.1 <u>Appeal Panel</u>. An Appeal Panel of forty-eight employees drawn from the membership of the General Academic Assembly shall be named by the Nominations Committee of Council and approved by Council, with length of term specified so as to ensure a reasonable turnover of membership. Additional members may be chosen, if necessary, to staff appeal committees. Membership shall be restricted to tenured faculty who are not members of the University Review Committee and who have not served on the University Review Committee in the previous three years. The following criteria shall govern the selection of the Panel:

- a) The Nominations Committee of Council shall strive to achieve a gender balance based on the overall membership of the General Academic Assembly;
- b) The Nominations Committee of Council shall strive to achieve representation from a wide range of disciplinary areas based on the faculty complement in each College.

Members of the Appeal Panel shall not serve on more than one of the committees hearing appeals promotion (Article 16.3.5), sabbatical leaves (Article 20.3) or salary review (Article 17.3.5).

16.3.5.2 <u>Promotions Appeal Panel</u>. The Promotions Appeals Panel shall consist of those members of the Appeal Panel who hold the rank of Professor.

To June 30, 2022	
Sina Adl	Soil Science
Angela Bedard-Haughn	Soil Science
Phil Chilibeck	Kinesiology
Dirk de Boer	Geography and Planning
Roy Dobson	Pharmacy and Nutrition
Tamara Larre	Law
Chris Soteros	Mathematics & Statistics
Bram Noble	Geography and Planning
Mark Oliver	Psychology
Jaswant Singh	Veterinary Biomedical Sciences
Lisa Vargo	English
Ryan Walker	Geography and Planning
Phil Woods	Nursing
To June 30, 2021	
Sabine Banniza	Plant Sciences
Angela Bowen	Nursing
Neil Chilton	Biology
Ken Coates	Johnson-Shoyama School of Public Policy
Ekaterina Dadachova	Pharmacy and Nutrition
Ralph Deters	Computer Science
Anh Dinh	Electrical and Computer Engineering
Stephen Foley	Chemistry
John Gordon	Medicine
Leslie Howe	Philosophy
David Mykota	Education Psychology and Special Education
Emer O'Hagan	Philosophy
Rob Pywell	Physics and Engineering Physics
Nazmi Sari	Economics
Jim Waldram	Anthropology and Archaeology
Chris Zhang	Mechanical Engineering
e	6 6

To June 30, 2023 Kirsten Bett Bev Brenna Stephen Urquhart Donna Goodridge Valery Chirkov Jim Handy Alex Wilson Janet Hill Egan Chernoff **Emily Jenkins** Vikram Misra Jerzy Spzuner John Gjevre Karen Tanino Ingrid Pickering Verna St. Denis Keith Walker

Plant Sciences **Curriculum Studies** Chemistry Nursing Psychology History Education Foundations Veterinary Microbiology **Curriculum Studies** Veterinary Microbiology Veterinary Microbiology Mechanical Engineering Medicine Plant Sciences **Geological Sciences** Educational Foundations Education Administration

UNIVERSITY COUNCIL

NOMINATIONS COMMITTEE

REQUEST FOR DECISION

PRESENTED BY:	Vicki Squires, chair, Nominations committee of Council
DATE OF MEETING:	June 18, 2020
SUBJECT:	Nomination for the Teaching, Learning and Academic Resources Committee (TLARC) of Council for 2020/21

DECISION REQUESTED:

(SQUIRES/JONES): It is recommended that Council approve the nomination of Christian Willenborg to TLARC effective July 1, 2020 to June 30, 2021, as attached.

DISCUSSION SUMMARY:

The Nominations Committee recommends the 2020/21 membership of Christian Willenborg, Department of Plant Sciences to TLARC. There will be 12 members of the GAA on TLARC for 2020/21 only, in order to ensure that there is sufficient Council member representation.

ATTACHMENT:

1. TLARC recommended membership (new member in red).

TEACHING, LEARNING AND ACADEMIC RESOURCES COMMITTEE

- Reviews and advises on pedagogical issues, support services for teaching and learning, Indigenous teaching and learning, and policy issues on teaching, learning and academic resources.
- Membership comprises 11 members of the GAA, at least 5 of whom will be members of Council; includes 1 sessional lecturer.

Council Members		
Vince Bruni-Bossio (Chair)	Management and Marketing	2023
Paul Jones	Toxicology	2022
Jo Ann Murphy	Library	2023
John Gjevre	Medicine	2023
Christian Willenborg	Plant Sciences	2021
General Academic Assembly I	Members	
Jaris Swidrovich	Pharmacy & Nutrition	2021
Manar Angrini	Biology	2022
Loleen Berdahl (Vice-chair)	Political Studies	2022
Jorden Cummings	Psychology	2021
Kathleen James-Cavan	English	2022
Gail MacKay	Curriculum Studies	2021
Ann Martin	English	2023
Student Members		
Kiefer Roberts	USSU Designate	
Carmen Marquez	GSA Designate	
Ex-officio (voting)		
Patti McDougall		
	Vice-Provost, Teaching, Learning and Student Exp	perience
Sessional		
Liv Marken		2021
Resource Members (non-votin	ng)	
Shari Baraniuk	Chief Information Officer, ICT	
Rachel Sarjeant-Jenkins	(designate for) Dean, University Library	
Cheri Spooner	Director, Distance Education Unit	

Cheri SpoonerDirector, Distance Education UnitNancy TurnerDirector, Teaching and Learning EnhancementCandice WeingartnerDirector, ICT Academic and Research TechnologiesCandace Wasacase-LaffertyDirector, Indigenous InitiativesSaalimah SaeedCommittee Secretary

Associate Members

Associate members are administrative and technical staff with valuable expertise and experience, who receive committee agendas and can attend TLARC meetings on request or at their initiative.

Kate Langrell

Copyright Coordinator

AGENDA ITEM NO: 13.3

UNIVERSITY COUNCIL NOMINATIONS COMMITTEE REPORT FOR INFORMATION

PRESENTED BY:	Vicki Squires, chair, Nominations Committee
DATE OF MEETING:	June 18, 2020
SUBJECT:	Annual Committee Report
COUNCIL ACTION:	For Information Only

SUMMARY:

Thank you for this opportunity to share with all members of University Council the work that the Nominations Committee has undertaken this year. The responsibilities of Nominations Committee include:

- 1. Nominating members of the General Academic Assembly and Council to serve on all standing and special committees of Council, other than the Nominations Committee, and nominating the Chairs of these committees.
- 2. Nominating members of Council to serve on other committees on which Council representation has been requested.
- 3. Nominating individuals to serve as Chair and/or Vice Chair of Council, or as members of Council, as required, in accordance with the Bylaws.
- 4. Nominating Sessional Lecturers to Council Committees as required.
- 5. Nominating members of Council to serve on student academic hearing and appeals panels as set out in Sections 61(2) of the University of Saskatchewan Act 1995.
- 6. Nominating eligible members of the General Academic Assembly to serve on appeal and review committees as required by the Collective Agreement with the University of Saskatchewan Faculty Association.
- 7. Nominating individuals to serve on the search and review committees for senior administrators.
- 8. Advising the University Secretary on matters relating to Council elections.

The Nominations Committee has met throughout the year to fill vacancies as they arose on the academic committees of University Council and on the collective agreement committees. Although our work occurred throughout the year, we were especially busy, meeting multiple times in April and May to fill vacancies caused by the end of terms on committees and impacted by the spring 2020 University Council elections. This year was also very busy with nominating faculty members to serve on search committees and review committees for senior leadership positions on campus. During our work this year, we discovered that there is an incongruence in the Council bylaws; the governance committee is going to undertake to address the conflict in bylaws next year.

Fulfilling the responsibilities of this committee would not be possible without the dedication and thoughtful considerations of the committee members: Eric Lamb (vice chair), Paul Jones, Kara Somerville, Greg Wurzer, Roy Dobson, Rachel Engler-Stringer, Stephen Urquhart, and Phil Woods. Thank you to our administrative support from the University Secretary's office, Jacquie Thomarat and Michelle Kjargaard. Your attention to detail and your phenomenal organizational skills were deeply appreciated, especially when there were time constraints for responding to requests for nominations.

I have enjoyed working with such a dedicated team and with the chairs of the academic committees of Council through the Coordinating Council Chairs group. The commitment of this group to the success of this university is truly evident in our day to day work.

AGENDA ITEM NO: 14.1

UNIVERSITY COUNCIL

RESEARCH, SCHOLARLY, AND ARTISTIC WORK COMMITTEE FOR INFORMATION ONLY

PRESENTED BY:	Jon Bath, Chair, Research, Scholarly, and Artistic Work Committee
DATE OF MEETING:	June 18, 2020
SUBJECT:	Research, Scholarly, and Artistic Work Committee Annual Report
COUNCIL ACTION:	For information only

ANNUAL REPORT OF THE RESEARCH, SCHOLARLY, AND ARTISTIC WORK COMMITTEE OF COUNCIL 2019-20

Terms of Reference

- 1) Recommending to Council on issues and strategies to support research, scholarly and artistic work.
- 2) Recommending to Council on policies and issues related to research integrity and ethics in the conduct of research, scholarly and artistic work.
- Recommending to Council and providing advice to the Vice-President Research on community engagement and knowledge translation activities related to research, scholarly and artistic work.
- 4) Providing advice to the Vice-President Research and reporting to Council on issues relating to the granting agencies which provide funding to the University.
- 5) Providing advice to the Vice-President Research, the Vice-Provost Teaching and Learning, and Dean of Graduate Studies and Research on the contributions of undergraduate and graduate students and post-doctoral fellows to the research activity of the University.
- 6) Examining proposals for the establishment of any institute or centre engaged in research, scholarly or artistic work at the University, and providing advice to the planning and priorities committee of Council.
- 7) Receiving an annual reports from the Vice-President Research and the Dean of Graduate Studies and Research.
- 8) Receiving and reporting to Council the University's research ethics boards' annual reports.

- 9) Designating individuals to act as representatives of the committee on any other bodies, when requested, where such representation is deemed by the committee to be beneficial.
- 10) Considering the priorities of the University community, such as Indigenization and internationalization, when assessing current and new research, scholarly, and artistic work activities.

Council Members		
Marjorie Delbaere	Management and Marketing	2021
Rainer Dick	Physics and Engineering Physics	2020
Gordon Sarty	Psychology	2022
Cheryl Waldner	Large Animal Clinical Sciences	2021
Phil Woods	Associate Dean (Research), Nursing	2022
General Academic Assembly Me	embers	
Jon Bath (Chair)	Art and Art History	2021
Lori Bradford	SENS	2022
Sarah Buhler	Law	2021
Jon Farthing	Kinesiology	2020
Jim Waldram	Archaeology and Anthropology	2022
Other Members		
Karen Chad	Vice-President Research (ex officio)	
Trever Crowe	Interim Dean, Graduate and Postdoctoral Studies (ex officio)	
Carlos Munoz Pimentel	USSU designate	
Mohamad Wajih Alam	GSA designate	
Resource Members		
Dion Martens	Director of Research Services and Assistant Vice-president Research	
Laura Zink	Director, Strategic Research Initiatives	
Amanda Storey	Committee Secretary, Office of the University Secretary	

The Research, Scholarly, and Artistic Work (RSAW) committee met 12 times during the 2019-20 year, cancelling one meeting during the early response to the Covid-19 pandemic. At its meetings, both in person and virtually, the committee addressed many issues related to research, scholarly and artistic work at the University of Saskatchewan.

At its first meeting of the year, the committee received the annual report on breaches of the Responsible Conduct of Research policy and presented this report to University Council for information in October.

In October 2019, RSAW conducted its annual meeting with the chairs of the university's Research Ethics Boards and received their annual reports. As is the case after every meeting with the chairs, RSAW was impressed with the work and commitment of members of the ethics boards in their work to ensuring ethical research at USask. These reports were provided to University Council for information in November 2019.

Starting at its October 3, 2019 meeting, RSAW began meeting with deans and associate deans (research) to discuss their colleges' research plans, challenges, and successes, with the intent to bring a report to Council this year. Representatives from Medicine, Dentistry, and Nursing presented, but given the shift to virtual meetings and the great demand on the time of deans and associate deans to respond to the global pandemic, this project was set aside and will be taken up by the committee next year. Some early commonalities that emerged from the Health Sciences were the importance of new faculty hires and internal funding opportunities to accelerate research success, and the continued challenges of balancing professional training requirements with research.

The RSAW committee discussed the Federal Equity, Diversity and Inclusion Dimensions charter in the fall and reviewed and provided comment on the university's Equity, Diversity, and Inclusion Policy in the May 2020. RSAW also provided review and comment on revisions to the Centres Policy and the Responsible Conduct of Research Policy.

The committee provided review and comment on a number of initiatives impacting research, scholarly, and artistic activities on campus, including the memorandum of understanding between USask and the City of Saskatoon, the Wanuskewin Institute, the Indigenous Summer Entrepreneur program, and the collaborative use of research infrastructure project. The committee also discussed supports and services available for researchers and reviewed the implementation plan for the research strategic plan.

The committee continued its interest in the impact of changes in the scholarly publishing world on universities, and engaged in good discussions with the University Library about open access, changes to the collections budget, and predatory publishing. The committee also met with jake moore, director of the University Art galleries and Collections, on the ongoing work on the Galleries Reimagined project.

Under the Centres policy, RSAW is required to review all proposals for research centres. RSAW reviewed the proposal for the School for the Scholarship of Teaching and Learning at its February 13, 2020 meeting.

The RSAW committee received an annual update from the Tri-agency leaders Irena Creed (SSHRC), Ron Borowsky (NSERC), and Darcy Marciniuk (CIHR) at its May 7 meeting. Committee members were interested in the success rate of applications of triagency funding and with the year over year trends. The varying success rates depending on granting agency were discussed and RSAW appreciated the work being done by all tri-council leaders to improve success rates through mentorship and internal review.

The service of John Farthing and Lori Bradford as a representatives of RSAW on the Centres Subcommittee of Planning and Priorities Committee, Gord Sarty on the Joint Committee on Chairs and Professorships, and Jim Waldram as a representative on the New Researcher and Distinguished Researcher Awards Committee is recognized with appreciation. Appreciation is also extended to all presenters who attended the RSAW committee this year. I also want to thank Sarah Buhler for her service as Vice-Chair this year and acknowledge the outstanding administrative support provided by Amanda Storey.

Attached as appendices to this annual report are the annual reports of the Office of the Vice-President Research and the College of Graduate and Postdoctoral Studies 2018/19.

ATTACHMENTS:

- 1. Annual Report of the College of Graduate and Postdoctoral Studies for 2019-20
- 2. Annual report of the Vice-President Research for 2019-20



university of saskatchewan College of Graduate and Postdoctoral Studies grad.usask.ca

Interim Dean's Report May 5, 2020

With the second second

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Message from the Dean

We are living through an unprecedented time that challenges us to act and think differently. Our lives have changed in ways that we could not have imagined a few months ago. It has been nearly two months since we left campus, and although we are 'all in this together,' I know that each of us faces unique challenges in supporting our graduate students, postdoctoral fellows and each other.

The CGPS team continues to work feverishly to ensure the business of the college is well managed. The entire team has mobilized to remote service, with our stakeholders experiencing the same high level of commitment and support. We continue to work with our colleagues to encourage adaptive and creative solutions, encouraging students to continue to make progress in their programs. Everyone has responded with innovative solutions in response to artistic exhibitions, online thesis defenses, alternate English proficiency scores and approvals of program extensions. We have created new communication channels to ensure both students and partners have access to the latest information impacting students, graduate faculty, supervisors and partners. Our communication strategy continues to evolve and improve. The questions and topics change, but we consistently strive to provide deliberate and careful messaging through weekly forums designed for graduate chairs and graduate administrators; an addition to our website with topic-specific supplemental information; a monthly newsletter designed to lift spirits, and more.

To ensure topics important to our graduate students and postdoctoral fellows are presented at the institutional level, CGPS staff have committed time to



Image 1: Interim Dean T. Crowe 2020

an incredible number of committees and groups, working on academic planning and research, not to mention participating in a number of online forums & town halls.

Work continues in order to plan for the future, and while some of the specific challenges remain undefined, I am confident that we will succeed. I can't tell you how proud I am of our USask graduate community. We are early adopters, and we have contributed greatly to flattening the COVID-19 curve, while also supporting students. USask researchers are leading the race to overcome these infections, and we continue to flex and adapt programming as we evolve to a new norm. I see new and exciting opportunities for innovative ways to deliver graduate education and research. In research, some experiments deliver discouraging results, but all represent experience and opportunities to learn. I remain ever optimistic that we will continue to be innovators. We will get through this.

Jever Crowe

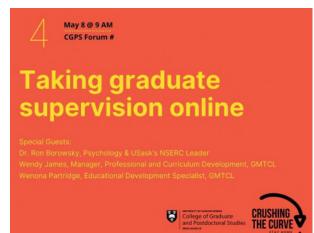
Trever Crowe, Ph.D., P.Eng. Interim Dean College of Graduate & Postdoctoral Studies

Connect with us! in f

Add our paws channel



Engage in a weekly forum



Take part in a focus group



COVID-19 IMPACT

Admissions & Program Progress

Table 1: Admissions and Yields

	2019/2020			2020/2021 as of Apr 21		
	Apps	Offers	Accepted	Apps	Offers	Accepted
Domestic Student	1,233	390	250	1,297	468	344
International Student	5,571	659	316	6,423	674	508
Undeclared	1	0				
Unknown	15	0		4	0	0
Grand Total	6,820	1,049	566	7,724	1,142	852
				1 3%	▲ 8%	▲ 50%

The college is currently tracking above average as of April 21, 2020 in applications, letters of offer and students accepting offers, with enrolment numbers remaining stable for Spring/Summer 2020.

Table 2: Spring/Summer Enrolment

Spring/Summer Enrolment Comparison						
	2017/2018	2018/2019	2019/2020	2020/2021		
Graduate Students	1,787	1,666	1,885	1,851		

CGPS continues to offer support and flexibility regarding leaves and program extensions where necessary. We continue to encourage students and faculty to find creative ways that would allow students to continue to make progress in their degrees.

The college continues to work closely with campus colleagues in planning and delivery of remote support for students. Development is underway for college-specific online or remote orientation. Both incoming and current students continue to be supported – this includes graduating students who cannot leave due to travel restrictions.

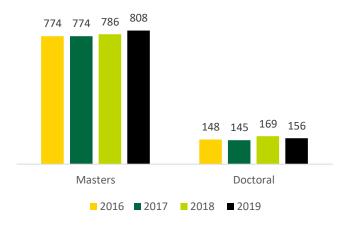
More information is released as it becomes available and can be found on our <u>supplemental information site</u> and through targeted email messaging.

Programs & Operations

Jennifer Drennan, Director

The RMS Recruit project continues to move forward. Thank you for your continued feedback– your comments are used in decisions regarding system design and configuration.

CGPS went live with <u>Jira Service Desk</u> in December, and we have been very pleased with the uptake and results to date. We continue to gain experience. Over the past month, we have received 1258 tickets. We will soon be able to extract meanginful data and statistics to better support informed discussions and allow us to analytically review college response time among other key performance indicators.



Recruitment

Kathi Suderman, Acting Manager

Staff members from Student Recruitment attended a number of graduate studies fairs in Western Canada during the fall months to highlight graduate study opportunities at USASK.

On January 29, 2020, Student Recruitment hosted its first Soup and Bannock event at the Gordon Oakes Red Bear Student Centre at which graduate study opportunities were promoted to current undergraduate Indigenous students. Three current Indigenous graduate students gave short testimonials about their research as well as what had first motivated them to consider graduate studies.

Internationally, Student Recruitment focuses its efforts on government-sponsored students through membership in the CALDO consortium and a partnership with the China Scholarship Council.



2014-15 2015-16 2016-17 2017-18 2018-19

Figure 1: Credentials Awarded

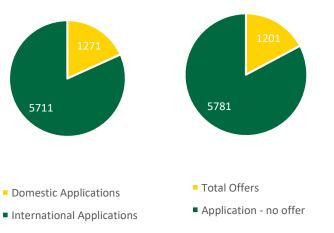


Figure 3: Admission Offers & Yields (academic year 2019-20)

Figure 2: Self-Declared Indigenous Graduate Students



From the Associate Dean's Portfolio Dr. Martha Smith

Student Affairs

The CGPS oversees a variety of academic areas, primarily providing oversight in graduate academic policy and programs as well as supporting students and faculty.

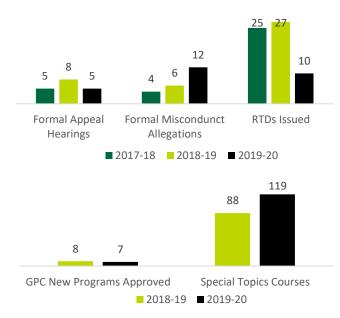


Figure 4: Academic Affairs Portfolio Insight

Postdoctoral Fellows

PDFs are valuable members of the university; they contribute immensely to the vitality of the research environment. In general, PDFs come to a university in order to gain additional research experience and expertise. They are here to develop the skills and knowledge necessary to become independent investigators themselves.

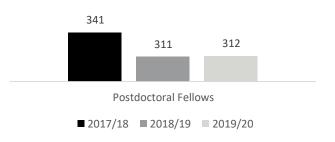


Figure 5: PDF Headcount

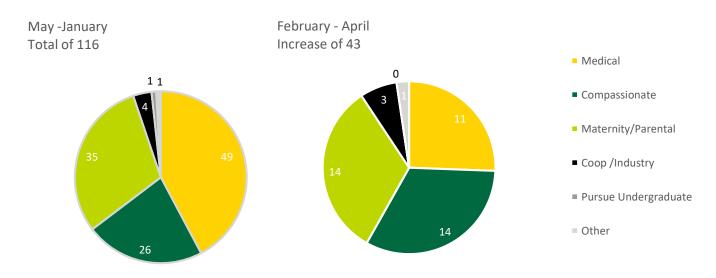


Figure 6: Student Leaves 2019-20 Academic Year = 159

6

Scholarships & Awards

Director, Heather Lukey

The last review of the Devolved Scholarship Action Plans (DSAPs) occurred in the Spring of 2013. There have been ongoing changes at the University of Saskatchewan, and it became necessary to update the devolved plans. The review was primarily motivated to ensure that DSAP plans are consistent with the collective agreement between the University of Saskatchewan and the Public Service Alliance of Canada, representing graduate student employees. The Director of Awards & Scholarships held in-person meetings with the 45 devolved units across campus to review, revise and on occasion totally rework their devolved plans. As of today, nearly all plans have been completed and approved. The approved DSAPs will be published on the CGPS website as their permanent home. We hope this will facilitate transparency as to how devolved funding is administered

Dean's Scholarship Term 1

Awarded					
Domestic PhD	3	Applications			
International PhD	2	74			
Domestic Masters	1	Funding Awarded			
International Masters	0	\$345,691			

Table 3: Dean's Scholarship – Round 1 (April 27, 2020)

Tri-Agency Statistics

Support for Students affected by COVID-19

On April 22nd, 2020 there was an announcement from the Federal Government "Support for students and new grads affected by COVID-19" describing financial aid that will be made available to students across Canada. In that announcement it mentioned the possibility of the extension of expiring federal graduate research scholarships and post doc fellowships by providing \$291.6 million to the federal granting councils. The Tri-Agency determined that this funding is their number one priority and they are diligently working towards a process to distribute these funds soon. Tri-Agency recommends to consistently monitor their websites and social media to remain updated as information becomes available.

Dean's Scholarship Term 2

Awarded					
Domestic PhD	10	Applications			
International PhD	7	225			
Domestic Masters	4	Funding Awarded			
International Masters	0	\$1,082,697			

Table 4: Dean's Scholarship – Round 2 (April 27, 2020)

	Received	Forwarded	Awarded	Funding Awarded
SSHRC Doctoral	39	27	12	\$1,100,000
SSHRC Masters	41	Awarded by CGPS	23	\$402,500
CIHR Masters	10	Awarded by CGPS	5	\$87,500
CIHR Doctoral	10	3	TBA	ТВА
NSERC Doctoral	25	17	6	\$462,000
NSERC Masters	32	Awarded by CGPS	21	\$367,500
Vanier	14	5	1	\$150,000

Table 5: Tri-Agency Statistics 2019-20 (April 30, 2020)

In addition to the above, the awards and scholarship team are currently working with the Tri-Agencies to CIHR competitions. During the 2019-20 academic year we have a total of 4 Masters and 2 PhDs on Indigenous Graduate Leadership Scholarships – these scholarships are unique in that they provide tuition in addition to an annual allocation. During the 2019-20 year we have awarded 30 GRFs, the equivalent of 50 GTFs, the equivalent of an additional 40 GTF summer supplements, 17 TSDFs, and nearly \$252,000 in faculty startup funding.

The College of Graduate & Postdoctoral Studies provides nearly \$500,000 outside of our operating budget in support of graduate student, postdoctoral fellow and faculty support in the form of matching funding for a variety of research and academic initiatives. A portion of this funding is provided through strategic financial management of application fees that are collected. In 2019-20, approximately \$515,000 was awarded to graduate students through the generosity of our donors and endowment funds.



Office of the Vice-President Research

2019-2020 Annual Report

BE WHAT THE WORLD NEEDS

Discovery the world heed

Office of the Vice-President Research

Annual Report

I am very pleased to report on the many successes and accomplishments of the Office of the Vice-President Research for the 2019-20 academic year.

To begin, I want to thank all of our faculty, staff, students, researchers and community partners for their hard work, perseverance, and dedication over the past several months. As you well know, COVID-19 has quickly become the defining feature of our present times and the past academic year.

In a short but dynamic four months, the University of Saskatchewan has transitioned its operations from being primarily in-person and on-campus to that where our teaching and learning, research and discovery, and administrative mandates are carried out primarily remotely. During the same period, USask researchers have demonstrated exceptional leadership by coming together (while being physically apart), embracing interdisciplinarity, and collaborating to produce impactful solutions in the global fight against COVID-19. I continue to observe and be humbled by the agility and resiliency of our campus during these unprecedented times.

Now, despite COVID-19, the Office of the Vice-President Research continues to lead and support impactful research, scholarly, and artistic work across the academy. In 2019-20, I was proud to work alongside our esteemed faculty, researchers, and colleagues to advance several strategic initiatives, such as the refinement of our strategic research plan, a research life-cycle inventory of all programs, services, and supports (in collaboration with ICT and University Library), the revision of our Responsible Conduct of Research Policy, and the co-creation of an Indigenous Research Resource Collaborative (with the Vice-Provost Indigenous Engagement). We've also focused on building mutually-beneficial partnerships with various stakeholders, including the Town of Canmore, Wanuskewin Heritage Park, and Dakota Whitecap First Nation. I invite you to read this report to learn about these and many of the other great successes and accomplishments of our university over the past academic year.

As we look to the future, I am eager and excited to work with our campus community to advance the many commitments contained in our strategic research plan, Discovery the World Needs, and other opportunities as they arise. Together, we will unleash discovery and continue to be the university the world needs.

Sincerely,

Varen Chod

Karen Chad Vice-President Research University of Saskatchewan



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Research Services and Ethics Office

The Research Services and Ethics Office (RSEO) serves the USask community by facilitating and promoting research success. Our team of highly skilled and dedicated staff support researchers and academic leaders in developing competitive proposals for innovative research that is safe and ethically sound.

Snapshot

6% increase in new animal-use protocols, compared to last year

22% increase in behavioural ethics applications

38% increase in biomedical ethics amendments

128 internal review participants

1,467 newly funded research projects supported by RSEO

110,656 animals used in research and teaching

\$650,000 in animal-order desk sales

\$1,457,202 in COVID-related research funding at the end of 2019-20

\$99,365,741 in research funding for our signature areas of research

Plus more workshops, training, online supports and improved policies, practices, forms and templates

Supporting Researchers and their Teams

The Research Services and Ethics Office (RSEO) undertook several initiatives over the past academic year aimed at better serving USask researchers and supporting research excellence across the institution, including:

Tri-Agency Grants Management Solutions (TGMS) initiative workshops

RSEO welcomed members of the Tri-Agency Grants Management Solutions (TGMS) team for two days in January 2020. USask was the first of 15 university and college visits planned by TGMS across Canada focused on identifying current pain points and validating the future needs and wants of Tri-Agency system users.

RSEO hosted three half-day Client Experience (CX) journey-map workshops, from the perspectives of applicants, reviewers and research administrators. 40 faculty, students and staff participated. These workshops also sparked an interest among research facilitators to work with RSEO to map internal processes in order to improve the CX experience throughout the research life-cycle.

New Tri-Agency Guide on Financial Administration (TAGFA)

The new TAGFA, which took effect April 1, 2020, is based on a principles-based approach to allow flexible use of grant funds in support of research activities.

Throughout 2019-20, RSEO worked closely with Financial Operations to prepare for the new TAGFA, including undertaking a gap analysis, modernizing procedures, and updating compliance forms and inter-institutional transfer templates. RSEO and Financial Operations also collaborated to prepare interactive workshops and online materials to educate researchers and support research administrators.

NSERC New Alliance Program workshops

NSERC unveiled a New Partnership Grant (Alliance) in 2019 to replace multiple partnership programs. RSEO worked with research facilitators to develop and deliver workshops aimed at helping researchers navigate the new application development and submission process.

Improving how we close research projects and financial funds

RSEO worked with Financial Operations to develop and implement new standard operating procedures (SOPs) for closing research projects. This new close-out process aligns RSEO processes in UnivRS with fund closures in Banner, USask's financial system.

Within six months of implementation, the number of open grant projects and funds beyond their end date declined from 408 to 115. Improving the close-out process reduces the risk of deficits and breached terms and conditions. It also allows RSEO to better coordinate extensions as well as to avoid having returning research funds.

Better supporting budget planning for research projects

RSEO worked with Human Resources to develop a budgetplanning document that summarizes compensation costs and benefits for research staff, postdoctoral fellows and undergraduate and graduate students. Such compensation information was often difficult to find and understand, which often led to inaccurate estimates, budgets not aligned with USask policies, and far too much time spent finalizing budget sections of grant proposals. This new resource has allowed for a more straightforward budgeting process.

Making helpful information more widely accessible

RSEO continued to develop a number of short Knowledge Base (KB) articles answering frequently asked questions about both preand post-award administration.

RSEO also collaborated with the Library and Information and Communications Technology to develop a "Researching Remotely" webpage, providing helpful resources and links to support researchers working remotely due to COVID-19. This resource will now serve as the basis for the development of a more comprehensive, one-stop "Supports throughout the Research Lifecycle" webpage which should be completed by summer 2020.

153 Training Sessions, plus critical supports for animal-based research

The Animal Ethics Team provided 153 training sessions on various animal research-related topics, including: animal handling, surgical skills, anesthesia, euthanasia, new species information, and training on specific surgeries.

The Animal Ethics Team trained five senior-year veterinary students, with each of the trainees spending two weeks learning about laboratory-animal medicine, being trained in specific animal techniques, and learning USask's processes for managing animal research, teaching and testing. They also trained two senior-year laboratory-animal residents in the final year of their residencies at institutions in the United States; as part of their residency, they had the option of undertaking training at other institutions. The Canadian Light Source (CLS) at USask is of particular interest for many veterinary students and visiting veterinary residents, as it is a unique animal-research resource unavailable at most other animalresearch institutions.

The Animal Ethics Team supports animal-based research in numerous other ways, including supporting animal research at the CLS, blastomycosis research in mice, humanization of mice for HIV and COVID-19 research, and surgeries on rabbits, pigs and dogs.

Public-Outreach Event: Animal-Human Relationship

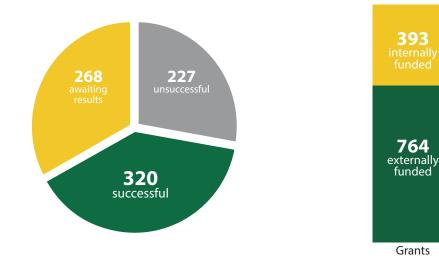
On October 18 and 19, 2019, USask partnered with Saskatchewan Polytechnic to deliver a free, two-day public-outreach event exploring the animal-human relationship, with an emphasis on the use of animals for research and teaching.

Over 260 people attended. The event included a "Three Rs & Animal Research" trainee symposium; an expert from Understanding Animal Research in the UK on "Why and How We Should Talk to the Public About Animal Research"; a special evening session focused on "New Therapies & Diabetes Research"; and a full-day event to explore "Ways of Knowing and Understanding the Animal-Human Relationship."

Special thanks to our funders SHRF, NSERC, and Public Responsibility in Medicine and Research, and Amanda Plante, without whom this successful event would not have been possible.

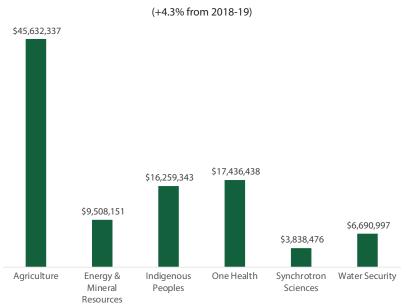
Research Funding: Grants and Contracts

815 grant applications submitted to external agencies, with support from RSEO





\$99,365,741 in research funding for our signature areas of research

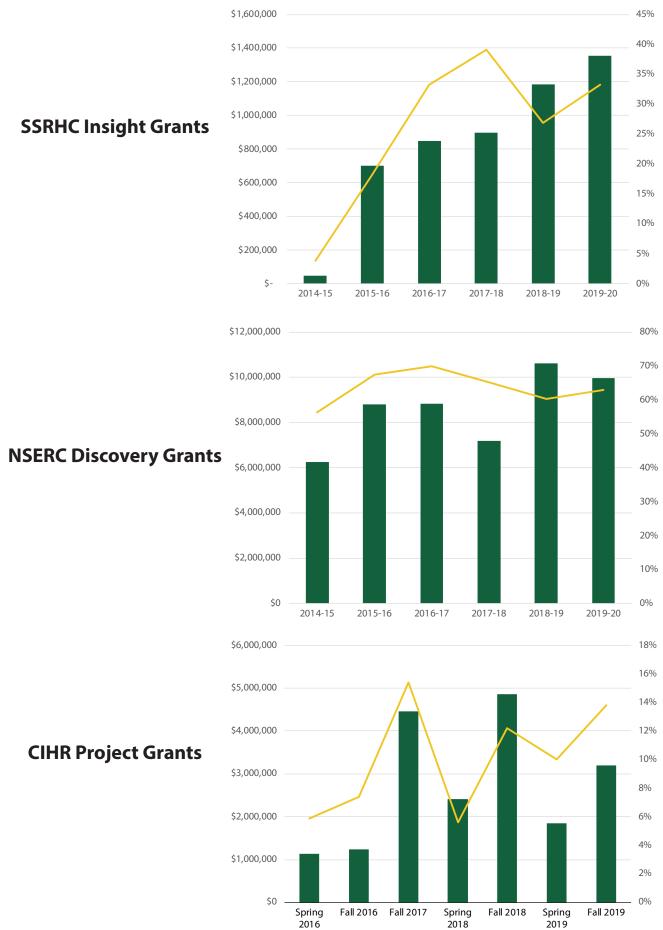


\$1,457,202 in COVID-related research funding at the end of 2019-20

- VIDO-InterVac: \$1,214,793
- College of Medicine: \$197,609
 - Psychology: \$61,659
 - Emergency Medicine: \$50,000
- Medicine: \$50,000
- Community Health and Epidemiology: \$17,000
- Nutrition and Dietetics: \$9,550
- School of Rehabilitation Science: \$9,400
- College of Arts and Science: \$24,800
 - Computer Science: \$20,000
 - Sociology: \$4,800
- College of Pharmacy: \$10,000
- College of Engineering (Mechanical Engineering): \$10,000

1,467 new funded research projects supported by RSEO

Tri-Agency Results at a Glance -



Internal Review (IR)

Competition	Submitted	IR Participants	Total Awarded	Successful IR Participants
NSERC Discovery Grant	90	51	55	36 (65%)
NSERC Res. Tools & Instruments	18	7	3	1 (33%)
SSHRC Insight Grant	21	14	7	4 (57%)
SSHRC Insight Dev. Grant	20	12	10	5 (42%)
SSHRC Partnership Grant	3	2	1	1 (50%)
CIHR Project Grant (Fall 2019)	29	23	4	3 (75%)
CIHR Project Grant (Spring 2019)	31	18	Cancelled due to COVID	N/A

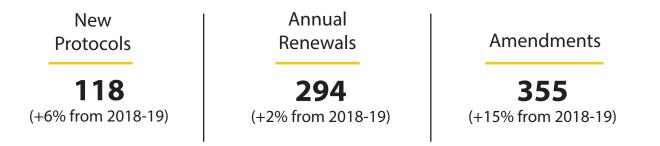
Events Organized and Supported by the Tri-Agency Leaders and Internal Review Specialists:

NSERC Discovery Grant and RTI Grants Workshop – May 2019 NSERC Discovery Grant Info Session (by Program Officers from NSERC) – May 2019 NSERC Celebration Luncheon – May 2019 SSHRC Appreciation Event – May 2019 CIHR Project Grants Workshop for Fall 2019 – July 2019 NSERC CCV and Full Application Workshop for DG and RTI applicants – Sept and Oct 2019 SSHRC New Faculty Presentation – Oct 2019 SSHRC Insight Development Grant Panel Discussion – Nov 2019 CIHR Appreciation Event – August 2019 CIHR Project Grant Spring Workshop – Jan 2020 CIHR Town Hall – Feb 2020

Animal Ethics

Reviewing and approving Animal-Use Protocols

All research, teaching or testing that involves animal subjects or the use of animal tissue must be accurately described in an Animal-Use Protocol that is reviewed and approved by the University Animal Care Committee's Animal Research Ethics Board (AREB). No animal use can take place until the AREB issues a Certificate of Approval.

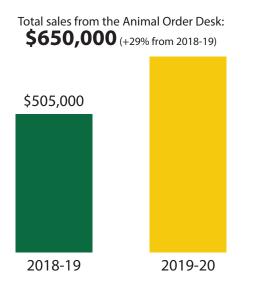


The Canadian Council on Animal Care (CCAC) requires scientific-merit review of all new and four-year renewal *research* Animal-Use Protocols (AUP). All research AUPs that are not funded by a peer-reviewed agency are reviewed by the OVPR Scientific Merit Review Committee for Animal-Based Research. It reviewed 35 AUPs in 2019-20, an increase of 40% from 2018-19.

The CCAC also requires pedagogical-merit review of all new and four-year renewal *teaching* AUPs. All USask courses-for-credit that involve the use of animals require review by the Teaching, Learning and Student Experience (TLSE) Pedagogical Merit Review Committee (PMRC) prior to Animal Research Ethics Board (AREB) approval. The PMRC was established in spring 2019 and it reviewed six AUPs, with a phased-in approach to review the 30 active teaching AUPs.

Coordinating the **shipment of research animals**

The RSEO Animal Order Desk coordinates the shipment of animals to USask and also shipment of animals from USask to other institutions for collaborative research.



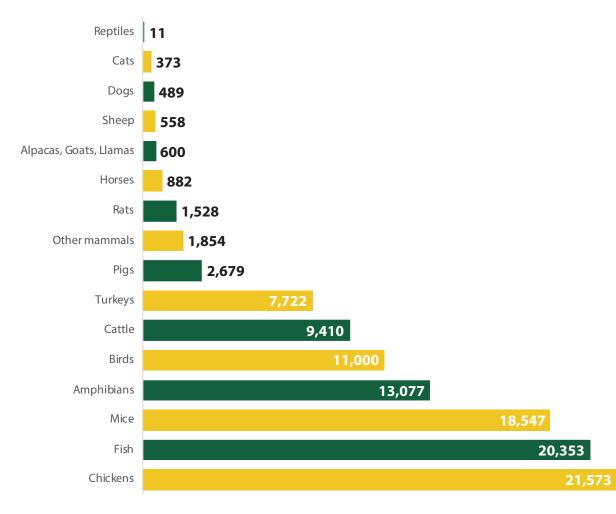
26,963 animals cared for in RSEO-managed facilities in 2019-20

RSEO's Animal Care Services manages the Laboratory Animal Science Unit in the Health Sciences Building and the Animal Vivarium in the Collaborative Sciences Research Building.

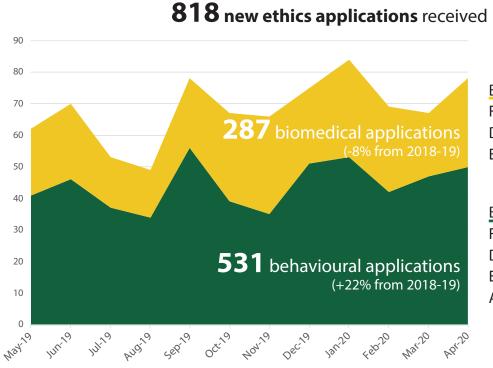
Animals cared for in these facilities in 2019-20 included:

21,746 mice 3,648 fish 1,405 rats 43 frogs 36 ground squirrels 36 tiger salamanders 34 rabbits 15 skates

110,656 animals used in research and teaching at USask in 2019-20



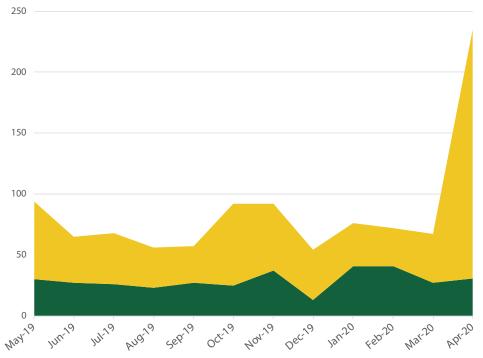
Human Ethics



Biomedical applications: Full-board reviews: 54 Delegated reviews: 183 Exemptions: 50

<u>Behavioural</u> applications: Full-board reviews: 14 Delegated reviews: 368 Exemptions: 121 Acknowledgments: 28

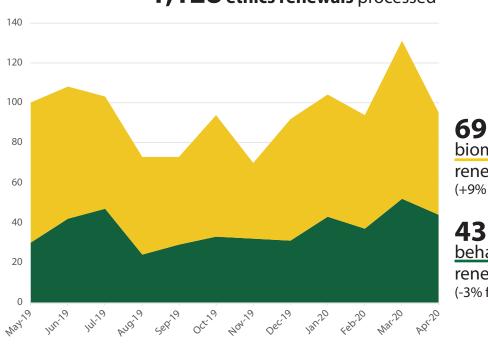
1,030 amendments processed



682 biomedical

amendments (+38% from 2018-19) with a significant spike after COVID-19 affected research protocols

348 behavioural amendments (+28% from 2018-19)



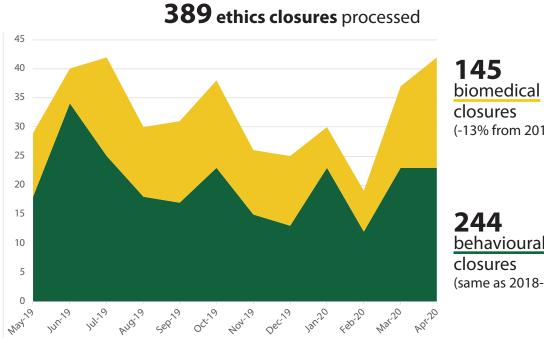
1,128 ethics renewals processed

693 biomedical renewals

(+9% from 2018-19)

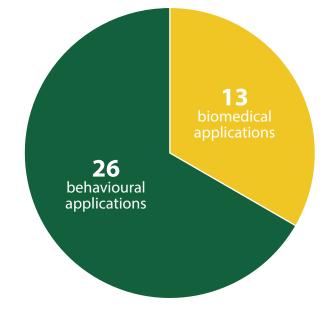
435

<u>behavioural</u> renewals (-3% from 2018-19)



(-13% from 2018-19)

behavioural (same as 2018-19) Expedited reviews of **39** COVID-related ethics applications at the end of 2019-20



Ethics workshops and presentations for nearly **500 participants**

We delivered 16 presentations on topics including the application process, informed consent, Indigenous engagement and the TCPS2 principles. Over 400 people attended sessions organized by:

- Computer Science
- Dentistry
- Education
- Educational Foundations
- Edwards School of Business
- First-Year Research Experience (FYRE)
- Indigenous Studies
- Internal Medicine

- Kinesiology
- Mechanical Engineering
- Medical Residents
- Nursing
- School of Public Health
- School of Environment and Sustainability
- Surgery Residents
- Women's and Gender Studies

We also **started offering ethics training workshops in October 2019** and provided six workshops before the end of 2019-20, with 91 enrollees.

Making ethics processes easier for researchers

In 2019-20, we made several changes to make our ethics processes simpler for researchers, such as:

- Handling exemptions through email, rather than requiring full applications;
- Providing acknowledgments of research approved at other institutions;
- Improving various forms and templates;
- Fixing expiry dates for renewals (in response to feedback that researchers completing their work early or on time were being penalized by losing part of the year of approval);
- Continuing to improve the UnivRS ethics module during the current soft-rollout phase, with the aim of releasing it to researchers in 2020-21; and
- Undertaking a university-wide survey of researchers for their feedback on our ethics processes (this was completed at the beginning of 2020-21 and will inform further improvements).



Strategic Research Initiatives

Strategic Research Initiatives (SRI) supports the development of large-scale grants, nominations for faculty awards and recognition, enhancing the undergraduate research experience, and building research intensity at USask.

Snapshot

\$43M in funding secured for SRI-supported proposals

40 large-scale proposals submitted

- **\$25M** portfolio of active research infrastructure development
- **3420** students enrolled in the First-Year Research Experience
- **32** national and international faculty award nominations supported
- **38** Undergraduate Student Research Assistantship (USRA) allocated
- **3** new Canada Research Chair (CRC) nominations, **1** renewal, **6** in recruitment

Strategic Research Initiatives

Strategic Research Initiatives (SRI) supported the development of 40 competitive large-scale grant proposals, 32 faculty awards nominations, and many strategic initiatives over the past academic year.

Centres Policy

A new Policy on Centres has been developed and is undergoing review by the appropriate committees across campus. This new policy will support the ongoing vitality of research centres while simplifying processes, providing greater support and flexibility. Complementary guidelines are being drafted alongside the policy.

Chairs Strategy

SRI's review of the chairs program, followed by the completion of a Chairs Paper and recommendations, has informed the revision of USask's policy on Chairs and Professorships as well as the tracking and management of all research chairs and fundraising efforts for the comprehensive campaign.

Equity, Diversity, and Inclusion (EDI)

SRI is at the forefront of USask's efforts to promote best practices in Equity, Diversity and Inclusion in research. In 2019-20, SRI built capacity and provided leadership to USask by:

- Participating in the development of an Institutional EDI Action Plan.
- Developing a successful application to the Tri-Agency Dimensions program, securing Usask's participation as one of 17 pilot institutions.
- Coordinating and continuing to implement USask's CRC EDI Action Plan.
- Applying EDI leading practices for identifying and selecting of candidates for awards and recognitions nominations, leading to representation of women in 41% of nominations (-2% from 2018) with 15% of nominees identifying as Indigenous (+11% from 2018) and 25% identifying as a member of a visible minority (+3% from 2018).
- Providing EDI workshops for faculty, including co-sponsoring a lecture by Dr. Lisa Willis, and leading EDI workshops for upcoming large-scale grants.

Indigenous Research Strategy

SRI launched an Indigenous Research Strategy that involved developing resources and supporting researchers as they engage with Indigenous communities in their research, scholarly, and artistic works. In 2019-20, SRI successfully:

- Supported USask delegates in the development of Expressions of Interest to join the Tri-agencies Indigenous Reference Group, a national group dedicated to the culturally appropriate review of research.
- Coordinated feedback to NSERC's Alliance program on national efforts to improve engagement opportunities with Indigenous communities.
- Established, coordinated and supported the cross-unit Indigenous Strategy Table, providing a new mechanism for collaboration between OVPR units, the Vice-Provost, Indigenous Engagement office, Connection Point and Financial Services.

We are excited to continue supporting this important work, which will enable the refinement and implementation of comprehensive services and programs covering partnership development, authentic engagement and protocols, proposal development, post-award management, ethics and data management, and payment of elders and research participants.

Incubating a Pathways to Equity Research Cluster

SRI played a leading role in incubating a Pathways Equity Research Cluster, which was established with an initial focus on Homelessness. Cluster activities accomplished over the past academic year include:

- Developing a cross-disciplinary and intersectoral cluster inclusive of scholars from Nursing, Law, Edwards School of Business, Urban Planning and Geography, Education. A workshop is scheduled for co-development of research project ideas with local community partners.
- Awarding seed grants to three community/university research proposals.

Undergraduate Research

The Undergraduate Research Initiative promotes and supports development of undergraduate research experiences through three impactful programs.

First-Year Research Experience (FYRE)

For the second year in a row, there has been a 25% increase in the number of students enrolled in FYRE.

Student Undergraduate Research Experience

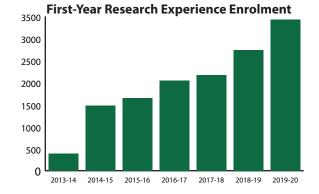
In 2019-20, the OVPR supported 38 students with USRAs, leveraging \$108K matched by faculty via college, Tri-Council, startup or other funding for a total of \$216K.

Most recently, SRI launched a new pilot program for all students undertaking faculty supervised research, SURE: Student Undergraduate Research Experience.

MentorSTEP

SRI's new pilot program launched in partnership with STC, MentorSTEP offers Indigenous women students who are interested in STEM mentorship, professional activities and research internships with a focus on the mining community.

Funded by the International Minerals Innovation Institute via its Diversity and Inclusion program, the program admitted its first cohort of 16 students, supported by 24 mentors from USask STEM faculty and the Saskatchewan mining industry.



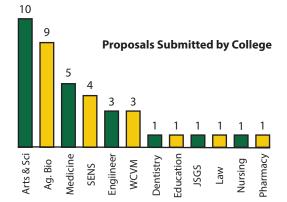
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Institutional Grants & Awards

Grant Submissions

In 2019-20, SRI supported the development of 40 competitive large-scale grant proposals across 12 colleges and schools, including:

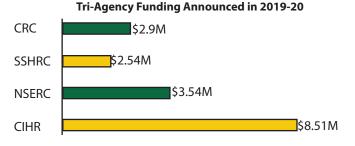
- 2 SSHRC Partnership Stage 2 proposals were submitted
- 2 NSERC CREATE Full Proposal submissions
- 3 CFI Innovation Fund submissions
- 5 proposals to Genome Canada LSARP Competition



Successful Grants

SRI played a pivotal role in preparing proposals which resulted in the university securing \$43M in funding over the past year, including:

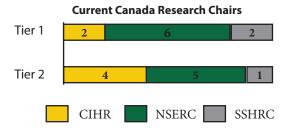
- \$2.5M SSHRC Partnership Grant (Noble/Poelzer)
- \$8.5M for Indigenous Health Research (Tait, A. King, Graham)
- \$24M Genome Canada LSARP (Bett, Pozniak, Waldner)
- \$1.9M NSERC Industrial Research Chairs (Waldner, Lindsay)



Canada Research Chairs

The Canada Research Chair Program invests and directs significant resources towards attracting and retaining some of the world's most promising minds.

USask holds 33 Canada Research Chairs (CRC) - 20 of which are active or filled. Over the past academic year, SRI supported three new CRC nominations, one CRC renewal, and six CRC recruitments.

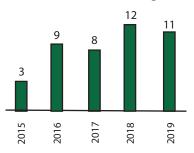


Awards and Recognitions

SRI assisted in celebrating and publicizing the outstanding research, artistic, and scholarly work of our campus community by supporting nominations to national and international awards, including:

- 32 nominations submitted
- 11 successes to date (9 results outstanding)
- 1 Arrell Food Award (Kochian)
- 1 Trudeau Fellowship (Battiste)
- 1 Royal Society of Canada's Miroslaw Romanowski Medal (Pomeroy)

Successful Awards and Recognition



Infrastructure Development

Over the past academic year, SRI added new services and supports aimed at promoting the development of critical and cutting-edge research infrastructure across campus. Within six months, SRI:

- Provided coordination, budget development, and proposal development for over \$40M of new research infrastructure.
- Managed the implementation of a \$25M portfolio of active research infrastructure development.

Research Junction

Research Junction, which was launched in fall 2019, is a major initiative developed under the MOU between the City of Saskatoon and University of Saskatchewan. Highlights of its first year include:

- Launching the Research Junction website.
- Inaugural Research Junction Development Grant competition which provided \$100K to five research projects co-led by City and USask partners, supported by partnership facilitation services.
- Reaching an agreement with the USask library to provide guidance for City staff to access library resources on and off site.
- Signing a Master Research Agreement that provided a template for all joint research projects and reducing administrative hurdles.



Innovation Enterprise

Innovation Enterprise (IE) initiates, develops, commercializes, and implements innovation, sustainable, and knowledge-based solutions generated by USask.

Snapshot

3 new student-led startup companies formed

193 hours of student entrepreneurship training

6 new academia-industry research collaborations generated by AIMDay

20 patent filings

- 74 patent families issued and active
 - **6** new innovations out-licensed
- 48 active licenses under management
- 90 innovations available for licensing
- **136** new innovations in market potential assessment

Programs and Supports

Summer Entrepreneurs

The Summer Entrepreneurs (SE) program was launched in May 2019. This program is a new and unique way of combining and leveraging several resources on campus – proprietary technologies and talented USask students with an interest in entrepreneurship – to bring innovations to market.

SE is designed to develop entrepreneurs by providing students with market-proven tools, training, and access to a USask invention to explore. Supported by an inventor, external business mentors, and advisors from the IE team, student-entrepreneurs are challenged to pinpoint a business opportunity, asses the market potential of their solution, and build a commercialization plan for it.

At the end of a summer, teams that show substantial and tangible market traction and strong desire to form a start-up have the opportunity to receive intellectual property rights under attractive terms. By bringing exciting new technologies, motivated students, and experienced mentors together in one space, the SE program is generating innovative new ideas, synergies, and collaboration that go beyond the program and the university.

Student Innovation and Business Analysts

Student Innovation and Business Analysts (SIBAs) are students of all years and fields of study who perform commercialization research projects on active innovation files in IE. Projects range from conducting market research and competitive analysis to summarizing reports on market trends, and beyond. This program promotes an entrepreneurial culture and offers undergraduate and graduate students a chance to explore dynamics of innovation and business development.

AIMDay

AIMDay is a unique academia/industry meeting concept initiated and successfully developed by Uppsala University in Sweden. Since hosting the first ever AIMDay in North America in March 2017, with a focus on the mineral sector, IE has hosted four more AIMday events in collaboration with University of Regina and Saskatchewan Polytechnic. USask AIMdays have generated 80 collaborations to date around a wide variety of industry questions and problems on the topics of imaging (Oct 2017), big data (Apr 2018), agriculture and technology (Oct 2018), and the internet of things (Mar 2019).

Over the past year, IE has finalized an additional collaboration agreement with Uppsala University, making USask the exclusive Canadian hub for AIMdays, with the purpose of implementing AIMday[™] at other institutions across Canada. Both the University of Manitoba and Ryerson University are in the process of receiving training and our support to host their first AIMdays in the coming year.

Portal for Industry Engagement and Non-Confidential Tech Summaries

Non-confidential summaries (NCS's) are important tools for communicating with industry and stakeholders who are seeking information on innovations available for licensing at USask. They encapsulate the development status of an invention, the current intellectual property protection status, and an overview of potential markets and applications.

In 2019-20, IE successfully integrated our NCS database into our Portal for Industry Engagement (PIE), a web-based portal providing an overview of USask research expertise, facilities, and services. Seamlessly integrating these two tools is designed to provide a more streamlined "front door" for our stakeholders to access our assets.

Stakeholder and Ecosystem Support

Fast License

In 2018-19, IE launched a Fast License model, an initiative designed to make our commercialization process smoother and quicker for our industry and startup partners. The Fast License is presented on our website, with both the term sheet and the full contract available for review by interested partners, involving transparent and industry-friendly terms.

In 2019-20, our Fast License model was the basis for the license we used in our Summer Entrepreneurs program. In that context, we received positive feedback when we shared the model with the 23 industry mentors engaged in the program and were able to accelerate startup licensing in the SE program as a result.

Co.Launch

In 2019-20, IE continued supporting the Co.Launch startup program at Co.Labs, the province's first technology incubator. Over the past year, IE has collaborated with Innovation Saskatchewan to provide expertise and prize funding to two Co.Launch cohorts per year. This program provides mentored learning opportunities for early-stage businesses and founders so they can finetune their business idea and establish their teams.

IE's goal in supporting Co.Launch is to participate meaningfully in growing the regional innovation and entrepreneurial ecosystem, and to facilitate a pathway for the USask community to bring their business ideas forward for acceptance into the Co.Launch program.

Through the four cohorts that have moved through the Co.Launch program to date, we have seen a growth in USask entrepreneurs (current faculty, staff, or students) from 12 in the first 2018 cohort to a cumulative total of 53 by the end of 2019. Four startups led by USask participants have won cohort prize money, for a total \$30K investment in USask startups out of the \$60K in company investment sponsorship IE has provided.

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51 DIFFERENT COMPANIES PARTICIPATED



FOCUSED WORKSHOPS HELD, WHERE INDUSTRY AND ACADEMICS DISCUSSED A SPECIFIC TOPIC 276 UNIQUE IDEAS PRESENTED BY ACADEMIC RESEARCHERS IN RESPONSE TO INDUSTRY CHALLENGES

Technology Transfer

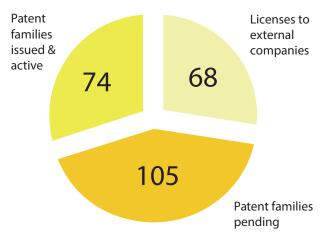
Innovation Management

IE continues to expand approaches to commercialization and value generation in the work we do with campus researchers and industry partners, in our technology transfer processes, and in our programming initiatives.

As of April 30, 2020, IE has over 280 innovations under management. These include technologies in value path preevaluation, those actively being assessed for commercial potential, over 60 innovations currently available for licensing, and 68 innovations that we are involved in managing through licenses to startups or industry partners.

Within those innovations under our management, the portfolio includes 74 patent families issued and currently active, as well as 105 patent families in the process of approval in patent offices around the world.

A patent family can be thought of as the collection of all patents that derive from a single invention, including all of the separate patents and filings required globally. In total, patent families under IE management represent 255 issued and active patents!



Startup Portfolio Examples

Excir Works

Excir Works was founded in 2017 based on technology developed by Dr. Stephen Foley, an Associate Professor in USask's College of Arts and Science. This technology allows for recovery of gold from consumer electronic waste in a novel and environmentally friendly process.

In 2019-20, IE continued playing an active role as a member of Excir's Board of Directors and by representing USask as a shareholder, helping guide the company through scale-up steps required to secure multiple rounds of investment and position the company for growth. Over the past academic year, Excir's market valuation has risen from \$17.5M to approximately \$54M.

Polytenna

Polytenna is a technology which is s based on a radically different approach to fabrication of compact radio frequency (RF) antennas and devices using non-traditional polymer-based materials, enabling improved performance and increased functionality for various emerging wireless communication and sensor devices. This technology was invested by Dr. David Klymyshyn, a Professor in USask's College of Engineering.

In 2019-20, IE continued working with this company to fine tune their intellectual property portfolio in response to changing markets in the fast-paced technology sectors.

ABAzyne BioScience Inc.

ABAzyne BioScience Inc. is a Canadian agriculture biotech company that develops leading patented synthetic Abscisic Acid (ABA) analogs for plant growth regulation applications.

This research portfolio is a product of 30 plus years of research led by Dr. Sue Abrams, Adjunct Professor and former Director of the Saskatchewan Structural Sciences Centre, which was initially conducted at the National Research Council (NRC) of Canada and subsequently at USask, all in collaboration with industry, academia and producer-based partnerships.

ABAzyne continues to conduct basic research with an expanding network of collaborators and strategic partners, including USask and it's Global Institute of Food Security.

In 2019-90, IE worked with the NRC to facilitate and enable the transfer and licensing of intellectual property rights from both USask and NRC required for the company to advance.

Prairie Tide Diversified Inc.

Prairie Tide Diversified Inc. (PTD) is a natural products company started in 2010 founded on and fueled by the research of Dr. Martin Reaney, Professor in USask's College of Agriculture and Bioresources.

Based in Saskatoon, PTD is expanding the flaxseed grower's market by creating revolutionary flaxseed products for small and large-scale consumers. Over the past ten years, the PTD product portfolio has grown to include novel flax snack foods, flax based dietary and health supplements, and oils for use by visual artists.

In 2019-20, IE worked with PTD to add a new license and patent to the family of technologies the company was founded on.

Soteria MedTech

Soteria MedTech was founded based on a technology developed by USask researcher Dr. Bill McKay, a novel medical device used to maintain a stable airway in people requiring life-saving respiratory aid.

Vicia

Vicia conducts breeding and development of novel ornamental and edible dwarf faba bean plants, founded based on Master's degree thesis work conducted under the supervision of Dr. Bert Vandenburg, Professor in the College of Agriculture and Bioresources.

LubCan

LubCan is based on a technology developed by Dr. Ajay Dalai, Professor in the College of Engineering, that allows production of a canola-based environmentally friendly and high performance bio-lubricant.



International Research and Partnerships Office

The International Research and Partnerships Office provides leadership, coordination, and support to advance the internationalization of the university's core missions of research, teaching and learning, and service.

Snapshot

377 agreements administered with 203 institutions in 51 countries around the world

176 student mobility agreements managed

42 agreements developed or renewed last year

New agreements with **top institutions** in China, South Korea and India

31 incoming delegations from 22 countries hosted

2 Presidential trips facilitated

USask's **1st** joint degree renewed

USask's **1st** joint overseas degree program launched

USask's **1st** integrated website on internationalization created

7 languages served

Institutional Leadership

The growing appetite for internationalization as a central component of USask, alongside significant investment in this area, has elevated USask's international profile, research competitiveness, and accelerated new international partnership development.

The International Research and Partnerships Office (IRPO) plays a leading role in building an integrated approach to the university's internationalization strategy, advancing international research, and enhancing our reputation on the international stage.

The IRPO serves as a strategic resource for various USask units engaged in internationalization. In particular, the IRPO plays a leading role in the development and maintenance of international collaborations, facilitates international research activities and provides oversight to the university's International Blueprint for Action 2025.

In 2019-20, the IRPO is proud to have advanced many strategic initiatives, including:

- Provided strategic support on international initiatives to USask's senior administration, various administrative support units, research centres, and several academic units.
- Created the university's first integrated website on internationalization.

Strategic Partnerships

Partnership agreements enhance the reputation and impact of USask by formally recognizing collaborations in teaching, research, and the student experience, and providing new collaborative opportunities for our teachers and researchers.

A top priority for the IRPO is to develop high-quality partnerships for our institution. In doing so, the IRPO has been a facilitator for USask faculty mobility and their international research collaborations through the development of the agreements needed for grant-funding applications.

Active Agreements

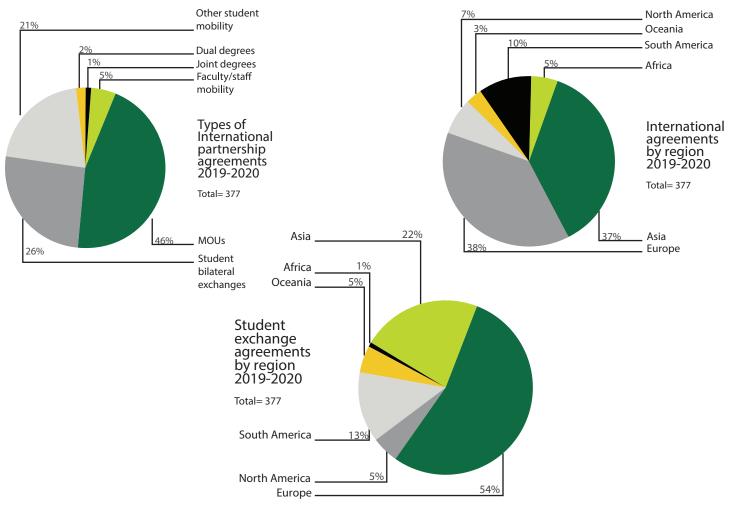
The 377 currently active agreements at USask represent collaborations with 203 institutions and organizations globally.

In 2019-20, the majority of our agreements involved collaborations in Europe (38%) and Asia (37%), and the top three countries with which we have active agreements are China (71), Japan (30), and France (25). The IRPO developed or renewed 42 agreements over the past academic year.

Academic Partnerships

The IRPO administers six types of academic partnership agreements ranging from MOUs to student and faculty mobility to joint/dual degree programs. MOUs represent the majority of agreements handled by the IRPO, followed by bilateral exchange and student mobility agreements.





In 2019-20, the IRPO developed 27 MOUs, 7 bilateral student exchange agreements, one other student-mobility agreement, three dual-degree agreements, one joint degree agreement, and three faculty/staff mobility agreements.

Bilateral Student Exchange

Bilateral student-exchange agreements directly impact the student experience and provide USask students with valuable opportunities to gain international and inter-cultural experience. Of our 97 active bilateral student-exchange agreements, the vast majority are located in Europe, followed by Asia and South America.

Partnership Impacts

Partnerships between USask and its international partners raise the university's profile and reputation throughout the world.

The following highlights are several initiatives coordinated by the IRPO over the past year which continue to have significant impact:

 Coordinated the University of the Arctic Thematic Network International Symposium – hosted at USask in 2019, this high-profile event involved leaders from ~60 thematic working groups and 15 institutions across the Arctic nations, concerned with education and research in and about the North.

- Facilitated USask's first joint overseas program, the collaborative Master's program in Water Security with Beijing Normal University was launched in September 2019.
- Supported student recruitment activities by traveling to 21 cities and 25 high schools in China and Kazakhstan, delivering 24 presentations, attending 10 education fairs, and meeting 1,000+ students.
- Supported USask's Global Institute for Food Security (GIFS) mission to Bangladesh (Feb. 20), which leveraged partnerships with Bangladesh agricultural research institutes and led to the formation of the Bangladesh Advanced Technologies for Agriculture Research Consortium, and agreements with the Bangladesh Agricultural Research Council of the Bangladesh Ministry of Agriculture.
- Explored collaborative research and technology commercialization opportunities with the Jiangsu Industrial Technology Research Institute (JITRI) in conjunction with Innovation Enterprise.
- Participated in the 8th Canada-Mexico Roundtable on Indigenous Intercultural Higher Education (Oct. 19). Providing support and partnership advice to USask leaders from the Teaching, Learning and Student Experience (TLSE) division and Indigenous Engagement, the IRPO engaged with current Mexican partners and potential new ones to explore opportunities for graduate and undergraduate indigenous student mobility and joint research

- Participated in the **Conference of the Americas on International Education (CAIE)**, Bogota, Colombia (Oct. 2019). Current and potential high-quality partners were engaged, and market intelligence from different Latin American countries was obtained from Canadian Trade Commissioners to support research collaborations and student recruitment strategies.
- Supported the Summer University Research Initiative (SURI), an ongoing international partnership with the Indian Institute of Technology Gandhinagar and Malaviya National Institute of Technology (MNIT), which brings top engineering and technology students from India for a three-month internship to work on active research projects with USask faculty members in the College of Arts and Science.
- Developed, wrote, coordinated, and communicated presidential letters to all international partners expressing solidarity and support during the COVID-19 crisis and highlighting various research initiatives undertaken by USask researchers in combating COVID-19.
- During the COVID-19 crisis, coordinated information from USask administrative units and developed ongoing communications and updates to all active international partners and foreign governments on USask actions and responses.

International Delegations

The IRPO hosts and manages all incoming visiting delegations to USask by developing visit itineraries and coordinating meetings with USask stakeholders. Visiting delegations may consist of personnel from an individual institution, multiple institutions or consortia, or diplomatic missions.

The IRPO also coordinates and supports many USask delegations travelling abroad (including Presidential and senior-administrative delegations, Colleges and Schools, research centres and institutes, and individual faculty members) by providing strategic advice, invitation letters, and information, and developing strategic objectives, itineraries, and briefing notes.

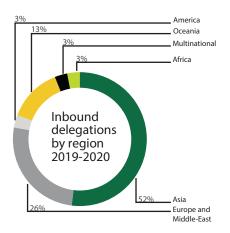
Outgoing Delegations

In 2019-20, the IRPO hosted 30 incoming delegations from individual institutions and organizations from 22 different countries, and one multi-institutional delegation consisting of 16 delegates representing 15 Latin American and Caribbean universities. The IRPO also coordinated two USask presidential international visits to South Korea and India.

In 2019-20, over 50% of the incoming delegations by individual institutions or organizations visiting USask were from Asia, followed by Europe. The top five countries sending delegations to USask were China (5), Japan (3), India (2), Bangladesh (2), and Norway (2). Furthermore, the majority of visiting delegations to USask over the past year were from universities abroad. Visits from foreign diplomatic missions comprised the second-largest category of visits.

The IRPO coordinated several international delegations over the past academic year. Select highlights include:

- Coordinated the USask Presidential visit to South Korea in conjunction with the Premier of Saskatchewan's provincial mission. President Stoicheff visited three of South Korea's top universities – Seoul National University, Yonsei University, and Konkuk University.
- Coordinated the USask Presidential visit to India in conjunction with the Shastri Indo-Canadian Institute (SICI) Vice Chancellors' Summit and the Federation of Indian Chambers of Commerce and Industry (FICCI) Higher Education Summit.
- Collaborated with provincial government to provide briefings and/or arrange visits from diplomatic visitors from around the world. In 2019-20, the IRPO supported visiting delegations from such countries as China, India, South Korea, Philippines, Mongolia, and the Ukraine.
- Welcomed a delegation led by High Commissioner of Bangladesh to Canada (Jul. 19), who visited a number of USask signature research centres.
- Participated in CALDO mission to Colombia, Chile, Panama and Mexico (Sep./Oct. 19) – the IRPO worked closely with student recruitment to promote the University and engage with higher education institutions from Latin America, through institutional meetings, oral presentations, and meetings with prospective students.
- Hosted CBIE-ELAP delegation (Nov. 2019), consisting of 16 delegates representing 15 Latin American and Caribbean institutions and two Canadian Trade Commissioners. Because of the visit, five new institutions requested ELAP partnerships with USask.



International Blueprint

The IRPO plays a leading role in overseeing and implementing the university's International Blueprint for Action 2025.

Several initiatives were pursued over the past academic year to advance the strategic priorities outlined in this foundational document, including:

Signature Events

USask hosted a Global Signature Workshop:

 Forest-Water-Energy Nexus Workshop hosted by SENS and including presentations by representatives from the Chilean government

USask hosted 100 visiting professors from 80 institutions in 20 countries during the 2019-20 academic year.

- Two Visiting Professor Talks were presented to audiences of students, faculty, and staff. Sessions encompassing food futurism and innovation as well as the Internet activities of children were delivered.
- A second Visiting Professors Reception was held during our 3rd annual People Around the World (PAW) conference. Over 75 people attended (USask staff, faculty and, students) to network with our visiting professors and to view highlights of their research.

People Around the World (PAW) 2020 – Sustainability the World Needs

Development in Action was held (Feb. 6 and 7) at Marquis Events Centre and hosted by the IRPO with sponsorship from the Global Institute for Water Security (lead sponsor); the Global Institute for Food Security; the Colleges of Agriculture and Bio-resources, Arts and Science, Medicine, and Pharmacy and Nutrition; Johnson Shoyama Graduate School of Public Policy; and the Office of the Vice-President Research. The conference had the largest number of participants to date with 165 attendees.

This year, 9 Project Grants for creating or expanding international partnerships were awarded:

- 100% have drawn non-USask and series funding totaling \$1.03 M and represent a 514% ROI,
- 26 student and HQP development opportunities have been created, and
- Collaborators in 34 countries have been engaged.

28 Travel Awards totaling \$101,303 were awarded to faculty and staff members in December 2019. A requirement to address the UN's Sustainable Development Goals has been incorporated into the International Blueprint Funding Competitions to ensure USask engagement in the implementation of the 2030 Agenda for Sustainable Development.

International Benchmark Snapshots

Following the success of the 2018 pilot project with the College of Arts and Science, International Benchmark Snapshot reports for the Colleges of Medicine and Engineering are under development and projected to be completed this June.

These snapshots aggregate international activity data into a strategic tool informing college internationalization strategy in service of the International Blueprint and University Plan. These reports will be disseminated to the colleges and their senior administrators for feedback and follow-up on the facilitation of international opportunities by the IRPO.

A requirement to address the UN's Sustainable Development Goals has been incorporated into International Blueprint funding competitions to ensure USask engagement in the implementation of the 2030 Agenda for Sustainable Development.

International Research

Research Projects

Over the past academic year, the IRPO began collecting data on all research projects entered in UnivRS which: (1) were funded by an international entity, (2) engaged international collaborators, or (3) occurred abroad (e.g. field work, etc.). These data have not been collected before.

Sixty-seven international research projects awarded funding during the 2019-20 fiscal year and each were individually assessed according to criteria around gender, equity, Indigenization, training opportunties for students and other HQP, and whether the project was considered community development work.

United Nations Sustainable Development Goals

An ongoing project will leverage structured language processing, limited subjective assessment, and cross-validation to align international research projects from January 2019 onward with applicable UN Sustainable Development Goals (SDGs).

The International Research team at USask has integrated the UN's SDGs into the international research framework to drive awareness, research, entrepreneurship, and education.

Integrating the UN's SDGs provides a unique opportunity to work with our campus community and stakeholders to fulfill our missions to provide knowledge, build skills, and support the cultivation of global citizens. This initiative will also enhance USask's Impact Rankings through Times Higher Education.

Strengthening Research Administration

Standard research operating grants are no longer the primary source of the university's research funding. The federal and provincial governments have increasingly turned their attention to other types of funding programs which are more international and complex in nature. As a result, administrative burdens have substantially increased in volume and complexity, having much higher accountability regulations and expectations.

In order to keep pace with increasing demands of international research funding opportunities and to complement the diversity and growth of USask research, an International Research Specialist focused on the SDGs has been recruited.

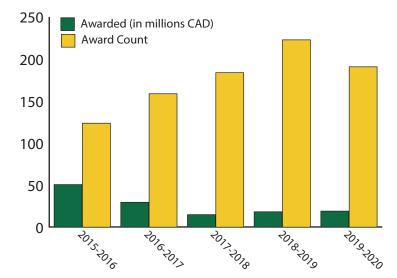
In 2019-20, International Research Specialists facilitated opportunities with funders including: Academics Without Borders; Fulbright; Global Affairs Canada; International Development Research Centre (IDRC); Horizon 2020; Mitacs; Shastri Indo-Canadian Institute; IC Impacts; UK National institute for Health Research; Universities Canada; and several USA funding agencies such as: National Institute of Health (NIH); United States Agency for International Development (USAID); Department of Defense; Department of Agriculture; and more.

Influencing Global Research Through Collaboration

The IRPO works to increase institutional research collaborations and links between the university, private sector, higher education, research initiatives and overseas governments.

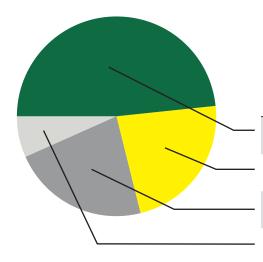
These collaborations occur across and between a number of disciplines, industries, and sectors. They serve as a key component of our institution's strategy to deliver global solutions, impactful research, and to unleash discovery the world needs.

International Research Funding



USask International Research Funding

International Publication Collaborations



	%	SCHOLARLY OUTPUT	CITATIONS	CITATIONS PER PUBLICATION	FIELD- WEIGHTED CITATION IMPACT
International collaboration	48.4%	8,344	99,676	11.9	1.73
Only national collaboration	22.9%	3,943	27,954	7.1	1.05
Only institutional collaboration	22.1%	3,814	26,806	7	1.01
Single authorship (no collaboration)	6.6%	1,139	2,802	2.5	0.67



Research Profile and Impact

Research Profile and Impact (RPI) works closely with researchers, researcher leaders, and communicators across campus to tell the university's research story and build the university's research profile provincially, nationally, and internationally through strategic and targeted communications.

Snapshot

16.6M viewers (Cision) for USask research stories over the year - up **7%** from 2018-19

600,000 viewers for one water security story, with 183M viewers/month

>90,000 hits by international journalists on USask's 23 news releases featured on EurekAlert

11 issues of Discovery Digest opened 440,000 times

2.5 million unique visitors per month (Cision) for RPI Indigenous health research stories.

35 articles in The Conversation Canada read by 824,000 readers—56% increase in reads/article

14 Young Innovators stories in The StarPhoenix, and also seen by over 36,000 on Twitter

>60 times Images of Research were used by communicators, plus dozens of times for major national ad

campaigns, recruitment, websites, and social media

4 writing workshops attended by 115 students, faculty and staff

>15 research-related stories since the onset of COVID-19

Telling Our Research Stories

RPI works closely with researchers, research leaders and communicators across campus to tell the university's research story and build the university's research profile provincially, nationally and internationally through targeted communications strategies that include news releases, articles, events, videos, and speeches.

Promoting COVID-19 research at USask

RPI shared stories from across campus on the many ways USask researchers are helping to address the pandemic, including:

- VIDO-InterVac's vaccine research and major new funding federal and provincial funding for research and vaccine manufacturing;
- Engineering's research to rapidly develop reusable personal protective equipment;
- research at AgBio and the Saskatchewan Structural Sciences Centre to produce hand sanitizer;
- creation of a COVID-19 protection strategy targeted at Indigenous peoples;
- creation of a COVID-19 digital archive by history researchers;
- advice from computer scientists on coping with COVID-19 stress;
- lending of Global Institute for Food Security equipment for Saskatchewan Health Authority testing;
- VIDO-InterVac sanitizing N95 masks for healthcare workers;
- telehealth support offered by physiotherapists and other health professionals for patients with MS, Parkinson's and spinal injury;
- Global Institute for Food Security lent equipment to the SHA;
- music department video by the Greystone Singers.

An RPI video on VIDO-InterVac's efforts to find a COVID-19 vaccine has been viewed 34,000 times on YouTube, by far the most viewed USask video during that period. RPI also assisted two research teams—one in history and one at VIDO-InterVac—in producing videos which will be used by the Canada Foundation for Innovation (CFI) to promote COVID-related research by CFI-funded researchers.

Highlighting Research Success Nationally and Internationally

USask is working this year with a new metrics provider, Cision, so there are no individual news release comparators with the previous year. However, RPI's more than 70 research news releases garnered significant coverage, particularly in areas such as infectious disease, water security, and food security. Among them:

- Our VIDO-InterVac COVID-19 news releases have led to numerous interviews and stories on BBC World Service, CBC The National, CBC News Network, CBC Power and Politics, The Globe and Mail, The Bridge Podcast with Peter Mansbridge, and ICI Radio Canada Découverte.
- Our story "Climate activist Greta Thunberg and USask scientist John Pomeroy discuss glacier decline" had 183 million UVPM and had a total reach of 573,000 (this figure combines print, broadcast and digital views) around the world. (UVPM is the number of individuals who visit online news sources in a given month, combining actual and estimated numbers.)

- Our release on USask professor Peter Robinson developing the first app of Chaucer's The Canterbury Tales was viewed more than 8,450 times on EurekAlert, and received worldwide coverage including British newspapers The Times, The Telegraph, The Daily Mail and the American Smithsonian Magazine. The story appeared on Phys.org with more than 5,000 Facebook shares. Tracked by Cision, the total reach was 234,000 and 9.2 million UVPM.
- Sociologist Colleen Dell's study into PTSD service dogs and veterans' substance abuse garnered significant social media. Tracked by Cision, the total reach was 28,200 and 5.8 million UVPM.
- EurekAlert: RPI subscribes to EurekAlert, the science news website of the American Association for the Advancement of Science which publishes peer-reviewed science news from around the world. From May 2019 to April 2020, 23 USask press releases posted on EurekAlert were viewed 90,920 times, mainly by journalists who use the site as a source of news.

Focusing on Indigenous Health Research

RPI has put a major push on supporting Indigenous health research initiatives. Over the past year, RPI has produced news releases that include: the CIHR-funded Networks of Excellence for Indigenous Health Research (of which USask is the coordinating centre for the country); a new Indigenous research chair for the College of Nursing; \$3.6M from CIHR for Indigenous-related research projects; and a COVID-19 prevention program led by Indigenous health leader Carrie Bourassa. Combined, those news stories generated a total of nearly 2.5 million unique visitors per month or UVPM, as measured by Cision.

Promoting International Research

- News releases on USask research agreements with the leading water research institute in India and with a South Korean institute on vaccine research;
- News releases on Nazeem Muhajarine's work in Mozambique and in mapping stillbirth rates around the world;
- Nine international students profiled in Young Innovators series;
- News release on NSERC CREATE students launching a balloon simulating a space mission, and profiling a Nigerian student space team participant in the Saskatchewan government's Inside International Education Newsletter;
- Partnered on Graduate Student Recruitment Guide and research slide decks for international presentations.

Supporting a USask Research Culture

Through numerous initiatives including participation on committees related to rankings, sustainability, and internationalization, RPI contributes to building a culture of research. Each month, RPI includes an "Accolades" section of Discovery Digest, highlighting major awards and distinctions for USask researchers. In other initiatives, RPI promoted:

- Royal Society of Canada Fellows through a news release, video and Ottawa event with four USask water researchers addressing 100 alumni;
- Banting and Vanier scholarship winners; and
- appointment of Dr. Carrie Bourassa to the COVID-19 national task force.

Telling our Stories in The Conversation:

Promoted researcher participation in this independent academic newswire involving 27 Canadian universities:

- As of April 30, the overall one-year readership of 35 USask articles in The Conversation Canada and sites abroad was more than 824,221. Four articles garnered more than 60,000 reads each.
- Numerous stories were re-published or followed by media outlets e.g. Global News, Big News Network, Salon, World Economic Forum, HuffPost España, Medical Xpress, Phys. org, The National Interest. Several online sites and news aggregators republished stories including The Weather Network (more than 65,000 readers), Firstpost, (23,300), Inverse (11,400) and University Affairs (1,400).
- The majority of readers were in the U.S. (34%), Canada (22%), India (6%), UK (5%), Australia (4%), and France (4%).
- One example is that we had a worldwide audience of 81,500 for physics and engineering physics professor Michael Brady's article about quantum computers, and almost 73,500 reads for PhD student Toluwase Olukayode's piece on food security.

RPI hosted Scott White, *The Conversation Canada* Editor-in-Chief, for a series of four storytelling workshops for 115 researchers. RPI also produced a short video of White explaining about the benefits of writing for The Conversation.

Leveraging Profile Through Partnerships

Young Innovators Series with The StarPhoenix

Published 14 stories that highlight USask graduate student research achievements in signature areas, and 4 stories are in progress. The stories were regularly picked up by major national media, and shared widely by government officials/agencies, funding partners, and communicators across campus. Tweets were seen by over 36,000 people and engaged with over 450 times.

Mitacs

RPI highlighted Mitacs-funded research projects such as The Muskrat Hut project on accessible remote kitchens and washrooms in northern First Nations communities, a Mitacs-funded student who did research on advances in transforming waste into green energy, and student research on empowering women through effective advertising.

TEDx University of Saskatchewan

RPI highlighted 12 USask researchers' work with the public through TEDx Talks, providing strategic communications planning, management and support for the first TEDx on our campus which attracted 500 people. For example, USask psychology professor Lorin Elias' TEDx Talk "The lefts and rights of everyday life" reached almost 28,500 views on YouTube.

Research Junction

RPI supported collaboration between USask and City of Saskatoon by announcing Research Junction, the first research funding under the joint MOU, and writing a news release about the first seven joint projects. More than 600,000 people views the content (UVPM from Cision).

Picasso Symposium

RPI partnered with the Remai Modern on an international art symposium featuring art alumnus and Picasso print expert Frederick Mulder and other Picasso experts. Due to the pandemic, the symposium has been postponed until next year.

Industry West Magazine

RPI established a new partnership which resulted in a major story on food security, with other stories planned.

Other Major Research Profile-Building Activities

2020 Images of Research Competition

Students, faculty, and staff from across campus—from ten colleges, three research centres, and one administrative unit—submitted 106 images of research, scholarly, and artistic work. Now in its sixth year, the competition added a new category—Arts in focus images which represent the researcher's artistic work with a focus on music, drama, art and art history, and the humanities.

The contest website attracted over 12,000 visitors from 43 countries, and from every province and one territory in Canada. More than 1,700 people cast a vote in the Viewer's Choice category. Seven judging panels (faculty, staff, students, and community members) awarded cash prizes for winning images.

Contest photos were used for USask's Be What the World Needs advertising campaign, with ad placements in the Globe and Mail, Maclean's, and a variety of publications in Saskatoon, Regina and Calgary. The images were also made available to communicators as part of a collection of brand assets, and were downloaded 62 times and used on the USask.ca homepage, banners, social media, templates, and recruitment materials.

Discovery Digest Newsletter

Our monthly newsletter highlighting USask research, scholarly, and artist work was distributed to almost 6,000 graduate students, post-doctoral fellows, faculty, and staff across campus, as well as elected government officials and key federal and provincial partners.

Discovery Digest is a well-read source of USask research news. Over the past year, the newsletter emails have been opened over 440,000 times, with the most popular edition being the December 2019 issue with more than 16,000 opens in one day. As well, the rate at which readers click through to specific articles is on par with the industry standard for digital newsletters.

National profile-building through research advertorials

"A food-secure tomorrow" – RPI produced an advertorial for the Globe and Mail, featuring multidisciplinary computational agriculture work by USask computer scientists, plant breeders and the USask Plant Phenotyping and Imaging Research Centre (P2IRC) at the Global Institute for Food Security.



Community Relations and Engagement

Community Relations and Engagement (CRE) strengthens and builds community-university relationships in Saskatoon's inner city aimed at growing social, educational, economic and health equity through research and experiential learning.

Snapshot ·

Communicated with **214** community engaged scholars

Engaged **172** community partners

Welcomed **900+** visitors to Community Relations and Engagement at Station 20 West

5 "KM in the AM" learning and networking sessions with **133** members

74 patent families issued and active

Engaging with our Community

Community Relations and Engagement

In 2019-20, the Office of the Vice-President Research welcomed the Community Relations and Engagement (CRE) Office to its portfolio.

This office, which is located in one of Saskatoon's core neighbourhoods at Station 20 West, is co-located alongside many other community partners including: HEP Good Food Inc., Elizabeth Fry Society, the Boxcar Café, Quint Development Corporation, the Saskatoon Mothers' Centre, and two Saskatoon Health Region programs (KidsFirst and Our Neighborhood Health Centre).

Collectively, the tenants of Station 20 West endeavour to contribute to social and economic revitalization in Saskatoon's core neighbourhoods. Co-locating at Station 20 West allows partner organizations convenient collaborative opportunities and the benefits of shared facilities and equipment.

Key Initiatives

Supporting and Celebrating Community-Based Research

The CRE Office plays a key role in communicating directly with 214 community engaged scholars and 172 community partners and welcomes over 900 visitors to our Office at Station 20 West each year.

In 2019-20, we celebrated the tremendous accomplishments of a long-standing community-university partnership between the Community Legal Assistance Services for Saskatoon Inner City (CLASSIC) and the College of Law—the CRE Office encouraged them to apply for the UK based Professor Sir David Watson Award for Community University partnerships, and they won the international award that was presented in the United Kingdom in December 2019.

Over the past academic year, we continued to help community and academic stakeholders collaborate for maximum impact from improving traditional food access for urban Indigenous people, to the development of a strategy to advance health service delivery in the area of organ donation and transplantation focused on Indigenous peoples, to the knowledge translation and evaluation of complex partnership work related to reconciliation, homelessness and poverty elimination.

Advancing Community-Campus Engagement Nationally

The Manager of the CRE Office served as the inaugural co-chair of the Executive Committee of Community Campus Engage Canada (CCEC), collaboratively leading the development of CCEC's first strategic plan, and securing a Mitacs Accelerate post-doc exploring scalar learning and advancing local and national communities of practice.

KM in the AM

The CRE Office plans regular learning and networking sessions focused on knowledge translation and mobilization that attract professionals, and post-secondary faculty, staff and students. KM in the AM is a community of practice that involves 133 individuals and in 2019-2020 offered five learning and networking sessions.

Reconciliation Saskatoon

The CRE office has participated in the Reconciliation Saskatoon partnership of 100+ members since 2016.

In 2019-20, the CRE Office convened the Learning Sub-Committee of Reconciliation Saskatoon, collaboratively offering monthly learning opportunities related to the TRC Calls to Action and our shared reconciliation journey in Saskatoon. The CRE Manager is one of five members of Reconciliation Saskatoon's Pathway Forward Stewardship Committee which, guided by Survivors and Elders, stewards a 4-year path forward for the partnership. The CRE staff volunteer at the annual Rock Your Roots Walk for Reconciliation on National Indigenous People's Day (June 20th).

Saskatoon Poverty Reduction Partnership (SPRP)

The CRE Office is an active member of the SPRP Leadership Team, convener of the SPRP University Action Team on an ad hoc basis, and brokers community-campus connections for the partnership related to research, student capacity and knowledge translation.

Throughout 2019-20, this partnership focused on planning and organizing to realize the ambitions laid out in its local poverty elimination plan released in February 2019. USask students, staff and scholars were mobilized by the CRE Office to support the development of the strategy and the ongoing work to operationalize and evaluate it.

Safe Community Action Alliance (SCAA)

Initiated in 2017 by the City of Saskatoon Mayor's Office and the Saskatoon Board of Police Commissioners, the SCAA involves 35 agencies with an interest in safety and well-being in Saskatoon. As of September 2019, the SCAA's focus via two working groups is housing and crystal meth. The CRE Office became the University representative to the SCAA in 2019 and we are in the early days of involvement with this partnership.

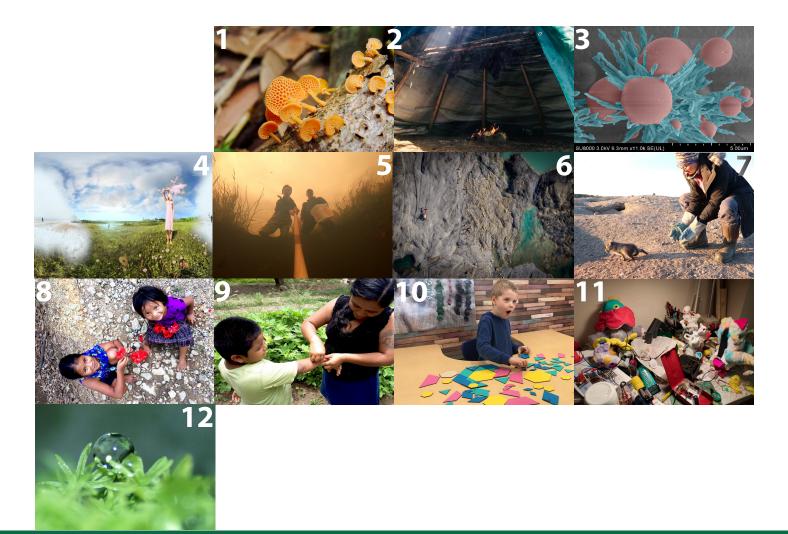
In early 2020, the partnership released "A Community Response to Crystal Meth in Saskatoon" which is a detailed report with 29 strategic actions. The SCAA's attention turned to mobilizing to support Saskatoon's most vulnerable in mid-March 2020 amidst the COVID-19 pandemic.

Saskatoon Inter-agency Response to COVID-19, Vulnerable Populations Strategy

The Saskatoon Inter-Agency Response is dedicated to meeting the needs of people who are especially vulnerable to the impacts of the COVID-19 pandemic. The CRE Office is the university liaison to the Saskatoon Inter-agency Response to COVID-19, brokering, informing and advising as needed (e.g. the CRE Office brokered a research partnership focused on homeless shelter safety amidst the COVID-19 pandemic, and advised the Division of Social Accountability within the College of Medicine on their COVID-19 knowledge mobilization strategy).

Vulnerable Old People Group (VOPG)

The CRE Office was instrumental in the creation of the Vulnerable Old People Group (VOPG), a group of 20+ partners. In 2019-20, one of several exciting outputs involved getting 20 iPads to residential school survivor households in Saskatoon to strengthen their social connection with and participation in essential community work throughout physical isolation.



Images of Research

The Office of the Vice-President Research is pleased to include images by our researchers on the cover and through this annual report. These images are from our Images of Research Photo and Imaging Competition. You can view all the submissions online.

- 1. Fungi to the Rescue Alana Krug-MacLeod, environmental biology student
- 2. Etthén (Caribou) meat Emiliana Bomfim, doctoral student in oncology
- 3. A new peptide antifungal? Hiruni Deeyagahage, doctoral student in Veterinary Microbiology
- 4. Land of Milk and Honey Lisa Birke, professor in art and art history
- 5. A Distributary Runs Through It Lorne Doig, research scientist at the Toxicology Centre
- 6. Aerial Assists Mark Ferguson, communications specialist with the Global Institute for Water Security
- 7. Oh, the places you'll go! Robin Owsiacki, DVM student in the Western College of Veterinary Medicine
- 8. A Budding Research Team Michelle Gowan, Master's student in archaeology and anthropology
- 9. Nurse Mom Michelle Gowan, Master's student in archaeology and anthropology
- 10. The Moment Nat Banting, professor in curriculum studies
- 11. Toy Infirmary Nicolas Leroy, master's student in studio art
- 12. Magical Mystical Moss, Phaedra Cowden, PhD Student in Soil Science

AGENDA ITEM NO: 15.1

UNIVERSITY COUNCIL

Joint Committee on Chairs and Professorships

REQUEST FOR DECISION

PRESENTED BY:	Ken Wilson Chair, Joint Committee on Chairs and Professorships
DATE OF MEETING:	June 18, 2020
SUBJECT:	Van Vliet Term Professorship in Agricultural Economics
DECISION REQUESTED:	It is recommended:
	That Council approve the Van Vliet Term Professorship in Agricultural Economics and recommend to the Board of Governors authorization of this professorship's establishment.

PURPOSE:

The purpose of the Van Vliet Term Professorship in Agricultural Economics is to develop a fuller understanding of, and propose solutions to, problems faced by the Canadian agriculture sector related to agricultural and international economics.

The position holder is expected to teach and inspire students and colleagues, engage and communicate with our stakeholders and collaborate with public institutions and other agencies to find solutions. Academic scholars holding this position will contribute to the body of knowledge and greater understanding through teaching, research and public service. The Van Vliet Term Professorship will be a term appointment and will work with students, faculty and other stakeholders.

This purpose seamlessly aligns with the university's commitments to courageous curiosity, boundless collaboration and inspired community.

CONTEXT AND BACKGROUND:

The Van Vliet Visiting Professorship in Agricultural Economics was originally approved by the Board of Governors in 1984. This revision is being proposed to address challenges associated with hiring under the original terms of reference, which resulted in a very limited pool of candidates. The proposed revisions are intended to increase the number of high quality applicants while leaving the mission of the professorship essentially as originally established. The name has been changed to The Van Vliet Term Professorship in Agricultural Economics to better reflect the new terms.

CONSULTATION:

The revised terms were proposed by the Department of Agricultural and Resource Economics and are supported by the College of Agriculture and Bioresources. The revision has been reviewed by the Joint Committee on Chairs and Professorships, and on the committee's recommendation, submitted for approval to University Council and the Board of Governors.

SUMMARY:

The revised Van Vliet Term Professorship is intended to address challenges in hiring under the original terms of reference while leaving the original objectives of this professorship fundamentally unchanged, as they remain relevant and aligned with the university's commitments to courageous curiosity, boundless collaboration and inspired community.

ATTACHMENTS:

The Van Vliet Term Professorship in Agricultural Economics – 2020 Revision terms of reference.



The Van Vliet Term Professorship in Agricultural Economics – 2020 Revision Terms of Reference

Purpose:	The purpose of the Van Vliet Term Professorship is to develop a fuller understanding of, and propose solutions to, problems faced by the Canadian agriculture sector related to agricultural and international economics.
	Academic scholars will contribute to the body of knowledge and greater understanding through teaching, research and public service.
	The Van Vliet Term Professorship will be a term appointment and will work with students, faculty and other stakeholders.
Chair Type:	This will be a Term Professorship.
Background:	The Van Vliet Visiting Professorship in Agricultural Economics was established in 1985.
	It was jointly funded by the province and university to address teaching and research needs of the time.
	The title of the chair was chosen in honour of the contributions of Dr. Hadley Van Vliet to teaching, research and problem solving for the farming community.
Rationale:	Agriculture has played a key role in Canadian development. Agriculture remains an important sector of our economy and an important contributor to a positive trade balance. Trade is a larger proportion of the total goods and services produced in Canada than in any other major developed nation.
	Agriculture is the dominant primary industry in Saskatchewan. Saskatchewan is dependent upon trade, agricultural commodity prices and the world trading environment to a larger degree than any other region of Canada. International trade and the world economy have a dominant impact on economic growth, employment and personal income in Saskatchewan.
	The global economy is becoming more complex and the economic policy toward agriculture in the European Community and the United States have undergone major changes. These policy changes affect the welfare of Canadian farmers, processors and exporters and are felt in Saskatchewan and throughout Canada. Public policy which once
Van Vliet Pro	fessorship in Agricultural Economics – 2020 Revision – Final May 14, 2020 Page 1 of 5

	concentrated on domestic issues must now address broad International issues as well. Nowhere is this more evident than in Canadian agriculture. It is paramount that Canada increase its understanding of these world events.
	The Hadley Van Vliet Term Professorship in Agricultural Economics was established at the University of Saskatchewan, Saskatoon, to apply recognized expertise in agricultural and international economics to issues facing Canadian agriculture. The Term Professorship will honor Hadley Van Vliet, a man remembered for his brilliant mind, his ability to shed understanding and enlightenment on the complexities of farm economics, his inspiration of students and his compassion and understanding. Farmers looked to "Van" to analyze and explain their pressing problems and to assist in the formation of public policy. The scholar selected will continue in this tradition.
Source and Amount of Funding:	This fellowship was established in 1985 with a gift of \$500,000 from the provincial government and a matching contribution of \$500,000 from the University of Saskatchewan. The university's share was sourced from a land sale (\$300,000) and the Burford Hooke trust (\$200,000).
Tenability:	The fund is endowed. As at January 8, 2020, the endowment has a balance of \$4,027,833 and provides an annual spending allocation of approximately \$148,000.
	At the discretion of the Management Committee, unused spending allocation may be recapitalized to increase the corpus of the fund. The decision to recapitalize funds will consider the budget for the entire chairholder term.
	A financial report on the endowment will be provided by the University to the Management Committee each year. The balance in the fund cannot be reduced below the \$1,000,000 level without the approval of the Minister of Agriculture and the. Board of Governors.
Eligible Expenditures:	The funds available from the endowment may be used to support salary, benefits, and research activities for the individual in the "Professorship" as determined by the Management Committee, and in alignment with Section 2.0 of the <i>Guidelines for the Establishment of</i> <i>Chairs and Professorship</i> .
	If the expenditures related to the professorship exceed the funding available from the endowment over the chairholder term, the additional funding required shall be the responsibility of the College of Agriculture and Bioresources.
Selection Committee:	In accordance with the procedures set out in the USFA Collective Agreement.

Chairholder Responsibilities:

The chairholder will be a teacher-scholar, contributing to the teaching, research and public service of the Department of Agricultural and Resource Economics.

The individual should teach one or more courses of interest to students from many disciplines, to be determined at the time of appointment.

The research agenda should include international, national and regional issues in the areas of agriculture, economics and trade policy. It is expected that a scholar of this caliber would engage governments and non-government organizations including producer organizations and industry groups.

The chairholder will submit an annual report of activities in accordance with university practices to the Management Committee, department head, and to the dean or executive director, as appropriate, and to the provost and vice-president academic or designate. The report will outline the accomplishments of the chair in keeping with the chair's purpose and objectives.

The major objectives of the Van Vliet Professorship are:

- 1. to analyze and address pressing issues in agriculture;
- to stimulate and excite both students and colleagues through the ideas, understanding and analysis that is applied to major issues in agricultural economics;
- 3. to engage and communicate the knowledge and understanding to agriculture stakeholders; and
- 4. to work with public institutions and their agencies in seeking solutions to agricultural and rural issues.

The Chairholder will have:

- a demonstrated ability in agricultural and International economics that is recognized in the International community of scholars.
- an ability to stimulate and excite students with both ideas and the conveyance of understanding of the complexities of the farm economy.
- 3. an ability to communicate with a wide range of agricultural stakeholders.
- 4. an ability to analyze and explain the important issues in agriculture and to propose solutions.

The chair shall be appointed in a term position for a period of a minimum of six months and a maximum of five years. Appointments of longer than one year may be subject to a probationary period.

Term of Chair:

Management Committee: comprised of: Chair: **Management Committee Mandate:** • initiative; • •

> provide a copy of the annual report and the financial report with commentary as appropriate to the provost and vicepresident academic or designate.

The University shall have the further power to administer the fund as part of the University's general trust and endowment funds, in keeping with and under the University's investment and administrative guidelines and practices as may be established and changed by the University from time to time. Upon these terms of reference being approved, and under the above guidelines and practices, provision shall be made for the investment of this fund in common with other trust funds and the payment of administration fees with respect to the management of such funds, such fees to be determined by the University acting reasonably.

Fund Administration:

In accordance with section 5.0 of the Guidelines for the Establishment of Chairs and Professorships, the management committee shall be

- Dean, College of Agriculture and Bioresources or designate, as
- Head, Department of Agricultural and Resource Economics or designate; and
- Manager, Donations and Trusts or designate.

The committee may include a representative from the funders or other members, if deemed beneficial to achieve the objectives of the chair.

The management committee will:

- oversee the activities of the professorship;
- oversee management of the fund to ensure compliance with the terms of the trust and the ongoing financial integrity of the
- approve annual budgets;
- receive annual financial statements of the trust fund;
- receive and review the annual report and financial report on the activities of the chair:

In the event that circumstances make the specified use or administration of this fund no longer practical or desirable, the Board of Governors of the University of Saskatchewan is hereby authorized to make changes in the use or administration of the fund to maintain, as much as is reasonably possible, its spirit and general intent.

The Department of Agricultural and Resource Economics recommends the creation of this Fund based on the above terms:

Ken Belcher
Head, College of Agriculture and Bioresources

Date

The College of Agriculture and Bioresources recommends the creation of this Fund based on the above terms:

Mary Buhr
Dean, College of Agriculture and Bioresources

The Office of the Vice-Provost, Faculty Relations recommends acceptance based on the above terms.

Date

Dr. Ken Wilson Vice-Provost, Faculty Relations

Approved and accepted on behalf of the Board of Governors of the University of Saskatchewan:

Debra Pozega Osburn, Ph.D.
Vice President, University Relations

Van Vliet Professorship in Agricultural Economics – 2020 Revision – Final May 14, 2020 Page 5 of 5

Date

Date



The Van Vliet Term Professorship in Agricultural Economics – 2020 Revision Terms of Reference

	Original Terms Note that most of the section headings were different from the current TOR format.	Revised Terms
Purpose:	Objectives: The purpose of the Van Vliet Professorship is to develop a fuller understanding of problems in agriculture and international economics which face Canadian agriculture and propose solutions.	The purpose of the Van Vliet Professorship is to develop a fuller understanding of, and propose solutions to, problems faced by the Canadian agriculture sector related to agricultural and international economics.
	Academic scholars contribute to the body of knowledge and greater understanding through their teaching, research and public service.	Academic scholars will contribute to the body of knowledge and greater understanding through teaching, research and public service.
	The purpose of the Van Vliet Visiting Professorship is to bring a scholar in to the campus for a period of time to work with students, faculty and the community.	The Van Vliet Term Professorship will be a term appointment and will work with students, faculty and other stakeholders.
Chair Type:	n/a	This will be a Term Professorship.
Background:	n/a	The Van Vliet Visiting Professorship in Agricultural Economics was established in 1985.
		It was jointly funded by the province and university to address teaching and research needs of the time.
		The title of the chair was chosen in honour of the contributions of Dr. Hadley

honour of the contributions of Dr. Hadley Van Vliet to teaching, research and problem solving for the farming community.

Rationale:

Agriculture has played a key role in Canadian development. Agriculture remains an important sector of our economy and an important contributor to a positive trade balance. Trade is a larger proportion of the total goods and services produced in Canada than in any other major developed nation. Agriculture is the dominant primary industry in Saskatchewan. Saskatchewan is dependent upon trade, agricultural commodity prices and the world trading environment to a larger degree than any other region of Canada. International trade and the world economy have a dominant impact on economic growth, employment and personal income in Saskatchewan.

The world economy is becoming more complex and the economic policy toward agriculture in the European Community and the United States have undergone major changes. These policy changes affect the welfare of Canadian farmers, processors and exporters and are felt in Saskatchewan and throughout Canada. Public policy which once concentrated on domestic issues must now address broad International issues as well. Nowhere is this more evident than in Canadian agriculture. It is paramount that Canada increase its understanding of these world events.

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The Hadley Van Vliet Term Professorship in Agricultural Economics was established at the University of Saskatchewan, Saskatoon, to apply recognized expertise in agricultural and international economics to issues facing Canadian agriculture. The Term Professorship will honor Hadley Van Vliet, a man remembered for his brilliant mind, his ability to shed understanding and enlightenment on the complexities of farm economics, his inspiration of students and his compassion and understanding. Farmers looked to "Van" to analyze and explain their pressing problems and to assist in the formation

Van Vliet Professorship in Agricultural Economics – 2019 Revision

	of public policy. The scholar selected will continue in this tradition.	of public policy. The scholar selected will continue in this tradition.
Source and Amount of Funding:	Not specifically described in the original TOR. However, several documents filed with the original TOR describe the source and arrival of these funds. These include a November 28, 1984 memorandum from the President Kristjanson to the Board of Governors, an excerpt from the December 5, 1984 Board of Governors meeting minutes, and a memorandum from the Controller's Office dated March 12, 1985.	This fellowship was established in 1985 with a gift of \$500,000 from the provincial government and a matching contribution of \$500,000 from the University of Saskatchewan. The university's share was sourced from a land sale (\$300,000) and the Burford Hooke trust (\$200,000).
Tenability:	Tenability was not specifically described, although the funds were endowed and there are several references to the endowment in the original TOR (see below).	The fund is endowed. As at January 8, 2020, the endowment has a balance of \$4,027,833 and provides an annual spending allocation of approximately \$148,000.
	The annual budget will be set by the Committee of the President, Dean of Agriculture, and Head of Agricultural Economics in consultation with the person holding the "Professorship"."	At the discretion of the Management Committee, unused spending allocation should be recapitalized to grow the corpus of the fund. The decision to recapitalize funds will consider the budget for the entire chairholder term.
	"Any funds earned by the endowment will be reinvested by the University in the name of the endowment. A financial report on the endowment will be provided by the University to the Committee each year. The balance in the fund cannot be reduced below the \$1,000,000 level without the approval of the Minister of Agriculture and the. Board of Governors."	"A financial report on the endowment will be provided by the University to the Management Committee each year. The balance in the fund cannot be reduced below the \$1,000,000 level without the approval of the Minister of Agriculture and the. Board of Governors."
Eligible Expenditures:	"The funds available from the endowment may be used as salary, or research fund for the individual in the "Professorship".	"The funds available from the endowment may be used as salary, or research fund for the individual in the "Professorship", in alignment with Section 2.0 of the Guidelines for the Establishment of Chairs and Professorships.
Selection Committee:	The appointment will be made following the procedure set out In the Collective Agreement.	In accordance with the procedures set out in the USFA Collective Agreement.
	Van Vliet Professorship in Agricultural Economics –	2019 Revision

an Vliet Professorship in Agricultural Economics – 2019 Revision April 21, 2020 – HPT Page 3 of 7

Chairholder Responsibilities: Activities:

The scholar would be located at the University of Saskatchewan, Saskatoon, in the Department of Agricultural Economics.

The scholar placed in the Van Vliet Professorship would be involved in teaching, research and public service.

Because the life blood of the university is its students, the individual would teach in some seminar classes. The teaching would include a course of interest to students from many disciplines such as agriculture, economics and political science and commerce because of the knowledge and expertise of the scholar. Research and public service would claim the majority of the time of the scholar. The research agenda would include international, national and regional issues in the areas of agriculture, economics and trade policy. It is expected that a scholar of this caliber would spend time advising governments and their agencies such as the Canadian Wheat Board and Agriculture Canada as well as international and regional agencies.

Finally, the scholar would be available to communicate his/her ideas to farmers and business people, for it is they who make many of the important economic decisions.

The major objectives of the Van Vliet Professorship are:

(1) to analyze and explain pressing problems in the agriculture and international sector and to propose solutions;

(2) to stimulate and excite both students and colleagues through the ideas, understanding and analysis which is applied to major issues in agricultural economics;

(3) to communicate the knowledge and understanding to students, colleagues,

The chairholder will be a teacher-scholar, contributing to the teaching, research and public service of the Department of Agricultural and Resources Economics. The individual should teach courses of interest to students from many disciplines.

The research agenda should include international, national and regional issues in the areas of agriculture, economics and trade policy. It is expected that a scholar of this caliber would engage governments and non-government organizations including producer organizations and industry groups-

The chairholder will submit an annual report of activities in accordance with university practices to the Management Committee, department head, and to the dean or executive director, as appropriate, and to the provost and vicepresident academic or designate. The report will outline the accomplishments of the chair in keeping with the chair's purpose and objectives.

The major objectives of the Van Vliet Professorship are:

(1) to analyze and address pressing issues in agriculture;

(2) to stimulate and excite both students and colleagues through the ideas, understanding and analysis which is applied to major issues in agricultural economics;

(3) to engage and communicate the knowledge and understanding to agriculture stakeholders; and

Van Vliet Professorship in Agricultural Economics – 2019 Revision

	the farm community, farm leaders, government administrators and decision makers; and (4) to work with governments and their agencies in seeking solutions to agricultural and rural problems.	(4) to work with public institutions and their agencies in seeking solutions to agricultural and rural issues.
	These objectives require that the scholar chosen for the Van Vliet Visiting Professorship manifest outstanding abilities. The following list describes the requirements: (1) A demonstrated ability and reputation in agricultural and International economics which is recognized in International community of scholars (2) An ability to stimulate and excite students with both ideas and the conveyance of understanding of the complexities of the farm economy. (3) An ability to communicate with farmers, business people, colleagues and public servants. (4) An ability to analyze and explain the pressing problems in agriculture and to propose solutions.	The Chairholder will have : (1) A demonstrated ability in agricultural and International economics which is recognized in International community of scholars (2) An ability to stimulate and excite students with both ideas and the conveyance of understanding of the complexities of the farm economy. (3) An ability to communicate with a wide range of agricultural stakeholders (4) An ability to analyze and explain the important issues in agriculture and to propose solutions.
Term of Chair:	The scholar shall be appointed for a period of a minimum of six months and a maximum of three years. The position will not be tenurable but an individual may be appointed to consecutive terms.	The chair shall be appointed in a term position for a period of a minimum of six months and a maximum of five years. Appointments of longer than one year may be subject to a probationary period.
Management Committee:	n/a	In accordance with section 5 of the Guidelines for the Establishment of Chairs and Professorships, the management committee shall comprise

Van Vliet Professorship in Agricultural Economics – 2019 Revision April 21, 2020 – HPT Page 5 of 7

of:

Chair;

designate; and

or designate.

• Dean, College of Agriculture and Bioresources or designate, as

• Head, Department of Agricultural and Resource Economics or

• Manager, Donations and Trusts

Management Committee n/a Mandate:

Fund Administration:

The committee may include a representative from the funders or other members, if deemed beneficial to achieve the objectives of the chair.

The management committee will:

- Oversee the activities of the professorship;
- Oversee management of the fund to ensure compliance with the terms of the trust and the ongoing financial integrity of the initiative;
- Approve annual budgets;
- Receive annual financial statements of the trust fund;
- Receive and review the annual report and financial report on the activities of the chair;
- Provide a copy of the annual report and the financial report with commentary as appropriate to the provost and vice-president academic or designate.

The University shall have the further power to administer the fund as part of the University's general trust and endowment funds, in keeping with and under the University's investment and administrative guidelines and practices as may be established and changed by the University from time to time. Upon these terms of reference being approved, and under the above guidelines and practices, provision shall be made for the investment of this fund in common with other trust funds and the payment of administration fees with respect to the management of such funds, such fees to be determined by the University acting reasonably.

In the event that circumstances make the specified use or administration of this fund no longer practical or desirable, the Board of Governors of the University of Saskatchewan is hereby authorized to make changes in the use or administration of the fund to maintain, as much as is reasonably possible, its spirit and general intent. The Department of Agricultural and Resource Economics recommends the creation of this Fund based on the above terms:

Ken Belcher	Date
Head, College of Agriculture and Bioresources	
The College of Agriculture and Bioresources recom	mends the creation of this Fund based on the above terms:
	
Mary Buhr Dean, College of Agriculture and Bioresources	Date
bean, conege of Agriculture and bioresources	
The Office of the Miss December Frenche Deletion of	
The Office of the Vice-Provost, Faculty Relations re	ecommends acceptance based on the above terms.
Dr. Ken Wilson	Date
Vice-Provost, Faculty Relations	
Approved and accepted on behalf of the Board of	Governors of the University of Saskatchewan:

Debra Pozega Osburn, Ph.D. Vice President, University Relations Date

AGENDA ITEM NO: 15.2

UNIVERSITY COUNCIL

Joint Committee on Chairs and Professorships

REQUEST FOR DECISION

PRESENTED BY:	Ken Wilson Chair, Joint Committee on Chairs and Professorships
DATE OF MEETING:	June 18, 2020
SUBJECT:	Co-operative Retailing System (CRS) Chair in Co- operative Governance
DECISION REQUESTED:	It is recommended:
	That Council approve the Federated Co-operatives Chair (Co-operative Retailing System Chair) in Co-operative Governance and recommend to the Board of Governors authorization of this chair's establishment.

PURPOSE:

The purpose of the CRS Chair in Co-operative Governance is to provide funding for an outstanding individual who would provide continued leadership for a research program on co-operative governance that has taken shape over the last five years.

CONTEXT AND BACKGROUND:

The Johnson-Shoyama Graduate School of Public Policy (JSGS) and the Centre for the Study of Co-operatives have governance as key research theme. In recent years, governance has emerged as the term that best conveys how organizations and groups of organizations are organized and controlled, and it has become part of the lexicon in policy, organization and business circles. The continuance of the CRS Chair in Co-operative Governance would focus attention on a unique form of governance, namely co-operative governance, that is important both in its own right and because it sheds light on governance mechanisms at work in the larger economy and society.

The Limited Term chair would have major benefits for the Canadian Centre for the Study of Co-operatives as it continues to position establish itself as a global leader in co-operative research. In addition to providing funds that would support co-operative research, a chair provides other benefits. In the increasingly competitive academic world, research chairs have emerged as an important signal of the quality and stature of research units. The presence of a research chair indicates that an outside group believes the quality of a research unit's work is strong and thus is willing to fund it. From this perspective, the CRS Co-operative Governance would be beneficial in terms of securing research funds (e.g., from the Social Sciences and Humanities Research Council), attracting top-level graduate students to the Centre, and providing added credence to research results.

CONSULTATION:

The chair builds on an existing CRS Chair in Co-operative Governance that will conclude at the end of June, 2020. The Canadian Centre for the Study of Co-operatives has engaged in discussions with FCL, JSGS leadership, and its advisory board in seeking to renew and adapt the chair position.

SUMMARY:

The chair will support each of the University's three commitments as part of its larger strategic objective of being the *University the World Needs*.

Courageous Curiosity

The chair will help unleash discovery by building on a research program into cooperative governance that is already been used to address some of the co-operative sector's major problems, including adapting to rapid technological, regulatory and environmental changes. By honing and further developing the existing research program, the Chair will continue to influence the sector, tease out important case studies for teaching purposes, support training of the next generation of co-operative leaders, and influence scholarly research in Canada and around the globe.

From these efforts, there will be opportunities to shed new light on governance mechanisms at work elsewhere in non-co-operative areas. Aside from business and government, these other areas include the JSGS's efforts to establish a research hub on Indigenous governance research through Honouring Indigenous Nations (HIN) Canada. The co-operative dimension has been often neglected in the research around Indigenous governance. The Chair will be in a position to make a meaningful contribution to this area of research, supporting the University's reputation as a leader in Indigenization as well as innovation.

From an interdisciplinarity perspective, the governance research will draw on the Centre's decades-long practice of working across disciplines, a value also deeply embedded in the JSGS's research and teaching philosophy. In particular, we expect the Chair's governance research to continue drawing on disciplines as varied as economics, political science, management theory, history, sociology, and human resource management.

Boundless Collaboration

The study of co-operative governance – and the extension of learnings into other domains like government, the private sector and Indigenous governance – is inherently collaborative. The existing governance research program has evolved from interactions with the sector combined with academic research. The chair will deepen these ties with the sector and through those interactions, demonstrate how research into co-operative governance can help the sector solve its problems. Through this kind of successful trustbuilding collaboration, and the resulting research output, the chair will draw attention to the JSGS and the University of Saskatchewan, increasing the ability to draw global faculty and students to the University.

Inspired Communities

From the beginning, the co-operative sector has been a grassroots community-based movement, one that puts faith in the ability of people to assume control over their economic and social lives and, correspondingly, tell their own stories. The Chair's research into co-operative governance will reflect back this empowering historical element and position the Centre, the JSGS and the University as valuable community partners that listen respectfully and share willingly, helping spread the stories of these successful community organizations.

ATTACHMENTS:

The Co-operative Retailing System (CRS) Chair in Co-operative Governance Terms of Reference.



Co-operative Retailing System (CRS) Chair in Co-operative Governance Terms of Reference

Purpose:	The objective of the Co-operative Retailing System (CRS) Chair in Co-operative Governance is to enhance the activities of an outstanding individual who would provide continued leadership for a research program on co-operative governance that has taken shape over the last five years.
Chair Type:	This will be a Limited Term Chair.
Background:	The Johnson-Shoyama Graduate School of Public Policy (JSGS) and the Canadian Centre for the Study of Co-operatives have governance as a key research theme. In recent years, governance has emerged as the term that best conveys how organizations and groups of organizations are organized and controlled, and it has become part of the lexicon in policy, organization and business circles. The continuance of the CRS Chair in Co-operative Governance will focus attention on a unique form of governance, namely co-operative governance, that is important both in its own right and because it sheds light on governance mechanisms at work in the larger economy and society.
	The Limited Term chair will have major benefits for the Canadian Centre for the Study of Co-operatives as it continues to position establish itself as a global leader in co-operative research. In addition to providing funds that would support co-operative research, the CRS chair provides other benefits. In the increasingly competitive academic world, research chairs have emerged as an important signal of the quality and stature of research units. The presence of a chair indicates that an outside group believes the quality of a research centre's work is strong and thus is willing to fund it. From this perspective, the CRS Chair in Co-operative Governance will be beneficial in terms of securing research funds (e.g., from the Social Sciences and Humanities Research Council), attracting top-level graduate students to the Centre, and providing added credence to research results.
Source and Amount of Funding:	 A gift of \$300,000 from Federated Co-operatives Limited. The gift will be received in the following five equal instalments: \$60,000 by September 30, 2020; \$60,000 by September 30, 2021; \$60,000 by September 30, 2022;

- \$60,000 by September 30, 2023;
- \$60,000 by September 30, 2024.

FCL is the second-largest business in Saskatchewan and the largest nonfinancial co-operative in Canada. FCL is a major donor to the university, with contributions to the Canadian Centre for the Study of Co-operatives and to agricultural-related activities.

The Chair will continue to be named after the Co-operative Retailing System (CRS), the network of 150-plus retail co-operatives across Western Canada that co-operatively own FCL, the wholesaler to the CRS. FCL's head office is in Saskatoon. The Limited Term Chair reinforces the University of Saskatchewan's relationship with FCL, an important partner whose co-operative ownership structure provides strength to the University of Saskatchewan's sense of connection to place.

Tenability:It is anticipated that the annual gifts from FCL will be expended in the year it
is received. It is expected that the full \$300,000 will be fully utilized by the end
of the chairholder's five-year term.

Selection Committee: In accordance with Section 4.1 of the *Guidelines for the Establishment of Chairs and Professorships,* the provost and vice-president academic, or designate, and the dean or executive director, in consultation with the department or faculty in the school or college, shall appoint a selection committee for selection of an appropriate candidate. The selection committee will consist of the provost and vice-president academic or designate, the dean or executive director, and the department head, and may include other members, including a representative of the funder(s) (where the funder has requested that opportunity), appointed by the provost and vice-president academic or designate and the dean. In appointing the selection committee, due consideration will be given to selecting Johnson-Shoyama Graduate School (JSGS) faculty members with an interest in Canadian Centre for the Study of Co-operatives.

ChairholderThe CRS chairholder will be a faculty member in the Johnson-ShoyamaChairholderGraduate School of Public Policy (JSGS). The CRS chairholder is expected to
be an outstanding researcher who will build on the existing research
program in co-operative governance. The funds may be used to support the
costs associated with expanding and invigorating the Chairholder's research
program (e.g., hiring post-doctoral fellows, providing graduate student
scholarships, covering costs associated with research (e.g., travel, data
purchase) and disseminating research results (e.g., conference travel)), or
they may be used, as per the terms of a limited-term chair, to fund the
development of a base-budget tenure-track position (e.g., supporting the
annual costs of the chair, including salaries, benefits and research activities).

The CRS chairholder is expected to provide a report on their activities to the Canadian Centre for the Study of Co-operative's Advisory Board once a year. The Centre's Advisory Board provides strategic direction to the Centre concerning its research, teaching and training activities and is made up of representatives from the Centre's sponsors. It would be expected that the CRC Chair's activities would be an integral part of the activities of the Centre.

For academic purposes, the individual will report to the Executive Director of JSGS.

Term of Chair: The successful incumbent will be appointed for a term of up to five-years.

Management Committee:The CRS Chair will be managed as per Section 5.0 of the Guidelines for the
Establishment of Chairs and Professorships. The Management Committee
shall consist of at a minimum:

- Executive Director, Johnson-Shoyama Graduate School;
- Provost and Vice President Academic (or their respective designates);
- Director of of the Canadian Centre for the Study Co-operatives Advisory Board;
- A representative from Federated Co-operatives Limited (e.g., General Counsel and Corporate Secretary) may be invited to attend the Management Committee Meetings. The representative from Federated Co-operatives Limited will be a non-voting member of the committee and may provide comment on general research direction. For greater clarity the representative from Federated Co-operatives Limited will not have input on specific research or academic matters or have a vote on budget items.
- Others, as may be deemed by the Committee to be beneficial to achieving the objectives of the Co-operative Retailing System (CRS) Chair in Co-operative Governance.

The Executive Director, Johnson-Shoyama Graduate School will act as Chairperson of the Management Committee.

The Management Committee's responsibilities shall include the following:

- 1) Oversee the activities of the CRS Chair to ensure they are in keeping with the CRS Chair's purpose and are integrated with the Centre and JSGS.
- 2) Approve annual budgets.

- 3) Receive and review the annual report and financial report on the activities of the CRS Chair.
- 4) Provide an annual financial report and a report on the activities of the CRS Chair to Federated Co-operatives Ltd., and the Joint Committee on Chairs and Professorships.
- Eligible Expenditures:Expenditures will be in alignment with Section. 2.0 of the Guidelines for
the Establishment of Chairs and Professorships".Unspent Funds:At such time that the CRS Chair ceases to be in existence, any unspent
 - spent Funds: At such time that the CRS Chair ceases to be in existence, any unspent funds will be used for other co-operative research at the University of Saskatchewan.

The creation of the Co-operative Retailing System (CRS) Chair in Co-operative Governance was approved by the University of Saskatchewan Council and Board of Governors in December 2014.

It is hereby acknowledged that these terms are acceptable and are in keeping with the intent of my gift.

Scott Banda Chief Executive Officer Federated Co-operatives Limited

The Johnson-Shoyama Graduate School recommends the acceptance of the above terms.

Murray Fulton Director, Johnson-Shoyama Graduate School

University Relations recommends the establishment of a Professorship based on the above terms.

Debra Pozega Osburn, Vice President, University Relations.

Date

Date

Date



Co-operative Retailing System (CRS) Chair in Co-operative Governance **Terms of Reference**

Purpose:	The objective of the Co-operative Retailing System (CRS) Chair in Co-operative Governance is to enhance the activities of an outstanding individual currently employed at the University of Saskatchewan who is doing leading edge research on co-operatives.
Chair Type:	This will be a Limited Term Chair.
Bacground:	The Johnson-Shoyama Graduate School of Public Policy (JSGS) and the Cert Formatted: Font: +Body (Calibri), 11 pt for the Study of Co-operatives have governance as a key research theme. Formatted: Font: +Body (Calibri), 11 pt recent years, governance has emerged as the term that best conveys how organizations and groups of organizations are organized and controlled, and it has become part of the lexicon in policy, organization and business circles. The continuance of the CRS Chair in Co-operative Governance will focus attentif Formatted: Font: +Body (Calibri), 11 pt on a unique form of governance, namely co-operative governance, that is important both in its own right and because it sheds light on governance
	mechanisms at work in the larger economy and society. Image: Construct a construction of the constend of the construction of the construction
Source and Amount of Funding: Co-operati	A gift of \$300,000 from Federated Co-operatives Limited. The gift will be rece Formatted Table in the following fivethree equal instalments: • \$60,000 by September 30, 202015; • \$60,000 by September 30, 202116; • \$60,000 by September 30, 202217; ive Retailing System (CRS) Chair in Co-operative Governance - 2020 Renewal
Co-operati	ive Retailing System (CRS) Chair in Co-operative Governance <u>- 2020 Renewal</u> March 4, 2015May 29, 2020 - smb Page 1 of 6

	• \$60,000 by September 30, 20 <u>2318;</u>
	•\$60,000 by September 30, 20 <u>2419.</u>
	Formatted: Indent: Left: 0.67", No bullets or numbering
	FCL is the second-largest business in Saskatchewan and the largest Formatted: Font: (Default) + Body (Calibri), 11 pt
	financial co-operative in Canada. FCL is a major donor to the university. Formatted: Justified
	contributions to the Canadian Centre for the Study of Co-operatives and to
	agricultural-related activities.
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	The Cehair will continue to be named after the Co-operative Retaiting Sy Formatted: Justified, Indent: Left: 0.16"
	(CRS), the network of 150-plus retail co-operatives across Western Canada Formatted: Font: (Default) + Body (Calibri), 11 pt
	co-operatively own FCL, the wholesaler to the CRS. FCL's head office Formatted: Font: (Default) +Body (Calibri), 11 pt
	Saskatoon. The Limited Term Chair reinforces the University of Saskatchewarr s
	relationship with FCL, an important partner whose co-operative ownership
	structure provides strength to the University of Saskatchewan's sense of
	connection to place.
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<u>Tenability:</u>	It is anticipated that the annual gifts from FCL will be expended in the Formatted: Indent: Left: 0"
	they it is are received. It is This expected that the full \$300,000 will be fully
	utilized by the end of the Cchairholder's five-year term.
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Eligible Expenditures:	Expenditures will be in alignment with Section. 2.0 of the Guidelines for Formatted: Indent: Left: 0.16"
	Establishment of Chairs and Professorships" and will relate to the budget
	for the chair (attached).
Selection Search	In accordance with Section 4.1 of the <i>"Guidelines for the Establishment</i> Formatted: Indent: Left: 0"
Committee:	Chairs and Professorships, <u>"-</u>
	Formatted: Font: Italic
	Aa committee comprised of three Johnson-Shoyama Graduate School (JSGS)
	faculty members with an interest in Centre for the Study of Co-operatives
	will ould be responsible for appointing the chairholder. The appointment Commented [CI1]: as with other chairs funded by donors,
	documents will include an updated curriculum vitae, research plan a should VPFR and VPR representatives be on the selection committee? Why oversight by the CRC committee? How will the
	rationale for the appointment. The appointment will be reviewed by performance of the Chair be evaluated? and When will this
	University of Saskatchewan's Canada Research Chair (CRC) oversit performance evaluation occur? and by whom?
	committee. The expectation is the chairholder would normally be the
	director of the Centre for Study of Co-operatives, although exceptions can
	be made if circumstances warrant.
Professor's	The CRS chairholder will be a new or existing faculty member in the John Formatted: Indent: Left: 0"
	Shoyama Graduate School of Public Policy (JSGS) who studies co-operative
Responsibilities: <u>Chairholder</u> Responsibilities:	governance.
<u>Responsionnes.</u>	
	The CRS chair-holder is expected to be an outstanding researcherized Formatted. Formatted Ledent Ledent Ledent
	who will build on an existing research program in co-operative governa
	regardless of whether the funds are used to support a base-budget ter
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Co-operative Reta	iailing System (CRS) Chair in Co-operative Governance <u>- 2020 Renewal</u> March 4, 2015 May 29, 2020 - smb
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	track position or to support costs associated with expanding and invigor the existing research program. In the latter case, the funds associated with is this a chair in name only?
	CRS Chair would be used to support activities such as the hiring of a Formatted: Font: +Body (Calibri), 11 pt
	doctoral fellow, the provision of graduate student scholarships, the cov Formatted: Font: +Body (Calibri), 11 pt
	of costs associated with research (e.g., travel, data purchase) and the
	dissemination of research results (e.g., conference travel).
	The CRS_Cchairholder is expected to The holder of the Chair would be expect Formatted: Font: 11 pt
	to provide a report on their activities to the Canadian Centre for the Stor Formatted: Font: +Body (Calibri), 11 pt
	Co-operative's Advisory Board at least once a year. The Centre's Adv Formatted: Justified
	Board provides strategic direction to the Centre concerning its reser Formatted: Font: 11 pt
	teaching and training activities and is made up of representatives from Formatted: Font: 11 pt
	<u>Centre's sponsors. It would be expected that the CRC Chair's activities</u> <u>be an integral part of the activities of the Centre.</u> <u>Commented [CI3]: at least once a year? more than once</u>
	The expectation is that the CRS chairholder will be the director of the Cr Formatted: Fort: +Body (Calibri), 11 pt
	for the Study of Co-operatives, although exceptions may be that Formatted: Font: +Body (Calibri), 11 pt
	circumstances warrant.
	Formatted: Indent: Left: 0"
	For academic purposes, the individual will report to the Executive Direct Formatted: Font: +Body (Calibri), 11 pt
	JSGS. Formatted: Font: +Body (Calibri), 11 pt
	executive offices of business organizations (and co-operatives specifically) and in the academic literature. These goals will be
	accomplished through initiatives such as the following:
	1) Hiring of Post-doctoral fellow;
	1) Hiring of Post-doctoral fellow; 2) Provision of graduate student scholarships;
	 Hiring of Post-doctoral fellow; Provision of graduate student scholarships; Funding for research expenses; Dissemination of the results of their research (conference)
	 Hiring of Post-doctoral fellow; Provision of graduate student scholarships; Funding for research expenses;
	 Hiring of Post-doctoral fellow; Provision of graduate student scholarships; Funding for research expenses; Dissemination of the results of their research (conference presentations etc.) Other initiatives deemed beneficial by the Management
	 Hiring of Post-doctoral fellow; Provision of graduate student scholarships; Funding for research expenses; Dissemination of the results of their research (conference presentations etc.) Other initiatives deemed beneficial by the Management Committee Funding from this agreement is not to be used to support or
rm of <u>Chair</u> Professor:	 1) Hiring of Post-doctoral fellow; 2) Provision of graduate student scholarships; 3) Funding for research expenses; 4) Dissemination of the results of their research (conference presentations etc.) 5) Other initiatives deemed beneficial by the Management Committee 6) Funding from this agreement is not to be used to support or enhance the salary of the chairholder. Funding will not be used to support or enhance the salary of the chairholder. The successful incumbent will be appointed for a term of up to five-yet Formatted: Indent: Left: 0"
rm of <u>Chair</u> Professor:	 1) Hiring of Post-doctoral fellow; 2) Provision of graduate student scholarships; 3) Funding for research expenses; 4) Dissemination of the results of their research (conference presentations etc.) 5) Other initiatives deemed beneficial by the Management Committee 6) Funding from this agreement is not to be used to support or enhance the salary of the chairholder. Funding will not be used to support or enhance the salary of the chairholder. The successful incumbent will be appointed for a term of up to five-yet Formatted: Indent: Left: 0" term. If the incumbent should vacate the Director position during this
erm of <u>Chair</u> P rofessor :	 1) Hiring of Post-doctoral fellow; 2) Provision of graduate student scholarships; 3) Funding for research expenses; 4) Dissemination of the results of their research (conference presentations etc.) 5) Other initiatives deemed beneficial by the Management Committee 6) Funding from this agreement is not to be used to support or enhance the salary of the chairholder. Funding will not be used to support or enhance the salary of the chairholder. The successful incumbent will be appointed for a term of up to five-yet Formatted: Indent: Left: 0"

Co-operative Retailing System (CRS) Chair in Co-operative Governance <u>- 2020 Renewal</u> March 4, 2015May 29, 2020 - smb Page 3 of 6

Management Committee: The CRS Chair will be managed as per Section 5.0 of the "Guidelines for" Formatted: Indent: Left: 0" Establishment of Chairs and Professorships-... The Management Committee shall consist of at a minimum: Executive Director, Johnson-Shoyama Graduate School; • Provost and Vice President Academic (or their respective • designates); Chair of the Centre for the Study Co-operatives Advisory Board; A representative from Federated Co-operatives Limited (e.g., General Counsel and Corporate Secretary) may be invited to attend the Management Committee Meetings. The representative from Federated Co-operatives Limited will be a non-voting member of the committee and may provide comment on general research direction. For greater clarity the representative from Federated Co-operatives Limited will not have input on specific research or academic matters or have a vote on budget items. Others, as may be deemed by the Committee to be beneficial to achieving the objectives of the Co-operative Retailing System (CRS) Chair in Co-operative Governance. The Executive Director, Johnson-Shoyama Graduate School will act as Chairperson of the Management Committee. The Management Committee's responsibilities shall include the following: 1) Oversee the activities of the CRS Chair to ensure they are in keeping with the CRS Chair's purpose and are integrated with the Centre and JSGS. 2) Approve annual budgets. 3) Receive and review the annual report and financial report on the activities of the CRS Chair. Provide an annual financial report and a report on the activities of the CRS Chair to Federated Co-operatives Ltd., and the Joint Committee on Chairs and Professorships. Formatted: English (United States) 4) Formatted: Indent: Left: 0.67", No bullets or numbering **Eligible Expenditures:** Expenditures will be in alignment with Section. 2.0 of the Guidelines for the Establishment of Chairs and Professorships" and will relate to the budget for the chair (attached). Formatted: Indent: Left: 0" **Unspent Funds:** At such time that the CRS Chair ceases to be in existence, any unspent funds will be used for other co-operative research at the University of Saskatchewan.

> Co-operative Retailing System (CRS) Chair in Co-operative Governance <u>- 2020 Renewal</u> March 4, 2015May 29, 2020 - smb Page 4 of 6

Co-operative Retailing System (CRS) Chair in Co-operative Governance <u>- 2020 Renewal</u> March 4, 2015May 29, 2020 - smb Page 5 of 6

The creation of the Co-operative Retailing System (CRS) Chair in Co-operative Governance was approved by the University of Saskatchewan Council and Board of Governors in December 2014.

It is hereby acknowledged that these terms are acceptable and are in keeping with the intent of my gift.

Scott Banda Chief Executive Officer Federated Co-operatives Limited Date

The Johnson-Shoyama Graduate School recommends the acceptance of the above terms.

Michael Atkinson Director, Johnson-Shoyama Graduate School

Date

Advancement and Community Engagement recommends the establishment of a Professorship based on the above terms.

Heather Magotiaux, Vice-President Advancement and Community Engagement Date

Co-operative Retailing System (CRS) Chair in Co-operative Governance <u>- 2020 Renewal</u> March 4, 2015May 29, 2020 - smb Page 6 of 6

UNIVERSITY COUNCIL JOINT COMMITTEE ON CHAIRS AND PROFESSORSHIPS FOR INFORMATION ONLY

PRESENTED BY:

Ken Wilson, Vice-Provost Faculty Relations and Chair, JCCP

DATE OF MEETING: June 18, 2020

SUBJECT: JCCP 2019-2020 Annual Report

COUNCIL ACTION: For information only

CONTEXT AND BACKGROUND:

The Joint Board/Council Committee on Chairs and Professorships (JCCP) is chaired by the Provost and Vice-President Academic or designate with representation from: University Council; Board of Governors; Research, Scholarly and Artistic Work Committee of Council; the Vice-President Research or designate; the Vice-President University Relations or designate; the Controller, Financial Services or designate; and the Secretary to the Board of Governors and Council or designate.

The committee is responsible for reviewing proposals for the establishments of chairs and professorships, receiving annual reports of chairs, and developing and reviewing procedures and guidelines related to the funding and on-going administration of chairs. The committee makes recommendations to University Council and the Board of Governors for the establishment of chairs and professorships that fall within its jurisdiction.

DISCUSSION SUMMARY:

Over the course of 2019/2020 JCCP reviewed and recommended establishment of the Jean E. Murray Chair in Cancer Research and the Wolfe-Saskatchewan Fellowship At-Large for Outstanding Newly Recruited Research Scholars. University Council and the Board of Governors subsequently approved both of these Chairs. The JCCP committee also approved the Agri-Food Innovation and Sustainability Enhancement Chair revised terms of reference. The JCCP is currently reviewing the Van Vliet Term Professorship in Agricultural Economics revised terms of reference.

Committee Membership:

Vice-Provost, Faculty Relations and Chair Board of Governors Representative Vice-President Research Designate Research, Scholarly and Artistic Work Member of Council Representative University Secretary's Office Controller, Financial Services

University Relations Designate

Committee Support:

Research Services Resource Person Secretary

ATTACHMENTS:

None

Ken Wilson Grant Devine Irena Creed Gordon Sarty John Gjevre Chelsea Willness Terry Summers Lucy Vuong (alternate designate) Shandi Boser

Laura Zink Jacque Zinkowski

AGENDA ITEM NO: 16.1

UNIVERSITY COUNCIL

FOR INFORMATION

PRESENTED BY:	Chelsea Willness, University Secretary & Chief Governance Officer
DATE OF MEETING:	June 18, 2020
SUBJECT:	University Council Chair Announcement

DISCUSSION SUMMARY:

I am pleased to advise that Dr. Jay Wilson has been elected (acclaimed) to the role of Chair of University Council for another two-year term effective July 1, 2020 and expiring June 30, 2022.

I thank him for the time and effort he has devoted to serving as chair of Council this past year, and for his ongoing dedication as he continues in the role for a second term in office.

University Council is a key feature of the governance structure of the University. Council could not effectively fulfill its important role of academic oversight given to it by the *University of Saskatchewan Act, 1995* without the commitment to service of people like Dr. Wilson who are willing to step into the demanding role of chair.

AGENDA ITEM NO: 16.2

UNIVERSITY COUNCIL

FOR INFORMATION

PRESENTED BY:	Chelsea Willness, University Secretary & Chief Governance Officer
DATE OF MEETING:	June 18, 2020
SUBJECT:	University Council membership 2020-21

DISCUSSION SUMMARY:

It is my pleasure to welcome the newly elected and acclaimed members to University Council for the 2020-21 academic year. Council members and terms are listed in the attached.

I would also like to take the opportunity to thank continuing members of Council for their contributions to university governance and decision-making.

ATTACHMENT:

1. University Council membership list 2020-21

University Council Membership 2020 - 2021

The following members have full voting privileges:

Ex Officio

Peter Stoicheff, President Melissa Just , Interim Provost and VP Academic

College Faculty Representatives		
Name	College	Term Expires
Mary Buhr, Dean	Agriculture and Bioresources	June 30, 2023
Stuart Smyth	Agric. & Bioresources (Agricultural and Resource Economics)	June 30, 2023
Peta Bonham-Smith, Dean	Arts and Science	June 30, 2023
Natasha Martina Koechl	Arts and Science (Drama)	June 30, 2023
Keith Willoughby, Dean	Edwards School of Business (ESB)	June 30, 2023
Abdullah Mamun	ESB (Finance & Management Science)	June 30, 2023
Doug Brothwell, Dean	Dentistry	June 30, 2023
Keith DaSilva	Dentistry	June 30, 2023
Michelle Prytula, Dean	Education	June 30, 2023
Egan Chernoff	Education (Curriculum Studies)	June 30, 2023
Suzanne Kresta, Dean	Engineering	June 30, 2023
Nurul Chowdhury	Engineering (Electrical and Computer)	June 30, 2023
Deborah Burshtyn, Dean	Graduate and Postdoctoral Studies	June 30, 2023
David Cooper	Graduate and Postdoctoral Studies (Anatomy and Cell Biology)	June 30, 2023
Chad London, Dean	Kinesiology	June 30, 2023
Nancy Gyurcsik	Kinesiology	June 30, 2023
Martin Phillipson, Dean	Law	June 30, 2023
Tamara Larre	Law	June 30, 2023
Charlene Sorensen, Acting Dean	University Library	June 30, 2023
JoAnn Murphy	University Library	June 30, 2023
Preston Smith, Dean	Medicine	June 30, 2023
Darrell Mousseau	Medicine (Psychiatry)	June 30, 2023
Cindy Peternelj-Taylor, Interim Dean	Nursing	June 30, 2023
Tracie Risling	Nursing	June 30, 2023
Jane Alcorn, Dean	Pharmacy and Nutrition	June 30, 2023
Yvonne Shevchuk	Pharmacy and Nutrition	June 30, 2023
Douglas Freeman, Dean	Veterinary Medicine	June 30, 2023
Susan Detmer	Veterinary Medicine (Pathology)	June 30, 2023
Affiliated and Federated College Repr	esentatives	
Cal Macfarlane, Assoc. Dean (TBD)	Briercrest College and Seminary	June 30, 2023
Grant Poettcker (TBD)	Briercrest College and Seminary	June 30, 2023
lain Luke, Principal	Emmanuel and St. Chad	June 30, 2023
ТВА	Emmanuel and St. Chad	June 30, 2023
ТВА	Gabriel Dumont Institute	June 30, 2023
Sheila Pocha	Gabriel Dumont Institute	June 30, 2023
TBA	Horizon College & Seminary	June 30, 2023
Andrew Gabriel	Horizon College & Seminary	June 30, 2023
William Harrison, President	Lutheran Theological Seminary	June 30, 2023
Gordon Jensen	Lutheran Theological Seminary	June 30, 2023
Richard Manley-Tannis	St. Andrew's College	June 30, 2023

University Council Membership 2020		
Kathleen James-Cavan	St. Andrew's College	June 30, 2023
Barbara Langhorst	St. Peter's College	June 30, 2023
ТВА	St. Peter's College	June 30, 2023
Arul Kumaran, Dean	St. Thomas More College	June 30, 2023
Charles Smith	St. Thomas More College	June 30, 2023
Members at Large		
Sina Adl	Agriculture and Bioresources	June 30, 2023
Alec Aitken	Geography and Planning	June 30, 2022
Carolyn Augusta	Edwards School of Business	June 30, 2021
Scott Bell	Geography and Planning	June 30, 2022
Mark Boland	Physics	June 30, 2022
Ryan Brook	Animal and Poultry Science	June 30, 2021
Vince Bruni-Bossio	Edwards School of Business	June 30, 2023
David Burgess	Education	June 30, 2022
Claire Card	Large Animal Sciences	June 30, 2021
Ravindra Chibbar	Plant Sciences	June 30, 2021
Ekaterina (Kate) Dadachova	Pharmacy and Nutrition	June 30, 2023
DeDe Dawson	Library	June 30, 2022
Dirk de Boer	Geography and Planning	June 30, 2022
Marjorie Delbaere	Management and Marketing	June 30, 2022
Ralph Deters	Computer Science	June 30, 2023
Rainer Dick	Physics and Engineering Physics (Arts and Science)	June 30, 2021
Pamela Downe	Archaeology and Anthropology	June 30, 2023
Kevin Flynn	English	June 30, 2021
Reza Fotouhi	Mechanical Engineering	June 30, 2021
Glen Gillis	Music	June 30, 2021
John Gjevre	Medicine	June 30, 2022
Nadeem Jamali	Computer Science	June 30, 2021
Paul Jones	School of Environment and Sustainability	June 30, 2022
Jay Kalra	Pathology and Laboratory Medicine	June 30, 2023
Timothy Kelly	Chemistry	June 30, 2021
Ramji Khandelwal	Biochemistry	June 30, 2021
Eric Lamb	Plant Sciences	June 30, 2023
Karl-Enrich Lindenschmidt	School of Environment and Sustainability	June 30, 2022
Olga Lovick	Linguistics	June 30, 2023
Veronika Makarova	Linguistics	June 30, 2023
Matthew Neufeld	History	June 30, 2022
Petros Papagerakis	Dentistry	June 30, 2021
Teresa Paslawski	Medicine	June 30, 2023
Steven Rayan	Mathematics and Statistics	June 30, 2023
Rachel Sarjeant-Jenkins	Library	June 30, 2023
Gordon Sarty	Psychology	June 30, 2021
Hyunjung Shin	Curriculum Studies	June 30, 2022
Jaswant Singh	Veterinary Biomedical Science	June 30, 2022
Martha Smith-Norris	History	June 30, 2021
Kara Somerville	Sociology	June 30, 2022
Shelley Spur	Nursing	June 30, 2021
Vicki Squires	Education	June 30, 2021
Tom Steele	Physics and Engineering Physics	June 30, 2023
Glenn Stuart	Archaeology and Anthropology	June 30, 2022
Stephen Urquhart	Chemistry (Arts and Science)	June 30, 2021
Cheryl Waldner	Large Animal Clinical Sciences	June 30, 2021
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University Council Membership 2020 – 2	021	
Keith Walker	Educational Administration	June 30, 2023
Christian Willenborg	Plant Sciences	June 30, 2021
Jay Wilson	Curriculum Studies	June 30, 2023
Phil Woods	Nursing	June 30, 2021
Terry Wotherspoon	Sociology	June 30, 2022
Jing Xiao	Education	June 30, 2021
Yansun Yao	Physics and Engineering Physics	June 30, 2022
Chris Zhang	Mechanical Engineering	June 30, 2021
Student Members (term expires April		
тва	Arts and Science	
TBA		
	Agriculture and Bioresources	
	Law Creative to and Deptate starsel Studies	
Carmen Marquez	Graduate and Postdoctoral Studies	
TBA	Edwards School of Business	
TBA	Engineering	
Dominque Lummerding	Pharmacy and Nutrition	
ТВА	Education	
ТВА	Western College of Veterinary Medicine	
ТВА	Medicine	
Sasha Merasty	Nursing	
Katie Hu	Dentistry	
ТВА	Kinesiology	
Student Members of Affiliated and Fe	derated Colleges (term expires April 30, 2021)	
ТВА	Horizon College and Seminary	
Ryan O'Connell	St. Thomas More College	
ТВА	Gabriel Dumont Institute	
TBA	Emmanuel and St. Chad	
ТВА	Lutheran Theological Seminary	
ТВА	St. Andrews College	
ТВА	St. Peter's College	
TBA	Briercrest College and Seminary	
	Bhercrest College and Seminary	
Non-Voting Participants	d participate in meetings but are not entitled to usta	
	d participate in meetings but are not entitled to vote	
Chelsea Willness	University Secretary and Chief Governance Officer	
Karen Chad	Vice-President Research	
Debra Pozega Osburn	Vice-President University Relations	
Greg Fowler	Vice-President Finance and Resources	
Patti McDougall	Vice-Provost Teaching and Learning	
Jacqueline Ottmann	Vice-Provost Indigenous Engagement	
Carl Still	President, St. Thomas More College	
Russell Isinger	University Registrar	
Nicholas Kaminski	Senate Representative (June 30, 2021)	
John Thronberg	Senate Representative (June 30, 2021)	
Autumn LaRose-Smith	President, University of Saskatchewan Students' Union (USSU)	(April 30, 2021)
Kiefer Roberts	Vice-President Academic Affairs USSU (April 30, 2021)	•
Humaira Inam	President, Graduate Students' Association (GSA) (April 30, 202	1)
Qasim Shahzad Gill	VP External GSA (April 30, 2021)	,