AGENDA

2:30 p.m. Thursday, May 20, 2021

Via WebEx - https://usask.webex.com/usask/j.php?MTID=m94f3a21afef90821d5141a18982355f1

Please note the following steps for the May 20th meeting:

- Thursday May 20th from 2:30 4:30 pm: We will host a virtual WebEx meeting with access to the link provided, you do not need a WebEx account to join the meeting. The virtual meeting will have access to both video and audio with everyone's microphones automatically muted (red icon). Video will be enabled for the *presenters of the Council Meeting use only*. Please be sure to turn your video off to ensure our meeting can run with no technical issues. If you are called on by the chair to speak, you will need to unmute your microphone. Please mute again once you have finished speaking.
- Motions: Only voting members can move or second a motion. Please use the 'Chat' function to move or second a motion so that it can be recorded in the meeting minutes. There will be a Polling feature enabled after each motion is presented. The Chair will give instructions on the voting process.
- Questions or Comments: If you have a question or comment after a report, please use the chat function to indicate the same. The Chair will call on the speakers in the order that they appear on the list in the chat. *Please do not type your question or comment* directly into the chat dialogue box.
- Attendance and quorum will be determined by the list of participants at the virtual WebEx meeting.

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 2020/21 academic year marks the 26th 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

- 2. Tributes
 - 2.1 Tribute to Professor Peter Hynes, from the Department of English, presented by Professor Brent Nelson
 - 2.2 Tribute to Professor Emeritus Colin Sargent, from the Department of Mechanical Engineering, presented by Professor Emeritus Rich Burton and Professor Emeritus Greg Schoenau
- 3. Adoption of the agenda
- 4. Chair's Opening remarks
- 5. Approval of Minutes of the meeting of April 15, 2021
- 6. Business Arising from the Minutes
- 7. Report of the President
- 8. Report of the Provost

9. Pandemic Response and Recovery Team (PRT) Verbal Report – presented by Darcy Marciniuk, Associate Vice-President Research, PRT Chair

10. Student Societies

- 10.1 Report from the USSU Tasnim Jaisee, USSU President
- 10.2 Report from the GSA Rifat Zahan, GSA President

11. Scholarships and Awards Committee

11.1 Report for Information: Best and Brightest Scholarships Recipients 2021 Verbal Report – presented by Tracie Risling

12. Planning and Priorities Committee

- 12.1 Report for Information: University Plan 2025 Update presented by Dr. Airini, Provost and VP Academic
- 12.2 Report for Information: Update on the Provincial Budget 2021-22 presented by Dr. Airini, Provost and VP Academic and Greg Fowler, Vice-President Finance and Resources

13. Nominations Committee

13.1 Request for Decision: Appointment of GAA members to the Associate Vice Presidents, Research Search Committee

It is recommended that the following three GAA members nominated be appointed to the Associate Vice Presidents, Research search committee. Candidates are:

- o Stephan Milosavljevic, Physical Therapy
- o Curtis Pozniak, Crop Development Centre
- o Debbie Pushor, Curriculum Studies
- 13.2 Request for Decision: Appointment of One Senior Administrator to the Dean of Edwards School of Business Review Committee

It is recommended that the Trever Crowe, Associate Dean, College of Agriculture and Bioresources, be appointed to the Review Committee for the Dean of the Edwards School of Business, Keith Willoughby.

13.3 Request for Decision: Council Committee Omnibus Nominations 2021/22

It is recommended that Council approve the slate of nominations to University Council committees for 2021-22 effective July 1, 2021, as attached.

14. Academic Programs Committee

14.1 Request for Decision: Graduate Degree-level Certificate in Climate Change Vulnerability Assessment and Adaptation Action

It is recommended that Council approve the graduate degree-level Certificate in Climate Change Vulnerability Assessment and Adaptation Action, effective May 2022.

- 14.2 Report for Information: Bachelor of Science in Applied Computing
- 14.3 Report for Information: Termination Minor in Digital Culture and New Media

15. Governance Committee

- 15.1 Request for Decision: Nominations to the Nominations Committee for 2021/22
 - It is recommended that Council approve the nominations to the Nominations Committee for 2021-22 effective July 1, 2021, as attached.
- 15.2 Request for Input: Inventions Policy
- 15.3 Request for Input: Living Our Values Policy

- 16. Research, Scholarly and Artistic Works Committee
 16.1 Request for Input: Revisions to the Responsible Conduct of Research Policy
- 17. Other business
- 18. Question period
- 19. Adjournment

Next Council meeting is June 17, 2021 – Please send regrets to michelle.kjargaard@usask.ca. Deadline for submission of motions to the coordinating committee: May 21, 2021.



MINUTES OF UNIVERSITY COUNCIL 2:30 p.m. Thursday, April 15, 2021 Via WebEx

1. Call to Order

The meeting was called to order at 2:30pm.

2. Tributes

None.

3. Adoption of the agenda

(Detmer/Jones): That the agenda be approved as circulated.

CARRIED.

4. Chair's Opening remarks

The Chair of Council, Dr. Jay Wilson, acknowledged that Council meets on Treaty 6 Territory and the Homeland of the Métis, paying respect to the First Nations and Métis ancestors of our gathering place and reaffirming our relationship with one another. He also noted that given the remote meeting modality, that members may be connecting from other locations and that we acknowledge our shared relations with the Indigenous peoples of this land.

The chair informed Council members of the protocols for the synchronous remote meeting.

Dr. Wilson asked if there were any media present. John Thronberg identified that he is a producer with CTV, but was attending the meeting as a Senator. The chair reminded those present that no video or audio recordings of the Council meeting were permitted.

The chair congratulated those individuals acclaimed and elected to Council commencing July 1, 2021. He also noted that the Nominations Committee was in the process of populating Council committees for 2021/22, and encouraged Council members to consider taking on this important work for the university.

Dr. Wilson reported on the regular monthly meeting between Council chairs and the President's Executive Committee (PEC). He reported that the discussion topics were the provincial budget and the University Plan.

5. Approval of Minutes of the meeting of November **19**, **2020** (Flynn/Walker): *That the minutes be approved.*

CARRIED.

6. Business Arising from the Minutes

6.1 Parking Revenue and Capital Funding for the Gordon Oakes Red Bear Centre

In follow-up to the question posed at the last Council meeting, Greg Fowler, Vice President Finance and Resources, provided Council with information on parking revenues in 2020/21 and capital funding for the Gordon Oakes Red Bear Aboriginal Student Centre. He reported that Consumer Services revenue had decreased considerably due to the campus closure for COVID-19. He also reported uncertainty with regard to Consumer Services revenue potential for the coming year. He reported that generally, each year \$1.75M of Consumer Services revenue would go toward university operations, but the contribution would not be possible this year.

There was a comment that colleges may be forced to cut sections of classes and increase class sizes due to funding reductions. The Council member reminded Council of the university's commitment 'not to let the budget define us.'

7. Report of the President

The President, Peter Stoicheff, brought remarks on three aspects of the April University Council agenda: the provincial budget, the University Plan, and preparation for the fall 2021 semester.

With regard to the provincial budget, he noted the importance of the stable, multi-year funding commitment for the post-secondary education (PSE) sector in Saskatchewan. He reported on the open and collaborative relationship with the provincial government. He remarked on the one-time funding in the first two years of the four-year funding agreement. The one-time funding is meant to support pandemic and post-pandemic recovery, efficiencies in academics and administration, revenue generation, collaboration between PSE institutions, and government priorities articulated in *Saskatchewan's Growth Plan*.

The President remarked that the four-year funding commitment is a progressive step, and that he was not aware of any other jurisdiction in Canada with a similar multi-year commitment. He noted the agreement to keep average tuition increases to a maximum of 4% annually, and to keep tuition rates in line with the tuition-setting principles that are based on USask's Tuition Policy. He reflected that while this funding agreement provides predictability, stability, and additional one-time resources, there are still financial challenges to be addressed.

The President elaborated that the University Plan provides a roadmap to achieve our academic priorities within our means. It is a creative and visionary plan, to which Council contributed in a significant way. He also remarked that USask is performing well even within the context of financial challenges and the pandemic. The President expressed agreement with the Council member's comment that 'we cannot let the budget define us.'

The President reported that the fall will be a transition period in terms of returning to face-toface class delivery, and that he expects a full return to on-campus learning in January 2022 (with the support of the Saskatchewan Health Authority). He indicated that there would be more information available as the details are forthcoming.

There was a round of Q&A.

The GSA President asked how the 4% cap on tuition increases would apply to international graduate and undergraduate tuition rates. The President responded that this is outlined in the Memorandum of Understanding (MOU) with PSE institutions and the Province, and deferred to the Provost's remarks in the Provost's Report later in the agenda for details.

A Council member asked about the funding decrease of \$32M indicated in Appendix 1 of the funding letter, and about the reporting requirements outlined in Appendix 3. He asked whether Council would receive copies of these reports to government, and noted the strong focus on the needs of employers and industry. The President responded that there was a shift in funding being provided by Advanced Education to the College of Medicine, primarily for clinical activities. The funding is now being provided by the Ministry of Health. He reported that the funding from the Ministry of Health is equivalent to that previously provided by Advanced Education.

The President responded further that the reporting requirements related mostly to the provision of one-time funding, and that it is an opportunity for USask to continue to demonstrate the university's value to the province. The President reported that there will likely be opportunities for Council and/or Council committees to provide input into the reports. He also noted that the reporting requirements focused on employment and industry do not take away from the university's fundamental mandate around academics, research, the social sciences, or the humanities. Still, the University does need to demonstrate alignment with government priorities.

8. Report of the Provost

Dr. Airini, Provost and Vice President Academic, spoke to the importance of the Univesity Plan for advancing the aspirations and priorities of the university, within our means. She highlighted the importance of the provincial government's multi-year funding for meeting the bold ambitions in the University Plan. She indicated that she will be reporting to the Planning and Priorities Committee (PPC) next month on progress toward the University Plan, and will be continuing to seek the guidance of Council. She stated that the Senior Leadership Forum (SLF) identified a number of priorities for implementing the plan, and that faculty and staff would continue to have a vitally important role. SLF will also be seeking the guidance of Council as to how to best involve the campus community.

The Provost reported that work is ongoing with respect to resource allocation in the context of the provincial government's funding announcement. She reported that the MOU in the funding agreement caps tuition at a 4% average increases annually, but sets aside international tuition and asks for comparison to competitors.

She also reported on the work that is proceeding to reduce the timelines for approving new academic programs, and that there is considerable interest in the new models. She reported that the Deputy Provost search will get underway soon, and that the appointment will initially

be for a three-year term, at a net neutral cost. She noted that her report (as provided in the agenda package) highlights only a few of the many significant accomplishments occurring across the university.

Dr. Airini also thanked the outgoing student executive.

There was a round of Q&A.

The USSU president inquired as to the stable nature of funding from the province, at a 0% increase annually. The Provost granted that the funding is stable, with no increases over the four-year period. There was another question from a Council member about whether further budget cuts could be expected given that costs continue to increase. The Provost responded that the budget is in development and that there are three scenarios under consideration. She noted that resources need to be set aside to fund priorities, goals and commitments in the plan.

9. Pandemic Response and Recovery Team (PRT) Report

Dr. Darcy Marciniuk, Associate Vice President, Research and PRT Chair, gave a report on the work of the PRT. He reported on the following:

- Number of positive COVID-19 rates and case prevalence rates on- and off-campus at USask, including at the Canadian Light Source.
- Number of COVID-19 safety training courses that have been completed.
- Number of researchers working on campus.
- Number of vaccines distributed in Saskatchewan as of this day.

Dr. Marciniuk reported that planning for fall in-person course delivery was underway, and would be determined based on the direction of the SHA for the PSE sector. He indicated that planning for the transition to fully in-person class delivery in January 2022 was ongoing. He asked that the campus community continue to work together to 'Protect the Pack.'

There was a question about the university's approach to requesting that members of the campus community wear higher quality masks. Dr. Marciniuk responded that recommendations in this regard are under consideration.

10. Student Societies

10.1 Report from the USSU

Autumn LaRose-Smith, President of the USSU, presented the report of the USSU as provided in the materials. She thanked the outgoing student executive and welcomed the incoming student leaders. She reported that the USSU Executive met with the USFA Executive, Dr. McDougall, Vice-Provost, Teaching, Learning and Student Experience, and Dr. Nancy Turner, Director, Teaching and Learning Enhancement. She also reported that the USSU General Manager, Caroline Cottrell announced her retirement. She thanked her for her many years of service, acknowledging her as an award winning and nationally recognized student society general manager.

10.2 Report from the GSA

Humaira Inam, President of the GSA, presented the report from the GSA as provided in the materials. She thanked the members of Council and stated that it has been an honour to serve as an advocate for graduate students at University Council. She recalled the accomplishments of USask in the context of the pandemic, and expressed her hopes for the good to come. She also indicated that she was looking forward to further comment from the Provost's Office on tuition, and to the opportunity to work together in consultation with the GSA.

Dr. Just, Interim Deputy Provost, in response to the question posed under the President's Report, indicated that the tuition cap that the PSE sector agreed to with the Government of Saskatchewan was an overall average annual increase of 4%. There would be exceptions for unique programs like those at Johnson-Shoyama Graduate School of Public Policy (JSGS) and the Western College of Veterinary Medicine. She also reported that it will not apply to international tuition rates. She reiterated that dicussions with students about tuition would continue each year as part of the tuition-setting process.

11. Governance Committee

Dr. Terry Wotherspoon, Chair of the committee, presented a request for decision.

11.1 Request for Decision: Postdoctoral Fellows Policy Revisions

(Wotherspoon/Larre): It is recommended that University Council approve the proposed revisions to the Postdoctoral Fellows Policy (as attached), pending the approval of the Board of Governors, effective June 22, 2021.

CARRIED.

12. Academic Programs Committee (APC)

Dr. Susan Detmer, Chair of APC, presented one item for decision.

12.1 Request for Decision: Admissions Qualification Change – Doctor of Philosophy (Ph.D.) program in Applied Economics

(Detmer/Papagerakis): It is recommended that Council approve the addition of the Graduate Record Exam (GRE) and/or the Graduate Management Admission Test (GMAT) for Doctor of Philosophy (Ph.D.) program in Applied Economics, effective the 2022-23 admissions cycle.

There was a question about whether prospective students from the European Union would be exempt from this requirement. Dr. Detmer responded that they would need to meet this admissions requirement.

CARRIED.

12.2 Request for Decision: Admissions Qualification Change – Graduate programs in Agricultural Economics

It is recommended that Council approve the addition of the Graduate Record Exam (GRE)) for graduate programs in Agricultural Economics, effective the 2022-23 admissions cycle.

There was a comment that women and members of minority groups tend to score lower on the GRE, and a question as to whether this was considered by APC. Dr. Murray Folton, Director, JSGS Saskatoon Campus, responded that further information is needed on international graduate student applicants to help assess their potential for success in the program. Dr. Richard Gray, Professor, Bioresource Policy, Business & Economics, also recognized that there can be biases with these testing methodologies. That said, the use of the GRE exam would advantage students overall because of the improved ability to recruit from countries where it is more difficult to assess the quality of applications. Dr. Debby Burshtyn, Dean, College of Graduate and Postdoctoral Studies (CGPS), reported that this was also discussed in the college in the context of the priority for equity, diversity, and inclusion, and developing better understanding for how to use these instruments knowing the biases they bring, and being able to put corrective measures in place. Dr. Detmer reported that this admissions requirement is also used at many comparator institutions.

There was another question about whether students from the US or Canada who had taken the test (even though they were exempt from this admissions requirement) could submit their scores as part of their application. Dr. Detmer responded in the affirmative, but noted that it will not be a requirement for their admission.

CARRIED.

12.3 Request for Decision: Admissions Qualification Change – Graduate programs in Music

(Detmer/Papagerakis): It is recommended That the Academic Programs Committee recommend that Council approve the change to the admissions average from 80% to 70% for graduate programs in Music, effective May 2021.

CARRIED.

13. Nominations Committee

Dr. Paul Jones, Chair of the committee, presented the requests for decision. He and the Chair of Council noted the procedural errors from the March 2021 meeting when there was a nomination from the floor. At the April Council meeting, a nomination from the floor was ruled ineligible due to the nominee being presumed to not be a member of the General Academic Assembly (GSA). It was later determined that this nominee was a student member of the GAA, and was therefore eligible, but needed to be nominated by a voting member of Council. The

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procedural error was being redressed through the following two motions by the Nominations Committee.

13.1 Request for Decision: Rescind part of a decision regarding General Academic Assembly (GAA) representatives on the Deputy Provost search committee

(Lamb/Walker) It is recommended that the March 18, 2021 Council decision (moved and seconded by Jones/Lamb) to appoint the following four GAA members to the Deputy Provost search committee be rescinded:

- Erica Carleton, Edwards School of Business
- Som Niyogi, Department of Biology
- Darrin Oehlerking, Department of Music
- Holly Mansell, College of Pharmacy & Nutrition

CARRIED.

13.2 Request for Decision: Appointment of GAA members to the Deputy Provost Search Committee

(Lamb/Walker): It is recommended that the following four GAA members nominated at the April 15, 2021 Council meeting be appointed to the Deputy Provost search committee. Candidates are:

- Erica Carleton, Edwards School of Business
- Som Niyogi, Department of Biology
- Darrin Oehlerking, Department of Music
- Holly Mansell, College of Pharmacy & Nutrition

The Chair of Council, Dr. Jay Wilson, called for nominations from the floor three times. Emma Cross, a student member of Council, nominated Ryan O'Connell, a student member of the GAA to the Deputy Provost search committee. Dr. Wilson asked the nominee if he would accept the nomination, to which he agreed.

Dr. Wilson proceeded to explain the electronic voting proceedures.

There were technical difficulties with the electronic polling function in WebEx. Dr. Wilson proceeded to the report from the Teaching, Learning, and Academic Resources Committee (TLARC) while the technical issues were being sorted out.

14. TLARC

Dr. Vince Bruni-Bossio, the Chair of TLARC and Dr. Nancy Turner, presented a report for information.

14.1 Report for Information: TLARC Areas of Focus During the Past Year Verbal Report – presented by Vince Bruni-Bossio and Nancy Turner

A PowerPoint presentation was made (as attached). There were no questions related to the report.

15. Adjournment

(Smith): There was a motion to adjourn.

Dr. Wilson acknowledged the time of 4:30pm, and stated that the agenda items not addressed during this meeting would be deferred to the May 20, 2021 meeting of Council. He reported that the election for agenda item 13.2, the GAA representation on the Deputy Provost search committee, would take place by electronic survey following the Council meeting.

Table 1. Action Items

Page	Action Item	Responsible
p.7 s.13.2	Election – GAA members of the Deputy	Dr. Wilson,
	Provost Search Committee	Dr. Jones
p.8 s.15	Defer Scholarship & Awards and PPC agenda	Dr. Wilson,
	items to May 20, 2021 Council meeting	Dr. Risling,
		Dr. Mousseau

Appendix A: Listing of members in attendance Appendix B: TLARC Presentation

Next Council meeting is June 17, 2021 – Please send regrets to Michelle.Kjargaard@usask.ca.

COUNCIL ATTENDANCE 2020-2021

Attendance Summary - Voting Participants

Last Name	First Name	Sept 17	Oct 15	Nov 19	Dec 17	Jan 28	Mtng	Mar 18	Apr 15	May 20	Jun 17
	Airini	n/a	n/a	n/a	n/a	n/a		P	P		
Adl	Sina	Δ	P	P	P	P		P	R		
Aitken	Alec	R	P	P	P	P		P	R		1
Alcorn	Jane	A	A	A	P	A		P	P		
Augusta	Carolyn	P	P	P	R	P		P	R		
Bedard	Derek	n/a	n/a	A	A	A		A	A		1
Bedard-Haughn	Angela	, ∝ P	, ∝ P	P	P	R		P	P		
Bell	Scott	P	A	P	P	A		A	R		
Bilson	Beth	n/a	n/a	n/a	n/a	P		P	P		
Boland	Mark	R	A	A	A	P		P	P		
Bonham-Smith	Peta	Р	Р	Р	Р	P		P	P		
Brook	Rvan	Α	Р	Р	Р	R. Brook S	abbatical -	Jan 1 - Jun i	30, 2021		
Brothwell	Doug	Р	P	P	P	Р		R	Р		
Bruni-Bossio	Vince	P	P	P	P	P		P	P		
Burgess	David	P	P	A	P	P	D. Burgess	Resigned (Council pos	ition Feb 4,	/21
Burshtyn	Deborah	P	P	P	P	P		P	Р		
Card	Claire	P	P	P	A	P		P	P		
Chernoff	Egan	R	R	R	Р	P		P	R		
Chibbar	Ravindra	Р	Р	Р	A	P		P	Р		
Chowdhury	Nurul	P	P	P	Р	P		P	P		
Cooper	David	P	P	P	P	P		P	P		
Cross	Emma	n/a	n/a	P	R	P		P	P		
Dadachova	Kate (Ekaterina)	P	P	Р	Α	Р		Р	Р		
DaSilva	Keith	Р	Р	Р	Р	Р		Р	Р		
Dawson	DeDe	Р	Р	Р	Р	Р		Р	Р		
de Boer	Dirk	А	Α	Р	Р	Р		Α	Р		
Delbaere	Majorie	Р	Р	Р	Р	Р		Р	Р		
Deters	Ralph	Р	Р	Р	Р	Р		Р	Р		
Detmer	Susan	А	Р	Р	Р	Р		Р	Р		
Dick	Rainer	Р	Α	Α	Р	Р		Р	Р		
Downe	Pamela	Р	Р	Р	Р	Р		Р	Р		
Flynn	Kevin	Α	Р	Α	Р	Р		Р	Р		
Fotohui	Reza	А	Α	Α	Α	Р		Α	Р		
Gabriel	Andrew	А	Α	Р	Р	Α		R	Р		
Gillis	Glen	Р	Р	Р	Α	Р		Р	Р		
Gjevre	John	Р	Р	Р	Р	Р		Р	Р		
Gyurcsik	Nancy	Р	Р	Р	Р	Р		Р	Р		
Harrison	William	А	Р	Α	Α	Р		Α	Α		
Harvey	Evan	n/a	n/a	Р	А	Α		Α	Р		
Hu	Katie	А	А	Α	А	А		А	Α		
Illing	Kate	n/a	n/a	Α	Α	А		Α	Α		
Jacob	Sharon	n/a	n/a	Р	Α	А		Α	Α		
Jamali	Nadeem	Р	Р	Р	R	Р		Р	Р		
James-Cavan	Kathleen	R	Р	Р	Р	Р		Р	Р		
Jensen	Gordon	Р	Р	Р	Р	G. Jensen	Sabbatical	Jan 1 - Jun	30, 2021		
Jones	Paul	Р	Р	Р	Р	Р		Р	Р		
Just	Melissa	Р	Р	Р	Р	Р	M. Just con	npleted Inter	Р		
Kahn	Maria	n/a	n/a	Р	Α	А		Α	R		
Kalra	Jay	А	Р	Р	Р	Р		Р	Р		
Keller	Taylor	n/a	n/a	Р	Р	Р		Р	Α		
Kelly	Timothy	Р	Р	Р	Р	Р		А	А		
Khandelwal	Ramji	Р	Р	Р	Р	Р		Р	Р		
Kim	David	n/a	n/a	A	A	A		A	R		
Koechl	Natasha Martina	Р	Р	Р	Р	Р		Р	Р		
Kresta	Suzanne	Р	Р	R	Р	R		Р	А		
Kumaran	Arul	Р	Р	Р	Р	Р		Р	Р		
Lamb	Eric	Α	Р	Р	Р	Р		Р	Р		

							No				
Last Name	First Name	Sept 17	Oct 15	Nov 19	Dec 17	Jan 28	Mtng	Mar 18	Apr 15	May 20	Jun 17
Langhorst	Barbara	Р	Α	Р	Р	Α		Α	Α		
Larre	Tamara	Р	Р	Р	Р	Р		Р	Р		
Lies	Madelyn	n/a	n/a	Α	Α	Α		Α	Α		
Lindenschmidt	Karl-Enrich	Р	P	Р	Р	Р		Р	Р		
London	Chad	Р	Р	Р	Α	Р		Р	Р		
Lovick	Olga	Р	Р	Р	Р	Р		Р	Р		
Luke	lain	Р	Р	Α	R	Α		R	R		
Lummerding	Domingue	A	A	A	A	A		A	A		
Macfarlane	Cal	Α	Α	Α	Α	Α		Α	Α		
Makarova	Veronika	Р	Р	Р	Р	Р		Α	Р		
Mamun	Abdullah	Р	R	Р	Р	Α		R	Р		
Manley-Tannis	Richard	R	A	A	A	Р		A	A		
Marquez	Carmen	Р	Р	P	Р	P		Р	A		
Mousseau	Darrell	P	P	P	A	P		P	P		
Muir	Gillian	R	A	A	R	R		R	A		
Murphy	loAnn	P	P	P	P	P		P	P		
Neufeld	Matthew	P	P	P	P	P		P	R	1	
O'Connell	Rvan	P	P	Δ	P	P		P	Δ	1	
Palmer	Sue	n/a	n/2	Δ	Δ	Δ		Δ	Δ	<u> </u>	
Panagerakis	Petros	P	Δ	Þ	P	P		Þ	P	<u> </u>	
Paslawski	Teresa	D	D	D	D	P		P	P	1	
Potornoli-Taylor	Cindy	Г Л	Г D	Г	Г	Г		Г	Р		
Phillinson	Martin	P A	Г D	г 	Г	Г		Г	Р		
Pocha	Sheila	Г Л	Г D	A 	Г Л	Г 			г Л		
Poottekor	Grant	A	P A	A	A	A		A	A		
POELICKEI	Alisha	A							A D		
Poindzon	Alishalla	P	P D	P D	P D	P Both Bilcon	n is the Inte	P rim Doon (P of Educatio	n /lan 19/2	1)
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Riplov		P	P	P D	P D	P 		P 	P 		
Ripley	Tracio	n/a D	n/a D	Р	Р	A			A		
RISIIIg	Bachal	P		P	P	P			P		
Sarjeant-Jenkins	Cordon	P		P	P	P			P		
Shovebule	Guruon	P		P	P	P			P		
Shevenuk	Yvonne	P			P	P		P	P		
Shin	Hyunjung	ĸ	R	ĸ	P	A		A	A		
Singn	Jaswant	Р	A	Р	Р	Р		A	P		
Smith	Martna	Р	Р	P	P	P		Р	A		
Smith	Preston	Р	Р	Р	A	A		Р	Р		
Smyth	Stuart	P -	Р -	Р	A	P		P	Р	ļ	└─── ┤
Somerville	Kara	P -	P -	A	A	Р -		Р -	A	 	
Sorensen	Charlene	P	P	P	P	P		P	P	ļ	
Spurr	Shelley	P	P –	P –	P –	P		R	R		
Squires	VICKI	P	P	P	P	P		P	P	ļ	
Steele	Iom	P	P –	P –	A	P		P -	A		
Stoicheft	Peter	P	P	P	P	P		P	P	ļ	
Stuart	Glenn	A	P –	P –	P –	P		A	P –		
Urquhart	Stephen	Р	Р	Р	Р	Р		Р	Р		
Waldner	Cheryl	Р	Р	Р	Р	Р		Р	Р		
Walker	Keith	Р	Р	Р	Р	Р		Р	Р	ļ	
Wallace	Alexa	n/a	n/a	A	A	A		A	A		
Willenborg	Christian	Р	Р	Р	Р	Р		Р	Р		
Willoughby	Keith	R	А	Р	Р	Р		Р	R		
Wilson	Jay	Р	Р	Р	Р	Р		р	Р		
Woods	Phil	А	R	Р	Α	Р		R	Р		
Wotherspoon	Terry	Р	Р	Р	Р	Р		Р	Р		
Xiao	Jing	Р	Р	Р	Р	Р		Р	Р		
Yao	Yansun	Р	A	A	A	Α		A	A		
Zhang	Chris	Α	Р	Р	A	Р		A	Р		

COUNCIL ATTENDANCE 2020-2021

Attendance Summary - Non-voting participants

sep 1/, 2020 - meetings are being neid via Webex and attendance is taken as per the participant list while meeting is on.												
							No					
Last Name	First Name	Sep 17	Oct 15	Nov 19	Dec 17	Jan 28	Mtng	Mar 18	Apr 15	May 20	Jun 17	
Chad	Karen	Р	Р	Р	Р	Р	Dr. Chad has completed her VP Research as of Jan 31, 20					
Fowler	Greg	Р	Р	Р	Р	Р		Р	Р			
Gill	Qasim	А	А	Α	Α	Р		Α	Α			
Inam	Humaira	Р	Р	Р	Р	Р		Р	Р			
Isinger	Russell	Р	Р	Р	Α	Р		Р	Р			
Kaminski	Nicholas	Р	Р	Р	Р	Р		Р	Р			
LaRose-Smith	Autumn	Р	Р	Р	Α	Р		Р	Р			
McDougall	Patricia	Р	Р	Р	Р	Р		Р	Р			
Ottmann	Jacqueline	А	А	А	Р	Р		Α	Α			
Pozega Osburn	Debra	Р	Р	Р	р	Р		Р	Р			
Roberts	Kiefer	Р	R	Р	Р	Р		R	Р			
Singh	Baljit	Dr. Singh to begi	Dr. Singh to begin as VP Research Feb 1, 2021					Р	Р			
Still	Carl	Р	Р	Р	Р	Р		Р	Р			
Thronberg	John	Р	Р	Α	Р	Α		Α	Р			
Willness	Chelsea	Р	Р	Р	р	Р		Р	Р			



Teaching, Learning and Academic Resources Committee of Council (TLARC)

Vince Bruni-Bossio, TLARC Chair Department Head, Management and Marketing Edwards School of Business

Nancy Turner Director, Teaching and Learning Enhancement

> Presentation to University Council April 15, 2021

> > **BE WHAT THE WORLD NEEDS**



TLARC is responsible for:

A basic summary of TLARC responsibilities include:

- 1. Commissioning, receiving and reviewing scholarship and reports related to teaching, learning and academic resources
- 2. Making recommendations to Council and the planning and priorities committee
- 3. Promoting student, instructor and institutional commitments and responsibilities, as set out in the University of Saskatchewan Learning Charter
- 4. Designating individuals to act as representatives of the committee on any other bodies, when requested,
- 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.



TLARC in practice:

TLARC committee members complete the following functions as part of their role:

- 1. Receiving information about teaching and learning,
- 2. Providing input and insight when needed, and
- 3. Voting on teaching and learning issues, policies and processes.
- 4. Providing strategic advice to the Vice Provost Teaching, Learning, and Student Experience portfolio.
- 5. TLARC members also contribute to working groups when possible.



TLARC's Strategy for Dealing with the Pandemic

In the past TLARC and its working groups have focused on longer term strategies such as developing Our University of Saskatchewan Learning Charter and adopting the Student Learning Experience Questionnaire (SLEQ).

This year TLARC agreed to pause longer term initiatives to free up resources for assisting with challenges and opportunities related to remote delivery.

BE WHAT THE WORLD NEEDS



2019/20 TLARC working groups

- Internationalization of curricula
- Experiential Learning
- Wellness Strategy
- Online Homework Systems
- Assessment
- Teaching Quality



2019/20 TLARC working groups

- Internationalization of curricula
- Experiential Learning
- Wellness Strategy
- Online Homework Systems
- Assessment
- Teaching Quality



- Resource development
- Academic Integrity Conference



Resource development

- Main pages for instructors
- Blog posts with "how to" tips

Educators, colleges, and university processes all play a key role in helping students to both understand the concept of academic integrity and make the choice to act with integrity. Although detection activities increase integrity, designing resistant assessments, modeling, and teaching norms are more successful in reducing academic misconduct (Lang 2013). To effect a significant reduction in instances of academic misconduct, our efforts should be focused on prevention. Some students will engage in academic misconduct regardless of college or instructor actions, but we can still influence students who decide to cheat or plagiarize at the last minute.

Course design that promotes integrity should include two key categories of action: assessment design and classroom climate (including modeling and teaching).





Assessment Design

Assessment actions vary in complexity. You can have the most impact on academic misconduct through assessment approaches and design; least impactful are additional exam protections. However, all the listed actions will make a difference to the likelihood of academic misconduct, and you are advised to take a combination of actions that makes sense in your course. If you cannot take the most impactful actions, pick from alternatives. You can read more about 🖓 design considerations for a remote context.



Re-design assessment approach

1. Select projects and tasks that are as close to the disciplinary thinking as possible, mirroring the circumstances or disciplinary context as closely as you can.



Academic Integrity Conference

- Panel with experts from University of Calgary and University of Manitoba
- Discussion for University of Saskatchewan academic leaders
- Also conducted discussions with students



- Resource development
- Academic Integrity Conference



Teaching Quality Working Group

 Building on work related to student feedback (instrument, system, policy) to advance development of a policy for peer review of teaching practices





PRESIDENT'S REPORT TO COUNCIL May 2021

In early March I expressed optimism and confidence about a significant increase to in-person, on campus programming for the Fall 2021 Term. Although COVID-19 case counts are currently high in Saskatchewan, we remain confident that, with the rapid deployment of vaccines and the support of the Ministry of Health and the Chief Medical Health Officer, our continued planning for a more open Fall Term can proceed.

While we are preparing to have many more programs, classes and labs return to in-person delivery in September, the Fall Term should be considered "transitional" as we will continue to offer some classes remotely. We will likely not complete our full transition out of pandemic operations until at least January 2022, at the beginning of Winter Term.

Alongside the increase of in-person teaching and research activity, there will be an increase in available services on our physical campuses. Student Residences will be more fully opened to safely accommodate the increase in students on campus. So, too, will food service outlets that are operated by USask, like Marquis Culinary Centre. Additional in-person student services will be phased back in to offer needed face-to-face contact for those on campus. Again, all of these in-person services will be following strict health and safety measures to protect the health and wellness of our university community.

We've learned a great deal over the past year, including how to quickly move to a completely remote learning and working environment. The transition back to in-person activities won't be as quick, but we will ensure that those members of our community who are returning to learn and work on our campuses will have the necessary protections to keep them safe. We will continue to follow the directions given by Public Health and the Chief Medical Officer. USask's Pandemic Response and Recovery Team has worked closely with government and other partners in the Saskatchewan post-secondary sector to develop and implement plans so we can deliver our programming in the safest ways possible. Based on the unpredictable nature of the pandemic, we will also need to remain flexible and diligent. An updated Framework for Return plan will be provided to the campus community in the next couple of weeks.

It is expected that administrative staff who directly support teaching, learning, and research, and associated student services, will return to campus this fall if their on-campus presence is necessary. As such, other administrative staff currently working from home will continue to work remotely for the time being to reduce the number of people on campus, facilitating the safety of students, faculty, and staff who will be returning. In the coming months, unit leaders will make decisions about who is able to return to campus, and when.

While we are closer to the end of the pandemic than the beginning, we are not through with COVID-19 yet, nor it with us. Current case counts remain high, the spring and summer terms will be primarily remote, and the campus remains closed to all unless approved.

It is the expectation of the university that everyone in the USask community will do everything possible to protect themselves and each other now, and in the Fall, fulfilling public responsibilities by following all public health orders and occupational health and safety guidelines.

It is important to stress that the surest step you can take to prevent COVID-19 and keep the campus safe is through vaccination. The university strongly urges all staff and students get their COVID-19 vaccinations as soon as they are eligible and ask that you encourage your friends and family members to do the same. In case you have questions about getting vaccinated, be sure to look at the information we are regularly updating on the <u>vaccination</u> website.

For all USask students, faculty, and staff, I know there is growing excitement - and some apprehension - as we move towards the Fall Term. September will present a significant step towards the campus life and in-person experiences we remember. There is more planning to do, and additional details about how the fall will look will be announced over the coming weeks. And while it will still be different than fall semesters of the past, I know our campus community will work together to ensure the health and safety of everyone and continue to "protect the pack" as we work toward a full return in winter

USask Honorary degree recipients to be celebrated at Spring Convocation

I am proud to announce that USask will honor five remarkable individuals during spring convocation, who have gone on to make significant contributions to their communities and to Canadian society throughout their careers. The university will award its highest honor to the following individuals:

Maria Campbell, Honorary Doctor of Letters: A dedicated volunteer, activist and advocate for Indigenous rights and the rights of women and children for more than 40 years, Campbell opened doors for Métis writers when she authored her best-selling autobiography, Half-breed, in 1973. She has since written eight books and dozens of stage plays, including Flight, the first all-Indigenous theatre production in Canadian history. For the past 30 years, Campbell has been a mentor for young people, including USask students, and is the cultural advisor at USask's College of Law after previously being an Indigenous scholar and writer in residence, and working as an assistant professor and lecturer in the College of Arts and Science. Campbell was made an Officer of the Order of Canada in 2008 and named to the Saskatchewan Order of Merit in 2005.

Trevor Herriot, Honorary Doctor of Letters: An award-winning writer, social justice activist and influential naturalist from Regina, Herriot has authored six books, and has had several stories, essays and articles published in the likes of the Globe and Mail and Canadian Geographic magazine. He has produced radio documentaries for the CBC, is a regular guest on media broadcasts, has appeared in and consulted on several video/film documentaries and has taught university creative writing courses. Herriot, who earned a bachelor's degree with honours in English from USask in 1979, has received multiple awards and honours, including the prestigious Cheryl and Henry Kloppenburg Award for Literary Excellence in 2017.

That Ngo, Honorary Doctor of Science: After earning his bachelor's degree and PhD in the 1970s at USask, Ngo went on to become a celebrated biochemist, researcher scientist and innovator, serving as president and CEO of a number of companies in Canada, the United States and China. Ngo has published more than 140 researcher articles, edited seven books, and holds 14 different industry patents, and was the co-inventor of the Ngo-Lenhoff Assay, a groundbreaking technological procedure that benefits diabetes patients worldwide. In 2016, he was selected one of

the USask College of Arts and Science's Alumni of Influence and now opens doors for other enterprising students after establishing the That Ngo Fund for Study Abroad at USask.

Ed Ratushny, Honorary Doctor of Laws: A nationally regarded legal scholar, author and certified NHL hockey agent, Ratushny earned bachelor's and law degrees at USask in the 1960s before embarking on an award-winning legal career. He became a trusted advisor to public servants, administrative tribunals, cabinet ministers and Chief Justices from across Canada. In turn, these symbiotic relationships imported broader experience and deeper understanding into Ratushny's classrooms and his related academic writing. His professional achievements have been recognized by the Order of Canada, the Order of Ontario, an honorary Doctorate from the Ontario Law Society and a variety of additional, prestigious legal awards.

Bryan Harvey, Honorary Doctor of Science: A world-renowned barley breeder, Dr. Bryan Harvey (PhD) spent four decades contributing to the field of plant science and to the Canadian agriculture economy through his work with the Crop Development Centre at the University of Saskatchewan. During his time at USask starting in 1966 until his retirement in 2005, Harvey bred or co-bred more than 60 varieties of barley, leading pioneering research that benefitted the brewing industry in North America, Latin America, Asia and South Africa. His work contributed significantly to Canada's leading role in world malting barley exports and resulted in hundreds of millions of dollars in trade each year. Two of his barley varieties, Harrington and CDC Copeland, earned Seed of the Year honours in 2009 and 2019, highlighting their importance in the seed industry and to crop production in Canada. Harvey was also the author of eight books and book chapters on cultivar development, and close to 50 refereed journal publications during his prolific career. Harvey's efforts earned him multiple awards and accolades, including being appointed to the Order of Canada in 2007, recognizing his lifetime of outstanding achievement, dedication to the community, and service to the nation. He was inducted into the Canadian Agricultural Hall of Fame in 2020, and was one of only 57 Saskatchewan residents to receive the Queen Elizabeth II Diamond Jubilee Medal in 2012, awarded in recognition of significant contributions to Canada.

Recipients will be honoured on the graduation celebration website on May 31, which can be accessed here: <u>https://students.usask.ca/academics/graduation.php</u>

USask joins in announcing Herzberg50 and 'NobelCanadian' commemoration projects

As part of a national initiative to mark the 50th anniversary of Gerhard Herzberg's Nobel Prize in Chemistry, USask is partnering with heritage education organization Defining Moments Canada, Canadian Heritage, and the National Research Council of Canada (NRC) on a major digital project that will showcase Herzberg's life and achievements to a wide public audience including high school students. An interactive website targeted at youth and teachers will be developed to include innovative digital mapping created by <u>Esri Canada</u>. The project will also be supported by archival and historical research at USask, Herzberg's academic home for 10 research-intensive years after he was brought to Canada from Germany in 1935, through efforts led by USask's first president Walter Murray.

Herzberg's work is a testament to the importance of fundamental research where transformative applications become evident over time. I am proud that Canada and USask welcomed Herzberg and his wife when no other country or university did, and in the process, enabled him to undertake superb work on the journey to the Nobel Prize. His legacy is evident today in so many ways, including at the USask Canadian Light Source where scientists from across Canada and around the world continue to unravel the mysteries of atomic structure. Further information on the partnered announcement can be found here: <u>https://definingmomentscanada.ca/news/announcing-herzberg50-and-nobelcanadian/</u>

Federal budget supports USask's VIDO with \$59.2M

On April 19th, the government of Canada announced \$59.2 million in funding to support USask's VIDO, including the development of its vaccine candidates and the expansion of research facilities, including a National Centre for Pandemic Research. This funding is in addition to the commitments made by the provincial government (\$15 million), City of Saskatoon (\$250,000), and private donors.

During the COVID-19 pandemic, VIDO has taken a national leadership role. This includes being the first in Canada to isolate the virus that causes COVID-19, the first in Canada to develop an animal model of disease and the first Canadian university organization to have a COVID-19 vaccine in clinical trials. In addition, VIDO has continued to engage with organizations around the world to support the development of novel vaccines, antivirals and therapeutics in an effort to help end the ongoing pandemic.

USask ranks among the world's best universities for sustainability and social impact

For the second year in a row, USask was ranked in the Top 100 overall and even higher in select categories in The Times Higher Education (THE) rankings of universities around the world. USask ranked 13th in Canada for making cities inclusive, safe, resilient and sustainable, according to the THE.

USask also ranked in the top 100 in the following categories:

- Partnership for the Goals (61) measuring universities' global partnerships for sustainable development;
- Sustainable Cities and Communities (67) measuring universities' research on sustainability, their role as custodians of arts and heritage and their internal approaches to sustainability; and
- Clean Water and Sanitation (81) measuring universities' research related to water, their water usage, and their commitment to ensuring good water management in the wider community.

The 2021 Impact Rankings is the third edition, and the overall ranking this year included 1,115 universities from 94 countries and regions.

More comprehensive results are available on the THE website.

Provost's Report to Council

May 2021

Hello Council Chair, members, and visitors. Bonjour à tous.

tānsi. hau koda. ëdłanet'e? hau kola. taanishi. hau kona. anin

[English. French. Cree. Dakota. Dene.Lakota. Michif. Nakota. Saulteaux]

Thank you for this opportunity to provide my May 2021 report to Council, with general remarks, information about tuition, and updates specific to our University 2025 five Aspirations. The breadth and depth of our initiatives and accomplishments as a university far exceed what is possible to cover in this report. My scope therefore is narrowed to areas directly involving the Office of the Provost, and even then this report falls short of reflecting the innovation, intelligences, and energy of colleagues in teaching, research, scholarship and creative works, and service. I do encourage colleagues to visit our University of Saskatchewan <u>news</u> page to read to keep up to date with announcements and articles about our bold ambitions at USask.

GENERAL REMARKS

USask Teaching awards event



Every educator matters and makes a difference here in our USask community. The 2021 teaching award recipients were announced on Friday, April 30th at the Celebration of Teaching <u>ceremony</u> where the recipients of the 2020-21 Master Teacher Awards, the Provost's College and Themed Teaching Awards, and the CGPS Distinguished Graduate Mentor Award were celebrated. Two Master Teacher Awards were recognised: Dr Lee Swanson (Edwards School of Business), Dr Loleen Berdahl, Johnson Shoyama Graduate School of Policy.

Congratulations to each of the 19 recipients of awards in the April 30 ceremony. Thank you to all university educators for striving for excellence in teaching. Thank you to nominators, and family and friends for the incredible celebration of teaching at the awards ceremony. Thank you to the Gwenna Moss Centre for Teaching and Learning for hosting the awards, along with our Vice Provost Teaching, Learning and Student Experience Dr Patti McDougall, and her team.

Signature Research Areas Engagement

The university community has been taking part in a series of discussion sessions on each of USask's six <u>signature areas</u> <u>of research</u>. Thank you so much to the Vice President Research, Dr Baljit Singh, and the OVPR for the leadership of this key consultation. As the Vice-President, Research and Provost and Vice President Academic are working together to support the University 2025 plan and the work of our scholars, I have greatly appreciated the opportunity to join several of the discussions. Members of the campus community have repeatedly credited the signature areas as being critical to elevating USask's success as a research-intensive university. This includes research, scholarship and creative works. The areas have been in place since 2010, and it is time to reflect on their strengths, as well as areas for enhancement. These sessions are building community, generating discussion, and informing future directions in each of these areas.

Strategic Priorities

In my April 2021 report to Council I outlined why the provincial government's budget approach is significant, actions underway, and how Council involvement will be vital to our work together to achieve our priorities and aspirations at

USask. In my May report I will outline planning underway to ensure the university is best positioned to advance the priorities and aspirations of our university, within our means.

The University 2025 plan: Council's approval of the University Plan 2025, along with the approval of the Board and Senate sets the direction for planning: "We believe that the University of Saskatchewan has much to offer its communities, and through this plan, we are dedicated to delivering on our promise. The plan requires movement, new ideas, growth and change. It commits us to communicate and celebrate our successes, and ensures that our diverse community will seek solutions with the bold creativity that has long characterized the University of Saskatchewan. Through this plan, we will be the university we must be for the future—the university the world needs" (UPIan 2025). With the four-year stable budget from government coupled with incremental funding for two years only, the university is uniquely positioned to face the challenges to fulfil our UPIan 2025 goals and aspirations.

Actions and involvement: Planning is being advanced to ensure the university is best placed to fulfil its priorities and aspirations. The VP Finance and Resources, Greg Fowler, and I presented to PPC (5 May) on the scope and implications of the provincial budget. This presentation referred to the university's financial sustainability plan (comprising 49 projects) and introduced the six investment areas in the associated MoU between the government and USask:

From the funding letter, priority areas for investment:

- Institutional recovery from the COVID-19 Pandemic
- Institutional transition post-COVID-19 Pandemic
- Academic and administrative innovation
- Revenue generation and expense reduction initiatives
- Efficiency through collaboration among institutions
- Other government priorities including those in the SK Growth Plan

Our next presentation to PPC (19 May) will seek advice on budget scenarios, and the process and outcomes associated with strategic priorities. A recent discussion with the Leadership Network of department heads and leaders across USask has been very helpful in shaping this planning.

In addition, a process is now in place for the first phase of allocation of funds from the one-time provincial strategic grant. For information please contact your administration and academic leaders after May 12. The PPC presentation (19 May) will include process and intended outcomes information.

Consistent with our academic governance processes, university-wide planning and reports will be brought to Council and its Committees, the Board of Governors, and Senate. Materials are coming through Council Committees. Engagement with Council and its Committees will be ongoing in two planning phases: Phase 1: April 2021-April 2023; and Phase 2: May 2023-April 2026. Council's academic governance role is critically significant as we move forward.

Fall 2021 Planning

President Stoicheff recently <u>shared</u> information about Fall 2021 planning, and the transition to on-campus activity. We remain confident that, with the rapid deployment of vaccines and the support of the Ministry of Health and the Chief Medical Health Officer, our continued planning for a more open Fall Term can proceed. Thank you to the Pandemic Response Team for your continued leadership through COVID. Thank you to every colleague and student in our USask community for the part you are playing in our transition planning and in preventing COVID-19.

As indicated in President Stoicheff's announcement, we are preparing to have many programs, classes and labs return to in-person delivery in September, and much more than we had in this past term, the Fall Term should be considered "transitional" as we will continue to offer some classes remotely. We will likely not complete our full transition out of pandemic operations until at least January 2022, at the beginning of Winter Term: It is the expectation of the University that everyone in the USask community will do everything possible to protect themselves and each other now, and in the Fall, fulfilling your public responsibilities by following all public health orders and occupational health and safety guidelines.

It is important to stress that the surest step you can take to prevent COVID-19 and keep the campus safe is through vaccination. The University strongly urges all staff and students get their COVID-19 vaccinations as soon as they are eligible and ask that you encourage your friends and family members to do the same. In case you have questions about getting vaccinated, be sure to have a look at the information we are regularly updating on the <u>vaccination website</u>.

St. Thomas More College (STM)

STM is a Catholic undergraduate liberal arts college, founded by the Congregation of Saint Basil in 1936, and that is federated with USask. Any USask student can select from over 250 Arts and Science courses offered through <u>STM</u>. I was delighted to meet with Dr Carl Still, President of STM, with President Stoicheff in late April. The relationship between STM and USask is greatly valued. Congratulations to all those recently named as STM teaching <u>award</u> winners, including Saeed Moshiri the winner of this year's STM Teaching Excellence Award.



Image: St. Thomas More College. See: https://stmcollege.ca/index.php

Update on University rankings

As part of the regular updates on our placement in global rankings, IPA reviewed information on the Times Higher Education (THE) Impact Rankings that were released on April 21, 2021. Like all university ranking initiatives, the THE Impact Rankings use a set of criteria to provide a world ranking of universities. However, it differs from other rankings in that it evaluates university performance based on the United Nations' 17 Sustainability Development Goals (SDGs). For the second year in a row, the University of Saskatchewan placed in the top 100 in the world with an overall rank of 96 (tie). Noteworthy is that THE added roughly 350 universities to their overall ranking this year (1,115 universities in total) and USask maintained our place as a top 100 university.

In addition to our overall ranking, THE also provides rankings in each of the 17 SDGs. Universities have the option of participating in any of the SDGs and be ranked in those specific areas as well as in the overall ranking. USask participated in nine SDGs in total and performed well in in each area. Globally, there were two top 50 rankings: 23^{rd} in SDG 3 (Good Health and Wellbeing) and a tie for 34^{th} in SDG 2 (Zero Hunger). There were three other outcomes in the top 100 including a tie for 61^{st} in SDG 17 (Partnership for the Goals), a tie for 67^{th} in SDG 11 (Sustainable Cities and Communities), and a tie for 81^{st} in SDG 6 (Clean Water and Sanitation). In addition, placements in the tier 101-200 were received in SDG 9 (Industry, Innovation and Infrastructure), SDG 14 (Life Below Water), and SDG 16 (Peace, Justice and Strong Institution). USask also ranks in the 301-400 category for SDG 4 (Quality Education). Given that sustainability is one of the four principles of our strategic plan, we will continue to strive for improvements in these rankings while taking pride

in the recognition of our accomplishments in this area. More information on the THE Impact Rankings is available on the IPA website: <u>https://www.usask.ca/ipa/Assessment-and-Analytics/university-rankings.php</u>.

Thank you to the Office of University Relations for stewarding USask's rankings initiatives while awaiting the new Vice President Academic and Provost, and Vice President Research. The Vice Presidents are collaborating in a transition of the stewardship to a partnership between the Office of the Provost and the Office of the Vice President Research.

Buffalo Circle



On 5 April the Buffalo Circle was held, recognising the allies for reconciliation at USask. This grassroots initiative focuses on increasing the visibility of allies, encouraging ally networking, and building stronger capacity for reconciliation. The idea for this campaign was formed through many discussions with Elders and the Indigenous faculty and staff on campus. <u>Buffalo Circle</u> members are asked to wear the Buffalo Circle regalia as a sign of respect for the Buffalo teachings, to be seen and known on campus as an active ally, and to promote to others the benefits and support offered in allyship.

Supporting support services

USask benefits from exceptional support services. Thank you immensely for the professionalism, care, devotion, and skills provided by all those in our university's support services. All programs and units across the university depend on these outstanding services. To help us understand more about the services and resourcing, an initiative conceived at the time of introducing our current Resource Allocation model will be piloted this year. A process to further strengthen engagement for Allocating Support Centre Resources (ASCR) is underway with a pilot program beginning right away for 2022/23 resource allocation decisions.

The ASCR process aims to create an enhanced and shared understanding of current resourcing levels and future needs as well as provide greater transparency into the indirect cost component of TABBS and an enhanced voice in the services and service levels provided at the institution. On a rotating basis, support centre leaders will have an opportunity to engage with and obtain feedback from both academic and administrative leaders to aid in the prioritization of services within our budgets, and to best align with and serve the academic mission of the university. For questions about ASCR please feel free to contact our IPA team.

International Student Visas

We continue to advocate for our international students and access to studies and opportunities at USask. International students are 16 per cent of our overall student population. We were delighted to note the recent <u>decision</u> that international students who submitted a completed application by May 15 will receive their visa by August 6 – in time for the start of the Fall term.

Rhodes Scholarships for Canada

Our University 2025 plan includes the aspiration of Distinguished Learners. Each year three Rhodes scholarships are available to be awarded to the Prairie Region of Canada. The Rhodes Scholarship programme is the oldest (established 1903) international scholarship programme in the world, and one of the most prestigious. Administered by the Rhodes Trust in Oxford, the programme offers 100 fully-funded Scholarships each year for postgraduate study at the University

of Oxford in the United Kingdom - one of the world's leading universities. Rhodes Scholarships are for young leaders of outstanding intellect and character who are motivated to engage with global challenges, committed to the service of others and show promise of becoming value-driven, principled leaders for the world's future. This past month included a meeting with John McCall MacBain O.C. the partner sponsor with Rhodes Scholarships for Canada. Among the Rhodes scholars have been some exceptional alumni from USask. Please do consider this opportunity for our current students. Information can be found <u>here</u>.

Appointments

- **Dr. Joel Lanovaz** has been appointed associate dean, academic, College of Kinesiology for a five-year term effective July 1, 2021
- **Dr. Doug Clark** has been appointed acting assistant director, academic, School of Environment and Sustainability for a one-year term effective July 1, 2021
- **Professor Cindy Peternelj-Taylor** has been extended as interim dean, College of Nursing for a period of up to six months
- **Dr. Peter Doig** has been appointed interim assistant dean, clinics, College of Dentistry for a six-month term effective July 1, 2021
- **Tim Hutchinson** has been appointed assistant dean, university archives & special collections division, University Library for a three-year term effective May 1, 2021
- **Jo Anne Murphy** has been appointed assistant dean, learning & curriculum support division, University Library for a three-year term effective May 1, 2021
- **Dr. Anas El-need** has been appointed assistant dean, pharmacy, College of Pharmacy and Nutrition for a three-year term effective July 1, 2021
- **Dr. Brian Bandy** has been appointed assistant dean, nutrition and dietetics, College of Pharmacy and Nutrition for a three-year term effective July 1, 2021

Searches/ renewals in-progress

- Dean, College of Nursing
- Dean, Western College of Veterinary Medicine
- Executive Director, School of Environment and Sustainability

Academic reviews W2021

- College of Agriculture and Bioresources (Departments of Agriculture and Resource Economics, Animal and Poultry Science, Food and Bioproduct Sciences, Plant Sciences, Soil Science)
- College of Law

TUITION

Our university attracts revenue from a number of key sources, including tuition. Tuition is vital to the ongoing operations of the University of Saskatchewan (USask), being about one-third of the university's operating budget. The balance of the operating budget comes from the provincial operating grant, interprovincial funding, and investment income. Tuition rates for the 2021-22 school year (beginning in the Fall 2021 Term) have been finalized and are now available on the <u>tuition and fees website</u>. Following a tuition freeze for most programs last year (other than for some undergraduate programs in Western College of Veterinary Medicine, College of Dentistry, and College of Law), the coming year's rates ensure students continue to receive a rich and rigorous education that will set them up for success following graduation. We are confident that Fall 2021 term will see a significant increase to in-person, on-campus

Deputy Provost
 Dean, Edwards School of Business (renewal)

instruction, with Winter 2022 seeing a return to pre-COVID-19 modes of instruction. To learn more about the critical role of tuition for USask, please see my <u>recent posting</u>.

Tuition rates are reviewed annually by the USask Board of Governors. Tuition-setting follows the principles and process described in Board <u>policy</u>. Although tuition rate changes vary by program, the university has set tuition with an overall weighted average increase of 3.9 per cent—3.8 per cent for undergraduate students, and 5 per cent for graduate students. The undergraduate international differential multiplier will increase from 2.73 to 3.00 and the graduate international differential multiplier will increase from 1.58 to 1.81, continuing to remain below most U15 comparators and matching the University of Regina.

A tuition offset will be applied to continuing international graduate students' tuition to offset the increase to the international differential. The total support provided to the international students through these mechanisms is approximately \$1.61M (or 13 per cent of the total incremental tuition revenue). To assist with affordability and accessibility, USask provides over \$67 million annually in financial aid, through scholarships, bursaries, and other financial awards. As a further response to support students during the COVID-19 pandemic, the university deployed almost \$300,000 in operating monies to create an internal employment program for graduate students (mainly international graduate students). CGPS is also providing up to \$300,000 support to students who have had a significant disruption to their research, thereby extending their program this term.

Student fees are assessed to maintain important services and supports. USask also collects fees on behalf of third parties including the USSU and GSA for which decisions have been made to increase some fees to ensure long term sustainability of operations and services provided to students. These third party and mandatory institutional fee increases are \$136.47 for each full-time undergrad student and \$83.56 for a full-time graduate student.

University education is a significant investment for our students and their families. We are focused on programs and research-related experiences that ensure USask students receive a high quality and rigorous education that sets graduates up for success in wider life.



UNIVERSITY 2025 PLAN ASPIRATIONS

The following events and initiatives, of the many across our university, featured during the past month. News items related to each of our University 2025 Aspirations is included, noting highlights submitted by Colleges and Schools.

Transformative decolonization leading to reconciliation

Video Launch – acimowin: College of Education:

On April 30, the Department of Curriculum Studies in the College of Education hosted a video presentation and discussion with PhD candidate Linda Young based on her Master of Education project, completed in the fall of 2020. Young shared a 16 min shortened clip of her film titled *acimowin: Telling and Retelling My Residential School Story: What was lost? What replaced it? What is needed to heal, reconcile, and reclaim Indigenous education for the benefit of students, families and communities?* Knowledge Keeper Lyndon Linklater shared an opening prayer, Dr. Marguerite Koole provided the video response and Dr. Debbie Pushor delivered opening and closing remarks.

Student achievements: Edwards School of Business: In April 2021, Edwards celebrated the academic achievements of graduating First Nation, Metis and Inuit students. 14 students attended the virtual event which included alumni guest
speaker Lyle Acoose (B.Comm. 2011). Parents, families, friends, alumni, post-secondary coordinators, and community members showed their support as the students were welcomed into the USask alumni family.

Anti-Racist Education activities in the College of Nursing

Dr. Holly Graham (PhD), the Indigenous Research Chair in Nursing, partnered with the Saskatoon Anti-Racism Network to offer six days of anti-racism education for our college staff and faculty. The first cohort have completed their training, and the second cohort will undertake their training in May and June. The college is grateful to Dr. Graham for making this opportunity possible as part of the work of her research chair.

Distinguished Learners

Edwards School of Business: Beginning in the 2021-22 academic year, the Edwards School of Business (Edwards) will introduce the International Business Minor (IBM). It is the first recognized minor Edwards students can pursue. IBM will give students an opportunity to increase their awareness of the international business environment and better prepare them for a career in global business. It also allows for a deeper immersion into international business environments, policy, and development. Students who, in conjunction with a Bachelor of Commerce degree in a different subject, take 18 credit units or more of the course requirements, will receive a minor in International Business.

National recognition: College of Engineering



Samia Sami, set to graduate this spring from the University of Saskatchewan (USask) College of Engineering, is the recipient of a 3M National Student Fellowship.

Meaningful impact

College of Nursing: Student, Faculty and Staff Covid Contributions: Each College of Nursing student spends more than 1000 hours in clinical settings providing care as part of their training. The care they provide covers many aspects of a registered nurse's scope of practice. Notably, in the pandemic, some senior nursing students are involved with the care of COVID-19 positive and/or symptomatic patients, and others provide much-needed extra emotional support for patients whose family support people are limited in the clinical setting. Additionally, many College of Nursing students are enthusiastic members of the Saskatchewan Health Authority temporary workforce. They fulfill numerous roles at the immunization clinics working as immunizers, registration workers, and crowd management/flow-staff at the clinics.

EDI and the public sector: Johnson Shoyama Graduate School of Public Policy

On April 28, JSGS launched its EDI discussion series, which focuses on EDI issues in the public sector. <u>https://www.schoolofpublicpolicy.sk.ca/news-events/events/2021/04/edi-discussion-series-rethinking-equity.php</u>

Productive collaboration

Vaccination efforts and our College of Nursing staff, faculty, and academic leaders who are Registered Nurses have been working at the SHA vaccine clinics. Some faculty are also providing intermuscular injection training to pharmacists and medical students so they can give COVID-19 vaccinations at clinics and pharmacies.

Engineering at USask heading into orbit: College of Engineering:



<u>A group of University of Saskatchewan (USask) students developing the province's first</u> <u>cube satellite (RADSAT-SK) is getting closer to sending their project into orbit.</u>

Global Recognition

Life & Health Sciences Research Expo: The USask Health Sciences coordinated the 28th Annual Life & Health Sciences Research Expo celebrating outstanding research, collaboration, and mentorship within the health sciences on May 6, 2021. After being cancelled last year due to the COVID-19 pandemic, the event returned in a virtual format to showcase interdisciplinary health science research throughout the province and across both basic and clinical sciences. This year, 85 research abstracts were received as well as 14 submissions for the Best Paper Award and 10 nominations for the Best Supervisor Award.

The Health Sciences would like to thank this year's academic co-chairs — Dr. David Blackburn (PharmD) from the College of Pharmacy and Nutrition and Dr. Petros Papagerakis (DDS, PhD) from the College of Dentistry — as well as the 29 members of the USask community who volunteered to adjudicate the 10 livestreamed sessions in the research presentation competition. See the expo website at <u>https://healthsciences.usask.ca/expo</u>.

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

May 2021

I am sending this report on behalf of the 2020-21 USSU executives. In the final weeks of April, undergraduate students finished up the last of their finals for their second remote winter term at USask. The University Students Council voted in favour of passing the 2021-2022 USSU Budget, which included multiple new funding opportunities for Undergraduate students and student groups. Students will now have an Equity, Diversity, and Inclusion fund and the Anti-Racism/Anti-Oppression fund co-funded with the University of Saskatchewan President's Executive Committee. Included in the budget was a new employment opportunity for students with the USSU. After receiving feedback from students regarding our communication efforts, the executive and the senior managers are developing potential student employment opportunities. During a weeklong period, the USSU showcased our amazing Senior Managers and shared more about their roles on our social media page, and the Women's Centre organized the annual Pro-Choice Awareness Week. The outgoing executives were hard at work developing policies to go along with the new funding opportunities, terms of references for new committees and an Executive Transition Policy to come into effect in 2022.

We are grateful for the support from the outgoing executive who spent their final weeks in their positions meeting with us for a thorough transition. For the first weeks of May we are spending the time learning about our new roles and planning out the year ahead. We are excited for this opportunity and look forward to working with members of the USask campus to continue supporting undergraduate students.

With respect, Tasnim Jaisee, President Abhineet Goswami, Vice President Operations and Finance Tauqeer Iftikhar, Vice President Academic Affairs Nickol Saenz, Vice President Student Affairs



University of Saskatchewan Graduate Students' Association

University Council Report, May 2021

The Graduate Students' Association welcomes a new executive team, representing and advocating for graduate students at the University of Saskatchewan from May 2021 to April 2022. The new executive team is as follows:

- **President:** Rifat Zahan
- Vice-President Finance and Operations: Ehsan Moradi
- Vice-President Academic and Student Affairs: Olusola Akintola
- Vice-President External: Leslie Tetteh
- Vice-President Indigenous Engagement: Tina Alexis

The new executive team is profoundly honoured to represent graduate students and advocate for them at this university. The executives look forward to working with our colleagues on campus and outside of campus. We will continue to advance the Graduate Students' Association's mandates and provide the necessary services and resources to our graduate students to achieve academic, professional, and leadership excellence. We have worked closely with students, staff, and faculty to support graduate students in many ways, especially during the pandemic. We want to continue this working relationship and hope to expand our scope.

For this academic year, the Graduate Students' Association executive will focus on four goals:

1. Requesting student representation on the Board of Governors

We want to advance the request initiated by our predecessors to amend *The University of Saskatchewan Act, 1995* and include a graduate student representative on the Board of Governors. The graduate students at the University represent more than 17% of the overall student population at the University of Saskatchewan. We will continue our efforts to make sure our graduate students are represented on the Board of Governors.

2. Increase awareness on diversity and inclusion

The Graduate Students' Association wants to increase awareness of diversity and inclusion and advocate for establishing benefits and support programs for marginalized student populations.

3. Work towards enhancing resources to support students' mental health and well-being during the pandemic

This past year has been very hard on students, staff, and faculty due to the global pandemic. We have seen many students struggle financially, mentally, physically, and spiritually. Therefore, we need to recognize and address mental health and help students connect to support at the university and community. The Graduate Students' Association wants to work towards eliminating the stigma around mental health, promote wellness, and work towards increasing available resources to support graduate students' mental health and well-being.

4. Enhancing support to students' academic, professional and leadership skills

The Graduate Students' Association will work towards enhancing support for graduate students to improve their academic, professional, and leadership skills. We will work throughout the year to organize social events, workshops, seminars, cross-cultural experiences and connect students to stakeholders for possible collaborations on campus.

We look forward to working with members of the university community to contribute to future graduate student initiatives and support students throughout the academic year.

Rifat Zahan President, Graduate Students' Association

UNIVERSITY COUNCIL PLANNING AND PRIORITIES COMMITTEE FOR INFORMATION

SUBJECT:	University Plan 2025 Update
DATE OF MEETING:	May 20, 2021 (deferred from April 15, 2021 Council meeting)
PRESENTED BY:	Darrell Mousseau, chair, Planning and Priorities Committee

PURPOSE:

Dr. Airini, Provost and Vice President Academic, will provide University Council with a presentation focusing on the university's progress towards the aspirations listed in the University Plan 2025.

DISCUSSION SUMMARY:

On April 7, 2021, the Planning and Priorities Committee (PPC) was provided with an update on the plans and activities underway to develop a process for measuring progress on the University Plan. This work will continue in 2021 and will include further conversations with PPC as the appropriate processes, approaches, indicators, and timelines for reporting on, and measuring aspects of the plan are confirmed. This is essential work that will provide opportunities to highlight the many accomplishments and successes occurring at USask and will support the identification of and advancement on areas of potential growth.

The work on developing this process is ongoing. In the meantime, Council will be provided a presentation for information on progress on the University Plan 2025. The presentation at this Council meeting is intended to share stories and acknowledge *some* of the outcomes and achievements pertaining to the five aspirations in the University Plan (Transformative Decolonization Leading to Reconciliation, Productive Collaboration, Meaningful Impact, Distinguished Learners, and Global Recognition), as well as outline some of the implementation work ahead.

FURTHER ACTION REQUIRED:

Future updates will be provided to Council on progress toward the University Plan.

ATTACHMENTS:

None.

UNIVERSITY COUNCIL PLANNING AND PRIORITIES COMMITTEE FOR INFORMATION

PRESENTED BY:	Darrell Mousseau, chair, Planning and Priorities Committee of Council (PPC)
DATE OF MEETING:	May 20, 2021 (deferred from April 15, 2021 Council meeting)
SUBJECT:	Update on the Provincial Budget 2021-22

PURPOSE:

To provide University Council with information on the outcomes of the provincial budget for the University of Saskatchewan.

DISCUSSION SUMMARY:

The provincial budget 2021-22 was released on April 6, 2021, along with the funding announcement for the University of Saskatchewan.

On April 7, 2021 at PPC, Dr. Airini and Greg Fowler provided a brief summary of the implications of the budget for USask to the committee. A subsequent, more detailed update was provided on May 5, 2021. The information was well received and appreciated by the committee, and it is now being presented to Council for information.

Dr. Airini, Provost and Vice-President Academic, and Greg Fowler, Vice President Finance & Resources will speak to the significance of the provincial budget for USask at the May 20, 2021 Council meeting.

ATTACHMENTS:

- a. 2021-22 Provincial Budget Update Slides
- b. Saskatchewan Post-Secondary Multi-Year Operating Funding MOU
- c. Saskatchewan Post-Secondary Multi-Year Operating Funding MOU Appendix A: University of Saskatchewan



Provincial Budget Update

- MOU developed with all post-secondary institutions for multi-year funding commitment for 4 years at base (2021/22 to 2024/25)
- One-time funding of 10% of grant (\$31M over 2 years) to transition from Covid and achieve financial sustainability
- Transfer of \$47.3M annual funding from AE to Health base for clinical-related funding for College of Medicine
- Funding model (SUFM) suspended and provincial performance framework and reporting under development
- USask agreement to keep tuition increases less than or equal to 4% weighted average increase, with exceptions



Tracking our progress: Return on Investment

From the funding letter, priority areas for investment:

- Institutional recovery from the COVID-19 Pandemic
- Institutional transition post-COVID-19 Pandemic
- Academic and administrative innovation
- Revenue generation and expense reduction initiatives
- Efficiency through collaboration among institutions
- Other government priorities including those in the SK Growth Plan

Saskatchewan Post-Secondary Multi-Year Operating Funding Memorandum of Understanding

2021-22 to 2024-25

Between

Her Majesty The Queen in Right of The Province of Saskatchewan

(the "Province")

And

University of Saskatchewan University of Regina Saskatchewan Polytechnic Saskatchewan Indian Institute of Technologies **Gabriel Dumont Institute of Native Studies and Applied Research First Nations University of Canada Campion College** Luther College St. Thomas More College **Carlton Trail College Northlands College Great Plains College Cumberland College** Parkland College North West College Southeast College St. Peter's College **Briercrest College and Seminary College of Emmanuel and St. Chad Horizon College and Seminary Lutheran Theological Seminary** St. Andrew's College

(the "Institutions")

PREAMBLE

The Province of Saskatchewan (the "Province") and the Post-Secondary Institutions (the "Institutions"), together referred to as the "Parties", commit to the principle that this Memorandum of Understanding ("MOU") establishes the framework in which the Parties will continue to work collaboratively and strategically to support a high quality post-secondary education and training system that supports students and responds to the needs of Saskatchewan's people and economy.

Whereas the Parties to this MOU share a commitment to work together to achieve and maintain a post-secondary sector that is accessible, responsive, sustainable, accountable, and provides high quality education.

And whereas the Parties acknowledge that although this MOU is not legally binding, it does provide certainty of operating grant funding over the four-year period (as long as all terms of the MOU are complied with) so Saskatchewan post-secondary education institutions can become more sustainable in alignment with the fiscal capacity of the Province.

Therefore, the Parties agree to enter into this MOU as outlined below.

The core objectives of this MOU are to:

- (a) confirm a pre-determined four-year operating grant funding allocation provided by the Province;
- (b) confirm the Institutions' commitment to long-term financial sustainability;
- (c) confirm accountability requirements for the Institutions; and,
- (d) confirm that the Institutions will adhere to the mutually agreed-upon tuition approach (if applicable) to ensure that post-secondary education remains affordable and accessible to students.

This MOU applies solely to the operating grant funding described below. Other lines of funding are beyond the scope of this MOU.

OPERATING GRANT FUNDING

The Province, in part, provides the funding that the Institutions need to meet the needs of Saskatchewan's economy and communities. To ensure the stability and predictability of operating grant funding in the post-secondary education sector, the Province will provide a four-year funding commitment to the Institutions. This commitment includes incremental targeted operating grant funding in 2021-22 and 2022-23. The Institutions will return to the 2020-21 funding base in 2023-24 and 2024-25.

The following Appendices form part of this MOU:

Appendix "A" applies to the University of Saskatchewan Appendix "B" applies to the University of Regina Appendix "C" applies to the Saskatchewan Polytechnic Appendix "D" applies to the Saskatchewan Indian Institute of Technologies Appendix "E" applies to the Gabriel Dumont Institute of Native Studies and Applied Research Appendix "F" applies to the First Nations University of Canada Appendix "G" applies to the Campion College Appendix "H" applies to the Luther College Appendix "I" applies to the St. Thomas More College Appendix "J" applies to the Carlton Trail College Appendix "K" applies to the Northlands College Appendix "L" applies to the Great Plains College Appendix "M" applies to the Cumberland College Appendix "N" applies to the Parkland College Appendix "O" applies to the North West College Appendix "P" applies to the Southeast College

Appendix "Q" applies to the St. Peter's College Appendix "R" applies to the Briercrest College and Seminary Appendix "S" applies to the College of Emmanuel and St. Chad Appendix "T" applies to the Horizon College and Seminary Appendix "U" applies to the Lutheran Theological Seminary Appendix "V" applies to the St. Andrew's College

The Province will provide four years of operating grant funding to each Institution as outlined in its own distinct Appendix.

The Parties acknowledge that payment of any of the operating grant funding is conditional upon the following:

- (a) the Legislative Assembly of Saskatchewan has appropriated funding out of which the operating grant funding may be paid in the fiscal year in which the payment is made pursuant to this MOU; and,
- (b) the Province confirms that the Institution meets the eligibility criteria with respect to the operating grant funding as detailed in its Appendix.

PRIORITIES

The Parties agree it is critical to achieve long-term financial sustainability of the post-secondary sector while maximizing student outcomes.

The priority areas for the four-year period include: institutional recovery from the COVID-19 Pandemic; institutional transition post-COVID-19 Pandemic; academic and administrative innovations; revenue generation and expense reduction initiatives; efficiency through collaboration among institutions; and, other government priorities including *Saskatchewan's Growth Plan 2020-2030* priorities.

ACCOUNTABILITY REQUIREMENTS

The Parties agree that transparency and accountability are critical for an efficient and sustainable sector. The Parties therefore agree that, for the duration of the MOU:

- (a) the Institutions will provide written confirmation to the Ministry of Advanced Education by April 15th of each fiscal year that they agree to comply with the accountability requirements outlined in their annual budget letter;
- (b) if applicable, the Institutions will provide tuition schedules for all programs for the next academic year and any required exemptions to the Ministry of Advanced Education by May 15th of each fiscal year; and,
- (c) the Institutions will provide accountability reports to the Ministry of Advanced Education on their sustainability efforts by June 30th and January 31st of each fiscal year, in a form that is articulated by the Ministry of Advanced Education.

TUITION – This section applies only to the Institutions that set tuition for credentialed programs (i.e. degrees, diplomas, certificates)

To ensure that tuition levels remain accessible for students, the Province supports Institutions to set tuition on the principles of (i) affordability and accessibility, (ii) comparability with programs at peer

institutions, (iii) ensuring quality programming, (iv) providing predictability, and (v) transparency through collaborative consultation.

For the duration of this MOU, the Parties agree that, for the protection of students, the senior administration of the Institution will annually recommend to its approving body (e.g. Board of Governors) that the Institution will generally limit domestic tuition increases for credentialed programs (i.e. degrees, diplomas, certificates) to a maximum of 4.0% (institution-wide average) in each academic year with exemptions, which will be confirmed annually, as follows:

- tuition for international students;
- domestic tuition that falls below the peer comparator median¹; and,
- any other required exemptions confirmed among the Parties.

COUNTERPARTS

This MOU and the Appendices may be executed either in original, portable document format (PDF) or facsimile form by the Parties in one or more counterparts, and when all Parties have executed at least as many counterparts as there are Parties, all of such counterparts shall be deemed to be originals and all such counterparts taken together shall constitute one and the same agreement.

AMENDMENTS

Amendments may be made to this MOU by mutual consent of the Parties. Amendments may be made to individual Appendices by mutual consent of the Province and the Institution designated in the Appendix.

This MOU is effective April 1, 2021, and will expire on March 31, 2025, unless renewed by mutual consent of the Parties.

Dated at Regina, Saskatchewan, this _____ day of _____, 2021.

Her Majesty the Queen in Right of The Province of Saskatchewan As represented by the Minister of Advanced Education

Per:_____

¹ Note: Once the domestic tuition is at the peer comparator median, it is no longer exempt and is subject to the maximum increase of 4.0% in each academic year.

Dated at	Saskatoon	, Saskatchewan, this day of March,	2021.
		University of Saskatchewan Per:Peter Stoicheff	
Dated at		, Saskatchewan, this day of	<i>,</i> 2021.
		University of Regina	
		Per:	
		Per:	
Dated at		, Saskatchewan, this day of	, 2021.
		Saskatchewan Polytechnic	
		Per:	
Dated at		, Saskatchewan, this day of	, 2021.
		Saskatchewan Indian Institute of Technologies	
		Per:	
Dated at		, Saskatchewan, this day of	<i>,</i> 2021.
		Gabriel Dumont Institute of Native Studies and Applied Research	
		Per:	
Dated at		, Saskatchewan, this day of	, 2021.
		First Nations University of Canada	
		Per:	

Dated at	, Saskatchewan, this	day of	, 2021.
	Campion College		
	Per:		
Dated at	, Saskatchewan, this	day of	, 2021.
	Luther College		
	Per:		
Dated at	, Saskatchewan, this	day of	, 2021.
	St. Thomas More Colle	ege	
	Per:		
Dated at	, Saskatchewan, this _	day of	, 2021.
	Carlton Trail College		
	Per:		_
Dated at	, Saskatchewan, this	day of	, 2021.
	Northlands College		
	Per:		
Dated at	, Saskatchewan, this	day of	, 2021.
	Great Plains College		
	Per:		

Dated at	, Saskatchewan, this _	day of	, 2021.
	Cumberland College		
	Per:		_
Dated at	, Saskatchewan, this	day of	, 2021.
	Parkland College		
	Per:		
Dated at	, Saskatchewan, this	day of	, 2021.
	North West College		
	Per:		
Dated at	, Saskatchewan, this	day of	, 2021.
	Southeast College		
	Per:		
Dated at	, Saskatchewan, this	day of	, 2021.
	St. Peter's College		
	Per:		
Dated at	, Saskatchewan, this	day of	, 2021.
	Briercrest College and	Seminary	
	Per:		
Dated at	, Saskatchewan, this	day of	, 2021.
	College of Emmanuel	and St. Chad	
	Per:		

Dated at	, Saskatchewan, this	day of	, 2021.
	Horizon College and S	eminary	
	Per:		
Dated at	, Saskatchewan, this	day of	, 2021.
	Lutheran Theological S	eminary	
	Per:		
Dated at	, Saskatchewan, this	day of	, 2021.
	St. Andrew's College		
	Per:		

Appendix "A" [University of Saskatchewan]

Conditional on the University of Saskatchewan fulfilling the eligibility criteria below, the Province commits to providing operating grant funding to the University of Saskatchewan in each of the four fiscal years, as follows:

2021-22 - \$275,131,200 2022-23 - \$275,131,200 2023-24 - \$259,628,200 2024-25 - \$259,628,200

With the exception of 2021-22, in each fiscal year the University of Saskatchewan will receive 1/12th of the funding detailed above on a monthly basis. In 2021-22, the University of Saskatchewan will receive 1/12th of 2020-21 funding in each of April and May. The outstanding 2021-22 funding will be proportionately distributed over the remaining ten months.

Eligibility Criteria 1

In each fiscal year, the University of Saskatchewan is eligible on a monthly basis for its April to June operating grants contingent upon:

- (a) the University of Saskatchewan providing written confirmation to the Province by April 15th of its agreement to comply with the manner and form of the accountability requirements as outlined in the University of Saskatchewan's budget letter; and,
- (b) operating in accordance with the conditions of the MOU.

Eligibility Criteria 2

In each fiscal year, the University of Saskatchewan is eligible on a monthly basis for its July to January operating grants contingent upon:

- (a) the University of Saskatchewan providing a report by June 30th in accordance with the Accountability Requirements section of this MOU, and further detailed in the annual institutional budget letter;
- (b) the University of Saskatchewan submitting to the Province by May 15th an annual tuition schedule that has been approved by the University of Saskatchewan's approving body and is in accordance with the Tuition section of this MOU; and,
- (c) operating in accordance with the terms and conditions of the MOU.

Eligibility Criteria 3

In each fiscal year, the University of Saskatchewan is eligible on a monthly basis for its February to March operating grants contingent upon:

- (a) the University of Saskatchewan providing a report by January 31st in accordance with the Accountability Requirements section of this MOU, and further detailed in the annual institutional budget letter; and,
- (b) operating in accordance with the terms and conditions of the MOU.

Dated at Sas	katoon, S	askatchewan, this _	19 th	day of	March,	2021.
University of Sa	skatchewan	mandall				
Peter S	toicheff	1.102 Monor	•			

UNIVERSITY COUNCIL

NOMINATIONS COMMITTEE

REQUEST FOR DECISION

DATE OF MEETING:	May 20, 2021
SUBJECT:	Appointment of GAA members to the Associate Vice Presidents, Research Search Committee

DECISION REQUESTED:

It is recommended that the following three GAA members nominated be appointed to the Associate Vice Presidents, Research search committee. Candidates are:

- Stephan Milosavljevic, Physcial Therapy
- Curtis Pozniak, Crop Development Centre
- Debbie Pushor, Curriculum Studies

DISCUSSION SUMMARY:

The Board-approved Search and Review Procedures specify that Council will appoint three Council representatives to any associate vice-president search committee. It has been agreed with the Faculty Association, the Vice-President Research, and the Vice-Provost Faculty Relations that one search committee can be constituted to recruit two positions.

The Nominations Committee recommends these individuals:

- Stephan Milosavljevic, Physcial Therapy
- Curtis Pozniak, Crop Development Centre
- Debbie Pushor, Curriculum Studies

The Nominations Committee met on April 22, 2021 to consider candidates for this search committee and voted to recommend these nominees to Council. A slate of potential nominees was determined through the consideration of previous volunteers to Council and Collective Agreement committees and ensuring a diversity of representation of disciplines from across campus. Other factors considered included faculty members' research foci, workloads (e.g., membership on other administrative committees, faculty rank), and the University's principles of equity, diversity, and inclusion.

REFERENCES:

The Search and Review Procedures for Senior Administrators are available here: <u>https://leadership.usask.ca/provost/searches-reviews.php</u>.

UNIVERSITY COUNCIL

NOMINATIONS COMMITTEE

REQUEST FOR DECISION

SUBJECT:	Appointment of One Senior Administrator to the Dean of Edwards School of Business Review Committee
DATE OF MEETING:	May 20, 2021
PRESENTED BY:	Paul Jones, Chair, Nominations Committee of Council

DECISION REQUESTED:

It is recommended that the Trever Crowe, Associate Dean, College of Agriculture and Bioresources, be appointed to the Review Committee for the Dean of the Edwards School of Business, Keith Willoughby.

DISCUSSION SUMMARY:

The Provost's Office has informed the Governance Office and the Nominations Committee that the Dean of the Edwards School of Business, Keith Willoughby, would like to stand for renewal. The Board-approved Search and Review Procedures specify that for reviews of deans, Council will elect one member of the GAA, who is not a member of the faculty of the college, and who holds a senior administrative position in the University.

The Nominations Committee recommends to Council that Trever Crowe, Associate Dean, College of Agriculture and Bioresources be elected to this Review Committee.

The Nominations Committee met on April 22, 2021 to consider candidates for this search committee and voted to recommend this nominee. A slate of potential nominees was determined through the consideration of the Search and Review Procedures, the Terms of Reference of the Nominations Committee, the list of current senior administrators, and the current constitution of other search and review committees.

REFERENCES:

The Search and Review Procedures for Senior Administrators are available here: <u>https://leadership.usask.ca/provost/searches-reviews.php</u>.

UNIVERSITY COUNCIL

NOMINATIONS COMMITTEE

REQUEST FOR DECISION

PRESENTED BY:	Paul Jones, Chair, Nominations Committee of Council
DATE OF MEETING:	May 20, 2020
SUBJECT:	Council Committee Omnibus Nominations 2021/22
DECISION REQUESTED:	It is recommended that Council approve the slate of nominations to University Council committees for 2021-22 effective July 1, 2021, as attached.

DISCUSSION SUMMARY:

Each year, the nominations committee reviews the membership of Council committees and other university-level committees and submits a list of nominees to Council for approval. The attached report contains this year's nominees for the consideration of Council. In addition to meeting throughout the year as required, the committee met on April 22, 29 and May 5, 2021 specifically to consider the vacancies arising from annual membership rotation per the Council Bylaws.

Each spring the committee issues a call-for-interest to the GAA, inviting volunteers to Council and Collective Agreement Committees. Volunteers are considered first in determining the list of nominees. The Nominations Committee attempts to include individuals who are broadly representative of disciplines across campus, and it prioritizes equity, diversity, and inclusion in representation. In recommending committee chairs, the Nominations Committee considers experience, leadership, continuity, and commitment as key attributes of chair nominees. Council committee chairs are nominated for one-year terms and are eligible for renewal for up to a maximum of three years of service. Those nominations are also included in the attached.

USFA Collective Agreement committee nominations will be presented at the June 17, 2021 Council meeting once the committees have all been populated.

The Governance Committee is responsible for nominating members of the Nominations Committee. Those recommendations are presented under a separate Council agenda item.

ATTACHED: 2021/22 List of Committees and Nominees (nominees highlighted in yellow)

UNIVERSITY COUNCIL COMMITTEE MEMBERSHIP LIST 2020-21

Updated: as of May 5, 2021 Nominations Committee Meeting

CHAIR OF COUNCIL Jay Wilson	Curriculum Studies	2022
VICE-CHAIR OF COUNCIL Pamela Downe	Archaeology and Anthropology	2022

COORDINATING COMMITTEE

Jay Wilson	Chair, University Council	2020 – 2022
Pamela Downe	Vice-chair, University Council	2020 – 2022
Alison Oates	Chair, Academic Programs Committee (new)	<mark>2021 – 2022</mark>
<mark>Terry Wotherspoon</mark>	Chair, Governance Committee (renew)	<mark>2020 – 2022</mark>
Paul Jones	Chair, Nominations Committee (renew)	<mark>2020 – 2022</mark>
<mark>Darrell Mousseau</mark>	Chair, Planning and Priorities Committee (renew)	<mark>2019 – 2022</mark>
<mark>Marjorie Delbaere</mark>	Chair, RSAW (renew)	<mark>2020 – 2022</mark>
Tracie Risling	Chair, Scholarships and Awards Committee (renew)	<mark>2019 – 2022</mark>
<mark>Kathleen James-Cavan</mark>	Chair, TLARC (new)	<mark>2021 – 2022</mark>

Resource Members

Chelsea WillnessUniversity Secretary and Chief Governance OfficerJacquie ThomaratAssociate Secretary, Academic GovernanceAmanda StoreyAcademic Governance and Hearings AdvisorMichelle KjargaardAdministrative Assistant, Governance Office

ACADEMIC PROGRAMS COMMITTEE

- Reviews and approves curriculum changes from all colleges; recommends major curriculum changes to Council; oversees policies relating to students and academic programs.
- Membership comprises 11 members of the GAA, at least 5 of whom will be elected members of Council; at least 1 member from the GAA is to have some expertise in financial analysis; 1 sessional lecturer

Council Members

Alison Oates (Chair)-Exec	Kinesiology	2022
<mark>Carolyn Augusta</mark>	Finance & Management Science	<mark>2024</mark>
Jing Xiao	Educational Administration	<mark>2024</mark>
Susan Detmer	Veterinary Pathology	2023
Ralph Deters	Computer Science	2023
General Academic Assembly N	lembers	
Carin Holroyd	Political Studies	2023
Karen Lawson	Psychology	2022
Kevin Flynn	English	2023
Reza Fotouhi	Mehanical Engineering	2022
Petros Papagerakis	Dentistry	2023
<mark>Maruti Chandra Uppalapati</mark>	Pathology	<mark>2024</mark>
Sessional Lecturer		
<mark>Pearson Ahiahonu</mark>	Chemistry	<mark>2022</mark>
Other Members (voting)		
Patti McDougall-Exec	(Provost Designate) Vice-Provost, Tea	aching, Learning, and
Russell Jsinger Even	Student Experience (ex officio)	
	(V/D Einanco designate) Controller	
Tauqueer Iffikhar	(VF Tillance designate) Controller	2022
	USSU designate, VP Academic	2022
Olusola Akintola	GSA designate	2022
Resource Members		
Alison Pickrell	Assistant Vice-Provost, Strategic Enro	lment Management
TBD	TBD Institutional Planning and Assess	ment
Jason Doell	Manager and Associate Registrar (Aca	ademic)
Amanda Storey-Exec	Academic Governance and Hearings Advisor	

GOVERNANCE COMMITTEE

- Reviews Council bylaws including committee terms of reference; develops policies relating to student academic appeals and conduct.
- Membership comprises the Council chair, chair of planning and priorities committee, chair of the academic programs committee, to include three elected members of Council; presidents designate.

Council Members

Terry Wotherspoon (Chair)-Exec	Sociology	2022
Kate Dadachova	Pharmacy & Nutrition	2023
Mark Boland	Physics	2022
Ex officio Members		
Chelsea Willness	University Secretary	
Jay Wilson	Chair, Council	2022
<mark>Alison Oates</mark>	Chair, Academic Programs Committee	<mark>2022</mark>
Darrell Mousseau	Chair, Planning and Priorities Committee	2022
Other Members (voting)		
Tamara Larre (Vice-chair)-Exec	President's designate	2023
Student Members (non-voting)		
Tasnim Jaisee	USSU President	2022
Leslie Tetteh	GSA Designate (VP External)	2022
Resource Members		
Jacquie Thomarat-Exec	Associate Secretary, Academic Governanc	e

PLANNING AND PRIORITIES COMMITTEE

- Reviewing and advising Council and the university administration on planning, budgeting, and academic priorities.
- Membership comprises 11 members of the GAA, at least 6 of whom will be elected members of Council; at least 1 member from the GAA is to have some expertise in financial analysis; 1 sessional lecturer; 1 dean

Council Members

Darrell Mousseau (Chair)-Exec	Psychiatry, Medicine	2023
Alec Aitken	Geography and Planning	2022
<mark>Jaswant Singh</mark>	Veterinary Biomedical Sciences	<mark>2024</mark>
Vince Bruni-Bossio (Vice-chair) Ex	Management and Marketing	2022
Keith Da Silva	Dentistry	2022
Terry Wotherspoon	Sociology	2022

General Academic Assembly Members

Shelley Peacock	Nursing	2023
<mark>Kerry Mansell</mark>	Pharmacy	<mark>2024</mark>
<mark>Lynn Lemisko</mark>	Educational Foundations (renew)	<mark>2024</mark>
Angela Liverse	Archaeology & Anthropology	<mark>2024</mark>
Haizen Mou	JSGS	2022
Dean		
Jane Alcorn	Dean, Pharmacy & Nutrition	2023
Sessional Lecturer		
TBD		<mark>2022</mark>
Other Members (voting)		
Airini	Provost and Vice-President Academic	(ex officio)
TBD	Associate Vice-President Research	
Greg Fowler	VP Finance and Resources (ex officio)	
Jacqueline Ottmann	Vice-Provost Indigneous Engagement	(ex officio)
Abhineet Goswami	USSU VP Operations	2022
Rifat Zahan	GSA President	2022
Resource Members		
TBD	TBD, Institutional Planning and Assess	sment (IPA)
Jennifer Beck	Director, Resource Allocation and Planning, IPA	
Troy Harkot	Director, Assessment & Analytics, IPA	
Shari Baraniuk	CIO, Information and Communications Technologies	
Meghna Ramaswamy	Director, International Office	2
Jacquie Thomarat-Exec	Associate Secretary, Academic Govern	nance

RESEARCH, SCHOLARLY AND ARTISTIC WORK COMMITTEE

- Reviews and advises Council on issues related to research, scholarly and artistic work including advising on research grant policies and the establishment of research centres.
- Memberships comprises 9* members of the GAA, at least 3 of whom will be elected members of Council; 1 of the 9 members will be an assistant or associate dean with responsibility for research

Council Members

Marjorie Delbaere (Chair)-Exe	c Management and Marketing	2024
Natasha Koechl	Drama	2023
<mark>Keith Walker</mark>	Educational Administration	<mark>2024</mark>
<mark>Steven Rayan</mark>	Math and Statistics	<mark>2024</mark>
DeDe Dawson	Library	2023

General Academic Assembly Members

<mark>Stephan Milosavljevic</mark>	Rehabilitation Science	2024 (July 1, 2021-Jun
		<mark>30, 2022) 12 months</mark>
Mathew Lindsay	Geology	2023
Jim Waldram	Archaeology and Anthropology	2022 (Jan 1-June 30,
		2021) 6 months
Lori Bradford (Vice-chair)-Exec	SENS	2022

Other Members (voting)

Baljit Singh	Vice-President Research (<i>ex</i>	cofficio)
Debby Burshtyn	Dean, College of Graduate and Postdoctoral Studies (<i>ex officio</i>)	
Charlene Sorensen Acting Dean, University Library (ex offici		ary <i>(ex officio)</i>
	USSU designate	2022
	GSA designate	2021

Resource Members

Dion Martens	Director of Research Services and Ethics Office
Laura Zink	Director, Strategic Research Initiatives
Amanda Storey-Exec	Academic Governance and Hearings Advisor

SCHOLARSHIPS AND AWARDS COMMITTEE

- Grants awards, scholarships and bursaries which are open to students of more than one college or school, advises Council on scholarship and awards policies and issues.
- Membership comprises 9 members of the GAA, at least 3 of whom are elected members of Council

Council Members

Tracie Risling (Chair)-Exe	c Nursing	2023
<mark>Catherine Boden</mark>	Library	<mark>2024</mark>
Hyunjung Shin	Curriculum Studies	2022
General Academic Assem	bly Members	
Julia Jamison	Drama	2022
Susan Shantz	Art & Art History	2023
Som Niyogi	Biology	2022
Jason Perepelkin	Pharmacy	<mark>2024</mark>

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<mark>Jason Perepelkin</mark>	<mark>Pharmacy</mark>	<mark>2024</mark>
Janet Okoko	Educational Administration	2022
Darrin Oehlerking	Music	2022

Other Members

Alison Pickrell	Assistant Vice-provost, Strategic Enrolmen	t Management (ex officio)
Deborah Burshtyn	Dean, Graduate and Postdoctoral Studies (ex officio)
Debra Pozega Osburn	Vice-President University Relations (ex offi	cio, non-voting)
Graeme Joseph	Team Lead, Aboriginal Students' Centre	
Tauqueer Iftikhar	USSU designate – VP Academic Affairs	2022
Ehsa Moradi	GSA designate	2021

Resource Members

Heather Lukey	Director, Graduate Awards and Scholarships
Shandi Boser	Manager, Donation and Trusts Services
Russell Isinger	Registrar
Alex Beldan-Exec	Awards Administrator, Teaching, Learning and Student Experience

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		
Kathleen James-Cavan (Chair)-Exe	c English	2022
<mark>Natacha Hogan</mark>	Animal and Poultry Science	<mark>2023</mark>
Paul Jones	Toxicology	2022
JoAnn Murphy	Library	2023
John Gjevre	Medicine	2023
General Academic Assembly Men	nbers	
Kelly Foley	<mark>Economics</mark>	<mark>2024</mark>
Manar Angrini	Biology	2022
Loleen Berdahl (Vice-chair)-Exec	Political Studies	2022
<mark>Diego Ardenghi</mark>	<mark>Dentistry</mark>	<mark>2024</mark>
Gail MacKay	Curriculum Studies	2021
Ann Martin	English	2023
Student Members		
Tauqueer Iftikhar	USSU Designate – VP Academic	2022
	Affairs	
Olusola Akintola	GSA Designate	2022
Ex-officio (voting)		
Patti McDougall-Exec	Vice-Provost, Teaching, Learning ar	nd Student
	Experience	
Sessional		
Jordan Raymond	Educational Foundations	<mark>2024</mark>
Resource Members (non-voting)		
Shari Baraniuk	CIO, Information and Communications	Technologies
Rachel Sarjeant-Jenkins	designate for) Dean, University Library	
Cheri Spooner	Director, Distance Education Unit	
Nancy Turner-Exec	Director, Teaching and Learning Enhan	cement
Candice Weingartner	Director, ICT Academic and Research T	echnologies
Candace Wasacase-Lafferty	Director, Indigenous Initiatives	

Associate Members

Erin Holcomb-Exec

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

Committee Secretary

OTHER COMMITTEES 2020-21

POLICY OVERSIGHT COMMITTEE

• Advises on the development and approval of university-level policies and procedures

Chelsea Willness (Chair)	University Secretary and Chief Governance	
	Officer	
Ravindra Chibbar	Plant Sciences, Council representative	2023 – sabbatical)
<mark>Cheryl Waldner</mark>	WCVM, Council representative	<mark>2022 – backfill</mark>
<mark>Keith Walker</mark>	Educational Administration, Council	<mark>2024</mark>
	<mark>representative (renew)</mark>	
Debby Burshtyn	Deans' Council representative	
Dailene Kells	Internal Auditor	
All Vice-Presidents		
All Vice-Provosts		
All Associate Vice-Presidents		
Jacquie Thomarat	Associate Secretary, Academic Governance	

UNIVERSITY COUNCIL ACADEMIC PROGRAMS COMMITTEE REQUEST FOR DECISION

PRESENTED BY: Susan Detmer, Chair, Academic Programs Committee

DATE OF MEETING: May 20, 2021

SUBJECT: Graduate Degree-level Certificate in Climate Change Vulnerability Assessment and Adaptation Action

DECISIONS REQUESTED:

It is recommended: That Council approve the graduate degree-level Certificate in Climate Change Vulnerability Assessment and Adaptation Action, effective May 2022.

PURPOSE:

University Council has the authority to approve degree-level program.

CONTEXT AND BACKGROUND:

The College of Graduate and Postdoctoral Studies proposes a new graduate degree-level certificate in Climate Change Vulnerability Assessment and Adaptation Action (CCVAAA). The 9 credit unit certificate program will be aimed at working professionals and will provided them with an understanding of the relationship among climate science, vulnerability assessment, adaptation development, and management applications. Graduates of the program will support translation of this understanding by government agencies, private companies, and community planners into specific climate adaptation plans.

This program will be unique in Canada and will target students currently working as government employees, policy analysts/makers, urban planners/managers, and those working in the private sector and in industry. The program will be open to students from any disciplinary background and will serve as a stand-alone program targeted at professionals. The program will not be able to be used to ladder into further graduate study at this time.

The unit proposing the program has consulted both internally at USask as well as with industry and government partners to identify a need for this type of program.

CONSULTATION:

The academic programs committee reviewed the proposal for this program at its April 15, 2021 meeting. The committee was impressed with the broad consultation and the clear and detailed proposal.

This program was also reviewed and approved by the CGPS Programs committee on March 1, 2021 and by the CGPS Executive Committee on March 18, 2021.

ATTACHMENTS:

1. Proposal for Graduate degree-level Certificate in Climate Change Vulnerability Assessment and Adaptation Action



university of saskatchewan College of Graduate and Postdoctoral Studies grad.usask.ca

116, 110 Science Place Saskatoon SK S7N 5C9 Canada Telephone: 306-966-5751 Email: grad.studies@usask.ca

MEMORANDUM

To:	Academic Programs Committee of University Council
Сору:	Karsten Liber, Executive Director, School of Environment and Sustainability
From:	Office of the Associate Dean, College of Graduate and Postdoctoral Studies
Date:	April 7, 2021
Re:	New Graduate Certificate in Climate Change Vulnerability Assessment and Adaption Action

On March 1, 2021, the Graduate Programs Committee reviewed a proposal for a new graduate certificate in Climate Change Vulnerability Assessment and Adaption Action. Committee members appreciated the curriculum mapping provided in the proposal. The courses required for the certificate have been approved through the University Course Challenge process as they may serve as electives for other programming.

It was noted that the tuition proposed was \$500/credit unit, or \$1500/class. It was suggested that the proposed tuition seemed high comparative to other UofS programming. It was suggested that the target market for the new certificate would be working practitioners – individuals that would be employed while earning the certificate. It was suggested that the working professionals may have access to professional development funds to assist with tuition costs. It seemed that the minimum enrolment required eight students for the programming to be delivered.

Overall, the proposal seemed well thought out.

The Graduate Programs Committee passed the following motion on March 1, 2020:

To recommend approval for the Graduate Certificate in Climate Change Vulnerability Assessment and
Adaption Action subject to the course approvals.Chibbar/MorrisonCARRIED1abstention

The same motion was subsequently passed by the CGPS Executive Committee on March 18, 2021.

Attached please find the full proposal with the Notice of Intent and Consultation with the Registrar documents.

If you have any questions, please contact Kelly Clement at kelly.clement@usask.ca

:kc



116, 110 Science Place Saskatoon SK S7N 5C9 Canada Telephone: **306-966-5751** Email: grad.studies@usask.ca

MEMORANDUM

То:	Graduate Programs Committee (GPC)
From:	Debby Burshtyn, Chair - Executive Committee
Date:	March 18, 2021
Re:	 Graduate Certificate in Climate Change Vulnerability Assessment and Adaption Action Proposed change to the requirements for the Graduate Professional Skills Certificate

On March 18, 2021, the Executive Committee (EC) considered the noted proposals.

- 1) The EC approved the New Graduate Certificate in Climate Change Vulnerability Assessment and Adaption Action with no further discussion. Kalra/Misra: 2 abstentions CARRIED
- The EC approved the removal of the GPS 960 requirement from the Graduate Professional Skills Certificate requirements with no further discussion. Walker/Jones: Unanimously CARRIED

If you have any questions, please contact Debby Burshtyn, chair of the CGPS Executive Committee at <u>debby.burshtyn@usask.ca</u> or 306-966-5759.

/II



university of saskatchewan College of Graduate and Postdoctoral Studies grad.usask.ca

116, 110 Science Place Saskatoon SK S7N 5C9 Canada Telephone: 306-966-5751 Email: grad.studies@usask.ca

MEMORANDUM

To:	Executive Committee of CGPS
Сору:	Karsten Liber, Executive Director, School of Environment and Sustainability
From:	Graduate Programs Committee
Date:	March 11, 2021
Re:	New Graduate Certificate in Climate Change Vulnerability Assessment and Adaption Action

On March 1, 2021, the Graduate Programs Committee reviewed a proposal for a new graduate certificate in Climate Change Vulnerability Assessment and Adaption Action. Committee members noted that the curriculum mapping in the proposal looked great. It was noted that the courses for the certificate were being approved through the University Course Challenge process following CGPS approval. The CGPS course review was rigorous, and the proponents had benefitted from committee feedback.

It was noted that the tuition proposed was \$500/credit unit, or \$1500/class. It was suggested that the proposed tuition seemed high comparative to other UofS programming. It was suggested that the target market for the new certificate would be working practitioners – individuals that would be employed while earning the certificate. It was suggested that the working professionals may have access to professional development funds to assist with tuition costs. It seemed that the minimum enrolment required eight students for the programming to be delivered.

Overall, the proposal seemed well thought out.

The Graduate Programs Committee passed the following motion:

To recommend approval for the Graduate Certificate in Climate Change Vulnerability Assessment andAdaption Action subject to the course approvals.Chibbar/MorrisonCARRIED1abstention

Attached please find the full proposal.

If you have any questions, please contact Kelly Clement at <u>kelly.clement@usask.ca</u>

:kc



PROPOSAL IDENTIFICATION: Graduate Certificate for Climate Change

Title of proposal: Graduate Certificate in Climate Change Vulnerability Assessment and Adaptation Action

Degree(s): Graduate Certificate

- Field(s) of Specialization: n/a
- Level(s) of Concentration: n/a
- Option(s): n/a

Degree College: College of Graduate and Postdoctoral Studies/School of Environment and Sustainability

Dr. Maureen Reed

Assistant Director Academic

mgr774@mail.usask.ca

School of Environment and Sustainability (SENS)

Contact person(s):

Dr. Ryan Walker Associate Dean, Policy and Programming Innovation College of Graduate and Postdoctoral Studies (CGPS) <u>kelly.clement@usask.ca</u>

Proposed date of implementation: May 2022

Proposal Document

Please provide information which covers the following sub-topics. The length and detail should reflect the scale or importance of the program or revision. Documents prepared for your college may be used. Please expand this document as needed to embrace all your information.

Academic justification

<u>Overview</u>

EcoCanada's December 2020 labour market information report estimates "233,500 new environmental workers will need to be hired within the next decade due to job growth and high retirement levels. Of these job openings, close to half (111,900) will be for core environmental workers, defined as those requiring environmental-specific competencies" [1]. Additionally, EcoCanada posits that "education is also a significant factor in obtaining environmental jobs, as over three-quarters of all environmental workers in 2019 had post-secondary educations." As the Government of Saskatchewan faces difficult budget decisions related to post-secondary funding and continues to focus on job creation as a priority, this certificate meets the need for labour-market demand for new graduates while adding a vital revenue stream for the School of Environment and Sustainability (SENS).

As requested by professionals working in natural resource sectors and government agencies, this certificate will provide both mid-career professionals and students within our existing programs with an understanding of climate change vulnerability assessment and adaptation, with a focus on key relationships and management applications. Students enrolled in this certificate program will build understanding and develop applied skills in the areas of climate science, vulnerability assessment and adaptation by government agencies, private companies, and community planners using adaptation planning. External letters of support attest to the interest in this certificate (Appendix E).

Although the certificate and its constituent courses will be available to students within our existing programs and to graduate students across campus, we will focus on attracting working professionals from government agencies and industry firms working in the natural resource management context as well as NGO professionals looking to upgrade their skills without committing to an entire degree program. The certificate will confer skills and knowledge around how climate vulnerability assessments work and how they can use these assessments to create and implement adaptation plans and action. Such planning is now frequently required by government, certification bodies and/or is demanded by shareholders of private firms. There are no programs in Canada that offer this kind of applied training, putting the University of Saskatchewan at the forefront of a unique and in-demand educational opportunity. As climate change affects many of the UN's SDGs, this certificate will be relevant to both a national and international audience while promoting the University of Saskatchewan's promise of being the University the World Needs and demonstrating President Stoicheff's stated commitment to sustainable development. Participants will understand how to use climate science to ask: what are the vulnerabilities and risks for a particular management system? How can this knowledge be translated into adaptation plans and practices, taking into account the particular context (management and biophysical system) within which they are working?

Upon completion of the certificate, students will be able to identify the policy, regulatory, and management systems within which they are working; explain interactions among different variables and proposed actions; and consider the policy implications or constraints of proposed changes. Students will also learn how to address climate concerns and issues if climate policy and regulation have not yet been developed. The key components of the certificate are rooted in real-world application from industry and government case studies in natural resources management, making linkages between the science-management-practitioner interface. The certificate is grounded in processes and materials developed by the Intergovernmental Panel on Climate Change (IPCC) [2] and extensive research in the area of assessing vulnerability and developing and implementing climate change adaptations.

a. Describe why the program would be a useful addition to the university, from an academic programming perspective.

Assessing climate change vulnerability, identifying adaptation options, and selecting implementation strategies for action are becoming increasingly important in many forms of land, resource, and community management.
Both public and private sector professionals in Canada and internationally have demonstrated an interest and a need for advanced and applied professional training and development in the areas of climate change science, assessing the vulnerability of land base, resource, and community management systems, adaptation development, planning, and implementation.[3] Industry and government representatives have requested training to meet new requirements being placed on them to demonstrate climate adaptation and action. This program is designed for professionals, practitioners, and those who want to expand their training in the field of climate science, assessment of climate impacts, vulnerabilities, risks, and adaptation actions that can be adopted.

The certificate offers training and professional development that is needed across many organizations around the globe. With climate change being at the forefront in today's environmental industry [4], this is an appealing certificate for professional development and expanded training. Potential employment opportunities from the certificate include:

- Government (managers, planners, and policy analysts)
- Industry—with a focus on natural resources (oil and gas, mining, forestry)
- Agriculture sector
- Professionals in other careers (e.g., health) that may want to expand their field or move into other positions
- Graduates from other environmental programs who wish to expand their skills
- Professionals who wish to become leaders/champions in the area of climate change to lead to climate action for their organization
- Cities and communities (urban planning)
- Private sector—environmental and engineering consulting
- Environmental professionals who are mid-career and want to advance and add to their skill set
- Environmental professionals who want to earn or retain professional certification
- NGOs—environmental groups, (e.g., Ducks Unlimited) and environmental education and communication organizations

We have included three letters of support (Appendix F) from agencies and industry as evidence of demand and need for such a training program.

b. Giving consideration to strategic objectives, specify how the new program fits the university signature areas and/or integrated plan areas, and/or the college/school, and/or department plans.

Canada is undergoing a period of profound economic, social, and technological change that needs a "mobile, skilled workforce, constantly learning, training, and upgrading to meet the demands of a changing world" [5]. A mobile workforce needs opportunities to transition between and upgrade within jobs. Increasing access and flexibility of educational opportunities for energy security and regenerative sustainability is a major motivator.

These certificates will also address the issue of accessibility of graduate programs to allow all types of students (including working professionals and students with family commitments) opportunities for further education and skills building. The addition of the graduate certificates in Energy Security and Regenerative Sustainability align with SENS's strategic plan and are fully consistent with the overall vision of the University of Saskatchewan being "the University the world needs," "growing in recruitment of students," and ensuring "our university is viewed as an accessible, go-to resource by partners and stakeholders." [6]

For SENS, there would be risk in not proceeding with this certificate program since enhancing our enrolment targets is central to the unit's financial viability. For the University, there is a risk that its bold plan to become "the university the world needs" will not be realized if we do not increase accessibility and flexibility to accommodate a more diverse student body and provide opportunities to engage in our innovative programs that develop leaders, innovators and change-makers. Institutions and agencies in Canada are increasingly investing in developing micro-credential programming to promote skills training and development to enhance employment opportunities [7]. For example, the Government of British Columbia has already taken a lead here; its Ministry of Advanced Education, Skills and Training has put out a call to universities in that province for short proposals to partner with

employers to develop and deliver micro-credentials. Natural Resources Canada (NRCan) is also funding <u>Building</u> <u>Regional Adaptation Capacity and Expertise</u> (BRACE) programs at universities across Canada to do this. Through our industry partnerships, we have identified this high priority certificate for immediate development *before* other institutions beat us to it. We are ready to implement the program, but need to do so quickly, to ensure we develop critical leadership in this area. If we do not, then someone else will, and the USask will have lost the opportunity to be a leader in climate change action, something the institution has committed to in its new Sustainability Strategy.

c. Is there a particular student demographic this program is targeted towards and, if so, what is that target? (e.g., Aboriginal, mature, international, returning)

This certificate is designed for professionals, practitioners, and others who seek to expand their interdisciplinary training in the field of climate assessment and adaptation. Students may include

- Government employees (e.g., parks, land, wildlife, and resource managers in sectors such as forestry, mining, agriculture, and energy)
- Policy analysts and policy makers
- Private sector professionals (e.g., environmental consultants, engineers)
- Urban planners/managers (e.g., infrastructure and community planning, urban forestry)
- Industry—managers, planners, supply chain managers, specifically those in natural resource sectors (e.g., mining, forestry, energy)

To maximize accessibility, this certificate will be delivered online. It will meet the needs of professionals and those who want to expand their training but do not wish to leave their current employment or families, and those who have employers who are willing to pay for the additional professional development, but not for a full graduate degree program. It also provides them with a focus on applying technical knowledge in an applied context, which offers something different from more traditional academic graduate programs. The time and cost associated with a certificate program may also make it more feasible and appealing than a full Masters or other graduate program. Additionally, the skills and training developed here could also count towards professional development credits that many professionals require.

d. What are the most similar competing programs in Saskatchewan, and in Canada? How is this program different?

The intention of our certificates is to provide skills development for professionals in work situations rather than train academics. An environmental scan shows few graduate programs related to climate change exist across Canada, and even fewer aimed at training working professionals. While the number of climate change programs in Canada is growing, there are none in the area we propose, which fills a key action-oriented gap needed by government and industry. We note there are degrees or diplomas associated with leadership (Royal Roads), broad training in climate change (Waterloo, and undergrad level training at UPEI and UVic), and training focused on mitigation (University of Toronto). There are no programs tailored specifically to building capacity in vulnerability assessment and adaptation, a focus identified as a key need by our partners in government, the forestry industry and the oil and gas industry.

See Appendix B for a list of other climate change comparator programs.

Admissions

a. What are the admissions requirements of this program?

The admission requirements are:

- 1. a four-year undergraduate degree, or equivalent, from a recognized college or university in an academic discipline relevant to the proposed field of study, OR a three-year first cycle undergraduate degree, in an academic discipline relevant to the proposed field of study, from an institution meeting the criteria set forth in the <u>Bologna Declaration</u>, will be acceptable as the equivalent of an undergraduate degree.
- 2. a minimum cumulative weighted average of **at least** a 70% (USask grade system equivalent) in the last two years of study (e.g., 60 credit units)
- 3. Language Proficiency Requirements: Proof of English proficiency may be required for international applicants and for applicants whose first language is not English. A minimum overall TOEFL score of 86, a minimum overall IELTS score of 6.5, or another approved test as outlined by the <u>College of Graduate and Postdoctoral Studies</u>. [Note: These are minimum language proficiency requirements; however, stronger scores are generally expected for successful entry into the certificate program.]
- 4. <u>Statement of Intent</u>: Applicants must provide a written Statement of Intent (1000 work maximum) describing why they want to undertake the program and how their expertise, work and/or volunteer experience make them an ideal candidate for the program and their chosen field of study. *This statement is a key component in adjudicating each applicant's suitability for the program.*
- 5. <u>Letters of reference</u>: Applicants will need to provide two letters of reference—either academic or professional letters.

<u>Probationary Admission</u>: Applicants whose qualifications do not meet the minimum requirements or whose academic qualifications are difficult to assess may be admitted on a probationary status to a program. Applicants in this category may be required to take certain preparatory courses to improve their qualifications. In this case they will be required to pay additional fees. The student's status will be reviewed after a specified amount of academic work is completed. If progress is satisfactory, the Program Director or Graduate Chair may recommend to CGPS that the student be considered fully-qualified. Students who do not achieve the probationary conditions may withdraw voluntarily or failing this, will be required to discontinue. In certain exceptional situations, the academic unit may extend the probationary period with a new set of conditions, agreed to by the student and by the College of Graduate and Postdoctoral Studies.

For more information on language proficiency requirements, see the College of Graduate and Postdoctoral Studies <u>Academic Policies</u>.

Description of the program

a. What are the curricular objectives, and how are these accomplished?

The *Graduate Certificate in Climate Change Vulnerability Assessment and Adaptation Action* will provide professionals with an understanding of the relationships among climate science, vulnerability assessments, adaptation development, and management applications. Graduates will support translation of this understanding by government agencies, private companies, and community planners into specific adaptation plans, leading to climate action.

Upon completion of the certificate (9 credit units), students will be expected to:

- Understand the role and application of climate change science in the process of climate change vulnerability assessments.
- Analyze climate change vulnerability assessment processes and how to apply the results to inform adaptation development for land and resource management systems.
- Identify the regulatory and management framework within which they are working and how that affects their options.

- Be able to identify actions and how they can be used to proactively address the climate change vulnerability implications of environmental and climate change for the organization.
- Analyze potential policy implications from implementing adaptation actions and understand where policy may be constraining or where new policy is needed.

ENVS 861.3 Fundamentals of Climate Change Vulnerability Assessment

This course is designed to demonstrate how climate science is used in vulnerability assessments for managing complex socio-ecological systems. It will also explore the concept of vulnerability and the degree to which geophysical, biological and socio-economic systems are susceptible to, and able to cope with, impacts of climate change.

<u>Outcomes</u>

By the completion of this course, students will be expected to:

- 1. Explain the introductory theory and background of climate change vulnerability assessments.
- 2. Recognize the difference between different types of climate change vulnerability assessments.
- 3. Demonstrate the application and process of climate change vulnerability assessments through case study application.
- 4. Examine how complex socio-ecological systems are being affected by climate change and how to approach this in the context of increasing uncertainty.
- 5. Demonstrate an understanding surrounding the use and application of climate science in vulnerability assessments.

ENVS 862.3 Building Adaptive Capacity for Climate Change

This course focuses on assessing the adaptive capacity of organizations and existing sustainable land and community systems to address climate change. The development and implementation of adaptation options will be explored, utilizing existing case studies to discuss opportunities, challenges, and management strategies, through climate change vulnerability assessments.

<u>Outcomes</u>

- 1. Understand the theory and assessment processes of adaptive capacity and its role in determining climate change risk and vulnerability.
- 2. Evaluate existing case studies that illustrate climate change impacts and vulnerabilities, consider priority adaptation options implemented, and how they would potentially affect planning and operations within sustainable land and community management systems.
- 3. Examine how results of vulnerability assessments may be used to evaluate and monitor adaptation by organizations and communities.
- 4. Discuss opportunities, challenges and barriers to adaptation through climate change vulnerability assessments.
- 5. Understand how to apply climate science, vulnerability assessment and adaptation tools, and techniques designed to achieve mainstreaming of adaptation in environmental and natural resources sectors.

ENVS 863.3 The Climate Adaptive Organization

This course focuses on the intersection of climate vulnerabilities, adaptation action, and the application to inform and assess the economic and organizational elements of management and planning for climate change adaptation. Policy implications will be explored in adaptation management and decision making in the organizational case for adaptation action.

<u>Outcomes</u>

- 1. Recognize different potential costs related to climate change vulnerabilities and adaptation to climate change in sustainable and natural resource management systems and communities.
- 2. Understand the process of how potential cost increases associated with climate impacts and the ability to achieve management objectives are analyzed.
- 3. Describe how adaptation actions are chosen and why.
- 4. Explore why/how costs are attached to the different adaptation strategies or how they may be viewed.
- 5. Explain the application of applying an organization's metric to develop a business case for adaptation to guide proactive strategic planning in the sustainable land and natural resource sector, and communities, to build resilience in a changing climate.
- 6. Explore policy implications in adaptation management and decision-making for organizations engaged in proactive adaption.

b. Describe the modes of delivery, experiential learning opportunities, and general teaching philosophy relevant to the programming. Where appropriate, include information about whether this program is being delivered in a distributed format.

The motivation behind creating a professional graduate certificate in climate change vulnerability and adaptation action is to create a unique program 1) meets the current and future demand from industry, government, NGOs, and community stakeholders for a grounded, applied program, 2) aims to build key skills and knowledge for land management and resource practitioners to take leadership roles in climate vulnerability assessment and adaptation action, and 3) increases equity through enhanced accessibility and flexibility of program delivery for professionals who have full-time employment commitments, and those with responsibilities that limit the ability to relocate for educational purposes. The characteristics embedded within this certificate program include:

- Grounded case-based learning opportunities
- Training and tools to aid in increasing adaptive capacity and resilience in the area of climate change vulnerability assessments and developing strategies leading to adaptation action
- Clear links to addressing certain UN Sustainable Development Goals
- Current and highly applied solutions-oriented programming
- Experiential learning opportunities (i.e., learning by doing—guided by needs identified by practitioners), such as discussion and networking opportunities with professionals in the field
- Online and blended courses

The results of market survey we conducted in Spring 2020 support our proposed directions toward accessible programming and flexible options. Specifically, 81% of respondents indicated that they are more likely to pursue graduate educational opportunities if our programs offered flexible options such as online courses and the ability to complete programs part-time. Additionally, the majority of prospective students indicated that they would consider graduate programs that offered combined delivery (a blend of online and on-campus).

The certificate is appealing to professionals and those who want to expand their training but do not wish to leave their current employment or families, and those who have employers who are willing to pay for the additional professional development, but not for a full graduate degree program. It also provides them with a focus on applying technical knowledge in an applied context, which offers something different from more traditional academic graduate programs. The time and cost associated with a certificate program may also make it more feasible and appealing than a full Masters or other graduate program.

Our teaching philosophy is focused around building the skills and approaches students need to tackle deep, complex, and long-lasting climate change vulnerability issues and the application of robust, flexible adaption options for both short and long-term. We employ an experiential, solution-focused, interdisciplinary (sometimes transdisciplinary) approach, with an emphasis on professional skill development and deployment. We will engage case-based learning approaches to build crucial links between the science and grounded application, helping students understand how to apply the new skills and methods they are learning, becoming agents of changes as

they mobilize theory into practice to solve multi-faceted, often wicked, problems. We embrace complexity, helping our students understand the linkages across human and natural systems, and consider the importance of complexity and uncertainty, rather than avoid them. Students deepen their respect for a range of perspectives and ways of knowing, and their understanding of themselves and how their training, skills, attributes, and background affect their role as climate change practitioners.

		ENVS 861	ENVS 862 Building Adaptive	ENVS 863
		Change Vulnerability	Capacity for	The Climate Adaptive
Leader		Assessment	Climate Change	Organization
L1	ethics	X	X	Х
L2	commitment	Х	х	Х
L3	trust	Х	х	Х
L4	reconciliation			
L5	growth	Х	Х	Х
L6	adaptive	Х	Х	Х
L7	risk-taking			
Integrat	tor			
11	understand	Х	х	Х
12	multiple sources	Х	х	Х
13	theories of interaction	х	х	Х
14	change agents	Х	х	Х
15	conflict	Х	х	Х
Thinker				
T1	complexity	Х	Х	Х
T2	open-minded	Х	Х	Х
Т3	multiple dimensions	Х	Х	Х
T4	challenge	Х	х	Х
T5	diverse data	Х	Х	Х
Collabo	rator			
C1	communication	Х	Х	Х
C2	relationships	Х	Х	Х
C3	ways of knowing	Х	Х	Х
C4	humility		Х	Х
C5	healthy debate	Х	Х	Х
Adapto	r			
A1	self-awareness	Х	Х	Х
A2	continual learning	Х	Х	Х
A3	management	Х	Х	Х
A4	feedback	Х	Х	Х
A5	self-monitoring	Х	Х	Х

c. Provide an overview of the curriculum mapping.

d. Identify where the opportunities for synthesis, analysis, application, critical thinking, problem solving are, and other relevant identifiers.

Our certificate program is focused on building professional skills and knowledge for problem solving and application of solutions. We will help students further develop their skills in synthesis and analysis, critical thinking, and problem solving.

We have deliberately created a set of applied courses, grounded in real-world application, that will ensure all students build key skills and knowledge to achieve our graduate attributes. These courses are fundamental to ensuring students gain a breadth of knowledge required to fully understand the complexity of climate change problems and solutions. The courses are designed to focus on application, problem solving, critical thinking, interdisciplinary collaboration, and synthesis. The courses are sequenced and network appropriately to enhance student success. The courses will include delivery by experienced practitioners (through either sessional or guest lecturers). Having access to this professional expertise will help students better understand real-world applications and build their professional networks.

All courses within the Graduate Certificate provide learning opportunities for our graduate students to develop and hone their professional skills, including critical and creative-thinking, interdisciplinary and intercultural collaboration, and professionalism. Our curriculum will also expand their potential for reflection, communication, and leadership. We are using sets of applied, grounded case studies across all courses that enable students to apply different critical "lenses", and analytical and design approaches. These approaches will equip our graduates with a solutions-oriented skill set well matched to addressing real-world problems and addressing a gap in training and education that currently exists in various sectors. We aspire to not only bring key solutions-oriented practitioners together to become agents of change-build solutions, but ensure they are equipped with the critical interdisciplinary, intersectoral, and intercultural skills required.

These opportunities can be found in: <u>Problem-solving</u>: 861, 862, 863 Synthesis and analysis: 861, 862, 863

Critical thinking: all of our courses

Interdisciplinary collaboration: everywhere

Application: 861, 862, 863

e. Explain the comprehensive breadth of the program.

The primary objective of the Graduate Certificate in Climate Change Vulnerability Assessment and Adaptation Action is to empower graduates to become leaders in addressing climate change-related challenges, build adaptive capacity, and, to design and implement resilient, practical solutions. This certificate is designed to meet the needs of working professionals and recent graduates wanting to expand their skills in climate change-related issues.

Climate change solutions and adaption action do not belong to a single discipline; rather, the transdisciplinary nature of the certificate will bring together the vast expertise of our faculty with the educational and work experiences of our student base. This certificate will not just focus on climate change and adaptation concepts but will also offer opportunities for students to learn how to apply knowledge and gain key skills related to adaptive capacity, resource management, governance, economics, planning and regulation, negotiations, and community engage.

Solving the climate change and adaptation challenges of the world will only happen by bringing people together from across disciplines and ensuring development of critical skills for interdisciplinary, intersectoral, and intercultural collaboration. Not only will the program bring people together from across disciplines, but this mingling of the minds in the context of well-designed programming will also allow us to contribute to and advance positive solutions towards the United Nations' <u>Sustainable Development Goals (SDGs)</u>. The following table outlines which of the courses within the certificate work towards addressing specific SDGs.

Connection to Sustainable Development Goals (SDGs)



Sustainable Development Goals

SDG		Aspiration	CCVAAA
1	No Poverty	End poverty in all its forms everywhere	
2	Zero Hunger	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	
3	Good Health & Well-being	Ensure health lives and promote well-being for all	
4	Quality Education	Ensure quality education and promote lifelong learning opportunities for all	
5	Gender Equality	Achieve gender equality and empower all women and girls	
6	Clean Water & Sanitation	Ensure access to water and sanitation for all	
7	Affordable & Clean Energy	Ensure access to affordable, reliable sustainable and modern energy for all	
8	Decent Work & Economic Growth	Promote inclusive and sustainable economic growth, employment and decent work for all	
9	Industry Innovation & Infrastructure	Build resilient infrastructure, promote sustainable industrialization, and foster innovation	861, 862, 863
10	Reduced Inequalities	Reduce inequalities within and among countries	861, 862, 863
11	Sustainable Cities & Communities	Make cities and human settlements inclusive, safe, resilient and sustainable	861, 862, 863
12	Responsible Consumption & Production	Ensure sustainable consumption and production patterns	
13	Climate Action	Take urgent action to combat climate change and its impacts	861, 862, 863
14	Life Below Water	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	
15	Life on Land	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	861, 862, 863
16	Peace & Justice Strong	Promote peaceful and inclusive societies for sustainable development,	
	Institutions	provide access to justice for all and build effective, accountable and	
47		inclusive institutions at all level	
1/	Partnerships for the Goals	Strengthen the means of implementation and revitalize the global partnership for sustainable development	

f. Referring to the university "Learning Charter", explain how the 5 learning goals are addressed, and what degree attributes and skills will be acquired by graduates of the program.

The table below illustrates how required courses for each of the proposed certificates align with the Five Learning Objectives outlined in the University's *Learning Charter*. The course numbers are listed for each learning objective and its sub-objectives.

Learning Charter: Five Learning Objectives

	Description	ENVS 861	ENVS 862	ENVS 863
Pursuit of Truth and	Critical thinking	Х	х	х
Understanding	Multiple ways of knowing and learning	х	х	х
	Intellectual flexibility	х	х	x
Pursuit of Knowledges	Depth of understanding in subject area	х	х	х
	Breadth of understanding how subject area intersects with related subject areas	х	x	x
	Understanding how one's subject area impacts communities	Х	х	X
	Using and applying one's knowledge with respect to all individuals	х	х	х
Pursuit of Integrity and	Exercising intellectual integrity and ethical behavior	х	х	х
Respect	Recognizing and thinking through moral and ethical issues	X	X	x
	Recognizing the limits to one's knowledge, skills and understanding and acting in accordance with these limits	х	х	х
	Appreciate one's own worldview while showing respect for others' worldviews	х	х	
Recognizing and thinking through moral	Develop and apply research, inquiry, knowledge creation and translation skills	X	X	x
and ethical issues	Communicate clearly, substantively and persuasively in different contexts	x	x	x
	Locate, understand, evaluate and use information effectively, ethically, legally and with cultural appropriateness	Х	х	x
Pursuit of Skills and Practices	Commit to positive growth and change for oneself and for local, national and global communities	x	x	x
	Act with confidence and strength of purpose for the good of oneself and different communities	x	x	x
	Embrace responsibilities to oneself and others in ways that are authentic and meaningful	х	х	х
	Sharing knowledges and exercise leadership as acts of individual and community responsibility	x	X	X

g. Describe how students can enter this program from other programs (program transferability).

This certificate is open to graduate students from all disciplines. There are no barriers. In fact, we encourage cohorts of students from varying disciplines. This certificate will serve as stand-alone program for professionals.

h. Specify the criteria that will be used to evaluate whether the program is a success within a timeframe clearly specified by the proponents in the proposal.

The key benefit of offering this program is training highly qualified professionals in Saskatchewan, Canada, and internationally. By tracking our graduates, we will be able to understand the number of organizations they have helped support in climate change vulnerability assessment and adaptation. Enrolment success can be measured through the number of student applicants, enrolment and completion; program success can be reviewed by the number and quality of external partnerships and professional success of our graduates can be tracked by employer and alumni surveys.

Now is the time for investing in sustainability programming. Climate change and other sustainability issues are of great significance and interest at this time, and working professionals need to "upskill" in these areas to meet these emerging challenges. With our community and industry partners, we are well positioned to attract new

students, once we make these programs more accessible. This is a strategic addition to our current offerings, which touch on climate change vulnerability and adaptation, but do not teach the specific competencies that are included here. Indeed, this offering crosses over multiple areas of interest, including regenerative sustainability (MSs), energy security (MSs) and water security (MWS), and may be sought by some students as a complementary degree following completion, of their masters level training. Currently, there are no similar programs anywhere in Canada, and offering the program at this time will help establish the University of Saskatchewan as a leader in climate change action.

i. If applicable, is accreditation or certification available, and if so how will the program meet professional standard criteria. Specify in the budget below any costs that may be associated.

Not applicable

Consultation

a. Describe how the program relates to existing programs in the department, in the college or school, and with other colleges. Establish where students from other programs may benefit from courses in this program. Does the proposed program lead into other programs offered at the university or elsewhere?

The proposed certificate will join our suite of other graduate certificates. This addition will further enhance accessibility by allowing part-time students (e.g., working professionals) to take one or more certificates. We see many advantages to offering this certificate:

- Increased accessibility of post-secondary education for diverse students
- More appeal to domestic students
- Potential to ladder students into a Masters program
- An additional revenue stream for SENS
- Address a current gap in professional applied training in the area of climate science, vulnerability assessment, and adaptation action that is grounded in real-world case studies

We note that all courses will be offered in a compressed format and we intend to offer this certificate online to substantively increase accessibility.

Offering a certificate centered around climate change assessment and adaptation will address the issue of accessibility of graduate programs to allow all types of students (including working professionals) opportunities for further education and skills building. This certificate will expand our suite of newly created graduate certificates (in Water Security, Energy Security, and Regenerative Sustainability), which aligns with SENS's strategic plan. The certificate also takes an immediate step towards meeting the commitments in the new USask Sustainability Strategy and is fully consistent with the overall vision of the University of Saskatchewan being "the University the world needs," "growing in recruitment of students," and ensuring "our university is viewed as an accessible, go-to resource by partners and stakeholders" [6] as well as works towards achieving the United Nations' Sustainable Development Goals [8].

Intensive full-time masters programs are almost impossible for working professionals to wholly commit to given their work and/or family commitments. Via this certificate offering, we seek to significantly increase accessibility to our graduate programming and offer diverse groups of students opportunities to pursue graduate work in sustainability issues and to meet requirements for ongoing professional development. As the global climate continues to change, so do the complex socio-ecological systems that we are managing. The current and potential effects of climate change on socio-ecological systems are expected to have significant implications for land and resource practitioners' ability to achieve sustainability goals and objectives as they are currently practiced [9].

b. List units that were consulted formally and provide a summary of how consultation was conducted and how concerns that were raised in consultations have been addressed. Attach the relevant communication in an appendix.

No similar certificate programs are offered across campus, nor are there similar courses in any other unit. We have consulted with both Edwards School of Business and the Johnson Shoyama Graduate School of Public Policy—both of which agree that such a program is important and needed. Both units indicated that they currently have no capacity to deliver any of the courses; however, we are discussing options for the delivery of guest lectures in the third course with faculty in these two units. There will also be guest lectures by external government and industry professionals in the first two courses.

c. Proposals that involve courses or other resources from colleges outside the sponsoring unit should include evidence of consultation and approval. Please give special consideration to pre- and co-requisite requires when including courses from other colleges.

Not applicable

d. Provide evidence of consultation with the University Library to ensure that appropriate library resources are available.

We do not anticipate that any additional resources will be required. Therefore, we have not provided the Library Requirements Form. For required course materials, they will either be provided or freely accessible to students with links. Appendix C contains a sample of those materials.

e. List other pertinent consultations and evidence of support, if applicable (e.g., professional associations, accreditation bodies, potential employers, etc.)

Both public and private sector professionals in the natural resource sector have demonstrated an interest and a need for professional training and development in the area of climate change science, assessing vulnerability of their land base and management systems, adaptation development, planning, implementation, and action. This need is seen across the country by both industry and government. Presentations surrounding this need were provided for the following organizations, at their request:

- The Forest Products Association of Canada (March 2018)
- BC Professional Foresters (March 2019)
- Ontario Professional Foresters (May 2019)
- Canada's Oil Sands Innovation Alliance COSIA (November 2019)
- The provincial governments of Saskatchewan (Forest Services—September 2019), Alberta (Ken Greenway's group—November 2019), and British Columbia (Diane Nichols and her executive team March 2020).

All of these organizations saw this as important work and were highly supportive. All recognize the value of how the vulnerability assessment process could be used to engage professionals and support their training and education. In particular, they saw the value of the applied focus that made this process relevant to their organization's operational and strategic planning and management needs to address climate change. Certification agencies are starting to require more accountability in meeting the standards; investors are wanting to know how industry is accounting for climate vulnerabilities and risk and how they are adapting to these; other stakeholders and the public are looking for social acceptability and license with respect to climate. Letters demonstrating this need and supporting the establishment of courses to meet this need are included in Appendix F.

<u>Budget</u>

a. How many instructors will participate in teaching, advising and other activities related to core program delivery (not including distribution/ breadth requirements or electives)? (estimate the percentage time for each person).

This program will be delivered entirely by a single sessional instructor, who will teach all three courses. We strongly believe this should be a practitioner-led program, hence have budgeted for sessional support, with the plan to engage adjunct professor Sheri Andrews-Key in teaching. Dr. Andrews-Key has a diverse and extensive background in various facets of the application of the climate science-management-policy interface in the environmental and resource-based sectors and government across Canada. Recognizing this is a potential risk to our programmatic continuity, the expectation is that students will complete the certificate within one year. If there is any year when the instructor would not be available or if we do not have sufficient student numbers enrolled in the program, we will not offer the certificate in that year.

b. What courses or programs are being eliminated in order to provide time to teach the additional courses?

No programs will be deleted. We are proposing to bundle some of our newly developed climate change courses into this certificate, which will be offered alongside our other certificates.

c. How are the teaching assignments of each unit and instructor affected by this proposal?

Because the program will be delivered entirely by a sessional instructor hired specifically for this program, it will not affect the teaching assignments of any faculty within SENS.

d. Describe budget allocations and how the unit resources are reallocated to accommodate this proposal. (Unit administrative support, space issues, classroom availability, studio/practice rooms laboratory/clinical or other instructional space requirements).

Given the development of our new courses in climate change vulnerability assessment and adaptation, we propose to package them into the proposed micro-credential to increase accessibility and flexibility, especially for working professionals. We estimate that by combining resources and drawing on increased tuition revenues from approximately 30 students per year, we will have more than sufficient resources to deliver these certificates.

e. If this program is to be offered in a distributed context, please describe the costs associated with this approach of delivery and how these costs will be covered.

We intend to offer this certificate online to substantively increase accessibility. However, other than initial development costs, we do not anticipate any other costs associated with the online development and delivery.

f. If this is an interdisciplinary program, please indicate whether there is a pool of resources available from other colleges involved in the program.

Not applicable

g. What scholarships will students be able to apply for, and how many? What other provisions are being provided for student financial aid and to promote accessibility of the program?

Students enrolled in certificate programs will not be eligible for financial support.

h. What is the program tuition? Will the program utilize a special tuition model or standard tuition categories? (The approval authority for tuition is the Board of Governors).

Non-standard tuition will be assessed. Students will pay tuition by the course. We propose to set tuition for Year 1 at \$1500 per course (\$500 per credit unit). Therefore, the total cost of a student will be \$4500 for the full certificate.

i. What are the estimated costs of program delivery, based on the total time commitment estimates provided? (Use TABBS information, as provided by the College/School financial officer)

<u>One-time costs</u>: The certificate will be developed by thematically clustering two new courses in climate change offered within SENS plus the third course included in this proposal. We include the costs of developing this course in our calculations (\$8000).

<u>On-going costs</u>: We anticipate the following on-going costs associated with the addition of this graduate certificate to SENS's programming:

- Sessional instructor costs to deliver the three courses comprising the 9-cu certificate requirement [rationale: Student feedback in our existing professional programs indicates the appetite for and importance of having more content and instruction from practitioners from outside the university working in the sectors the students strive to work in.] We estimate approximately \$8000 per 3 cu course per year.
- TAships to handle larger class sizes as enrollment grows—which will be easily handled through the revenue generated by enrolment.

We estimate that all costs associated with offering the program will be covered by tuition revenue. For more detail, see Appendix D.

j. What is the enrolment target for the program? How many years to reach this target? What is the minimum enrolment, below which the program ceases to be feasible? What is the maximum enrolment, given the limitations of the resources allocated to the program?

We anticipate student enrolments of approximately 30 students per year within two years. These numbers were determined from requests for this type of programming from government, industry, graduate students, and Natural Resources Canada. We expect the minimum enrolment to be 15 students/year and the maximum to be 35 students/year.

k. What are the total expected revenues at the target enrolment level, separated into core program delivery and distribution/breadth requirements or electives? What portion of this expected revenue can be thought of as incremental (or new) revenue?

In Year 1, the costs would be approximately \$37,000 (including costs for development, marketing, delivery and TAships). Conversely, assuming a conservative student enrolment number of 15 students (12 domestic and 3 international), we anticipate a total revenue of \$75,330, leading to a **projected surplus in Y1 of \$38,330**. All revenue can be thought of an incremental revenue. We also project significant surpluses in the subsequent four years: \$81,463, \$114,204, \$167,291, and \$172,714.

See Appendix D for a breakdown of the budget costs (including our assumptions) over the first five years of the program.

I. At what enrolment number will this program be independently sustainable? If this enrolment number is higher than the enrolment target, where will the resources come from to sustain the program, and what commitments define the supply of those resources?

At \$1500 per course, we would only need about 8 students to enroll in all three courses or 24 students to enroll in one course each to cover our expenses.

m. Proponents are required to clearly explain the total incremental costs of the program. This is to be expressed as: (i) total cost of resources needed to deliver the program: (ii) existing resources (including in-kind and tagged as such) applied against the total cost: and (iii) a listing of those resource costs that will require additional funding (including new in-kind support).

See k. above and Appendix D.

n. List all new funding sources and amounts (including in-kind) and the anticipated contribution of each to offsetting increment program costs. Please identify if any indicated funding is contingent on subsequent approval by a funding authority and/or future conditions. Also indicate under what conditions the program is expected to be cost neutral. The proponents should also indicate any anticipated surpluses/deficits associated with the new program.

We do not anticipate any new funding sources other than tuition revenue to offset the incremental costs. The program will be cost neutral at 8 students completing the certificate a year. As mentioned above, we anticipate a surplus of revenue beginning in the first year of offering the program and continuing in each year beyond. See Appendix D.

References

- [1] EcoCanada. (2020, December). Environment Labour Market Challenge and Opportunities in the Decade Ahead. Labour Market Information. Retrieved from <u>https://www.eco.ca/research/report/environmental-labour-supply-outlook-report/</u>
- [2] IPCC. (2014b). Summary for Policymakers. In Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA pp.1–32.
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- [4] Marchi, E., Chung, W., Visser, R., Abbas, D., Nordfjell, T., Mederski, P., McEwan, A., Brink, M., & Laschi, A. (2018). Sustainable Forest Operations (SFO): A new paradigm in a changing world and climate. Science of the Total Environment, 634, 1385–1397.

- [5] Royal Bank of Canada. (2018). *Human's Wanted: How Canadian youth can thrive in the age of disruption*. Retrieved from <u>https://www.rbc.com/dms/enterprise/futurelaunch/humans-wanted-how-canadian-youthcan-thrive-in-the-age-of-disruption.html</u>.
- [6] University of Saskatchewan. 2018. University Plan 2025.
- [7] Lewington, J. (2019, April). University students can now earn badges to recognize their merits. *Maclean's*. Retrieved from <u>https://www.macleans.ca/education/university-students-can-now-earn-badges-to-recognize-their-merits/</u>
- [8] UN Sustainable Development Goals: 17 way to transform our world. https://www.un.org/sustainabledevelopment/
- [9] Edwards, J., Pearce, C., Ogden, A., Williamson, T. (2015). Climate change and sustainable forest management in Canada: A guidebook for assessing vulnerability and mainstreaming adaptation into decision making. Climate Change Taskforce, Canadian Council of Forest Ministers. Ottawa, ON.

School Statement

Please provide here or attach to the online portal, a statement from the College which contains the following:

- Recommendation from the College regarding the program
- Description of the College process used to arrive at that recommendation
- Summary of issues that the College discussed and how they were resolved

See Appendix A for the School Statement.

Related Documentation

At the online portal, attach any related documentation which is relevant to this proposal to the online portal, such as:

- Excerpts from the College Plan and Planning Parameters (in proposal)
- SPR recommendations (none)
- Relevant sections of the College plan (in proposal)
- Accreditation review recommendations (n/a)
- Letters of support (Appendix F)
- Memos of consultation (none)

It is particularly important for Council committees to know if a curriculum changes are being made in response to College Plans and Planning Parameters, review recommendations or accreditation recommendations.

Consultation Forms

At the online portal, attach the following forms, as required

Required for all submissions:

1. Consultation with the Registrar form (Appendix H)

2. Complete Catalogue entry, if proposing a new program, or excerpt of existing of existing program with proposed changes marked in red.

Catalogue Entry for *Graduate Certificate in Climate Change Vulnerability Assessment and Adaptation Action*

The Graduate Certificate in *Climate Change Vulnerability Assessment and Adaptation Action* will provide professionals with an understanding of the relationships among climate science, vulnerability assessments, adaptation development, and management applications. Graduates will support translation of this understanding by government agencies, private companies, and community planners into specific adaptation plans, leading to climate action.

Admission Requirements

- 1. a four-year undergraduate degree, or equivalent, from a recognized college or university in an academic discipline relevant to the proposed field of study, OR a three-year first cycle undergraduate degree, in an academic discipline relevant to the proposed field of study, from an institution meeting the criteria set forth in the <u>Bologna Declaration</u>, will be acceptable as the equivalent of an undergraduate degree.
- 2. a minimum cumulative weighted average of **at least** a 70% (USask grade system equivalent) in the last two years of study (e.g., 60 credit units)
- 3. Language Proficiency Requirements: Proof of English proficiency may be required for international applicants and for applicants whose first language is not English. A minimum overall TOEFL score of 86, a minimum overall IELTS score of 6.5, or another approved test as outlined by the <u>College of Graduate</u> and <u>Postdoctoral Studies</u>. [Note: These are minimum language proficiency requirements; however, stronger scores are generally expected for successful entry into the certificate program.]
- 4. <u>Statement of Intent</u>: Applicants must provide a written Statement of Intent (1000 work maximum) describing why they want to undertake the program and how their expertise, work and/or volunteer experience make them an ideal candidate for the program and their chosen field of study. *This statement is a key component in adjudicating each applicant's suitability for the program.*
- 5. <u>Letters of reference</u>: Applicants will need to provide two letters of reference—either academic or professional letters.

<u>Probationary Admission</u>: Applicants whose qualifications do not meet the minimum requirements or whose academic qualifications are difficult to assess may be admitted on a probationary status to a program. Applicants in this category may be required to take certain preparatory courses to improve their qualifications. In this case they will be required to pay additional fees. The student's status will be reviewed after a specified amount of academic work is completed. If progress is satisfactory, the Program Director or Graduate Chair may recommend to CGPS that the student be considered fully qualified. Students who do not achieve the probationary conditions may withdraw voluntarily or failing this, will be required to discontinue. In certain exceptional situations, the academic unit may extend the probationary period with a new set of conditions, agreed to by the student and by the College of Graduate and Postdoctoral Studies.

For more information on language proficiency requirements, see the College of Graduate and Postdoctoral Studies <u>Academic Policies</u>.

Certificate Requirements

A minimum of 9 credit units including:

- ENVS 861.3 Fundamentals of Climate Change Vulnerability Assessment
- ENVS 862.3 Building Adaptive Capacity for Climate Change
- ENVS 863.3 The Climate Adaptive Organization

3. Course Proposal Forms

The third course in the certificate (ENVS 863.3) is included in this proposal. ENVS 861.3 and ENVS 862.3 have been submitted and approved through University Course Challenge.

Required for all new courses:

- New Course Proposal forms (Appendix G)
- Calendar-draft list of new and revised courses

Required if resources needed:

- Information Technology Requirements form (none)
- Library Requirements form (none)
- Physical Resource Requirements form (none)
- Budget Consultation form (Appendix E)

Appendices

Appendix A: School Statement



UNIVERSITY OF SASKATCHEWAN School of Environment and Sustainability USASK.CA/SENS

MEMORANDUM

То:	College of Graduate and Postdoctoral Studies University Council						
From:	Karsten Liber, Executive Director (Interim)						
Subject:	School Statement: Graduate Certificate in Climate Change Vulnerability Assessment and Adaptation Action						
Date:	01 February 2021						
CC:							

Colleagues,

I am pleased to offer this proposal from the School of Environment and Sustainability (SENS). On 8 January 2021, the faculty of SENS unanimously voted in favour of pursuing this *Graduate Certificate in Climate Change Vulnerability Assessment and Adaptation Action*.

As the need for climate action becomes more urgent, we recognize that everyone will have to deal with and address climate changes and associated challenges, not the least natural resources companies, natural resourcebased business including agriculture, Indigenous and rural communities, and government agencies. Presently, most professionals and decision makers in these sectors do not have access to the required training to support the necessary adaptation and resilience of their workplaces, industries and communities. In the face of significant demand from government and industry, we have the opportunity here to be a lead provider of training in climate action and advance our aspiration of becoming "the university the work needs." A certificate program focused on vulnerability assessment and adaption action is aligned with the University of Saskatchewan's priorities related to sustainability programming and increased accessibility to education.

Key issues that were identified and addressed are listed in the table below.

Key issues	Resolution
Target audience	This certificate is designed for professionals, practitioners, and those who want to expand their interdisciplinary training in the field of climate science, assessment and application of climate impacts and adaption in a management context, and how this translates into the organizational case for adaptation. This may include: government employees, policy analysist and decision makers, private sector, urban planners/managers, industry. You may have a better way of presenting this.
Mode of delivery	The certificate will be delivered online in a multi-modal format (synchronous, asynchronous, and in-person when it becomes available).
Accessibility and flexibility	Courses have also been bundled into more accessible certificate program options that will allow active professionals to broaden and deepen their expertise without the financial or time commitment of pursuing a full post-graduate degree.
Professional skills v. academic offerings	Courses are oriented to supporting professional skill development to address common sustainability issues.

We are very confident that there is a real market need for this certificate, that solid enrolment will happen and that the certificate will bring national attention to the University of Saskatchewan. Furthermore, we are excited to propose a concrete step towards meeting the aspirations set forth in our University's new Sustainability Strategy.

Thank you for reviewing this proposal. Please let me know if you require any additional information.

Sincerely,

KARSTEN LIBER, PH.D. Executive Director (Interim) and Distinguished Professor School of Environment and Sustainability karsten.liber@usask.ca

KEL/jlm

Appendix B: Climate Change Programs in Canada

**U15 comparators are shaded

There are a growing number of climate change programs in Canada, but none in the area we propose, which fills a key action-oriented gap needed by government and industry. We note there are degrees or diplomas associated with leadership (Royal Roads), broad training in climate change (Waterloo, and undergrad level training at UPEI and UVic), and training focused on mitigation (University of Toronto). There are no programs tailored specifically to building capacity in vulnerability assessment and adaptation, areas identified as a key need by our partners in government, the forestry industry and the oil and gas industry (See letters of support in Appendix F.).

Institution	Program	Program Type	Description (+ credit units and courses)	Delivery	Tuition
Royal Roads University	<u>Master of Arts</u> <u>in Climate</u> <u>Action</u> <u>Leadership</u>	Master of Arts	 2-year program for change makers with an interest in bettering our planet through leading actions in policy, practice and scholarship. This competency-based program is focused at the nexus of climate science, social science, justice, and change leadership 36 credit units 	Blended (onsite & online)	\$25,786 (domestic) \$32,496 (international)
	<u>Graduate</u> <u>Diploma in</u> <u>Climate Action</u> <u>Leadership</u>	Diploma	 15 months 18 credit units uses a learner-centered, open learning curriculum that challenges students to reach beyond the walls of the classroom to respond to real world problems and generate real world solutions 	blended	\$12,893 (domestic) \$16,248 (international)
	Graduate Certificate in Science of Policy of Climate Change	Certificate	 the critical knowledge, interdisciplinary education, and practical skills to identify climate challenges and solutions and act on them 3 courses (total 9 cu) Program length = 1 year Partnership with ECO Canada 	online	\$6,530
University of Toronto (School of Continuing Studies)	<u>Climate Change</u> <u>Policy and</u> <u>Practice</u>	Certificate	 4 required courses Students will identify the physical, regulatory and financial impacts of climate change in North American jurisdictions learn what drives the price of carbon and how it can help finance emissions-offset projects Learn how cap-and-trade schemes, taxes and command and control reduce emissions. describe the principles and practices of greenhouse gas emissions validation and verification assess a range of industry and regulatory policies and develop a mitigation strategy for the company of your choosing 	onsite	\$900/course == \$3600/cert.
University of Waterloo	<u>Master of</u> <u>Climate Change</u>	Master's graduate degree	The MCC program provides a unique educational experience for students looking for advanced training and expertise specific to climate change. Graduates will be part of the first generation of climate change	on-campus	\$2,254/term (full-time) \$9,452/term (international)

University of Prince Edward Island	Bachelor of Science in Applied Climate Change and Adaptation	Undergrad degree (BSc)	 professionals and able to pursue diverse career paths in all areas of government, civil society, and local/international development. MCC students will Achieve systematic understanding of climate change science, policy and management Interpret and evaluate climate change research and policy Gain professional skills in research execution, collaborative problem solving, and effective written and oral communication. Professional program with major research paper and internship options 7 courses (3 required and 2 electives in climate change + 2 open electives) + internship (or major research paper) Full- and part-time options 4-year program (120 credit units) examines "climate change adaptation" which refers to the adjustments that societies or ecosystems make to limit the negative effects of climate change or to take advantage of opportunities provided by a changing climate. 	On- campus	\$6390/year (domestic) \$13,860/year (international)
University of Victoria	<u>Human</u> <u>Dimensions of</u> <u>Climate Change</u>	Undergrad Certificate	 Students will learn about the complex conditions (historical, political, socio-cultural, economic, technological, etc.) that created and are creating climate change. How are (and will) people in different geographical and social locations experience the future? 4 required courses + 3 electives (10.5 units total) can obtain concurrently with a bachelor's degree 	On- campus	None listed

Appendix C: Sample Resources

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Appendix D: Budget Template

Name of Program:	Climate Change Vulnerability Assessment and Adaptation Action						dap	tation Action			
	Academic Year										
		Year 1		Year 2		Year 3		Year 4		Year 5	Comments
Revenue											
Tuition revenue:											total headcount: 15, 20, 25, 30, 30
Total # of domestic students (headcount)		12		14		18		15		15	student proportion: 80%, 70%, 70%, 50%, 50%
Domestic tuition rate	\$	4,500.00	\$	4,725.00	\$	4,961.25	\$	5,110.09	\$	5,263.39	assumes 5% increases in years 2 & 3 and 3% increases in years 4 & 5
Total tuition revenue - domestic	\$	54,000.00	\$	66,150.00	\$	89,302.50	\$	76,651.35	\$	78,950.85	
Total # of international students (headcount)		3		6		7		15		15	student proportion: 20%, 30%, 30%, 50%, 50%
International tuition rate	\$	7,110.00	\$	7,465.50	\$	7,838.78	\$	8,073.94	\$	8,316.16	assumes international differential of 1.58
Total tuition revenue - international	\$	21,330.00	\$	44,793.00	\$	54,871.43	\$	121,109.13	\$	124,742.34	
Student fees*											
Excursion											
Lab											
Other (list in Comments)											
Total student fees	\$	-	\$	-	\$	-	\$	-	\$	-	
External funding sources (list in Comments)											
Internal funding sources (list in Comments)											
Total Revenue	\$	75,330.00	\$	110,943.00	\$	144,173.93	\$	197,760.48	\$	203,693.19	
Expenditures											
Start-up costs	\$	13,000.00		n/a		n/a		n/a		n/a	development of third course (\$8000) + \$5000 marketing & promotion
Salary and benefits:											
Faculty											
Sessionals or limited term instructional support	\$	24,000.00	\$	24,480.00	\$	24,969.60	\$	25,468.99	\$	25,978.37	assumes 2% salary increase
Students											
Staff											
Honoraria											
Total salary and benefits	\$	24,000.00	\$	24,480.00	\$	24,969.60	\$	25,468.99	\$	25,978.37	
Scholarships and bursaries											
Marketing and promotion	\$	-	\$	5,000.00	\$	5,000.00	\$	5,000.00	\$	5,000.00	
Materials and supplies											
Travel											
Equipment and IT											
Other costs (list in Comments)											
Total Expenditures	\$	37,000.00	\$	29,480.00	\$	29,969.60	\$	30,468.99	\$	30,978.37	
Estimated Surplus or Deficit	\$	38,330.00	\$	81,463.00	\$	114,204.33	\$	167,291.49	\$	172,714.82	

*Relates to fees revenue specific to the course or program (e.g. excursion, lab, materials, etc). Excludes compulsory institutional fees (e.g. Athletic, Recreation, etc.).



Budget Requirements for New Programs and Major Revisions

This form is to be completed with the assistance of the Financial Analyst that is assigned to your College by the Financial Services Division. The Financial Analyst should be contacted early in the process and will assist you in completing a budget template that is appropriate for your proposal.

This form identifies the relevant financial issues that should be summarized in your proposal and is to be completed for all new programs and major revisions regardless of whether new budgetary resources or budget reallocations are required from outside the sponsoring unit.

In particular, as well as summarizing capital and start-up, and permanent or ongoing resource requirements, this form facilitates a summary of the impact of the proposal on the university's tuition and fee revenue. In addition, all relevant funding sources must be identified, with appropriate letters of support from each funding source.

The information provided herein must be consistent with the financial information required on all other forms that are submitted with the program proposal. In that regard, this form should be finalized after all other required forms are competed and attached to the proposal.

This form is to be completed by the faculty member responsible for the program proposal in consultation with the Financial Services Division. As noted above, contact the Financial Analyst responsible for your College for assistance. (Dial #8303 if you have questions regarding Financial Analyst assignments.)

1. Proposal Identification

Full name of program: Certificate in Climate Change Vulnerability Assessment and Adaptation Action

Short form (degree abbreviation): CCVAAA

Sponsoring Dept/College: School of Environment and Sustainability

2. Full costing of resource requirements

The resource requirements summarized in this section are to be consistent with the information required in all other forms attached to the proposal.

a) Capital and Start-up Costs:

Examples of capital and start-up costs include new space, renovations, equipment, computer hardware and software, media and technology, and faculty costs for course development. Specifically, the resource requirements should agree to the Library, Information Technology, and Physical Resource requirement forms. If

any of the capital and/or start-up costs also permanent operating cost implications, the permanent resource requirements should be summarized below.

Development cost for the 3rd course (\$8,000) – courses 1 and 2 are pending approval through university course challenge.

Marketing and development costs (\$5,000)

b) Permanent Operating Costs:

Examples of permanent operating costs include costs for faculty, administrative, technical and other support staff, materials and supplies, and media and technology costs. While salary and benefit requirements for faculty and support staff are significant items, the resource requirements noted in the Registrar's, Library and/or Information Technology forms and ongoing operating or maintenance costs noted in the Physical Resources form, must also be summarized in this section.

Sessional lecturers (\$24,000/year with 2% salary escalation)

3. Sources of funding

For the total amount of resources required for both capital and start-up costs, and for permanent operating costs, identify the amount required from each funding source and provide documentation from the funding source to support the amount.

The sources of funding could include the sponsoring college/departments base operating budget, other college/department sources of internal funding, special internal funding allocations such as priority determination, central university funds, and external sources as appropriate. Where the source of funding includes one or more college/departments, each individual college/department should be reported separately.

Source of funding is Tuition revenue – see next section and Appendix D.

4. Enrolment (tuition revenue)

The enrolment data summarized in this section is to be consistent with the information required in the New Courses form. Where enrolment growth is projected, the amount and the related time period should be identified and explained.

The enrolment data should be provided in a manner that can be easily used to calculate tuition revenue. For example, enrolment data for degree courses should be presented as either 3-cu or 6-cu equivalents. The information presented should clearly differentiate between actual enrolment levels before the change and expected enrolment levels following the change, including growth as noted above.

a) Sponsoring college/department

The enrolment increases and decreases in courses in the sponsoring college/department must be provided in sufficient detail for a tuition revenue calculation. If enrolment levels are expected to increase significantly, documentation supporting the increase must be provided.

	Year 1	Year 2	Year 3	Year 4	Year 5
Total # of	15	20	25	30	30
students					
Domestic	80%	70%	70%	50%	50%
Domestic					
Tuition rates	4,500	4,725	4,961.25	5,110.09	5,263.39
per certificate					
(Yr. 1 - \$1,500					
per course x 3					
courses)					
International	20%	30%	30%	50%	50%
Int'l differential	1.58	1.58	1.58	1.58	1.58
International					
Tuition rates	7,110	7,465.50	7,838.78	8,073.94	8,316.16
Total Tuition	\$75,330	\$110,943	\$144,174	\$197,760	\$203,693

Note – above assumes tuition increase of 5% for Years 2 and 3 and 3% for Years 4 and 5.

b) Other college/department:

The enrolment increases and decreases in courses in the other colleges/departments must be provided in sufficient detail for a tuition revenue calculation. If enrolment levels are expected to increase significantly, documentation supporting the increase must be provided.

If enrolments will increase or decrease in other colleges/departments, the change in resources requirements, if any, resulting from the increase or decrease should be included in section 2.

5. Additional Comments

Please provide and additional comments to support the program budget. $\ensuremath{\mathsf{n/a}}$

Date: 21 January 2021

Tracey McHardy, SBA- Finance School of Environment and Sustainability Financial Analyst (assisting in form preparation on behalf of the Financial Services Division)

Dr. Maureen Reed, Assistant Director - Academic, School of Environment and Sustainability Faculty member (for the sponsoring college/dept)

Appendix F: Letters of Support

The following letters of support have been received for this proposal.

Mark Johnston, PhD, Senior Research Scientist, Saskatchewan Research Council Paul LeBlanc, District Forester, Louisiana-Pacific Canada Limited Kate Lindsay, VP Sustainability and Environmental Partnerships, Forest Products Association of Canada (FPAC) David L. Peterson, Professor and Emeritus Senior Scientist, U.S. Forest Service, Pacific Northwest Research Station



January 29, 2021

Letter of support for:

Certificate Program Development — University of Saskatchewan, School of Environment and Sustainability

This letter is in support of the proposed certificate program focused on the Professional Climate Change Vulnerability Assessment and Business Case for Adaptation. Researchers at the Saskatchewan Research Council have spent more than 20 years working with governments, industry and NGOs on climate change impacts and adaptation. That work was based on 'learning by doing' as there was no formal training available in the field of climate change adaptation. A certificate such as the one proposed will go a long way toward preparing students in carrying out climate change vulnerability assessments and identifying adaptation options. And perhaps more important, the certificate will provide the tools for participants to train other natural resource professionals in vulnerability assessment and adaptation planning techniques.

An important aspect of the certificate is its emphasis on 'real world' examples and exercises. We have found that it is essential to collaborate closely with practitioners in undertaking these assessments, and a certificate that emphasizes real world experience will assist the students in the ability to interact effectively with natural resource managers. We are confident that students in this certificate course will benefit from this 'on the ground' approach.

Finally, a unique aspect of the certificate is Making the Business Case for Adaptation. In our experience it is very clear that natural resource industries (e.g., forestry) need to be able to assess the effects on business of climate change impacts and the economics of implementing adaptation actions. Yet this area is virtually unexplored in literature and in practice in the natural resources field. An emphasis on making the business case will enhance the credibility of the students as they engage with industry and government collaborators.

In short, we strongly support and encourage the University of Saskatchewan to move forward in establishing this certificate and look forward to a new cohort of practitioners skilled in assisting natural resource managers to deal effectively with climate change.

Sincerely,

Mallfohuston

Mark Johnston, PhD Senior Research Scientist



October 23rd, 2020

Re: Letter of Support – Climate Change Vulnerability Assessment and Adaptation Action Certificate

Dear University of Saskatchewan;

I am writing this letter in support of the development of a climate change vulnerability assessment and adaptation action certificate. Development of a professional program at the graduate level through a university is a much-needed upgrade for many professionals. This proposed coursebased certificate would specifically focus on the application of climate science, vulnerability assessment, adaptation development, planning, implementation in a management context, and the business case for adaptation.

The media focuses on climate change mitigation, but the opportunities for a forest manager really lie with climate change adaptation, which is based on the results of completing a vulnerability assessment. Unfortunately, the process of climate change vulnerability assessments has been a huge gap that neither my Forestry degrees nor my 30 years of work experience prepared me for.

I evaluated what it would take to do a climate change vulnerability assessment, and I realized that 'muddling through this' was a steep learning curve that would have taken more time and effort than I could ever afford in my demanding role as a forest manager. At the same time, I also realized that climate change was too important to ignore or defer. The path to successfully assessing climate change vulnerabilities for my company and land base I manage involved working with Dr. Sheri Andrews-Key. She led the LP forestry staff through the vulnerability and adaptation process, and guided, educated, and trained us on the vulnerability process at every phase of the assessment and implementation.

In the implementation phase of the vulnerability assessment, Sheri facilitated our staff to create a customized business case for each adaptation option. These were very relevant (both operational and strategic) and applicable to our land base. This had tremendous value to:

- > adapting operations to extreme weather conditions,
- strategic guidance on minimizing risk,



BUILD WITH US."

able to meet the new SFI forest certification evidence requirements on climate change adaptation.

The climate change vulnerability assessment and adaptation process that LP has just completed with Dr. Sheri Andrews-Key has given us a professional upgrade for me and our staff. In addition, our Sustainable Forest Management system has climate change vulnerability <u>integrated</u> into our system, not just a separate 'silo'.

Program/course certificates focusing on the applied pieces of climate science, vulnerability, adaptation and the business case for adaptation in management for forestry would be very valuable and appealing to forestry management professionals in both industry and government.

Please feel free to contact me if you would like to discuss further.

Sincerely,

Lepten

 Paul LeBlanc

 District Forester

 paul.leblanc@lpcorp.com

 T (204) 734-4102 ext. 724

 C (204) 734-0421

Louisiana-Pacific Canada Limited Swan Valley Siding – Forest Resources Division 558 3rd Ave. S. Swan River, MB R0L1Z0





November 12, 2020 University of Saskatchewan, School of Environment and Sustainability

To Whom it May Concern,

Letter of Support for the proposed SENS certificate courses/program for climate change

On behalf of Forest Products Association of Canada (FPAC), I am pleased to provide our support for the proposed certificate courses and program for climate change vulnerability and adaptation at the University of Saskatchewan, School of Environment and Sustainability.

Canada is feeling the impacts of climate change across the country, from wildland fire, to forest pest outbreaks and drought. We know that foresters, government decision-makers, researchers, forest certification programs and other professionals in land management are looking for effective and efficient ways to include climate change adaptation into their resiliency and sustainability planning.

The concept of having access to knowledge and leading initiatives through a certificate course and program is very timely and valuable for working professionals in the forest and other natural resource sectors, and students hoping to enter the sectors. A certificate course and or program can offer the following:

• An alternative to a traditional full university graduate program, which would provide forestry and other professionals in both the public and private sectors with access to ongoing training, knowledge exchange, information dissemination and direct application in the field and/or within their organizations. Importantly, this could be done while balancing other work and family commitments.

• Means to accelerate the application of climate science into climate risk assessments, and the development and implementation of adaptation actions into management systems at both strategic and operational levels (within organizations). Further, these educational opportunities would help provide the business case for adaptation (including challenges/barriers/costs/benefits/social capital, etc.) and ultimately aid in building capacity for government and industry in the forest sector, leading to more resilient forests and management practices.

• Support for the understanding and dissemination of climate risks and adaptation measures being taken. This is timely given the interest from the financial



community, certification bodies, governments (regulators) and other partners.

• Providing a unique applied "boots on the ground" approach from real-life scenarios and professional experience would be very appealing to industry and natural resource professionals and this knowledge exchange is highly needed.

I would be happy to discuss further or answer any questions about the progress to date and the current interest from forestry professionals in climate change adaptation.

Sincerely, Kindoey-

Kate Lindsay VP, Sustainability and Environmental Partnerships



November 14, 2020

Letter of support for: Certificate Program Development — University of Saskatchewan, School of Environment and Sustainability

I encourage the University of Saskatchewan, School of Environment and Sustainability, to implement a certificate program focused on the Professional Climate Change Vulnerability Assessment and Business Case for Adaptation. This is an excellent opportunity for both practitioners and students to gain the knowledge and professional certification needed for integrating climate change in sustainable natural resource management and other aspects of environmental management and planning.

The mainstreaming of climate change thinking and practice into management and planning has been slow in coming. With over 30 years of climate change science available, we are overdue for incorporating that science in the management of public, private, and First Nations lands. This is critical in order to ensure the sustained production of goods, services, and values that are expected by Canadian citizens and the international community.

The well-conceived courses and program proposed by Dr. Sheri Andrews-Key comprise a unique curriculum, keeping USask on the cutting edge of innovation for its students. At present, students can take various courses that may inform them about climate change issues, but this new approach provides a coherent, integrated package. Furthermore, the new program appeals to environmental managers in the province, ensuring that USask education is directly informing on-the-ground applications in the natural resource sectors and beyond. Having those managers in the program would provide valuable interactions with undergraduate students, graduate students, and faculty.

The proposed courses provide a logical sequence of (1) climate change science (risk assessment), (2) climate change adaptation (risk management), and (3) business case development (implementation). This is conceptually sound, essentially the process that practitioners need to follow in order to integrate climate-related issues into business frameworks and actions. This sequence—and this way of thinking about issues—can be readily transferred from the classroom to the boardroom, planning discussions, financial discussions, and on-the-ground management actions.

This approach proposed for the certificate program has been implemented multiple times in recent years by Dr. Andrews-Key, one of the few people I know who has worked directly with forest industry to operationalize climate change in business practices. Her successes in doing this are opening doors in Canada, making connections with leading companies, Canadian Forest Service, and others. She is uniquely qualified to introduce a certificate program to USask and will ensure a well-trained new cohort of managers and students who will shape the natural resource industry and other enterprises for the challenges presented by climate change.

David L. Petuson

David L. Peterson Professor *and* Emeritus Senior Scientist, U.S. Forest Service, Pacific Northwest Research Station



School of Environment and Sustainability

Room 323, Kirk Hall 117 Science Place Saskatoon, SK S7N 5C8 Telephone: (306) 966-1985

30 November 2020

Jacquie Thomarat, Associate Secretary Planning & Priorities Committee of Council c/o University of Saskatchewan Governance Office E70 Administration Building 105 Administration Place Saskatoon, SK. S7N 5A2

Dear Planning and Priorities Committee of Council,

RE: Notice of Intent: Graduate Certificate in Climate Change Vulnerability Assessment and Adaptation Action

The School of Environment and Sustainability (SENS) is pleased to submit a Notice of Intent (NOI), proposing a new graduate Certificate in Climate Change Vulnerability Assessment and Adaptation Action.

As the need for climate action becomes more urgent, we recognize that everyone will have to deal with and address climate changes and associated challenges, not the least natural resources companies, natural resource based business including agriculture, Indigenous and rural communities, and government agencies. Presently, most professionals and decision makers in these sectors do not have access to the required training to support the necessary adaptation and resilience of their workplaces, industries and communities. In the face of significant demand from government and industry, we have the opportunity here to be a lead provider of training in climate action and advance our aspiration of becoming "the university the work needs." A certificate program focused on vulnerability assessment and adaption action is aligned with the University of Saskatchewan's priorities related to sustainability programming and increased accessibility to education.

We look forward to the feedback from the Planning and Priorities Committee. Thank you for your consideration.

Sincerely,

Karsten Liber, PhD Executive Director (Interim) and Distinguished Professor School of Environment and Sustainability karsten.liber@usask.ca

School of Environment and Sustainability

Notice of Intent (NOI)

Graduate Certificate in Climate Change Vulnerability Assessment and Adaptation Action

Overview

As requested by professionals working in natural resource sectors and government agencies, this certificate will provide professionals and professional students within our existing programs with an understanding of climate change vulnerability assessment and adaptation, with a focus on key relationships and management applications. Students enrolled in this certificate program will build understanding and develop applied skills in the areas of climate science, vulnerability assessment and adaptation development that together will create capacity for professionals to translate understanding into action by government agencies, private companies, and community planners using adaptation planning. External letters of support attached in Appendix D attest to the interest in this certificate.

Although the certificate and its constituent courses will be available to students within our existing programs and to graduate students across campus, we will focus on attracting working professionals and community planners from government agencies and firms working in the natural resource management context. The certificate will confer skills and knowledge around how climate vulnerability assessments work and how they can use these assessments to create and implement adaptation plans and action. Such planning is now frequently required by government, certification bodies and/or is demanded by shareholders of private firms. There are no programs in Canada that offer this kind of applied training. Participants will understand how to use climate science to ask: what are the vulnerabilities and risks for a particular management system? How can this knowledge be translated into adaptation plans and practices, taking into account the particular context (management and biophysical system) within which they are working?

Upon completion of the certificate, students will be able to identify the policy, regulatory, and management systems within which they are working; explain interactions among different variables and proposed actions; and consider the policy implications or constraints of proposed changes. Students will also learn how to address climate concerns and issues if climate policy and regulation have not yet been developed. The key components of the certificate are rooted in real-world application from industry and government case studies in natural resources management, making linkages between the science-management-practitioner interface. The certificate is grounded in processes and materials developed by the Intergovernmental Panel on Climate Change (IPCC) [1] and extensive research in the area of assessing vulnerability and developing and implementation of adaption to climate change.

1. What is the motivation for proposing these programs at this time? What elements of the University and/or society support and/or require this program?

Assessing climate change vulnerability, identifying adaptation options, and selecting implementation strategies for action are becoming increasingly important in many forms of land, resource, and community management. Both public and private sector professionals in Canada and beyond have demonstrated an interest and a need for advanced and applied professional training and development in the areas of climate change science, assessing the vulnerability of land base, resource, and community management systems, adaptation development, planning, and implementation.[2] Industry and government have requested training to meet new requirements being placed on them to demonstrate climate adaptation and action. This program is designed for professionals, practitioners, and those who want to expand their training in the field of climate science, assessment of climate impacts, vulnerabilities, risks, and adaptation actions that can be adopted.
2.1 What is the anticipated student demand for the program?

This certificate is designed for professionals, practitioners, and others who seek to expand their interdisciplinary training in the field of climate assessment and adaptation. This may include

- Government employees (e.g., parks, land, wildlife, and resource managers in sectors such as forestry, mining, agriculture, and energy)
- Policy analysts and policy makers
- Private sector professionals (e.g., environmental consultants, engineers)
- Urban planners/managers (e.g., infrastructure and community planning, urban forestry)
- Industry—managers, planners, supply chain managers, specifically those in natural resource sectors (e.g. mining, forestry, energy)

To maximize accessibility, this certificate will be delivered online. It will be appealing to professionals and those who want to expand their training but do not wish to leave their current employment or families, and those who have employers who are willing to pay for the additional professional development, but not for a full graduate degree program. It also provides them with a focus on applying technical knowledge in an applied context, which offers something different from more traditional academic graduate programs. The time and cost associated with a certificate program may also make it more feasible and appealing than a full Masters or other graduate program. Additionally, the skills and training developed here could also count towards professional development credits that many professionals require.

Both public and private sector professionals in the natural resource sector have demonstrated an interest and a need for professional training and development in the area of climate change science, assessing vulnerability of their land base and management systems, adaptation development, planning, implementation, and action. This need is seen across the country by both industry and government. Presentations surrounding this need were provided for the following organizations, at their request:

- The Forest Products Association of Canada (March 2018);
- BC Professional Foresters (March 2019);
- Ontario Professional Foresters (May 2019);
- Canada's Oil Sands Innovation Alliance COSIA (November 2019);
- The provincial governments of Saskatchewan (Forest Services September 2019), Alberta (Ken Greenway's group November 2019), and British Columbia (Diane Nichols and her executive team March 2020).

All of these organizations saw this as important work and were highly supportive. All recognize the value of how the vulnerability assessment process could be used to engage professionals and support their training and education. In particular, they saw the value of the applied focus that made this process relevant to their organization's operational and strategic planning and management needs to address climate change. Certification agencies are starting to require more accountability in meeting the standards; investors are wanting to know how industry is accounting for climate vulnerabilities and risk and how they are adapting to these; other stakeholders and the public are looking for social acceptability and license with respect to climate. Letters demonstrating this need and supporting the establishment of courses to meet this need are included in Appendix D.

2.2 Does the program meet a perceived need, particularly within a national context?

The certificate offers training and professional development that is needed across many organizations around the globe. With climate change being at the forefront in today's environmental industry [3], this is an appealing certificate for professional development and expanded training. Potential employment opportunities from the certificate include:

- Government (managers, planners, and policy analysts)
- Industry—with a focus on natural resources (oil and gas, mining, forestry)
- Agriculture sector

- Professionals in other careers (e.g., health) that may want to expand their field or move into other positions
- Graduates from other environmental programs who wish to expand their skills
- Professionals who wish to become leaders/champions in the area of climate change to lead to climate action for their organization
- Cities and communities (urban planning)
- Private sector—environmental and engineering consulting
- Environmental professionals who are mid-career and want to advance and add to their skill set
- Environmental professionals who want to earn or retain professional certification
- NGOs—environmental groups, (e.g., Ducks Unlimited) and environmental education and communication organizations

We have included three letters of support (Appendix D) from agencies and industry as evidence of demand and need for such a training program.

2.3 What is the projected student enrolment in the program initially and over time, and on what evidence is the projection based?

We anticipate student enrolments of approx. 30 students per year within two years. These numbers were determined from requests for this type of programming from government, industry, graduate students, and Natural Resources Canada.

3.1 How does this proposal fit with the priorities of the current college or school plan, the University Plan 2025, and the university's Vision, Mission and Values?

Offering a certificate centered around climate change assessment and adaptation will address the issue of accessibility of graduate programs to allow all types of students (including working professionals) opportunities for further education and skills building. This certificate will expand our suite of newly created graduate certificates (in Water Security, Energy Security, and Regenerative Sustainability), which aligns with SENS's strategic plan. The certificate also takes an immediate step towards meeting the commitments in the new USask Sustainability Strategy and is fully consistent with the overall vision of the University of Saskatchewan being "the University the world needs," "growing in recruitment of students," and ensuring "our university is viewed as an accessible, go-to resource by partners and stakeholders" [4] as well as works towards achieving the United Nations' Sustainable Development Goals [5].

3.2 If the program was not envisioned during the integrated planning process, what circumstances have provided the impetus to offer the program at this time?

Intensive full-time masters programs are almost impossible for working professionals to wholly commit to given their work and/or family commitments. Via this certificate offering, we seek to significantly increase accessibility to our graduate programming and offer diverse students opportunities to pursue graduate work in sustainability issues and to meet requirements for ongoing professional development. As the global climate continues to change, so do the complex socio-ecological systems that we are managing. The current and potential effects of climate change on socio-ecological systems are expected to have significant implications for land and resource practitioners' ability to achieve sustainability goals and objectives as they are currently practiced [6].

3.3 Are there measurable benefits to offering the program at this time?

The key benefit of offering this program is training highly qualified professionals in Saskatchewan, Canada, and internationally. By tracking our graduates, we will be able to understand the number of organizations they have helped support in climate change vulnerability assessment and adaptation. Enrolment success can be measured through the number of student applicants, enrolment and completion; program success can be reviewed by the

number and quality of external partnerships and professional success of our graduates can be tracked by employer and alumni surveys.

Now is the time for investing in sustainability programming. Climate change and other sustainability issues are of great significance and interest at this time, and working professionals need to "upskill" in these areas to meet these emerging challenges. With our community and industry partners, we are well positioned to attract new students, once we make these programs more accessible. This is a strategic addition to our current offerings, which touch on climate change vulnerability and adaptation, but do not teach the specific competencies that are included here. Indeed, this offering crosses over multiple areas of interest, including regenerative sustainability (MSs), energy security (MSs) and water security (MWS), and may be sought by some students as a complementary degree following completion, of their masters level training. Currently, there are no similar programs anywhere in Canada, and offering the program at this time will help establish the University of Saskatchewan as a leader in climate change action.

4.1 What is the relationship of the proposed program to other programs offered by the college or school and to programs offered elsewhere (interactions, similarities, differences, relative priorities)?

The proposed certificate will join our suite of other graduate certificates. This addition will further enhance accessibility by allowing part-time students (e.g., working professionals) to take one or more certificates. We see many advantages to offering this certificate:

- Increased accessibility of post-secondary education for diverse students
- More appeal to domestic students
- Potential to ladder students into a Master's program
- An additional revenue stream for SENS
- Address a current gap in professional applied training in the area of climate science, vulnerability assessment, and adaptation action that is grounded in real-world case studies

We note that all courses will be offered in a compressed format and we intend to offer this certificate online to substantively increase accessibility.

There are a growing number of climate change programs in Canada. However, there are none in the area we propose, which fills a key action-oriented gap needed by government and industry (Appendix B). We note there are degrees or diplomas associated with leadership (Royal Roads), broad training in climate change (Waterloo, and undergrad level training at UPEI and UVic), and training focused on mitigation (University of Toronto). There are no programs tailored specifically to building capacity in vulnerability assessment and adaptation, a focus identified as a key need by our partners in government, the forestry industry and the oil and gas industry.

See Appendix A for description of the certificate and sample resources/materials.

4.2 What effect will the proposed program have on other similar or related programs, and, in particular, on student enrolment in these programs?

We foresee no negative impact on student enrolment in other or related programs. We see a net gain to enrollment numbers at USask due to diverse students (specifically, working professionals, a relatively "untapped" demographic to date) accessing educational opportunities in the School and possibly enrolling in other certificates or moving on to full graduate programs.

4.3 Is there justification to proceed regardless of any perceived duplication?

Not applicable. No similar certificate programs are offered across campus, nor are there similar courses in any other unit. We are, however, discussing options for the delivery of guest lectures in the third course with faculty in the Edwards School of Business and the Johnson Shoyama Graduate School of Public Policy. There will also be guest lectures by external government and industry professionals in the first two course. Those details will be presented in the full proposal. There is no concern for duplication.

4.4 Will a program be deleted as a result of offering the new program?

No programs will be deleted. We are proposing to bundle some of our newly developed climate change courses into this certificate, which will be offered alongside our other certificates.

5.1 Please describe the resources available and committed to the program, both in terms of one-time costs and ongoing operating costs.

<u>One-time costs</u>: The certificate will be developed by thematically clustering three new courses in climate change offered within SENS.

<u>On-going costs</u>: We anticipate the following on-going costs associated with the addition of this graduate certificate to SENS's programming:

- Sessional instructor costs to deliver the three courses comprising the 9 cu certificate requirement [rationale: Student feedback in our existing professional programs indicates the appetite for and importance of having more content and instruction from practitioners from outside the university working in the sectors the students strive to work in.] We estimate approximately \$8000 per 3 cu course per year.
- TAships to handle larger class sizes as enrollment grows—which will be easily handled through the revenue generated by enrolment.

We estimate that all costs associated with offering the program will be covered by tuition revenue. The costs for next year would be \$24,000 for delivery of all three courses, plus TA costs. At \$1500 per course, we would only need about 8 students to enroll in all three courses or 24 students to enroll in one course to cover sessional and TA costs.

5.2 How will tuition be assessed for the program and what is the rationale for the tuition proposed?

Non-standard tuition will be assessed. Students will pay tuition by the course (per 3-credit unit course).

5.3 Does the college or school possess the resources required to implement and support the program (faculty teaching, administrative and other support, student funding, classroom space, infrastructure)?

Given the development of our new courses in climate change vulnerability assessment and adaptation, we propose to package them into the proposed micro-credential to increase accessibility and flexibility, especially for working professionals. We estimate that by combining resources and drawing on increased tuition revenues from approximately 30 students per year, we will have more than sufficient resources to deliver these certificates.

5.4 Will additional university resources be required, for example, library resources, IT support?

We do not anticipate that any additional resources will be required. For required course materials, they will either be provided or freely accessible to students with links. Appendix A contains a sample of those materials.

5.5 Has the Provost or Institutional Planning and Assessment Office been involved in any discussions related to resources?

No, we do not anticipate the need for any additional resources from the Provost's Office. However, the interim Provost has been informed of this initiative.

5.6 Please attach a letter of support outlining the resource commitments that have been made to the new program.

We are currently consulting with the Johnson Shoyama Graduate School of Public Policy and the Edwards School of Business about their guest lectures in the certificate. No resource commitments from other units are required.

6.1 Please describe the risks, assumptions, or constraints associated with initiating this new program at this time.

Recognizing that Canada is a region undergoing some of the most rapid climatic change of any area on earth, with particularly severe sensitivity in the North, we have identified climate change assessment and action as a high priority area for development and an area of significant interest to industry and government across the country. We will need to maximize remote access to ensure we can reach cohorts in sensitive areas who are unable to relocate to participate in the certificate program. We believe that micro-credentials will increase accessibility of post-secondary education for all potential students (including working professionals, remote and distance students, and part-time students). Micro-credentials will likely be more appealing to domestic students, and will have the potential to ladder interested students into a Master's program.

We strongly believe this should be a practitioner-led program, hence have budgeted for sessional support, with the plan to engage adjunct professor Sheri Andrews-Key in teaching. Dr. Andrews-Key has a diverse and extensive background in various facets of the application of the climate science-management-policy interface in the environmental and resource based sectors and government across Canada. Recognizing this is a potential risk to our programmatic continuity, the expectation is that students will complete the certificate within one year. If there is any year when the instructor would not be available or if we do not have sufficient student numbers enrolled in the program, we will not offer the certificate in that year.

6.2 Has a risk analysis of this program been conducted, relative to the probable success of the program and those factors that impact on the likelihood of success?

No systematic risk analysis has been completed to date. However, we have consulted with major companies, industry organizations and government agencies and we have very strong signals that this certificate would be well subscribed. These soft commitments will be strengthened prior to developing our full proposal. In addition, we will undertake further consultation with partner units and organizations, and refine the financial analysis.

6.3 What risks are associated with not proceeding with the program at this time?

For SENS, there would be risk in not proceeding with this certificate program since enhancing our enrolment targets are central to the unit's financial viability. For the University, there is a risk that its bold plan to become "the university the world needs" will not be realized if we do not increase accessibility and flexibility to accommodate a more diverse student body and provide opportunities to engage in our innovative programs that develop leaders, innovators and change-makers. Institutions and agencies in Canada are increasingly investing in developing micro-credential programming to promote skills training and development to enhance employment opportunities [7]. For example, the Government of British Columbia has already taken a lead here; its Ministry of Advanced Education, Skills and Training has put out a call to universities in that province for short proposals to partner with employers to develop and deliver micro-credentials (See Appendix D). Natural Resources Canada (NRCan) is also funding <u>Building Regional Adaptation Capacity and Expertise</u> (BRACE) programs at universities across Canada to do this. Through our industry partnerships, we have identified this high priority certificate for immediate development *before* other institutions beat us to it. We are ready to implement the program, but need to do so quickly, to ensure we develop critical leadership in this area. If we do not, then someone else will, and the USask will have lost the opportunity to be a leader in climate change action, something the institution has committed to in its new Sustainability Strategy.

7.1 What is the anticipated start date of the program?

September 2021

7.2 What considerations apply to the start date, including changes within the Student Information System.

The following considerations apply:

- implementing sufficient marketing to attract high quality students to start in 2021
- addressing registration and course builds to allow non-degree students to take these courses
- the biggest consideration related to start date is the number of steps and committees that this proposal will have to go through to get approved

Regardless of any outstanding tasks and considerations, we are very confident that there is a real market need for this certificate, that solid enrolment will happen and that the certificate will bring national attention to the University of Saskatchewan. Furthermore, we are excited to propose a concrete step towards meeting the aspirations set forth in our University's new Sustainability Strategy.

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Appendix A: Proposed Certificate Description and Sample Resources

The *Graduate Certificate in Climate Change Vulnerability Assessment and Adaptation Action* will provide professionals with an understanding of the relationships among climate science, vulnerability assessments, adaptation development, and management applications. Graduates will support translation of this understanding by government agencies, private companies, and community planners into specific adaptation plans, leading to climate action.

Upon completion of the certificate (9 credit units), students will be expected to:

- Understand the role and application of climate change science in the process of climate change vulnerability assessments.
- Analyze climate change vulnerability assessment processes and how to apply the results to inform adaptation development for land and resource management systems.
- Identify the regulatory and management framework within which they are working and how that affects their options.
- Be able to identify actions and how they can be used to proactively address the climate change vulnerability implications of environmental and climate change for the organization.
- Analyze potential policy implications from implementing adaptation actions and understand where policy may be constraining or where new policy is needed.

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Appendix B: Climate Change Programs in Canada

**U15 comparators are shaded in green

There are a growing number of climate change programs in Canada, but none in the area we propose, which fills a key action-oriented gap needed by government and industry. We note there are degrees or diplomas associated with leadership (Royal Roads), broad training in climate change (Waterloo, and undergrad level training at UPEI and UVic), and training focused on mitigation (University of Toronto). There are no programs tailored specifically to building capacity in vulnerability assessment and adaptation, areas identified as a key need by our partners in government, the forestry industry and the oil and gas industry (See letters of support in Appendix D.).

Institution	Program	Program Type	Description (+ credit units and courses)	Delivery	Tuition
Royal Roads University	<u>Master of Arts</u> <u>in Climate</u> <u>Action</u> <u>Leadership</u>	Master of Arts	 2-year program for change makers with an interest in bettering our planet through leading actions in policy, practice and scholarship. This competency-based program is focused at the nexus of climate science, social science, justice, and change leadership 36 credit units 	Blended (onsite & online)	\$25,786 (domestic) \$32,496 (international)
	<u>Graduate</u> <u>Diploma in</u> <u>Climate Action</u> <u>Leadership</u>	Diploma	 15 months 18 credit units uses a learner-centered, open learning curriculum that challenges students to reach beyond the walls of the classroom to respond to real world problems and generate real world solutions 	blended	\$12,893 (domestic) \$16,248 (international)
	<u>Graduate</u> <u>Certificate in</u> <u>Science of Policy</u> <u>of Climate</u> <u>Change</u>	Certificate	 the critical knowledge, interdisciplinary education, and practical skills to identify climate challenges and solutions and act on them 3 courses (total 9 cu) Program length = 1 year Partnership with ECO Canada 	online	\$6,530
University of Toronto (School of Continuing Studies)	<u>Climate Change</u> <u>Policy and</u> <u>Practice</u>	Certificate	 4 required courses Students will identify the physical, regulatory and financial impacts of climate change in North American jurisdictions learn what drives the price of carbon and how it can help finance emissions-offset projects Learn how cap-and-trade schemes, taxes and command and control reduce emissions. describe the principles and practices of greenhouse gas emissions validation and verification assess a range of industry and regulatory policies and develop a mitigation strategy for the company of your choosing 	onsite	\$900/course == \$3600/cert.
University of Waterloo	<u>Master of</u> <u>Climate Change</u>	Master's graduate degree	The MCC program provides a unique educational experience for students looking for advanced training and expertise specific to climate change. Graduates will be part of the first generation of climate change	on-campus	\$2,254/term (full-time) \$9,452/term (international)

University of Prince	Bachelor of Science in	Undergrad degree	 professionals and able to pursue diverse career paths in all areas of government, civil society, and local/international development. MCC students will Achieve systematic understanding of climate change science, policy and management Interpret and evaluate climate change research and policy Gain professional skills in research execution, collaborative problem solving, and effective written and oral communication. Professional program with major research paper and internship options 7 courses (3 required and 2 electives in climate change + 2 open electives) + internship (or major research paper) Full- and part-time options 4-year program (120 credit units) examines "climate change adaptation" 	On- campus	\$6390/year (domestic)
Edward Island	Applied Climate Change and Adaptation	(BSc)	which refers to the adjustments that societies or ecosystems make to limit the negative effects of climate change or to take advantage of opportunities provided by a changing climate		\$13,860/year (international)
University of Victoria	<u>Human</u> <u>Dimensions of</u> <u>Climate Change</u>	Undergrad Certificate	 Students will learn about the complex conditions (historical, political, socio-cultural, economic, technological, etc.) that created and are creating climate change. How are (and will) people in different geographical and social locations experience the future? 4 required courses + 3 electives (10.5 units total) can obtain concurrently with a bachelor's degree 	On- campus	None listed

Appendix C: Evidence of Investment in Micro-credendialling and Demand

Short-Form Request for Proposals B.C. Micro-Credential Initiative

The Ministry of Advanced Education, Skills and Training ("the Ministry") is inviting Short-Form Proposals from public post-secondary institutions (PSIs) or consortiums of institutions in partnership with employer partners to develop and deliver micro-credentials.

As part of this initiative, the Ministry is making a \$2 million investment to support the early implementation of 10 high-demand micro-credentials to be developed and ready for initial enrollment by November 2020 – January 2021.

Micro-credentials developed through this initiative will enable British Columbians to quickly and effectively reskill and up-skill for employment opportunities in high-demand sectors.

The micro-credentials will increase access to high-quality, relevant and affordable education in B.C.'s public postsecondary education system and help:

- British Columbians develop additional skills and competencies to access good jobs and to fully participate in economic recovery; and
- employers find qualified employees for high-demand positions.

The micro-credentials will:

- support access to further education, including stacking with other future micro-credentials or laddering into larger credentials;
- be validated by employers as meeting an existing skills/competency gap; and
- build on existing work underway to support delivery of high-quality micro-credentials starting between November 2020 and January 2021.

Timeframe

The Ministry is inviting interested public PSIs to submit by October 5, 2020, one or two proposals for microcredentials that will help British Columbians effectively re-skill and up-skill for employment opportunities in highdemand sectors starting between November 2020 and January 2021.

By mid-October 2020, the Ministry will make decisions on 10 micro-credentials to be funded through this initiative based on how well they (1) meet the priority considerations identified above and in the attached Proposal form and (2) collectively illustrate how micro-credentials from BC's public post-secondary education system can effectively respond to needs from a wide range of high-demand sectors.

The 10 micro-credentials developed under this initiative will be used to support broader discussions on microcredentials in B.C.'s post-secondary education system and will help inform the development of a B.C. Microcredential Framework starting in fall/winter 2020.

Instructions

Using the attached Proposal form, interested public PSIs are invited to respond to this request through their Vice-President, Academic by October 5, 2020. To assist in the development of a suitable range of proposals and to avoid duplicative efforts, PSIs are encouraged to work with their respective sector associations (B.C. Colleges, the B.C. Association of Institutes and Universities, and the Research University Council of B.C.) and other institutions on potential areas of focus.

These short-form proposals should be <u>no more than two pages</u> and include:

- Contact information for the lead applicant including name, title, telephone and e-mail.
- An overview of the proposed micro-credential and how it addresses a need in a high-demand sector.
- Description of how the micro-credential will be developed and implemented, including timelines, and evidence of employer validation.
- Description of expected success measures, including anticipated enrollments.
- One-time funding request and sustainability plan.

If submitting more than one proposal (maximum of 2), please rank your submissions in terms of priority.

As needed, institutions may be contacted by the Ministry for further information about their proposals.

Proposals should be submitted electronically to <u>Carrie.Dusterhoft@gov.bc.ca</u> by the PSI's Office of the Vice-President, Academic before <u>4:00 PM on Monday October 5, 2020</u>.

Questions about the Micro-credential Initiative and the application process should be directed to:

Carrie Dusterhoft, Director Carrie.Dusterhoft@gov.bc.ca

Dean Goodman, Executive Director Dean.Goodman@gov.bc.ca

Post Secondary System Policy and Liaison Branch Ministry of Advanced Education, Skills and Training

Attachment:

Short-Form Request for Proposals – Micro-Credential Initiative

Short-Form Request for Proposals Micro-Credential Initiative

Maximum 2 typed pages

Contact

[Contact information for the lead applicant including name, title, telephone and e-mail.]

Overview

[Provide a description of the proposed micro-credential, including what need is being addressed in a high employment demand area, demographics targeted, and expected length of the learning experience.]

Project Implementation

[Describe who will develop the micro-credential and how and where it will be implemented, including any partnerships with other public post-secondary institutions, employers, or other partners; education and awareness components; and connections to work underway. Please provide evidence of existing employer validation and how employer validation will be ensured after development. Please indicate how you will support access to enrollment, including for people not currently enrolled in your institution or who have not accessed post-secondary education before or in quite some time. Please indicate the earliest expected date for enrollment.]

Success Measures

[Please provide evidence to demonstrate ability to have the micro-credential ready for enrollment by November 2020 and January 2021 (at the latest). Describe how the micro-credential will meet the needs of students, employers, and the province using available evidence and how success will be measured. Please estimate the number of individuals that could complete the micro-credentials by March 31, 2021.]

One-Time Funding Request and Sustainability Plan

[Provide a one-time funding request, with a short description of how funding would be used in 2020/21 fiscal year. Describe your plan for ensuring the ongoing sustainability of the micro-credential, including future funding sources such as tuition and/or employer partnerships. Please provide expected tuition fee.]

Appendix D: Letters of Support

Paul LeBlanc, District Forester, Louisiana-Pacific Canada Limited

Kate Lindsay, VP Sustainability and Environmental Partnerships, Forest Products Association of Canada (FPAC) David L. Peterson, Professor and Emeritus Senior Scientist, U.S. Forest Service, Pacific Northwest Research Station



October 23rd, 2020

Re: Letter of Support – Climate Change Vulnerability Assessment and Adaptation Action Certificate

Dear University of Saskatchewan;

I am writing this letter in support of the development of a climate change vulnerability assessment and adaptation action certificate. Development of a professional program at the graduate level through a university is a much-needed upgrade for many professionals. This proposed coursebased certificate would specifically focus on the application of climate science, vulnerability assessment, adaptation development, planning, implementation in a management context, and the business case for adaptation.

The media focuses on climate change mitigation, but the opportunities for a forest manager really lie with climate change adaptation, which is based on the results of completing a vulnerability assessment. Unfortunately, the process of climate change vulnerability assessments has been a huge gap that neither my Forestry degrees nor my 30 years of work experience prepared me for.

I evaluated what it would take to do a climate change vulnerability assessment, and I realized that 'muddling through this' was a steep learning curve that would have taken more time and effort than I could ever afford in my demanding role as a forest manager. At the same time, I also realized that climate change was too important to ignore or defer. The path to successfully assessing climate change vulnerabilities for my company and land base I manage involved working with Dr. Sheri Andrews-Key. She led the LP forestry staff through the vulnerability and adaptation process, and guided, educated, and trained us on the vulnerability process at every phase of the assessment and implementation.

In the implementation phase of the vulnerability assessment, Sheri facilitated our staff to create a customized business case for each adaptation option. These were very relevant (both operational and strategic) and applicable to our land base. This had tremendous value to:

- > adapting operations to extreme weather conditions,
- strategic guidance on minimizing risk,



BUILD WITH US."

able to meet the new SFI forest certification evidence requirements on climate change adaptation.

The climate change vulnerability assessment and adaptation process that LP has just completed with Dr. Sheri Andrews-Key has given us a professional upgrade for me and our staff. In addition, our Sustainable Forest Management system has climate change vulnerability <u>integrated</u> into our system, not just a separate 'silo'.

Program/course certificates focusing on the applied pieces of climate science, vulnerability, adaptation and the business case for adaptation in management for forestry would be very valuable and appealing to forestry management professionals in both industry and government.

Please feel free to contact me if you would like to discuss further.

Sincerely,

Lepten

 Paul LeBlanc

 District Forester

 paul.leblanc@lpcorp.com

 T (204) 734-4102 ext. 724

 C (204) 734-0421

Louisiana-Pacific Canada Limited Swan Valley Siding – Forest Resources Division 558 3rd Ave. S. Swan River, MB R0L1Z0





November 12, 2020 University of Saskatchewan, School of Environment and Sustainability

To Whom it May Concern,

Letter of Support for the proposed SENS certificate courses/program for climate change

On behalf of Forest Products Association of Canada (FPAC), I am pleased to provide our support for the proposed certificate courses and program for climate change vulnerability and adaptation at the University of Saskatchewan, School of Environment and Sustainability.

Canada is feeling the impacts of climate change across the country, from wildland fire, to forest pest outbreaks and drought. We know that foresters, government decision-makers, researchers, forest certification programs and other professionals in land management are looking for effective and efficient ways to include climate change adaptation into their resiliency and sustainability planning.

The concept of having access to knowledge and leading initiatives through a certificate course and program is very timely and valuable for working professionals in the forest and other natural resource sectors, and students hoping to enter the sectors. A certificate course and or program can offer the following:

• An alternative to a traditional full university graduate program, which would provide forestry and other professionals in both the public and private sectors with access to ongoing training, knowledge exchange, information dissemination and direct application in the field and/or within their organizations. Importantly, this could be done while balancing other work and family commitments.

• Means to accelerate the application of climate science into climate risk assessments, and the development and implementation of adaptation actions into management systems at both strategic and operational levels (within organizations). Further, these educational opportunities would help provide the business case for adaptation (including challenges/barriers/costs/benefits/social capital, etc.) and ultimately aid in building capacity for government and industry in the forest sector, leading to more resilient forests and management practices.

• Support for the understanding and dissemination of climate risks and adaptation measures being taken. This is timely given the interest from the financial



community, certification bodies, governments (regulators) and other partners.

• Providing a unique applied "boots on the ground" approach from real-life scenarios and professional experience would be very appealing to industry and natural resource professionals and this knowledge exchange is highly needed.

I would be happy to discuss further or answer any questions about the progress to date and the current interest from forestry professionals in climate change adaptation.

Sincerely, Kindoey-

Kate Lindsay VP, Sustainability and Environmental Partnerships



November 14, 2020

Letter of support for: Certificate Program Development — University of Saskatchewan, School of Environment and Sustainability

I encourage the University of Saskatchewan, School of Environment and Sustainability, to implement a certificate program focused on the Professional Climate Change Vulnerability Assessment and Business Case for Adaptation. This is an excellent opportunity for both practitioners and students to gain the knowledge and professional certification needed for integrating climate change in sustainable natural resource management and other aspects of environmental management and planning.

The mainstreaming of climate change thinking and practice into management and planning has been slow in coming. With over 30 years of climate change science available, we are overdue for incorporating that science in the management of public, private, and First Nations lands. This is critical in order to ensure the sustained production of goods, services, and values that are expected by Canadian citizens and the international community.

The well-conceived courses and program proposed by Dr. Sheri Andrews-Key comprise a unique curriculum, keeping USask on the cutting edge of innovation for its students. At present, students can take various courses that may inform them about climate change issues, but this new approach provides a coherent, integrated package. Furthermore, the new program appeals to environmental managers in the province, ensuring that USask education is directly informing on-the-ground applications in the natural resource sectors and beyond. Having those managers in the program would provide valuable interactions with undergraduate students, graduate students, and faculty.

The proposed courses provide a logical sequence of (1) climate change science (risk assessment), (2) climate change adaptation (risk management), and (3) business case development (implementation). This is conceptually sound, essentially the process that practitioners need to follow in order to integrate climate-related issues into business frameworks and actions. This sequence—and this way of thinking about issues—can be readily transferred from the classroom to the boardroom, planning discussions, financial discussions, and on-the-ground management actions.

This approach proposed for the certificate program has been implemented multiple times in recent years by Dr. Andrews-Key, one of the few people I know who has worked directly with forest industry to operationalize climate change in business practices. Her successes in doing this are opening doors in Canada, making connections with leading companies, Canadian Forest Service, and others. She is uniquely qualified to introduce a certificate program to USask and will ensure a well-trained new cohort of managers and students who will shape the natural resource industry and other enterprises for the challenges presented by climate change.

David L. Peterson

David L. Peterson Professor *and* Emeritus Senior Scientist, U.S. Forest Service, Pacific Northwest Research Station



Planning & Priorities Committee of Council Budgetary and Financial Implications (Master Worksheet) - New or Existing Program Proposal

<u>Requirements</u>: To be completed for proposals of new academic programs <u>or</u> revisions to existing academic programs (including termination). Ensure this completed form is reviewed with Institutional Planning & Assessment <u>prior to</u> inclusion in the Notice of Intent submission to the Planning & Priorities Committee of Council.

Instructions:

1a. Identify start-up costs in the Start-Up Costs worksheet, which will auto-calculate in the Master worksheet per below.

1b. Identify limited term and ongoing revenue and expenditure estimates directly in the Master worksheet per below.

2. Areas shaded in grey denote required inputs. All other cells are auto-calculated.

3. For programs expected to generate a deficit in any given year, provide an explanation of how that deficit will be managed in future year(s) in order to ensure long-term financial sustainability.

Name of Program:

Climate Change Vulnerability Assessment and Adaptation Action

			Ac	ademic Year			
	Year 1	Year 2		Year 3	Year 4	Year 5	Comments
Revenue							
Tuition revenue:							total headcount: 15, 20, 25, 30, 30
Total # of domestic students (headcount)	12	14		18	15	15	student proportion: 80%, 70%, 70%, 50%, 50%
Domestic tuition rate	\$ 4,500.00	\$ 4,725.00	\$	4,961.25	\$ 5,110.09	\$ 5,263.39	assumes 5% increases in years 2 & 3 and 3% increases in years 4 & 5
Total tuition revenue - domestic	\$ 54,000.00	\$ 66,150.00	\$	89,302.50	\$ 76,651.35	\$ 78,950.85	
Total # of international students (headcount)	3	6		7	15	15	student proportion: 20%, 30%, 30%, 50%, 50%
International tuition rate	\$ 7,110.00	\$ 7,465.50	\$	7,838.78	\$ 8,073.94	\$ 8,316.16	assumes international differential of 1.58
Total tuition revenue - international	\$ 21,330.00	\$ 44,793.00	\$	54,871.43	\$ 121,109.13	\$ 124,742.34	
Student fees*							
Excursion							
Lab							
Other (list in Comments)							
Total student fees	\$ -	\$ -	\$	-	\$ -	\$ -	
External funding sources (list in Comments)							
Internal funding sources (list in Comments)							
Total Revenue	\$ 75,330.00	\$ 110,943.00	\$	144,173.93	\$ 197,760.48	\$ 203,693.19	
Expenditures							
Start-up costs	\$ 13,000.00	n/a		n/a	n/a	n/a	development cost for third course (\$8000) + \$5000 marketing and promotion
Salary and benefits:							
Faculty							
Sessionals or limited term instructional support	\$ 24,000.00	\$ 24,480.00	\$	24,969.60	\$ 25,468.99	\$ 25,978.37	assumes 2% salary increase
Students							
Staff							
Honoraria							
Total salary and benefits	\$ 24,000.00	\$ 24,480.00	\$	24,969.60	\$ 25,468.99	\$ 25,978.37	
Scholarships and bursaries							

Marketing and promotion	\$ -	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	
Materials and supplies						
Travel						
Equipment and IT						
Other costs (list in Comments)						
Total Expenditures	\$ 37,000.00	\$ 29,480.00	\$ 29,969.60	\$ 30,468.99	\$ 30,978.37	
Estimated Surplus or Deficit	\$ 38,330.00	\$ 81,463.00	\$ 114,204.33	\$ 167,291.49	\$ 172,714.82	If deficit in any given year, explain how it will be managed

*Relates to fees revenue specific to the course or program (e.g. excursion, lab, materials, etc). Excludes compulsory institutional fees (e.g. Athletic, Recreation, etc.).

Notes:

For questions about this form, including review prior to submission to PPC, contact Lucy Vuong (Programs and Planning Officer, IPA) at lucy.vuong@usask.ca.

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?

Grad Cert in Climate Change Vulnerability Assessment and Adaption Action - GCCCVA (suggested Banner code - 6 character maximum) and Grad Cert Climate Change (suggested Banner short degree description)

3 What is the credential of this new degree, diploma, or certificate? [Example - D.M.D. = Doctor of Dental Medicine]

G. Cert.

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?

Degree level

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:

CCVA and In Grad Cert in Climate Change? (4 chars & 30 chars max)

8 Which College is responsible for the awarding of this degree, diploma, or certificate?

College of Graduate and Postdoctoral Studies [GP - Graduate and Postdoc Studies - built in Banner]

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.

Major - Climate Change (CLCG - suggested new code) / School of Environment and Sustainability [SES]

11 If this is a new graduate degree, is it thesis-based, course-based, or project-based?

Yes	Х	No	
Yes		No	Х



Section 2: New / Revised Program for Existing or New Degree / Diploma / Certificate Information

1 Is this a new program?

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?

Grad Cert in Climate Change Vulnerability Assessment and Adaption Action - GCCCVA (suggested Banner code) and Grad Cert Climate Change (suggested Banner short degree description)

3 What is the name of this new/revised program?

Graduate Certificate in Climate Change Vulnerability Assessment and Adaption Action - GCCCVA-GP (suggested Banner code - 12 character maximum) and Grad Cert Climate Change (suggested Banner description)

4 What other program(s) currently exist that will also meet the requirements for this same degree(s)? N/A

5 What College/Department is the academic authority for this program?

College of Graduate and Postdoctoral Studies [GP] / School of Environment and Sustainability [SES]

6 Is this a replacement for a current program?

7 If YES, will students in the current program complete that program or be grandfathered?

8 If this is a new graduate program, is it thesis-based, course-based, or project-based?

Course-based

9 If this is a new non-degree or undergraduate level program, what is the expected completion time?



Yes No X

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.



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.
- ${\bf 2}$ 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 <u>and</u> 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?

N/A

Page 4 of 13

Yes No X Revised

Yes No X Revised

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

Section 7: Course Information

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?

	No			
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?	1		
4	Does the program timetable use standard class time slots, terms, and sessions?	Yes X	No	Х
F	It's expected to be delivered online with condensed course offerings	Ver		$\overline{}$
С	If YES, please describe.			^
	It's expected to be delivered online			

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.

Section 8: Admissions, Recruitment, and Quota Information

1 Will students apply on-line? If not, how will they apply?

Yes

2 What term(s) can students be admitted to?

YYYY05, YYYY09, YYYY01

3 Does this impact enrollment?

Slight increase - within 2 years expect enrolment of approximately 30 students per year

4 How should Marketing and Student Recruitment handle initial inquiries about this proposal before official approval?

Refer to the School of Environment and Sustainability

5 Can classes towards this program be taken at the same time as another program?

Yes

6 What is the application deadline?

As per current

7 What are the admission qualifications? (IE. High school transcript required, grade 12 standing, minimum average, any required courses, etc.)

4 year undergraduate degree, or equivalent, from a recognized college of university in an academic discipline relevant to the proposed field of study OR a 3 year first cycle undergradaute degree in an academic discipline relevant to the proposed field of study from an instituion meeting the criteria set forth in the Bologna Declaration will be accepted as the equivalent of an undergraduate degreaduate degreaduate degreaduate degreaduate degreaduate degreaduate accepted as the equivalent of an undergraduate degreaduate degreaduat

Minimum cumulative weighted average of at least 70% (U of S grade system equivalent) in the last 2 years of study (60 credit units).

Proof of English proficiency may be required for international applicants and for applicants who first language is not English. A minimum overall TOEFL score of 86, a minimum overall IELTS score of 6.5 or another approved test as outlined in the College of Graduate and Postdoctoral Studies.

Statement of Intent.

Letters of Reference.

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?)

Online application; checklist items: undergraduate degree, proof of English proficiency (if applicable), statement of intent, 3 letters of reference

11 Who makes the admission decision? (IE. Admissions Office or College/Department/Other?) College of Graduate and Postdoctoral Studies

12 Letter of acceptance - are there any special requirements for communication to newly admitted students?

13 Will the standard application fee apply?

Yes

- 14 Will all applicants be charged the fee or will current, active students be exempt? All applicants will be charged
- 15 Are international students admissible to this program?

If YES, what is the tuition amount for the first 12 months for a full-time international student? This information is required for the Immigration, Refugees and Citizenship Canada [IRCC] form (this form is for students who need to get a visa to study here).

\$4,500 (all 3 classes in 1 year)



Section 9: Government Loan Information

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?

Yes

Section 10: Convocation Information (only for new degrees)

1 Are there any 'ceremonial consequences' of this proposal (ie. New degree hood, special convocation, etc.)?

No

2 If YES, has the Office of the University Secretary been notified?

3 When is the first class expected to graduate?

Could be as early as 202209 (Fall Convocation 2022)

4

What is the maximum number of students you anticipate/project will graduate per year (please consider the next 5-10 years)? 30

Section 11: Schedule of Implementation Information

1 What is the start term?

202205 [May 2022]

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 X No

Yes X No

Yes X No

No X

No X

Yes

Yes

Section 12: Registration Information

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.)

As per current set-up for graduate students 2 Will students register themselves?

If YES, what priority group should they be in?

As per current set-up for graduate students

Section 13: Academic History Information

- 1 Will instructors submit grades through self-serve?
- 2 Who will approve grades (Department Head, Assistant Dean, etc.)?

As per current set-up

Section 14: T2202 Information (tax form)

1 Should classes count towards T2202s?

Section 15: Awards Information

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

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?	_	
	┛…┍━	
3 Will there be any courses closed as a result of this termination?	Yes	No
If yes, what courses?	7	
4 Are there currently any students enrolled in the program?	Yes	No
If yes, will they be able to complete the program?	_	
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	No
If yes, please select one of the following mobility activity types.		
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

Section 18: Proposed Tuition and Student Fees Information

1 How will tuition be assessed?

	Standard Undergraduate per credit			
	Standard Graduate per credit			
	Standard Graduate per term			
	Non standard per credit*	Х		
	Non standard per term*			
	Other *			
	Program Based*			
	* See attached documents for further details			
	NOTE: Proposed tuition is \$500/credit unit or \$1,500/3 credit unit class.			
2	If fees are per credit, do they conform to existing categories for per credit tuition? If YES, what category or rate?			
	No			
3	If program based tuition, how will it be assessed? By credit unit? By term? Elsehow?			
	N/A			
4	Does proponent's proposal contain detailed information regarding requested tuition?	Yes	X No	
1	If NO, please describe.	1		
5	What is IPA's recommendation regarding tuition assessment? When is it expected to receive approval?	1		
6	IPA Additional comments?	I		
_	Will students sutside the pressure he allowed to take the descent			
/	Will students outside the program be allowed to take the classes?	I		
0	Its If VES, what should they be assessed? (This is especially important for program based.)			
ð	If TES, what should they be assessed: (This is especially important for program based.)			
	students pursuing this certificate will be assessed the \$500/Credit unit and students in a program that assesses tution by program would pay their regular tuition (so students in the same class will be paying different tuition).			
0	Do standard student fee assessment criteria apply (full-time, part-time, on-campus versus off-campus)?			
7	Yes	l		
10	Do standard cancellation fee rules apply?			
10	Yes			
11	Are there any additional fees (e.g. materials, excursion)? If yes, see NOTE below,			
	No			
12	Are you moving from one tuition code (TC) to another tuition code?	Yes	No	Х
	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?			
-	Yes - will pay the standard international tuition differential for the year			
		I		

NOTE: Please remember to submit a completed "Application for New Fee or Fee Change Form" for every new course with additional fees.

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 Representative(s):

IPA Representative(s):





UNIVERSITY COUNCIL ACADEMIC PROGRAMS COMMITTEE REPORT FOR INFORMATION

PRESENTED BY:	Susan Detmer, Chair, Academic Programs Committee
DATE OF MEETING:	May 20, 2021
SUBJECT:	Bachelor of Science in Applied Computing
COUNCIL ACTION:	For Information Only

SUMMARY:

The College of Arts and Science submitted a proposal to introduce a major in Applied Computing for its Bachelor of Science degree program. With this proposal, the College also proposed to delete the existing majors in Bioinformatics and in Interactive Systems Design.

The deleted majors will be represented as concentrations under the new Applied Computing major, in addition to three other concentrations: Business, Data Analytics, and Geomatics.

The new degree program adheres to College of Arts and Science degree templates and will be available as a four-year or a four-year honours degree. The new program will ensure that students have appropriate breadth and depth of knowledge in both computer science and in related disciplines and cognate areas to be successful post graduation. The new program, with its concentrations, will encourage interdisciplinary crossover and prepare students for a variety of careers and/or areas of research.

Students in the existing programs that are being deleted will be permitted to complete their degree programs, or may transfer into the new program.

The Academic Programs Committee considered this proposal and passed the following motion at its April 14, 2021 meeting:

It is recommended that the Academic Programs Committee approve the Bachelor of Science (B.Sc.) in Applied Computing in the College of Arts and Science and the associated program deletions, effective May 2022



PROPOSAL IDENTIFICATION

Title of proposal: Introduction of Major in Applied Computing; Deletion of Majors in Bioinformatics and in Interactive Systems Design

Degree(s): Bachelor of Science

Field(s) of Specialization: Applied Computing

Level(s) of Concentration: Honours, Four-year

Option(s): Bioinformatics, Business, Data Analytics, Geomatics, Interactive Systems Design Professional Internship Option

Degree College: Arts and Science

Contact person(s) (name, telephone, fax, e-mail):

Kevin Stanley Department Head, Computer Science <u>kstanley@cs.usask.ca</u> 306-966-6747

Proposed date of implementation: May 2022
Executive Summary

The Need

Computing is permeating modern life and data is the new resource that industries around the world are chasing. Better data can lead to faster, better decisions, more efficient processes, and more reliable outcomes. However, data analytics or applied computing cannot be taught in isolation. When applied to a particular problem or domain, knowledge of computing and the domain itself are required to effectively achieve insight. Traditional industries such as mining and agriculture have joined the ranks of more established technology users in IT, medicine, business and design. There is a clear need for graduates with knowledge in both computing and domains of application.

The Problem

Offering interdisciplinary degrees is a reoccurring challenge for universities. Degree stewardship and administration can be hard to assign, classes difficult to schedule, and faculty resourcing uncertain. This has led to interdisciplinary programs languishing. It is even more difficult to offer interdisciplinary programming in the context of an accredited program like Computer Science, where external agencies constrain potential choices and require more depth in the primary subject than might be required for an interdisciplinary practitioner. Determining a course of study in interdisciplinary majors is an issue for students who must not only understand the content of individual courses, but how that content meshes with that covered in other disciplines.

The Program

To address stakeholders' need for graduates with both computing and domain expertise while operating under the constraints of university structure and governance, we propose a new model for interdisciplinary programming. In this model, a primary unit proscribes a major requiring the minimum number of disciplinary credit units for that college (in Arts and Science 36), leaving space for minor-like ensembles of courses in cognate disciplines. However, few combinations of courses for majors and cognate minors lead to combined knowledge that is directly actionable in practice. Meaningful degrees, particularly those focused on data analysis require curated combinations of classes that can be synthesized into functional knowledge. To avoid credential bloat and associated administrative cost, these curated packages of courses can be instantiated as named concentrations within an overarching degree, for example a degree in Applied Computing in Bioinformatics, or a degree in Applied Computing in Geomatics. Because these concentrations are curated, scheduling conflicts can be encoded and avoided using established software. Similarly, credentialing can happen automatically, as there are clear course packages required to graduate.

Computer Science is willing to take the lead in developing this kind of programming, particularly to address the need for students trained in data analytics and applied computing. We have identified a core program of existing computer science courses and a single new course on data analytics that could be packaged into a 12-course core, and several cognate areas which could be combined to form synthesized knowledge which would be directly applicable to stakeholders in the community. By employing this model, unlike a more traditional Degree in Data Analytics, we obtain the flexibility to grow programming to meet the needs of local stakeholders with reduced overhead.

Proposed Undergraduate Applied Computing Concentrations

We propose to terminate two existing programs, and reconstitute them as concentrations under the Applied Computing degree. We further propose to instantiate three additional concentrations in areas of Applied Computing which meet emerging needs and opportunities.

Bioinformatics (Cognate areas: Biology, Biochemistry)

Bioinformatics is an established but niche program in the college. Adding this program to Applied Computing would allow for a reimagining of content and greater accessibility.

Business (Cognate areas: Marketing, Entrepreneurship

The is a significant industrial demand for graduates who understand computing, data, and business processes. We anticipate that this will be a popular concentration.

Data Analytics (Cognate areas: Math, Statistics)

This program would focus on training general purpose data scientists. What they would lose in domain knowledge they would gain in mathematical rigor. This degree would be of interest to those who have a cognate degree already, as well as those interested in analytical mechanics.

Geomatics (Cognate area: Geography)

Understanding geographically anchored data is important in areas such as mining, agriculture, and city planning. This program would focus on the programmatic use of GIS and satellite-based systems in water management, agriculture, mining, and civic planning.

Interactive System Design (Cognate areas: Art and Art History, Psychology)

The ISD program is an established B.A.&Sc program with solid enrolments, which trains graduates to work on front end computing and interactive system design.

Graduate Degrees in Applied Computing

Interdisciplinary graduate work is becoming more common in the Department of Computer Science at the University of Saskatchewan. However, students receiving Computer Science graduate degrees are expected to be able to teach in accredited Computer Science programs, putting unnecessary strain on students transferring in from other disciplines. A non-accredited program would allow students to receive interdisciplinary training with fewer disciplinary constraints. Our current plan for MScs and PhDs in Applied Computing follow our current graduate program structure at the MSc and PhD levels, but relaxes entry requirements, allows up to half the committee members to be from outside Computer Science, and permits up to half of the courses to be from outside of Computer Science.

Rationale:

Problem: Because accredited computer science degrees require substantial topical breadth and depth in the discipline, few credits remain for students to obtain cognate minors except in closely related disciplines such as mathematics. While the breadth and depth requirements produce excellent computer scientists, it prevents students from pursuing careers where targeted computer science knowledge, along with cognate understanding of breadth areas are required. While pursuing post-graduate certificates in those cognate areas is an option, most students in possession of a degree in Computer Science opt for employment in software development. This leaves key roles in the developing economy underfilled or filled by inappropriately trained workers. Either cognate areas or software development must be learned on the fly in the job context, leading to mixed results. A degree program which curated a mixture of computer science and cognate courses targeted at specific learning and qualification outcomes could address this problem. However, the curation of courses would depend on the target outcomes and would not be broadly generalizable. A degree program with sufficient flexibility to pair computer science and cognate courses, and specificity to constrain those courses into coherent outcomes is required.

At the graduate level, students with a strong background in a relevant cognate area are prevented from pursuing graduate studies within the department by substantial remedial course requirements. While students could conduct meaningful research at the graduate level on interdisciplinary projects under the supervision of a faculty member in Computer Science, they are prevented from doing so by the Department's need to maintain the brand integrity of the MSc and particularly PhD in Computer Science. Given that a PhD graduate could reasonably be expected to teach in an accredited computer science program, they should have a sufficient depth and breadth of knowledge in the discipline. Creating a new graduate degree program to accommodate students with interdisciplinary interests provides a path to graduation without impacting the exiting graduate programs in computer science.

Core Approach: The core approach at both the graduate and undergraduate levels is the creation of an unaccredited degree which provides a smaller, more targeted computer science curriculum, leaving space for cognate disciplines. At the graduate level, these cognate requirements are set by the advisory committee during the approval of the course of study; at the undergraduate level, these cognate requirements are largely proscribed by the concentration within the program that the student wishes to complete.

Undergraduate Program: While graduate studies naturally lend themselves to student-by-student customization, undergraduate degrees need clear programs of study for scalability. This can range from general credit number and level counts in classic liberal arts degrees to specified course requirements in professional colleges. Interdisciplinary degrees draw from specific subsets of offerings in different departments – not all courses from two departments necessarily mesh into a cohesive program of study. Well-designed interdisciplinary programs can be similar in curricular design to professional degrees in that specific subsets of courses should be specified for each degree. A curated set of courses across departments leading to a defined skill set is the first pillar of our approach.

Because baskets of courses would be different for different target skill areas, each group of courses would naturally lead to a different degree. However, this threatens degree bloat with the associated overhead expense and brand dilution. This is a classic conundrum in interdisciplinary programming. How does one provide the flexibility to take courses across disciplines and the structure to ensure that those courses meaningfully coexist? A classic approach is to designate an interdisciplinary degree which can be individually curated as with the graduate degrees described above. However, this simply pushes the overhead expense from support units on to faculty, and maximizes brand dilution, as the interdisciplinary degree literally represents everything. These degrees also offer little guidance to students as to what combinations of courses lead to interesting outcomes, and therefore have limited uptake. To address this conundrum, we propose to leverage an existing, but seldom used, structure within the University of Saskatchewan's pedagogical portfolio: the named concentration. Named concentration allow a single

umbrella degree to have multiple paths to completion, where each path has a name. The single umbrella degree limits degree bloat. The concentration provide the opportunity to structure baskets of courses targeting specific outcomes. The naming of concentration provides specific and obvious branding, preventing brand dilution and providing clear outcomes for students. Providing each logical collection of courses with a named concentration is the second pillar of this approach.

As noted in the Problem Statement, it is difficult to pair cognate areas with a degree in an accredited Computer Science program because of the additional breadth requirements in the subject area demanded by accreditation bodies. However, within the College of Arts and Science, a BSc degree can be conferred with as few as 36 CUs in the major, leaving ample room for cognate areas. Furthermore, because computer science requires substantial early instruction on fundamental coding and algorithmic skills, a substantial portion of those credits would be in common across all concentration s, and in common with those required for computer science majors, making movement between programs feasible in the first two years. A new non-accredited degree program is the third pillar of this approach.

In summary, the undergraduate approach is composed of a new non-accredited degree program which assigns a named concentration to a set of curated classes in computer science and selected cognate disciplines around a minimal viable core of computer science classes.

Undergraduate Degree and Concentrations

The undergraduate program is composed of a single degree split into multiple concentrations. We name the degree a Bachelor of Science in Applied Computing. The degree has a common foundation of introductory computer science classes covering the fundamentals of coding, algorithms and software design. Bundles of curated advanced computer science classes and classes from cognate disciplines (often based upon existing certificates or minors) are added to the foundation to produce named concentrations. In this proposal we have identified five named concentrations: two existing degree programs that can be rolled into concentrations of Applied Computing and three new concentrations proposed based on industry demand and existing programming within the university. A fourth new program -- Public Health Informatics -- was envisioned, but has been temporarily shelved due to commitments of the principal participants to the COVID19 response.

Distribution Requirements and Electives: As a BSc degree in Arts and Science, Applied Computing will have to adhere to existing distribution requirements for that degree. In the C1 College requirement, students will be required to take a writing course, an indigenous studies course and MATH 164 (required for all Applied Computing Programs). In the C2 College requirement, students will be required to take a second writing course, in keeping with existing BSc requirements, and a social science course. The C3 requirement will include MATH 163, STAT 245 (or equivalent), PHIL 232 (Ethics for Computer Scientists) and three introductory science classes not in Computer Science. At least five electives will be allotted to the C5 slot. This course distribution covers all college requirements outside of the major for a BSc.

Foundation in Computer Science and Mathematics: A student completing a degree in Applied Computing should understand the fundamentals of algorithms (expressing solutions as a series of discrete steps), coding (expressing those discrete steps in a computer language) and software design (combining several algorithms to solve a larger problem and testing to see if the code actually does so). These foundational aspects of computer science are already part of our BSc in Computer Science, and are well covered in existing courses at the first and second year levels. In addition, foundational knowledge in logic, linear algebra and statistics is necessary for all concentrations within the degree, and to navigate prerequisites within the computer science curriculum. The courses in the common foundation are listed in the following table, and are required for all concentrations.

Number	Name	Rationale
CMPT 141	Introduction to Computer Science	Provides first introduction to coding concepts
CMPT 145	Principles of Computer Science	Continues introduction to coding concepts and introduces development practices
CMPT 260	Mathematical Logic and Computing	Provides the theoretical underpinnings for understanding logic and algorithms
CMPT 270	Developing Object Oriented Systems	Cover the design and implementation of object oriented programming, the dominant paradigm in practice. Introduces software engineering concepts.
CMPT 280	Intermediate Data Structures and Algorithms	Introduces key data structures for encoding data and their relationships, and fundamental algorithms for the construction and manipulation of those structures.
MATH 163	Introduction to Mathematical Reasoning	Introduces fundamentals of proof and logic.
MATH 164	Introduction to Linear Algebra	Matrices and vectors are fundamental data types. Understanding their mathematical properties is key to many computer science problems.
STAT 245*	Introduction to Statistical Methods	Fundamentals of statistics. Important for any quantitative work relating to uncertain measurements
PHIL 232	Ethics and Professional Responsibility in Computer Science	Fundamental ethics course required for all Computer Science BScs.

Table 1: Common Computer Science Fundamentals Courses

* Many functionally equivalent courses or groups of courses exist across the university. STAT245 is used as a shorthand for STAT245 or any of its equivalents

As noted above MATH 164 is used to partially satisfy the C1 requirement in the BSc program. MATH 163, STAT 245 and PHIL 232 partially satisfy the Cognate requirement. Five CMPT courses are common across all concentrations. The remaining seven are selected from second and third year classes depending on the concentration.

Concentration in Bioinformatics

The B.Sc. in Bioinformatics (BINF) degree is the other interdisciplinary degree largely overseen by the Department of Computer Science. Bioinformatics focusses on the role of DNA and its associated biomolecules in encoding and regulating cellular processes which eventually manifest as heritable traits. Bioinformatics uses sophisticated computing techniques to model genetic behavior. Because the processes encoded in DNA are fundamentally information processes, bioinformatics also convers aspects of biological processes as computing mechanisms. Degrees in bioinformatics train students to work in industry, typically in agribusiness, or in health.

The program currently has both undergraduate and graduate portions, but the graduate degrees are offered as MSc and PhDs in Computer Science. The undergraduate degree combines biology, biomedical science and computer science. Currently, four BINF courses are offered: a second year service course, a second year course for majors, a third year reading course, and a fourth year project course. While the graduate degree is healthy, and has had meaningful impact on research in Medicine, Biology and Agriculture, the undergraduate program has a history of low enrolments (but superb graduates). We propose to move the existing BINF degree under the Applied Computing umbrella to perform a strategic refactoring of the undergraduate Bioinformatics program.

The current undergraduate program has a number of issues related to recruitment and retention, which we hope to address through the redesign of the courses and curriculum:

- **Terminal service course**: The current service course has a low conversion rate into majors or other computational courses as it is a stand alone course introducing bioinformatic software tools
- Limited reach of service course: Currently, students in the service course are largely limited to BMSC students, even though it has substantial benefit for students in other biosciences.
- Long prerequisite pathway: Because of the prerequisite structure, students must invest significant effort into the biological and computational prerequisites before being able to take courses in the target area.
- "Difficult" intro course: Many of the students outside of computer science can be intimidated by the perceived difficulty of the subject area. This is particularly true of students attempting to enter medical professions, who are often driven by grade point average.
- **Inconsistent structure:** Within computer science, a fairly standard paired structure of introductory and advanced courses has evolved. The current bioinformatics offerings are inconsistent with this structure.

We hope to address these shortcomings through a redesign of the courses and curriculum. The two existing courses for majors, BINF 200 and BINF 300 will be revised into BINF 351 and CMPT 451, respectively. The service course BINF 210 will be deprecated, and replaced with a new first year course, BINF 151. The Honours project course BINF 400 will be deprecated (Honours students will take the Honours course CMPT 407 serving all of Applied Computing). Hence, the three resulting classes are

- BINF 151: Computing in the Biological Sciences
- BINF 351: Introduction to Bioinformatics
- CMPT 451: Modelling and Algorithms for Biological Systems

The content of these courses have been adjusted to provide a smooth program of learning, and clear pedagogical outcomes and progress. The proposed first year course, BINF 151, will combine elements of our successful introductory CMPT 140 course with the existing BINF 210 curriculum. Students will leave the course knowing both scripting in Python for biological data analysis and the fundamentals of bioinformatics. The course will serve as a prerequisite for CMPT 141, providing a clear path into the program and removing some of the difficulty stigma attached to computer science. This course will also be designed to be broadly accessible to students in the biosciences. The outcomes of the course includes a knowledge of programming (as opposed to the existing course BINF 210 which does not teach it), and this opens up many possibilities for using bioinformatics and computing generally. Most should be able to take the course in the second semester of their first year (in contrast to BINF 210 which students often reserved for later in their programs). Students would take the common Applied Computing core, and would have access to BINF 351 in third year, and CMPT 451 in fourth year. BINF 200 will transition into BINF 351, and it will alter the prerequisites to be more accessible to Biology students rather than Biomedical Sciences students. BINF 300 will transition into CMPT 451. CMPT 451 has a substantial algorithmic component, and the prerequisites have been opened to make it easier for CMPT majors to take it as a senior elective. CMPT 451 will be cross-listed as a new graduate course, CMPT 841, in keeping with the course structure typical in Computer Science.

In addition to the common computer science curriculum, students are required to take a substantial number of biology and biochemistry courses. Students in the Bioinformatics concentration are encouraged, but not required to take STAT 246 in place of STAT 245.

Table 2: Required CMPT, BINF, BIOC, BIOL, BMSC, and STAT courses for the Concentration in Bioinformatics

Number	Name	Rationale
CHEM 112	General Chemistry	Fundamental chemistry prerequisite (in C3)
CHEM 250	Introduction to Organic Chemistry	Fundamental chemistry prerequisite (in C3)
BIOL 120	The Nature of Life	Fundamental biology prerequisite (in C3)
BIOL 121	The Diversity of Life	Second fundamental biology prerequisite
BINF 151	Computing in Biological Systems	Introduction to both coding and principles of bioinformatics. Recommended for students with a limited CS background but not explicitly required for degree . Similar to CMPT140 in ISD
BMSC 200	Biomolecules	Fundamental biomolecular knowledge
BMSC 240 Or	Laboratory Techniques	Understanding of preparation of DNA or other samples, and role in signal output
BIOL 226	Genes to Genomics	gene function
STAT 246	Introduction to Biostatistics	Fundamental statistical methods for biological systems. Can be taken in place of STAT245
CMPT 318	Data Analytics	Bioinformatics is inherently data driven. Understanding proper pipeline construction will prevent erroneous conclusions.
CMPT 353	Full Stack Web	Covers database basics which is crucial for practical bioinformatics systems. Provides tools for moving data across the web
CMPT 360	Machines and Algorithms	Theoretical basis for advanced bioinformatics algorithms.
BMIS 340	Introductory Molecular Biology	Core molecular biology processes underlying the function of DNA
Or	Malagular Consting of	Covere enigenetics, DNA interference and other
BIOL 316	Eukaryotes	advanced topics in molecular genetics
BINF 351	Introduction to Bioinformatics	Core course in the program covering fundamentals of bioinformatics
CMPT 451	Algorithms and Modeling in Bioinformatics	Advanced topics in bioinformatics, with a focus on the efficient computational solution to common problems

Students in Bioinformatics have a choice of several Computer Science electives to complete their degrees. Students must take two of the following, loosely grouped into pairs. The simulation option would appeal to students interested in health and low-level processing. The theory option would be of interest to students targeting algorithm development. The AI option would be interesting to students wishing to apply machine learning techniques to bioinformatic problems. The visualization option would be interesting to students wishing to render complex biological data in a meaningful way. BSc recipients can take any two courses listed below. It is recommended that honours students complete all courses in an option.

Number	Name	Rationale
Simulation Opt	tion	
CMPT 214	Programming Principles and Practice	Covers low-level C++ programming and command line scripting and automation. Necessary for high performance systems
CMPT 394	Simulation Principles	Efficient implementation of simulations, particularly Monte Carlo simulation.
AI Option		
CMPT 317	Introduction to Artificial Intelligence	Classic search and AI techniques useful for inferring bioinformatic effects
CMPT 423	Machine Learning	Machine learning techniques for learning models from data. Commonly employed in bioinformatic systems.
Theory Option		
СМРТ 364	Automata and Formal Languages	Further theoretic underpinnings to complement CMPT360, necessary for algorithm development
CMPT 463	Advanced Algorithms	Further exploration of algorithms
Visualization Option		
СМРТ 384	Information Visualization	Fundamentals of data visualization and presentation. Useful for representing complex data.
CMPT 484	Graph Drawing and Network Visualization	Advanced interactive visualization techniques focusing on visualizing how things are related, for example gene expression networks

Table 3: Optional CMPT courses for the Concentration in Bioinformatics organized by option

Students in bioinformatics can choose between general biology, biomedical systems, or plant and agricultural biology as a focus for their cognate areas. While students have some flexibility within these specializations, the prerequisite structure does require some depth. Students must take seven of the following courses. All students in the concentration must complete seven courses from this list, and Honours students must also have at least one at the 400-level. Any course counted in another list above cannot be counted in this list as well.

Table 4: Optional SCB, ANBI, ANSC, BIOC, BIOL, BMSC, CHEM, MCIM and PLSC courses for the Concentration in Bioinformatics

Number	Name	Rationale
ACB 331	Methods in Cell and Developmental Biology	Laboratory techniques relevant to bioinformatics
ANBI 470	Applied Animal Biotechnology	Application of bioinformatic techniques in an animal context
ANSC 313	Animal Breeding and Genetics	Biological context for bioinformatics knowledge.
BIOC 405	Structure and Function of Biomolecules	Biological behavior of bioinformatic entities
BIOC 436	Advanced Molecular Biology	Biological manipulation of nucleic acids. Application of bioinformatics
BIOL 222	The Living Plant	Fundamental knowledge of plant physiology. Prerequisite for PLSC416
BIOL 226	Genes to Genomics	How genes are manifested through DNA. Core BIOL

		prerequisite
BIOL 316	Molecular Genetic of Eukaryotes	More advanced topics in genetics.
BIOL 325	Plant Cells and Tissues	Fundamental plant cellular biology. Prerequisite for BIOL420
BIOL 420	Molecular Biology of Plants	Necessary for bioinformatics analysis and manipulation of plants
BIOL 421	Functional Genomics	Biological perspective on bioinformatics
BMSC 210	Microbiology	Covers genetics and behavior of microorganisms. Prerequisite for BMSC320
BMSC 220	Cell Biology	Covers fundamentals of cell biology. Prerequisite for BMSC320
BMSC 240	Laboratory Techniques	Laboratory techniques in biochemistry, cell biology, and microbiology
BMSC 320	Nucleic Acids from Central Dogma to Human Disease	This is the central dogma of the degree
BMIS 340	Introductory Molecular Biology	Core molecular biology processes underlying the function of DNA
CHEM 255	Bio Organic Chemistry	Laboratory class focused on biochemistry
MCIM 417	Molecular Virology	Molecular biology of viruses. Useful if interested in health bioinformatics
MCIM 487	Microbial Genetic Systems	The interaction of genes and biological processes in microbial life. Useful for many areas of bioinformatics
PLSC 317	Plant Metabolism	Photosynthetic and mitochondrial metabolic processes. Prerequisite for PLSC416.
PLSC 411	Plant Breeding	Applied plant genetics. Often used in conjunction with bioinformatic processes
PLSC 416	Applied Plant Biotechnology	Applied use of bioinformatic techniques amongst others in plant biotech
STAT 241	Probability Theory	Foundational knowledge for working with data and statistical techniques relevant to bioinformatics
STAT 345	Design and Analysis of Experiments	Understanding how different statistical operations are more or less valid given the structure of the data collection

To complete an Honours degree in the Bioinformatics concentration, students must complete CMPT 407. Students must complete at least one 400 level course from the Life Sciences portion of the degree (Table 17). Students must maintain a CGPA of at least 70 across all major courses and 70 overall.

Concentration in Business

The IT sector is one of the fastest growing industries in Saskatchewan and around the world. Demand for qualified coders and software engineers has driven demand for graduates from Computer Science. However, IT enterprises are also businesses and require students with a background in commerce to relate to clients, drive sales, and manage human resources. People filling these roles should also have an understanding of the core IT business at a technical level so that they do not make impossible promises to clients or fail to integrate with software engineering teams. Concentrations which were composed primarily of commerce degrees with some computer science, or computer science with some commerce were the primary request from our industrial stakeholders for new programming. As a Department of Computer Science we cannot propose a degree in Commerce, so this proposal focusses on a degree primarily in Computer Science with substantial contributions from the Edwards School of Business. We do note that our existing Certificate in Computer Science could be used to help accommodate the former.

Students in the Business concentration will need to complete the foundations of computer science course list, two required software engineering classes, any calculus class (MATH 110, 121, 123, 125, 133, or 176) and an extended version of ESB's Certificate in Business. Students must take five of fourteen CMPT electives organized into three options. For the four year degree the options are recommendations only, and students can combine courses from any option. Options available include software engineering, analytics, and user interfaces and the web. Students take seven COMM courses and have the option of selecting and additional two from a list of six.

Number	Name	Rationale
СМРТ 370	Intermediate Software Engineering	Software engineering principles and tools. Necessary for working on projects involving more than a few coders
CMPT 371	Software Management	Software engineering practice with a focus on team dynamics and project tracking
COMM 100	Business Communication I	Effective business communication is critical and continues to be one of the most requested additional competencies from our industrial stakeholders
COMM 101	Introduction to Business	Fundamental prerequisite and foundational business knowledge
COMM 105	Introduction to Organizational Behavior	Fundamental knowledge of the company as an organization, prerequisite
COMM 201	Introduction to Financial Accounting	Financial literacy. Necessary for account management
COMM 204	Introduction to Marketing	Fundamentals of marketing. Understanding business processes as a function of client demand
COMM 306	Ethics and Strategic Decision Making	Business ethics to complement ethics fundamentals taught in PHIL232

Table 5: Required CMPT and COMM courses for Concentration in Business

Many options are open to a student with a background in both computer science and commerce. Students could focus on business process and software engineering with an eye towards leadership, students could turn their computer science training on the business and its customers and provide data analytic insights, students could focus on users and clients and their experiences with the products, or any combination of these outcomes. To accommodate the wide array of possible outcomes, students in the business concentration are free to choose five of fourteen senior electives.

Table 6: Optional CMPT courses for the Concentration in Business organized by option

Number	Name	Rationale
Software Engine	ering Option	
CMPT 214	Programming Principles and Practice	Covers low-level C++ programming and command line scripting and automation. Prerequisite for CMPT340
СМРТ 340	Programming Language Paradigms	Covers the three main programming language paradigms used in industry. Introduces parallel programming
СМРТ 353	Full Stack Web Programming	Programming for web based applications. Linking web apps to databases
CMPT 436	Mobile and Cloud Computing	Programming across multiple platforms with seamless connectivity enabled through middleware

СМРТ 470	Advanced Software Engineering	Advanced and automated techniques for software engineering
Analytics Option		
СМРТ 317	Introduction to Artificial Intelligence	Links statistics and computer science to solve problems. Prerequisite for CMPT423
CMPT 318	Data Analytics	An introduction to data analysis pipelines and practices. Potentially useful to analyze business data
CMPT 384	Information Visualization	Fundamentals of data visualization and presentation. Useful for creating visualization of business data
СМРТ 423	Machine Learning	Survey course on machine learning methods and algorithms with a focus on application. Necessary for advanced business data analytics
СМРТ 489	Deep Learning and Applications	Deep learning employs large neural networks and datasets for difficult AI tasks, currently a hot area in business analytics
User and Web Option		
CMPT 281	Website Design and Development	Creation of websites using standard web languages
СМРТ 353	Full Stack Web Programming	Programming for web based applications. Linking web apps to databases, prerequisite for CMPT412
СМРТ 381	Implementation of Graphical User Interfaces	How to build user friendly and effective interfaces. Good for spatial app development
CMPT 412	Social Computing and Participative Web	Social web based interactions are at the core of many new business trends such as influencers, social network advertising and customer modeling
СМРТ 481	Human Computer Interaction	How people interact with machines and how to test to determine if those interactions are effective

Students must complete two of six business courses to complete their business requirements. Selections broadening their base of business knowledge or specializations in entrepreneurship or marketing are available.

Table 7: Optional COMM courses for the Concentration in Business

Number	Name	Rationale
COMM 203	Introduction to Finance	Provides the ability to interact with financial planning and reporting with greater sophistication. Prerequisite for COMM349
COMM 205	Introduction to Operations Management	Introduction to the quantitative aspect of product planning, potentially of interest to Applied Computing students
COMM 348	Leadership	Covers fundamentals of leadership. Useful for students targeting team or product leads as a career outcome.
COMM 349	Introduction to Entrepreneurship	Introduces how new ventures and entrepreneurs are evaluated. General introduction to starting a new venture. Useful for students thinking of a tech start- up as a career path
COMM 352	Marketing Strategy	Analyzing market environments and building a strategy. Meshes well with courses in Analytics and Users and Web options

COMM 354	Consumer Behavior	Models of consumer behavior. Combines well with COMM352 and courses from the Analytics and Users and Web options
COMM 357	Marketing Research	Identifying markets and market segments. Combines well with COMM352 and courses from the Analytics and Users and Web options

To complete the Honours degree students must complete at least two courses at the fourth year level from Table 9. Students must complete CMPT 407. Students must maintain a CGPA of at least 70 across all major courses and 70 overall. It is recommended that honours students complete all courses in an option.

Concentration in Data Analytics

Data analytics has become a major growth area of IT, penetrating many more traditional industries with the promise of increased efficiency. Whether it is modeling customers for business, crops for agriculture, or voting intensions for politicians, data analytics has changed the way that we measure, model and understand the world we live in. Most comparator and U15 universities have introduced programming around data analytics, most commonly as post graduate certificates. Data analytics is an area of potential growth for the Department of Computer Science and university.

Data analytics requires significant cross training in computer science, mathematics and statistics, as well as some domain knowledge. Obtaining all three elements in a single degree is difficult. The Geomatics and Bioinformatics concentrations focus on providing computational and domain knowledge at the cost of statistical depth. The Data Analytics concentration focusses on computational and statistical knowledge at the cost of domain specialization. Graduates of the Data Analytics concentration would have a strong foundational knowledge of data analytics, and would work with domain experts in the field to obtain insight.

The Data Analytics concentration is an intensive combination of a thin major in Computer Science with large minors in Mathematics and Statistics. It would not be possible for a student to complete in conjunction with the current BSc in Computer Science without taking additional credits. Students must complete the computer science core, and complete four required and four optional courses drawn from a list of seven in Computer Science. Students complete six required courses in Math and two required courses in Statistics, and must complete two additional courses in Math and two additional courses in Statistics drawn from curated lists. Students will have to complete one additional course in Math or Statistics drawn from either curated list.

Number	Name	Rationale
CMPT 317	Introduction to Artificial Intelligence	Links statistics and computer science to solve problems. Prerequisite for CMPT423
CMPT 318	Data Analytics	An introduction to data analysis pipelines and practices, and is core to this program
CMPT 384	Information Visualization	Fundamentals of data visualization and presentation, core to the program
CMPT 423	Machine Learning	Creating models from data, core to the program
MATH 110/176	Calculus I	Differentiation. Core prerequisite.
MATH 116/177	Calculus II	Integration. Core prerequisite.
MATH 211	Numerical Analysis I	Algorithms and solutions for mathematical equations in software, foundational

Table 8: Required CMPT, MATH and STAT courses for the Concentration in Data Analytics

MATH 266	Linear Algebra II	Most machine learning and data analytics algorithms have linear algebra at their core. This course provides added depth on the topic.
STAT 241	Probability Theory	Foundational knowledge for working with data and statistical techniques
STAT 242	Statistical Theory and Methodology	Foundational knowledge. Core prerequisite.

Students must complete four of eight senior Computer Science courses related to Data Analytics. Students can opt for additional courses in theory, software engineering, simulation and machine learning. Students must take at least one at the 400 level.

Number	Name	Rationale
CMPT 214	Programming Principles and Practice	Covers low-level C++ programming and command line scripting and automation. Useful for processing large datasets and writing efficient code
СМРТ 353	Full Stack Web Programming	Programming for web based applications. Linking web apps to databases
СМРТ 360	Machines and Algorithms	Fundamentals of algorithms and algorithm design. Optional prerequisite for 484
СМРТ 370	Intermediate Software Engineering	Software engineering principles and tools. Necessary for working on projects involving more than a few coders
СМРТ 394	Simulation Principles	Efficient implementation of simulations, particularly Monte Carlo simulation.
CMPT 484	Graph Drawing and Network Visualization	Advanced interactive visualization techniques focusing on visualizing how things are related
СМРТ 489	Deep Learning and Applications	Deep learning employs large neural networks and datasets for difficult AI tasks. Cutting edge of machine learning practice

Table 9: Optional CMPT courses for Concentration in Data Analytics

Students must complete a total of five MATH and STAT classes from a list of recommended courses. Student must complete two MATH courses, two STAT courses, and one of either subject.

Table 10: Optional MATH and STAT courses for Concentration in Data Analytics
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Number	Name	Rationale
MATH 238	Introduction to Differential Equations	Fundamentals of differential equations. Form the basis for many models data is representing. Prerequisite for MATH 314
MATH 313	Numerical Linear Algebra	Many machine learning algorithms rely on fast and accurate linear algebraic manipulations
MATH 314	Numerical Solutions of Ordinary Differential Equations	Solving systems of equations numerically on a computer. Useful when data analytics is used to estimate form or parameters of equations
MATH 325	Introduction to Optimization	Many machine learning algorithms rely on optimization to generate a solution. This course provides a firm foundation for their study

MATH 327	Graph Theory	Many common data analytic tasks (e.g. social networks) can be represented as graphs. Matches well with CMPT484
STAT 344	Applied Regression Analysis	Regression is a core method in extracting meaning from data
STAT 345	Design and Analysis of Experiments	Understanding how different statistical operations are more or less valid given the structure of the data collection
STAT 346	Multivariate Analysis	Analysis of higher dimensional data using statistical methods

To complete the Honours degree students must complete CMPT 360 and STAT 344, 345, and 346. Students must complete at least one course at the fourth year level from Table 6. Students must complete one of CMPT 407 or MATH 402. Students must maintain a CGPA of at least 70 across all major courses and 70 overall.

Concentration in Geomatics

Geomatics is the quantitative study of relationships pertaining to the Earth's surface, particularly focused on the analysis of satellite or drone images of the Earth or in GPS tracking across the Earth's surface. Geomatics has applications to civic planning, land and water management, agriculture, and business. Increasingly, firms are making decisions about investments based on satellite telemetry. In the field of Geomatics, computer science provides the tools for analyzing data and geography provides the social and physical theoretical constructs which provide meaning to the data and analysis.

The computer science component of the Concentration in Geomatics adds data analytic, visualization and image processing courses to the fundamentals listed above, providing students with the tools they need to analyze and present spatial data. Students must take four additional courses from a list of ten senior computer science courses. These courses are roughly grouped into a software engineering option for students who wish to build geomatic software systems, an analytics option focused on AI and machine learning, and a user interface and visualization options for student who want to create interactive spatial tools. The options are voluntary, and students can mix and match as they deem appropriate. The geography concentration draws heavily on the Geomatics minor from Geography and planning. Students take one introductory Geography course, followed by a four course core set of geographic principles, covering what spatial relationships exist and how they are encoded. Students must then choose two of a list of six courses covering senior geography and planning electives. Taking all required courses into account, students are left with eight electives which could be used to provide further breadth, for example in the social sciences for students interesting in human geography, or in geology or hydrology for students interested in physical geography.

Number	Name	Rationale
CMPT 318	Data Analytics	An introduction to data analysis pipelines and practices, particularly useful when dealing with the output of computer vision analysis or directly with GPS analysis
CMPT 384	Information Visualization	Fundamentals of data visualization and presentation. Particularly important in Geomatics as the output of analysis is often an annotated map
CMPT 487	Image Processing and Computer Vision	Requirement for the automatic processing of satellite or drone data. Fundamentals of traditional image processing techniques.

Table 11: Required CMPT and GEOG courses for the Concentration in Geomatics

Intro GEOG	One of GEOG120, 125, 130	While not strictly required for entry into senior Geography courses, an introduction to the concepts and vocabulary of geography as a discipline is important
GEOG 222	Introduction to Geomatics	Covers core geographic concepts in geomatics
GEOG 322	Introduction to Geographic Information Systems	GIS systems are the core of spatial analysis and the key technical link between the computer science algorithms and geographic interpretation
GEOG 302	Quantitative Methods in Geography	Provides the link between algorithmically measured values and geographic conclusions through spatial statistics
GEOG 323	Remote Sensing	Remote sensing in this context refers to the acquisition and interpretation of aerial or satellite imagery

Students are provided with a list of ten further courses in Computer Science, of which they must select four, including one at the 400 level. The courses are grouped into three options: Software Engineering, Analytics, and Users and Visualization. These options are for advising purposes only; students are free to select any four courses according to their interests and goals.

Number	Name	Rationale	
Software Er	Software Engineering Option		
CMPT 214	Programming Principles and Practice	Covers low-level C++ programming and command line scripting and automation. Useful for processing large datasets	
CMPT 353	Full Stack Web Programming	Programming for web based applications. Linking web apps to databases	
CMPT 370	Intermediate Software Engineering	Software engineering principles and tools. Necessary for working on projects involving more than a few coders	
Analytics O	Analytics Option		
CMPT 317	Introduction to Artificial Intelligence	Fundamentals of AI including data representation, searching and constraint based solutions. Prerequisite for CMPT423 and CMPT489	
CMPT 360	Machines and Algorithms	Fundamentals of algorithms and algorithm design. Useful if designing new spatial analysis algorithms is goal, rather than application of existing ones	
CMPT 423	Machine Learning	Survey course on machine learning methods and algorithms with a focus on application. Necessary for advanced spatial data analytics	
CMPT 489	Deep Learning and Applications	Deep learning employs large neural networks and datasets for difficult AI tasks. Most recent advances in image processing have employed deep learning techniques	

Table 12: List of optional CMPT c	courses for the Concentration in Geomatic
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User Interface and Visualization Option		
CMPT 360	Machines and Algorithms	Fundamentals of algorithms and algorithm design. Optional prerequisite for CMPT484
CMPT 381	Implementation of Graphical User Interfaces	How to build user friendly and effective interfaces. Good for spatial app development. Optional prerequisite for CMPT484
CMPT 481	Human Computer Interaction	How people interact with machines and how to test to determine if those interactions are effective
CMPT 484	Graph Drawing and Network Visualization	Advanced interactive visualization techniques focusing on visualizing how things are related

Students are required to complete two of six senior geography classes grouped into Geography or Planning options. As with the Computer Science options, these options are only for advising, and students are free to select any courses based on interest and availability.

Number	Name	Rationale
Planning Optio	n	
PLAN 350	Transportation Planning and Geography	Application area of geomatics related to civic planning
PLAN 360	Urban Data Analysis and Visualization	Application of geomatics techniques to urban planning (ECON 211 required)
PLAN 390	Research and Field Methods in Planning	Techniques for acquiring data for urban planning
Geography Option		
GEOG 420	Cartography and Professional Communication	Advanced maps and mapping. Meshes well with CMPT384 and 484.
GEOG 423	Advanced Remote Sensing	Advanced topics in satellite image analysis

Table 13: List of Optional PLAN and GEOG courses for the Concentration in Geomatics

To complete an Honours degree in the Concentration in Geomatics, students must complete at least one course at the fourth year level from Table 3 or Table 4. Students must complete one of CMPT 407, GEOG 490 or PLAN 490. Students must maintain a CGPA of at least 70 across all major courses and 70 overall.

Concentration in Interactive System Design

The basis for the Concentration in Interactive System Design is the existing, successful interdisciplinary program in Arts and Science, currently offered as a B.A.&Sc. This concentration will train students with the computer science, design and psychology skills necessary to build effective, aesthetically pleasing, functional, front ends for apps, websites and games. The current program already trains students to work in technology, advertising and digital design, and students find placements at firms in the city and around the world. Because of its current stable and successful instantiation, only minor changes to the ISD area have been proposed as it becomes part of the Applied Computing program.

The ISD concentration will adopt the Applied Computing first and second year core programming, to facilitate movement between Applied Computing disciplines. In particular, this introduces the new Mathematics and Ethics requirements (MATH 163/164, PHIL 232) and adds CMPT 260. The second

change is the addition of a digital design course to the curriculum, as an option for completing the ART component of the degree.

Number	Name	Rationale
ARTH 120	Art and Visual Culture I	Fundamentals of Art History introducing key concepts, and early art periods, Prerequisite for ARTH 250/251
ARTH 121	Art and Visual Culture II	Fundamentals of Art History introducing key concepts, and later art periods, Prerequisite for ARTH 250/251
ART 1XX		Basic proficiency in Art. Any introductory studio class is a prerequisite for senior studio classes
PSY 120	Biological and Cognitive Bases of Psychology	Fundamentals of individual psychology.
PSY 121	Social Clinical Cultural and Developmental Behaviour	Fundamentals of social and clinical psychology
CMPT 281	Website Design and Development	Fundamentals of how web pages work. Design principles for websites.
CMPT 370	Intermediate Software Engineering	Software engineering principles and tools. Necessary for working on projects involving teams
CMPT 381	Implementation of Graphical User Interfaces	Core technical skills to build interactive systems
CMPT 481	Human Computer Interaction	How to measure and model users' interactions with computer systems.

Table 14: Required CMPT, ARTH and PSY courses for the Concentration in ISD

Students must either take a game design or information visualization specialization.

Table 15: Optional CMPT courses for the Concentration in ISD

Number	Name	Rationale
Game Design Option		
CMPT 306	Game Mechanics	Game development principles and algorithms.
CMPT 406	Game Design Workshop	Game design in teams.
Information Visualization Option		
CMPT 384	Information Visualization	Principles of information visualization.
CMPT 484	Graph Drawing and Network Visualization	Advanced visualization techniques for visualizing large amounts of data

Students must take one third year elective from the following list. Students can take the third year course from the options above as their third year elective. That is, students opting for the game option could take CMPT 384 as their third year course, and students taking the Information Visualization Option could take CMPT 306.

Table 16: Optional Third Year CMPT courses for the Concentration in ISD

Number	Name	Rationale
CMPT 306	Game Mechanics	Game development principles and algorithms.
CMPT 318	Data Analytics	Useful for students who want to incorporate web or user analytics into systems
СМРТ 353	Full Stack Web Programming	Useful for students who wish to specialize in web development.
СМРТ 360	Machines and Algorithms	Necessary prerequisite for students wishing to take the CMPT384/484 option.
CMPT 371	Software Management	Software engineering practice with a focus on team dynamics and project tracking
CMPT 384	Information Visualization	Principles of information visualization.

Students may choose further study in a number of Art and Art History related subjects, in part to facilitate student interest, and in part to accommodate larger student cohorts.

Table 17: Optional ART/design and ARTH courses for the Concer	ntration in ISD
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Number	Name	Rationale			
Art History Options (Choose one)					
ARTH 250	Introduction to Visual Culture	Interaction between visual art forms and culture			
ARTH 251	Art of the Internet	Investigates how the Internet has changed and shaped art forms			
Art Options (Choose two)					
ART 231	Animation and Digital Space	Principles of digital animation			
ART 235	Digital Imagery	Use of computer systems to create or enhance images			
ART 236	Digital and Integrated Practice IIA	Creation of works of art using digital technologies			
ART 237	Digital and Integrated Practice IIB	Creation of works of art using digital technologies			
ART 331	Animation and Digital Space II	Advanced animation			
INTS 111	Design and Society	Fundamental knowledge of design			

In addition to computer science and art courses which teach students how to build interactive media that are functional and aesthetically pleasing, students take psychology courses to understand how people perceive and interact with information. The courses in the psychology portion of the proposed ISD program remain unchanged from the current program. Students must choose three courses from the list below.

Table 18: Optional PSY courses for the Concentration in ISD

Number	Name	Rationale
PSY 213	Child Development	Useful is students wish to work on educational or developmental software
PSY 214	Adolescent Development	Useful is students wish to work on educational or developmental software
PSY 216	Psychology of Aging	Useful for students targeting apps at the elderly
PSY 226	Social Psychology	Useful for students building social media, advertising or groupware apps
PSY 252	Perceptual Processes	Useful for understanding how people perceive interfaces, particularly information visualization or productivity interfaces
PSY 253	Introduction to Cognitive Psychology	Useful for understanding how people perceive interfaces, particularly information visualization or productivity interfaces
PSY 255	Human Memory	Useful for building interfaces in general, and for information visualization
PSY 256	Psychology of Language	Useful for understanding how people perceive the written and spoken word, fundamental to a number of interactive systems

To complete an Honours degree in the ISD concentration, students must complete CMPT 407 and one of CMPT 406 or CMPT 484. CMPT 407 may be taken in place of or in addition to CMPT 406 or CMPT 484. Students must maintain a CGPA of at least 70 across all major courses and 70 overall.

Professional Internship Option

Students in the Applied Computing program will be eligible to participate in the existing Professional Internship Option offered by the department of Computer Science, which was previously available to students in the Bioinformatics and Interactive Systems Design programs. These students will be required to meet the same entry requirements as Computer Science students, as noted in the Catalogue.

Demand and Enrolment

Predicting demand for new programs is problematic, as student program intentions exist in an intersection of economic conditions, university marketing, and cultural zeitgeist, all of which are volatile on the timescale of degree approval. However, potentially actionable insight may be inferred from existing programs, industrial demand, and similar offerings at comparator institutions. Bioinformatics and Interactive System Designs are existing interdisciplinary degree programs within the College of Arts and Science and are meeting established needs. Geomatics meets a need for students to support the research and industrial development around remote monitoring, particularly for water and food security, and was discussed as a potential strategic area at the 2019 College of Arts and Science retreat. The Business concentration meets a clear need as articulated by our industrial stakeholders. Data analytics is a rapidly growing industry touching not just the IT sector, but traditional economic sectors like mining and agriculture, and is offered in some form at most of our comparator institutions. We are already training interdisciplinary students at the graduate level and struggling to adapt their needs to existing degree programs. All elements of this program are inherently needs-driven.

Computer Science has seen a dramatic year on year increase in enrollments, echoed by Bioinformatics and Interactive System Design. This increase in enrolments is happening worldwide, and is driven by a societal perception, largely born out in practice, that jobs in the twenty-first century will involve the

application of information technology to many fields. The last four years of enrolment data for Bioinformatics, Computer Science, and Interactive System Design are shown in Table 1. These numbers are underestimates of the totals for the programs, as approximately half the students in Arts and Science do not declare a major for a significant portion of their degree. However, in this case the trend is more important than the absolute numbers.

Student demand for the last five years for Computer Science, Bioinformatics and Interactive Systems Design.

	2016	2017	2018	2019	2020
Bioinformatics	9	13	16	20	20
Computer Science	533	638	734	806	862
Interactive Systems Design	61	66	68	70	72

Dalhousie is the comparator institution with the closest program. Their Bachelor of Applied Computer Science program has a similar intent and scope, but slightly different specializations. When they introduced their Bachelor of Applied Computer Science, their existing interdisciplinary degree programs accounted for 10% of their total enrollments, approximately the same in our department. After adding the BACS degree four years ago, their enrollments in the core Computer Science programming grew at the same rate as ours, but their BACS enrollments grew faster, reaching 20% of total enrollments and 250 students. Given the comparable sizes, and programs, we hope to experience the same growth as Dalhousie.

Explicit projections for the three new concentrations – Geomatics, Data Analytics, and Business – have not been performed. As these programs are based to a large extent on industry pull rather than student or academic push, we anticipate that they will be as popular as the ISD program once students recognize their post-graduation potential.

Strategic Alignment

The proposed program is intrinsically aligned with the University and College strategic priority for interdisciplinarity. While this program is aligned with strategic goals, it did not arise from their calls to action. This program does align with elements of the Computer Science strategic plan, articulated at the June 2017 departmental retreat, which called for a greater impact of computer science as a department and discipline across campus to reflect its growing importance to society.

Interdisciplinarity: The undergraduate proposal clearly addresses the interdisciplinary component of the university and college plans. By creating interdisciplinary programs within the context of existing course offerings and degree frameworks, we can move the interdisciplinary vision of the university and college forward with limited risk. This program provides clear ownership of degrees (the Department of Computer Science within the College of Arts and Science), clear paths to graduation though concentration-specific curation of synergistic courses, and limited cost growth through the leveraging of existing course offerings. This program makes high-demand interdisciplinary degrees possible and provides graduates with appropriately named degrees by curating existing courses and expertise in interesting and useful ways.

Each program was either reviewed (ISD, Bioinformatics), or created (Geomatics, Data Analytics, Business) by a joint committee consisting of the Computer Science Undergraduate Committee, and adhoc committee members proposed by the collaborating departments (Math and Stats, Geography, Art and Art History, Biology, and Edwards). These programs are not only interdisciplinary but were created by interdisciplinary teams. As the primary collaborators were involved in crafting the programs, the consultation with them is explicit. The Department Head of Computer Science also met with representatives from Plant Science, Geology, Public Health, and Economics to discuss the potential for inclusion, and the impact of the program.

Internationalization: This program does not explicitly address internationalization; however, there are aspects of it within the programs. The student body of the graduate program in Computer Science is predominantly international. We expect this trend to continue in the graduate level Applied Computing program. At the undergraduate level, Computer Science has a disproportionate number of international students compared to other units, particularly from East Asia and South Asia.

Indigenization: Indigenization within this program, and Computer Science in general, will focus on access and impact. The Data Analytics and Geomatics concentrations would be of potential interest to indigenous students as they speak directly to data sovereignty, which is a core component of many issues facing indigenous communities including land claims, environmental assessments and water rights. Training indigenous students in these disciplines would allow them to perform their own analysis of data collected on their traditional territories, enabling more fulsome participation in conversations about land use and impact.

Indigenization is a college-level priority in Arts and Science, and we intend to leverage existing College programs. STEM education in remote communities and on reserve is a concern, limiting Indigenous students' access to careers in Information Technology. This problem is common across rural Saskatchewan, and the Department of Computer Science has already created a course – CMPT 140: Creative Computing – to act as a bridge for students entering our program with limited Computer Science background. Indigenous students will have the option of entering the undergraduate degree through the Arts and Science Indigenous Student Achievement Pathways program. We will work with the College to include CMPT140: Creative Computing in this program, and will allocate a specific tutorial section for ISAP students within that program.

Relationships to Other Programs

Programs in Bioinformatics and Interactive System Design are already offered by the College of Arts and Science. These programs will be deleted and brought into Applied Computing. There are no similar programs on campus for the Geomatics, Data Analytics and Business concentrations; however, the non-Computer Science portion of these concentrations closely mirrors the minor in Geographic Information Systems, and the Certificate in Business. Enrollments may shift subtly, but it is difficult to accurately predict. The most likely short-term outcome is an increase in CS headcount, but a decrease in relative CS 3CUEs, as we will attract and retain additional students, but those students will take fewer Computer Science classes than their peers in the existing BSc in Computer Science.

The undergraduate program described here is innovative within Arts and Science and the University of Saskatchewan, in that it embeds interdisciplinary programming within disciplinary oversight. We are willing to develop this kind of programming, so that other units can follow suit. Computer Science remains open to similar programming from other departments incorporating computer science as a cognate topic. For example, a major in Commerce, with Computer Science as a cognate area, could be useful for someone wishing to work in IT Marketing; similarly, a major in Plant Science with Computer Science and Geography as cognate areas could provide an agriculturist with some geomatics training.

Impact on Students

Overall, we anticipate the impact on students to be largely positive. We hope to increase the number, diversity, and academic breadth of students in Computer Science. By widening the scope of our offerings through collaborating with other departments we aim to provide more options to more students. Because these options have been curated, we expect students in Applied Computing should have access to similar employment outcomes as their peers doing the traditional BSc in Computer Science. Increased enrolment implies larger classes, which could negatively impact student experience. However, most Computer

Science classes are already characterized by large sections, so the incremental impact will not be significant. The increased enrolment will require additional lab and tutorial sections, as noted in resources, potentially benefitting some students by opening additional time slots for tutorials.

Applied Computing could be more complex to navigate, particularly for students transferring in from other institutions. Closely working with collaborating departments to establish transfer credits will be necessary. While the structure of Applied Computing facilitates movement between concentrations or into or out of the BSc in Computer Science for the first two years of the program, transfer becomes more difficult starting in third year. This will have to be clearly communicated to students in advising literature and sessions.

Impact on the Department

As with student impact, we anticipate the increase in diversity to be a positive impact on the department. There is extraordinarily little additional curriculum introduced as part of this program, given it's scope. Only one new course, Data Analytics, will be introduced. The Bioinformatics courses are evolving from the existing program leading to no additional courses required. Named courses in degrees have precedence during assignment of duties, and care should be taken to ensure that the number of courses does not constrain the ability of the department to offer programming with its existing complement. Applied Computing adds four new courses to the list of courses which must be offered beyond the existing lists for the BSc in Computer Science, BSc in Bioinformatics, B.A.&Sc in Interactive System Design, and the Honours BSc in Software Engineering. These courses are CMPT 318 (Data Analytics, Bioinformatics, Geomatics), CMPT 384 (Data Analytics, Geomatics, Interactive System Design), CMPT 423 (Data Analytics), CMPT 487 (Geomatics). As these courses have traditionally been offered every term, and each have at least two faculty members who can teach them, we do not believe that the four additional courses will unduly constrain departmental resources.

The limited impact on the department assumes that incremental tuition revenues brought in by students will be used to hire incremental tutorial leaders, markers, and sessional lecturers to accommodate the growth.

Governance

As a degree in Applied Computing, the BSc, BSc Honours, MSc and PhD are administered by the Department of Computer Science, under the oversight of the College of Arts and Science or College of Graduate and Postdoctoral Studies. All routine administrative functions associated with the navigation of students through these degrees will be initially the domain of the Department of Computer Science. However, these degree programs are also inherently interdisciplinary. Some decisions, for example course equivalencies or course substitutions, cannot be made by Computer Science faculty or staff for all required courses in the program. Where possible, Computer Science faculty and staff will make decisions based on precedent (for example in allowing one of the many established equivalencies to STAT 245). When no precedent exists, Computer Science staff or faculty will contact the Head (or designate) of the relevant department to establish precedent. Cognate departments are required to nominate a contact (by default the Department Head) to handle equivalency determination and other student issues. As most departments already have a faculty member dedicated to this role (such as an Undergraduate Chair) this should not be burdensome. All curriculum level amendments are subject to College review and will necessarily involve the Heads or delegates of departments in the impacted concentrations.

Resource Requirements

One of the elegant properties of this proposal is the way it leverages existing resources in new ways to create cohesive and impactful programs. There is only one totally new course proposed in this program: Data Analytics. The Dean has expressed that this topic is a priority for the college, and Computer Science likely would have offered a course regardless. Bioinformatics will technically offer one new undergraduate

course (BINF151), but one undergraduate course (BINF 210) in the BINF program will be removed to make way. Although BINF 300 has been recently offered as a reading course as teaching overload, by modifying BINF 300 into CMPT 451 and making it cross-listed as a graduate class, a faculty member can teach CMPT 451 as their normal graduate course. We will create a new Honours thesis course for Applied Computing, but it will be offered in conjunction with our current Honours thesis course and will only have separate numbering to accommodate different evaluation criteria for interdisciplinary projects. No new courses (aside from the cross-listed course) are required at the graduate level. Four fiscal scenarios using the format recommended by Integrated Planning and Assessment (IPA) spreadsheet format are available upon request from the program coordinator.

Named courses in degrees have precedence during assignment of duties, and care should be taken to ensure that the number of courses does not constrain the ability of the department to offer programming with its existing complement. Applied Computing adds four new courses to the list of courses which must be offered beyond the existing lists for the BSc in Computer Science. BSc in Bioinformatics, B.A.&Sc in Interactive System Design, and the Honours BSc in Software Engineering. These courses are CMPT 318 (Data Analytics, Bioinformatics, Geomatics), CMPT 384 (Data Analytics, Geomatics, Interactive System Design), CMPT 423 (Data Analytics), CMPT 487 (Geomatics), While the bioinformatics courses are new. they replace existing courses and therefore do not change the total count. As these courses have traditionally been offered every term, and each have at least two faculty members who can teach them, we do not believe that the four additional courses will unduly constrain departmental resources. We have received commitments from all involved departments that spaces in required classes outside of Computer Science are available for students in this program. Computer Science did a strategic review of undergraduate programming two years ago and streamlined the BSc degree to allow double sectioning of upper year courses. This streamlining, combined with additional resources provided by the Dean and Provost, have provided us with a window of opportunity to entertain new programs. If the Computer Science growth rate continues as it has over the last decade, or potentially even accelerates following the Dalhousie example, Computer Science would be projected to run out of capacity again in 3-8 years. Growth may also create issues in other popular courses and program such as first year Biology, core Commerce courses, and senior Planning courses. Similar to Computer Science, we anticipate sufficient initial capacity in these disciplines, which will have to be re-evaluated as numbers increase. When enrolments reach saturation, the Provost and affected Deans will have to make a strategic decision to invest in additional growth or to cap enrollments.

Computer Science manages its own IT assets and has its own IT support. As such the impact on institutional ICT should be low for most of the offerings. There could be some impact on centrally administered products such as ArcGIS in the Geomatics concentration. This proposal does assume that the College continues to support Computer Science's computer renewal plans at the current level, and the university continues to support the renewal of licenses for software assets used in the Business and Geomatics concentrations. Computer Science has used innovative approaches to leverage its existing infrastructure to accommodate its expansion and will continue to do so. As classes continue to grow, Computer Science will continue to have to compete for the larger classrooms on campus. If this program increases the growth rate, as in the Dalhousie example, then this competition will become acute earlier. The competition for larger classroom spaces continues to be an issue across campus and is not unique to this program. Computer Science has recently completed an extensive set of renovations and a space reallocation exercise to accommodate its large thesis-based graduate program. As the graduate program is not expected to impact enrolments, it is not expected to create additional demands on the space.

Risks

The undergraduate program was driven by demand from industry and other units on campus. Expectations for growth in the program are predicated on industry demand for graduates creating desirable employment opportunities, and by extension driving student uptake. It is a risk that the anticipated demand might fail to materialize or might disappear due to external economic drivers. However, given that the anticipated start date is September 2022, the first full undergraduate cohort from this program would not be expected until May 2027. People with the ability to accurately predict economic conditions seven years in the future tend to be employed in more lucrative professions than academia. This risk will have to be actively measured and managed as the program rolls out.

Although we have received assurances from all impacted Dean's offices that spaces will be made available for this program, those assurances are not necessarily binding, and could be withdrawn at some point in the future. This risk exists for all interdisciplinary undergraduate programs, and will have to be actively managed by senior academic leadership if the University's goal of interdisciplinarity is to be achieved.

The fiscal risk associated with the project is limited. If the program proves too popular, this could put strain on some courses, in particular the cognate courses in Edwards, and second and third year Computer Science courses which are required in the BSc in Computer Science. Given growth projections, we would not expect this to be an issue until 2025 at the earliest. This could be managed through either additional investment in faculty positions, justified by the enrollments, through expanded use of sessional lecturers, or through capping enrollments in the program. Strain on first and second year Computer Science classes that all Computer Science and Applied Computing concentrations share could be managed by adding additional sections of those classes taught by sessional lecturers, at a substantially lower cost than the additional revenues driving the multiple sections. In a related vein, this program has the potential benefit of directing more students into Geography and senior Math and Statistics classes, which do have capacity. Four fiscal scenarios using the format recommended by Integrated Planning and Assessment (IPA) spreadsheet format are presented below.

The fiscal risk associated with support is also limited. Course scheduling will be somewhat more complex, as cross departmental class schedule coordination will be required. For students entering a concentration in first year, and progressing through the recommended course progression, this should be solvable and maintainable. For students transferring into a concentration from another concentration or degree, who might be taking some courses outside the proscribed sequence, this will be more complex, and may require additional administrative support and software assistance. However, this risk is not unique to this program and will have to be adequately addressed, regardless, if the university is serious about its interdisciplinary vision.

There is some risk in not offering this program at this time. Most of our Canadian comparator institutions have a form of Data Analytics programming. Failing to implement our own puts us at a competitive disadvantage. We are already engaged in substantial collaborative and interdisciplinary research at the graduate level. Failing to create the graduate level Applied Computing degrees will place an unnecessary impediment on the functioning and growth of the department's research effort.

Budget Scenarios

A spreadsheet with the details of these scenarios was submitted with this document.

Understanding the potential financial impact of the introduction of new programs is important. While as noted in the risk assessment in the main document, we expect the incremental impact to be limited, some quantitative analysis of potential revenues and expenses is warranted. Using the Integrated Planning and Assessment template, we have projected four enrollment scenarios over a five-year time horizon. Numbers assume that students are taking a full 15 credit load per term. Total tuition to the university is calculated. No incremental graduate students are assumed. We assume attrition is zero, which is bold, but adding another parameter would expand the search space substantially. These numbers are meant to demonstrate potential trends and should not be taken as definitive projections.

The enrolment model anticipates an initial bump in enrolments above historic norms, followed by geometric growth at a specific rate. In the weak assumption, only an average of one incremental student is recruited during the initial bump. In subsequent models an initial burst of an average of 10 incremental students per concentration is posited. This incremental baseline is held constant across the first four years of the program (10 incremental students continue to second year, joined by 10 new incremental students in first year). In the fifth year, the incremental bump from the first year is deducted from the enrolment, as they have been assumed to have graduated. Three growth rates are modeled: 1% (lower

than College averages), 10% (higher than college averages, and comparable to Computer Science) and 20% (higher than Computer Science, but consistent with Dalhousie's Applied Computing). Two teaching assistants (one TA and one marker) are added for every 30 incremental students. Two to four sessional lecturers are added in year three onward in all but the weak growth scenario.

Substantial profits to the university are posited in all but the weak growth scenario. In the weak growth scenario, a profit to the university is realized, but is too small to be significant. In the worst case, we introduce novel interdisciplinary programming with only modest returns. In the strong and very strong growth scenarios, substantial increased revenues are realized. In both those cases, Computer Science, and departments associated with concentrations contributing to the growth would have strong cases for incremental faculty positions to support the success of the programming. In the moderate case, Computer Science, and the departments associated with concentration contributing to the growth would have a strong case for maintaining current faculty complements.



Program(s) to be deleted: Bioinformatics - Bachelor of Science Honours and Four-year

Effective date of termination: May 2022

1. List reasons for termination and describe the background leading to this decision.

The Department of Computer Science is proposing a new program called Applied Computing, with a variety of named concentrations, in order to offer interdisciplinary programming with a common foundation. The existing Bioinformatics program will be deleted, and a new named concentration of the Applied Computing program in Bioinformatics will be created. We are taking the opportunity to revise the dedicated bioinformatics courses in order to revitalize the program.

2. Technical information.

2.1 Courses offered in the program and faculty resources required for these courses.

The dedicated course offerings in the bioinformatics program are BINF 200, BINF 210, BINF 300, BINF 400, which are each offered once each year.

BINF 200 and BINF 210 are each taught by one instructor in Computer Science. BINF 300 has been offered as a reading course, and has been taught as teaching overload for a number of years. BINF 400 is the Honours project course, and is taught as an administrative duty.

2.2 Other resources (staff, technology, physical resources, etc) used for this program.

BINF 200 has labs that use the standard computer science computer labs maintained by the tech staff of the Department of Computer Science. BINF 210 uses the standard Arts & Science computer labs.

2.3 Courses to be deleted, if any.

BINF 210, BINF 400

2.4 Number of students presently enrolled.

Total: 13 students were enrolled as of the Fall Term Census Headcount.

2.5 Number of students enrolled and graduated over the last five years.

Total number of students enrolled over last 4 years is 41 in the Bioinformatics program. 2015/2016: 6 2016/2017: 9 2017/2018: 13 2018/2019: 17 2019/2020: 16

Total number of graduates over last 5 years is 15 students. Breakdown: 2016: 1 2017: 2 2018: 3 2019: 6 2020: 4

3. Impact of the termination. Internal

3.1 What if any impact will this termination have on undergraduate and graduate students? How will they be advised to complete their programs?

Students currently enrolled in the Bioinformatics program can remain in the existing program. BINF 400, a required course for the Honours program, is being deleted, but students will be able to take the proposed Applied Computing Honours project class (CMPT 407), as a substitution. As the course deletions/revisions do not take effect until May 2022, the department will continue to offer the current courses in 2021-22.

3.2 What impact will this termination have on faculty and teaching assignments?

There will be no changes to the number of courses taught by faculty from the previous bioinformatics courses to the new ones, for the following reasons:

- BINF 200 is proposed to be relabeled to BINF 351, both of which require one instructor per year.
- BINF 210 is proposed to be eliminated, and replaced by BINF 151, both of which require one instructor per year.
- BINF 300 is proposed to be relabeled to CMPT 451, and it will be cross-listed with a new graduate course, CMPT 841. BINF 300 was offered as a reading course for several years as teaching overload and CMPT 451/CMPT 831 will not be. However, it is standard in the Department of Computer Science for each faculty member in the department to teach exactly one graduate course per year, and CMPT 451/CMPT831 would serve as that graduate course for one member of the Department of Computer Science. The result of this change will be that one of the other graduate courses currently taught will not be taught every year, but will instead be offered in rotation. This allows CMPT 451 to be taught "for free" using the standard graduate teaching assignment, and improves the experience for students taking CMPT 451.

3.3 Will this termination affect other programs, departments or colleges?

No other departments are affected by the deletion of the program.

3.4 If courses are also to be deleted, will these deletions affect any other programs?

The Department of Biochemistry, Microbiology and Immunology will be directly affected by the deletion of BINF 210. Students in their B.Sc. (BMSC) program currently have a requirement to take either BINF 210 or BINF 200. Communication with the Undergraduate Affairs Committee of the Department of Biochemistry, Microbiology and Immunology indicated that they will replace their requirement with another to require "either BINF 151 or BINF 351". They were enthusiastic about the new course and revision.

Although BINF 200 is not being deleted and is being revised into BINF 351, the Department of Biology has a C4 Major requirement where they list 21 courses from which 33 CUs must be taken, with BINF 200 being an option. Communication with the head of the Department of Biology indicated that they will likely replace BINF 200 with the equivalent BINF 351 in their list of possible courses to fulfill this requirement.

3.5 Is it likely, or appropriate, that another department or college will develop a program to replace this one?

Yes, the Department of Computer Science is developing a stream in Bioinformatics to replace this program.

3.6 Is it likely, or appropriate, that another department or college will develop courses to replace the ones deleted?

Yes, the Department of Computer Science is developing BINF 151 to replace BINF 210, and BINF 400 will be replaced with CMPT 407 that serves all Applied Computing students.

3.7 Describe any impact on research projects.

There will be no impact on research projects, due to the new stream in Bioinformatics.

3.8 Will this deletion affect resource areas such as library resources, physical facilities, and information technology?

Due to the deletion of BINF 210, the Arts and Science computer lab will no longer be necessary for the lab component of BINF 210 (the new course BINF 151 created in its place will use the Department of Computer Science's computer labs due to the programming content of the course).

3.9 Describe the budgetary implications of this deletion.

There will be no changes in terms of the courses taught. There will however be a reduction in administrative duties required by faculty involved in the program. BINF 300 will no longer be

taught as overload by a faculty member each year. Furthermore, the BINF 400 Honours project course will no longer require a separate administrative responsibility. <u>External</u>

3.10 Describe any external impact (e.g. university reputation, accreditation, other institutions, high schools, community organizations, professional bodies).

There will be no impact on accreditation or professional bodies. However, we do believe that there is a positive external impact to renaming the program from Bioinformatics to Applied Computing with a Bioinformatics stream. Indeed, students in high school usually do not have any idea about bioinformatics at all, affecting recruitment and students enrolment in the program. The Bioinformatics name faces similar issues after graduation from the program, as it can be deceptive to those in industry hiring graduates of Bioinformatics that they are fully trained in Applied Computing, and graduates could risk being pigeonholed into only biological areas.

3.11 Is it likely or appropriate that another educational institution will offer this program if it is deleted at the University of Saskatchewan?

The Department of Computer Science will offer it as a stream.

<u>Other</u>

3.12 Are there any other relevant impacts or considerations?

None.

3.13 Please provide any statements or opinions received about this termination.

There were discussions with both the Department of Biochemistry, Microbiology and Immunology and the Department of Biology regarding the termination of the program, and the creation of the new similar program with a stream. Communication regarding the course changes has been sent.



Program(s) to be deleted: Interactive Systems Design – Bachelor of Arts and Science Four-year

Effective date of termination: May 2022

1. List reasons for termination and describe the background leading to this decision.

The Department of Computer Science is proposing a new Applied Computing program. As part of that proposal, Interactive Systems Design will become a named concentration in Applied Computing, rather than a stand-alone major.

2. Technical information.

2.1 Courses offered in the program and faculty resources required for these courses.

All courses designed for this program will be used in the new Applied Computing program, Interactive System Design stream.

2.2 Other resources (staff, technology, physical resources, etc.) used for this program.

These resources used for this program will continue to be used in the proposed Applied Computing program.

2.3 Courses to be deleted, if any.

N/A

2.4 Number of students presently enrolled.

62 students were enrolled at the time of the Fall Term Census Headcount. As many students in Arts & Science do not declare a major in their first and sometimes second years, this number is likely low.

2.5 Number of students enrolled and graduated over the last five years.

Enrolments:

2015/2016: 61 2016/2017: 66 2017/2018: 68 2018/2019: 70 2019/2020: 72 Graduates: 2016: 6 2017: 2 2018: 6 2019: 13 2020: 6

3. Impact of the termination. Internal

3.1 What if any impact will this termination have on undergraduate and graduate students? How will they be advised to complete their programs?

This program is being replaced by an almost identical program in Applied Computing. Existing students can complete the BA&Sc in Interactive System Design or switch to the BSc in Applied Computing with a concentration in Interactive System Design.

3.2 What impact will this termination have on faculty and teaching assignments?

There will be no net impact on teaching assignments

3.3 Will this termination affect other programs, departments or colleges?

No.

3.4 If courses are also to be deleted, will these deletions affect any other programs?

N/A

3.5 Is it likely, or appropriate, that another department or college will develop a program to replace this one?

No, the program is replaced by the proposed Applied Computing major.

3.6 Is it likely, or appropriate, that another department or college will develop courses to replace the ones deleted?

N/A

3.7 Describe any impact on research projects.

No impact.

3.8 Will this deletion affect resource areas such as library resources, physical facilities, and information technology?

N/A

3.9 Describe the budgetary implications of this deletion.

None, all resources used for this program will be used in the Applied Computing major.

External

3.10 Describe any external impact (e.g. university reputation, accreditation, other institutions, high schools, community organizations, professional bodies).

Some effort will have to be made with educational and industrial stakeholders to establish that the program is not gone, just rebranded. This effort is already underway as part of the Applied Computing consultation process.

3.11 Is it likely or appropriate that another educational institution will offer this program if it is deleted at the University of Saskatchewan?

N/A

<u>Other</u>

3.12 Are there any other relevant impacts or considerations?

N/A

3.13 Please provide any statements or opinions received about this termination.

N/A

College Statement

From Gordon DesBrisay, Vice Dean Academic

I am pleased to confirm that the College of Arts and Science supports the proposed Major in Applied Computing with named concentrations in Bioinformatics, Business, Data Analytics, Geomatics, and Interactive Systems Design, which will replace, reconfigure, and add to, the existing programs in Bioinformatics and Interactive Systems Design. I am also pleased to note that the Professional Internship Option will be retained and available to students in Applied Computing.

The College of Arts and Science is working to provide innovation program options that meet student need and demand. The new program will allow students to build a solid foundation of computer science, and add to that an applied area of interest. This will enhance their opportunities for future employment in the designated area, and for admission to graduate school as interdisciplinary students.

The Academic Programs Committee (BSc) approved the proposal for the new program in Applied Computing and the proposal to delete Bioinformatics, and the Academic Programs Committee (BA&Sc) approved the proposal to delete Interactive Systems Design, on January 15, 2021. Each of these proposals were approved by the College Faculty Council on February 24, 2021.

Applied Computing – Notice of Intent

Introduction and Program Description

Traditionally, computer science was taught as a single discipline, producing experts in creating software, who then worked with domain experts to craft solutions to particular problems. However, as computer science has become more sophisticated and widespread there is increasing demand within industry for graduates who have knowledge of computer science and a domain area. Traditional industries such as mining and agriculture have joined the ranks of more established technology users in IT, alongside medicine, business and design. There is a need for graduates with knowledge in both computing and domains of application.

Offering interdisciplinary degrees is a reoccurring challenge for universities. Degree stewardship and administration can be hard to assign, classes difficult to schedule, and faculty resourcing uncertain. This has led to interdisciplinary programs languishing. It is even more difficult to offer interdisciplinary programming in the context of an accredited program like Computer Science, where external agencies constrain potential choices and require more depth in the primary subject than might be required for an interdisciplinary practitioner. While students have some freedom to form an ad hoc interdisciplinary study plan by combining an existing majors program with a selection of courses from other field, such ad hoc combinations create challenges for students who must understand not only the content of individual courses, but also how that content meshes with other disciplines.

To address stakeholders' need for graduates with both computing and domain expertise while operating under the constraints of university structure and governance, we propose a new model for interdisciplinary programming, which we term the skinny major. In a skinny major model, a primary unit composes a core major program requiring the minimum number of disciplinary credit units for that college (in Arts and Science 36), leaving space in standard 120cu degree programs for minor-like ensembles of courses in cognate disciplines. This space is filled with carefully curated combinations of courses, in collaboration with colleagues from cognate disciplines, leading students away from ad hoc interdisciplinary choices. To avoid credential bloat and associated administrative cost, these curated packages of courses can be instantiated as named streams within an overarching degree, for example a Degree in Applied Computing in Bioinformatics, or a Degree in Applied Computing in Geomatics. Because these streams are curated, scheduling conflicts can be encoded and avoided using established software. Similarly, credentialing can happen automatically, as there are clear course packages required to graduate.

Computer Science is willing to take the lead in developing skinny major interdisciplinary programming. This proposal identifies a core program of existing courses from the Computer Science degree programs (with courses from Computer Science, Math and Philosophy) that would form the basis of a skinny major. When combined with carefully chosen courses from other fields, this degree program can form synthesized knowledge directly applicable to stakeholders in the community. By employing a skinny major, we obtain the flexibility to grow programming to meet the needs of local stakeholders with reduced overhead.

Proposed Undergraduate Applied Computing Streams

We propose to terminate two existing programs and replace with streams within the Applied Computing degree. We further propose to instantiate three additional programs in areas of Applied Computing which meet emerging needs and opportunities. Students would receive either four-year Bachelor of Science (BSc) or Bachelor of Science Honours (BSc Hon) credentials.

Bioinformatics (Cognate areas: Biology, Biochemistry) Bioinformatics is an established, but niche, program in the college. Adding this program to Applied Computing would allow for a reimagining of content and broader reach. **Interactive System Design (Cognate areas: Art, Psychology)** The ISD program is an established BASc program with solid enrolments, which trains graduates to work on front end computing and interactive system design. **Data Analytics (Cognate areas: Mathematics, Statistics)** This program would focus on training general purpose data scientists, without a specific application domain. What they would lose in domain knowledge they would gain in mathematical rigor. This degree would be of interest to those who have a cognate degree already, as well as those

interested in analytical mechanics.

Geomatics (Cognate area: Geography) Understanding geographically anchored data is important in areas such as mining, agriculture, and city planning. This program would focus on the programmatic use of GIS and satellite-based systems and data in water management, agriculture, mining and civic planning.

Business (Cognate areas: General Business and Marketing) There is a significant industrial demand for graduates who understand computing, data, and business processes. We anticipate that this will be a popular stream.

Graduate Degrees in Applied Computing

Interdisciplinary graduate work is becoming more common in the Department of Computer Science at the University of Saskatchewan. However, students receiving graduate degrees in Computer Science are expected to be able to teach in accredited Computer Science programs, putting additional strain on students transferring in from other disciplines. A program that would allow students to receive interdisciplinary training with fewer disciplinary constraints would remove this strain. Our current plan for MSc and PhD in Applied Computing follows our current graduate program structure at the MSc and PhD levels, but relaxes entry requirements, allows up to half the committee members to be from outside Computer Science, and permits up to half of the courses to be from outside of Computer Science.

Demand and Enrolment

Predicting demand for new programs is problematic, as student program intentions exist in an intersection of economic conditions, university marketing, and cultural zeitgeist, all of which are volatile on the timescale of degree approval. However, potentially actionable insight may be inferred from existing programs, industrial demand, and similar offerings at comparator institutions. Bioinformatics and Interactive System Designs are existing interdisciplinary degree programs within the College of Arts and Science and are meeting established needs. Geomatics meets a need for students to support the research and industrial development around remote monitoring, particularly for water and food security, and was discussed as a potential strategic area at the 2019 College of Arts and Science retreat. The business stream meets a clear need as articulated by our industrial stakeholders. Data analytics is a rapidly growing industry touching not just the IT sector, but traditional economic sectors like mining and agriculture, and is common in some form at our comparator institutions. We are already training interdisciplinary students at the graduate level and struggling to adapt their needs to existing degree programs. All elements of this program are inherently needs-driven.

Computer Science has seen a dramatic year on year increase in enrollments, echoed by Bioinformatics and Interactive System Design. This increase in enrolments is happening worldwide, and is driven by a societal perception, largely born out in practice, that jobs in the twenty-first century will involve the application of information technology to many fields. The last four years of enrolment data for Bioinformatics, Computer Science, and Interactive System Design are shown in Table 1. These numbers are underestimates of the totals for the programs, as approximately half the students in Arts and Science do not declare a major for a significant portion of their degree. However, in this case the trend is more important than the absolute numbers.

Table 1: Student demand for the last five years for Computer Science, Bioinformatics and Interactive Systems Design.

	2016	2017	2018	2019	2020
Bioinformatics	9	13	16	20	20
Computer Science	533	638	734	806	862
Interactive Systems Design	61	66	68	70	72

Dalhousie is the comparator institution with the closest program. Their Bachelor of Applied Computer Science program has a similar intent and scope, but slightly different specializations. Dalhousie's Computer Science program is approximately the same size as ours. When they introduced their Bachelor of Applied Computer Science, their existing interdisciplinary degree programs accounted for 10% of their total enrollments, approximately the same in our department. After adding the BACS degree four years ago, their enrollments in the core Computer Science programming grew at the same rate as ours, but their BACS enrollments grew faster, reaching 20% of total enrollments and 250 students. Given the comparable sizes, and programs, we hope to experience the same growth as Dalhousie.

Explicit projections for the three new streams - Geomatics, Data Analytics, and Business - have not been performed. As these programs are based to a large extent on industry pull rather than student or academic push, we anticipate that they will be as popular as the ISD program once students recognize their post-graduation potential. Graduate program

We currently have the largest research-intensive graduate program at the university. Almost all our graduate students are funded, and the majority through grants held by professors. Our current program is limited by faculty time and financial resources, and we are near capacity now. Adding an MSc and PhD in Applied Computing will not change this fundamental calculus. Our current program is also characterized by substantial interdisciplinary research. For example, our world leading Human Computer Interaction and Software Engineering groups have substantial collaborations across the university (Social Sciences and SENS) and with industry. Our Bioinformatics group collaborate with life scientists in Health, Biology and Agriculture. Image processing and data analytics research is core to P2IRC. Because of the scope of our collaborative activities, we attract a diverse group of graduate students. Instead of changing the number of graduate students in the program, the changes will allow us to more adroitly accommodate students from non-traditional computing backgrounds. We anticipate that the proposed degree will change the disciplinary breadth and diversity of our graduate program, rather than the overall numbers.

Strategic Alignment

The proposed program is intrinsically aligned with the University and College strategic priority for interdisciplinarity. While this program is aligned with strategic goals, it did not arise from their calls to action. This program does align with elements of the Computer Science strategic plan, articulated at the June 2017 departmental retreat, which called for a greater impact of computer science as a department and discipline across campus to reflect its growing importance to society.

Undergraduate Program Interdisciplinarity

The undergraduate proposal clearly addresses the interdisciplinary component of the university and college plans. By creating interdisciplinary programs within the context of existing course offerings and degree frameworks, we can move the interdisciplinary vision of the university and college forward with limited risk. This program provides clear ownership of degrees (the Department of Computer Science within the College of Arts and Science), clear paths to graduation though stream-specific curation of synergistic courses, and limited cost growth through the leveraging of existing course offerings. This program makes high-demand interdisciplinary degrees possible and provides graduates with appropriately named degrees by curating existing courses and expertise in interesting and useful ways.

Each program was either reviewed (ISD, Bioinformatics), or created (Geomatics, Data Analytics, Business) by a joint committee consisting of the Computer Science Undergraduate Committee, and ad-hoc committee members proposed by the collaborating departments (Math and Stats, Geography, Art and Art History, Biology, and Edwards). These programs are not only interdisciplinary but were created by interdisciplinary teams. As the primary collaborators were involved in crafting the programs, the consultation with them is explicit. The Department Head of Computer Science also met with representatives from Plant Science, Geology, Public Health, and Economics to discuss the potential for inclusion, and the impact of the program.

Graduate Program Interdisciplinarity

At the graduate level, the simple relaxation of the requirement that graduates must be able to teach an accredited program in computer science removes many of the issues facing interdisciplinary graduate students. The further relaxation of course requirements (up to half outside Computer Science), and committee membership (the committee may be composed of the supervisor, a Computer Science faculty member and a faculty member from outside the department) removes barriers to effective interdisciplinary program creation. Unlike the undergraduate degrees, which have a number of self-directed streams with proscribed programming, research intensive graduate degrees are curated at the individual student level by the supervisory committee. This curation is already part of most researchintensive degrees, although typically within a discipline. In many ways the program is catching up with the reality of the research we are doing, particularly in collaboration with industry (SOAR CREATE), the social sciences (SWaGUR CREATE), agriculture and biosciences (P2IRC) and water security (GIWS), to name just the major collaborative grants. Many smaller, but still significant, collaborations exist between faculty in the department and industry, branches of government, health authorities and other departments on campus. The breadth of collaboration has attracted graduate students with more diverse backgrounds to our department. Because this program would be unique nationally - other Applied Computing programs are not research based - we have an excellent opportunity to attract strong interdisciplinary students from across Canada and around the world.

Internationalization
This program does not explicitly address internationalization; however, there are aspects within the programs. The student body of the graduate program in Computer Science is predominantly international. We expect this trend to continue in the graduate level Applied Computing program. At the undergraduate level, Computer Science has a disproportionate number of international students compared to other units, particularly from East Asia and South Asia.

Indigenization

Indigenization within this program, and Computer Science in general will focus on access and impact. The Data Analytics and Geomatics streams would be of potential interest to indigenous students as they speak directly to data sovereignty, which is a core component of many issues facing indigenous communities including land claims, environmental assessments and water rights. Training indigenous students in these disciplines would allow them to perform their own analysis of data collected on their traditional territories, enabling more fulsome participation in conversations about land use and impact.

Indigenization is a college-level priority in Arts and Science, and we intend to leverage existing College programs. STEM education in remote communities and on reserve is a concern, limiting Indigenous students' access to careers in Information Technology. This problem is common across rural Saskatchewan, and the Department of Computer Science has already created a course -- CMPT140: Creative Computing – to act as a bridge for students entering our program with limited Computer Science background. CMPT140 is a course designed to introduce coding concepts gradually, as there is limited opportunity for students outside of the major urban centers to take either grade 11 or 12 Computer Science in high school. Indigenous students will have the option of entering the undergraduate degree through the Arts and Science Indigenous Student Achievement Pathways program. We will work with the College to include CMPT140: Creative Computing in this program, and will allocate a specific tutorial section for ISAP students within that program.

Relationships to Other Programs

Undergraduate Program

Programs in Bioinformatics and Interactive System Design are already offered by the College of Arts and Science. These programs will be deleted and brought into Applied Computing. There are no similar programs on campus for the Geomatics, Data Analytics and Business streams; however, the non-Computer Science portion of these streams closely mirrors the minor in Geographic Information Systems, and the Certificate in Business. Enrollments may shift subtly, but it is difficult to accurately predict. The most likely short-term outcome is an increase in CS headcount, but a decrease in relative CS 3CUEs, as we will attract and retain additional students, but those students will take fewer Computer Science classes than their peers in the existing BSc in Computer Science. The undergraduate program described here is innovative within Arts and Science and the University of Saskatchewan, in that it embeds interdisciplinary programming within disciplinary oversight. We are willing to develop this kind of programming, so that other units can follow suit. Computer Science remains open to similar programming from other departments incorporating computer science as a cognate topic. For example, a skinny major in Commerce, with Computer Science as a cognate area, could be useful for someone wishing to work in IT Marketing; similarly, a skinny major in Plant Science with Computer Science and Geography as cognate areas could provide an agriculturist with some geomatics training.

Graduate Program

The graduate program is most related to the MSc and PhD programs in Computer Science. Introducing the new program will benefit the existing programs by creating separate entry and degree requirements for disciplinary and interdisciplinary students in our programs. This will allow us to maintain our current degree programs and their existing entry requirements for disciplinary students, while offering more appropriate requirements for interdisciplinary students. This will be better for students and take pressure off our departmental graduate committee who must make difficult decisions when admitting students with a non-traditional background, who would undoubtably be able to undertake research in the department.

Resource Requirements

One of the elegant properties of this proposal is the way it leverages existing resources in new ways to create cohesive and impactful programs. There is only one totally new course proposed in this program: Data Analytics. The Dean has expressed that this topic is a priority for the college, and Computer Science likely would have offered a course regardless. Bioinformatics will technically offer four new courses, but four courses in the BINF program will be removed to make way. We will create a new honors thesis for Applied Computing, but it will be offered in

conjunction with our current honors thesis and will only have separate numbering to accommodate different evaluation criteria for interdisciplinary projects. No new courses are required at the graduate level. We have received commitments from all involved departments that spaces in required classes outside of Computer Science are available for students in this program. Computer Science did a strategic review of undergraduate programming two years ago and streamlined the BSc degree to allow double sectioning of upper year courses. This streamlining, combined with additional resources provided by the Dean and Provost, have provided us with a window of opportunity to entertain new programs. If the Computer Science growth rate continues as it has over the last decade, or potentially even accelerates following the Dalhousie example, Computer Science would be projected to run out of capacity again in 3-8 years. Growth may also create issues in other popular courses and program such as first year Biology, core Commerce courses and senior Planning courses. Similar to Computer Science, we anticipate sufficient initial capacity in these disciplines, which will have to be re-evaluated as numbers increase. When enrolments reach saturation, the Provost and affected Deans will have to make a strategic decision to invest in additional growth or to cap enrollments.

Computer Science manages its own IT assets and has its own IT support. As such the impact on institutional ICT should be low for most of the offerings. There could be some impact on centrally administered products such as ArcGIS in the Geomatics stream. This proposal does assume that the College continues to support Computer Science's computer renewal plans at the current level, and the university continues to support the renewal of licenses for software assets used in the Business and Geomatics streams. Computer Science has used innovative approaches to leverage its existing infrastructure to accommodate its expansion and will continue to do so. As classes continue to grow, Computer Science will continue to have to compete for the larger classrooms on campus. If this program increases the growth rate, as in the Dalhousie example, then this competition will become acute earlier. The competition for larger classroom spaces continues to be an issue across campus and is not unique to this program. Computer Science has recently completed an extensive set of renovations and a space reallocation exercise to accommodate its large thesis-based graduate program. As the graduate program is not expected to impact enrolments, it is not expected to create additional demands on the space.

Risks

At the graduate level there are limited institutional risks, as the graduate program is largely based on our existing programming, streamlined for collaboration and interdisciplinarity. Some care will have to be taken with communications, particularly for PhD graduates seeking academic appointments. Future employers will have to understand the interdisciplinary nature of the degrees. Participants' breadth will likely extend beyond computer science, making graduates more specialized within computer science than their colleagues with a graduate degree in Computer Science. This specialization within computer science, and breadth outside will need to be accurately rendered in communications with other institutions and employers. Our experience with communications around the Bioinformatics and ISD programs gives us confidence we will be able to successfully manage communications regarding Applied Computing.

The undergraduate program was driven by demand from industry and other units on campus. Expectations for growth in the program are predicated on industry demand for graduates creating desirable employment opportunities, and by extension driving student uptake. It is a risk that the anticipated demand might fail to materialize or might disappear due to external economic drivers. However, given that the anticipated start date is September 2022, the first full undergraduate cohort from this program would not be expected until May 2027. People with the ability to accurately predict economic conditions seven years in the future tend to be employed in more lucrative professions than academia. This risk will have to be actively measured and managed as the program rolls out.

Although we have received assurances from all impacted Dean's offices that spaces will be made available for this program, those assurances are not necessarily binding, and could be withdrawn at some point in the future. This risk exists for all interdisciplinary undergraduate programs, and will have to be actively managed by senior academic leadership if the University's goal of interdisciplinarity is to be achieved.

The fiscal risk associated with the project is limited. If the program proves too popular, this could put strain on some courses, in particular the cognate courses in Edwards, and second and third year Computer Science courses which are required in the BSc in Computer Science. Given growth projections, we would not expect this to be an issue until 2025 at the earliest. This could be managed through either additional investment in faculty positions, justified by the enrollments, through expanded use of sessional lecturers, or through capping enrollments in the program. Strain on first and second year Computer Science classes that all Computer Science and Applied Computing streams share could be managed by adding additional sections of those classes taught by sessional lecturers, at a

substantially lower cost than the additional revenues driving the multiple sections. In a related vein, this program has the potential benefit of directing more students into Geography and senior Math and Statistics classes, which do have capacity.

The fiscal risk associated with support is also limited. Course scheduling will be somewhat more complex, as cross departmental class schedule coordination will be required. For students entering a stream in first year, and progressing through the recommended course progression, this should be solvable and maintainable. For students transferring into a stream from another stream or degree, who might be taking some courses outside the proscribed sequence, this will be more complex, and may require additional administrative support and software assistance. However, this risk is not unique to this program and will have to be adequately addressed, regardless, if the university is serious about its interdisciplinary vision.

There is some risk in not offering this program at this time. Most of our Canadian comparator institutions have a form of Data Analytics programming. Failing to implement our own puts us at a competitive disadvantage. We are already engaged in substantial collaborative and interdisciplinary research at the graduate level. Failing to create the graduate level Applied Computing degrees will place an unnecessary impediment on the functioning and growth of the department's research effort.

Timing

This program is anticipated to start September, 2022. This is the earliest feasible start date given the many levels of approval that this program needs to navigate. The current timeline provides for PPC/IPC approval in November, submission to the Arts and Science APC in December, submission to University APC in February, and final approval at University Council in the Spring. Although it is feasible to approve the program for March, assuming the smooth passage through all stage gates, this will miss the cut off for inclusion in the University Calendar, forcing a start date of September 2022. This will provide ample time for Student Information Services and other support organizations a year to prepare for the launch. It will similarly allow sufficient time to advertise the new program to existing and entering students.



MEMORANDUM

TO:	Kevin Stanley, Head, Department of Computer Science Gordon DesBrisay, Associate Dean, College of Arts & Science Alexis Dahl, Director, Academic Programs, College of Arts & Science
FROM:	Darrell Mousseau, Chair, Planning and Priorities Committee of Council
DATE:	November 23, 2020
RE:	Feedback on the Program Proposals in Applied Computing

On behalf of the Planning and Priorities Committee (PPC) of Council, thank you for attending the meeting of November 18, 2020 to discuss the proposed programming in Applied Computing in the College of Arts & Science.

At the meeting, the Committee passed a motion to forward the proposal to the Academic Programs Committee for decision.

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

Melissa Just, Interim 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

Record of Consultation

Geomatics:

From: Aitken, Alec <alec.aitken@usask.ca>
Sent: Wednesday, January 6, 2021 6:28 AM
To: Stanley, Kevin <kgs325@mail.usask.ca>; Dahl, Alexis <alexis.dahl@usask.ca>
Subject: Program proposal in Applied Computing

Good morning Kevin and Alexis,

I am writing in support of the program proposal in Applied Computing, especially the Geomatics stream within this program. Kevin has insured that the department of Geography and Planning was consulted on several occasions over the past year about the proposed curricula. These consultations involved direct engagement with Geography and Planning faculty who will instruct the courses in the Geomatics stream (Scott Bell, Krystopher Chutko, Ehab Diab, Xulin Guo). There is enrolment capacity in all of the geography and planning courses identified in the Geomatics stream and we look forward to working with Computing Science students in our course offerings. I recommend approval of this innovative program.

Sincerely,

Alec Aitken Professor and Head Geography and Planning

Bioinformatics

From: McQuillan, Ian <mcquillan@cs.usask.ca> Sent: Wednesday, January 6, 2021 2:37 PM To: challenge.coordinator@artsandscience.usask.ca Subject: Fwd: Bioinformatics courses and program

To whom it may concern,

This email is to accompany the proposal to create a new course BINF 151 (and the deletion of BINF 210) for the January 2021 Challenge period. The email indicates that the Department of Biochemistry, Microbiology and Immunology will change their undergraduate program requirement from requiring "either BINF 210 or BINF 200" to "either BINF 151 or BINF 351".

Sincerely, Ian

Ian McQuillan Professor of Computer Science

mcquillan@cs.usask.ca ianmcquillan.com Department of Computer Science The University of Saskatchewan Saskatoon, Canada

Begin forwarded message:

From: "Anderson, Kyle" <<u>kyle.anderson@usask.ca</u>> Subject: RE: Bioinformatics courses and program Date: December 18, 2020 at 10:38:45 AM CST To: "McQuillan, Ian" <<u>mcquillan@cs.usask.ca</u>> Cc: "Bull, Harold" <<u>hip133@mail.usask.ca</u>>

Hi Ian,

Thanks for taking the time to meet with Harold and I a few weeks ago to discuss the proposed changes to the bioinformatics courses offered through computer science and answer our questions. I shared the details of the proposal at the December BMI departmental meeting and we are in support of the changes that are proposed. Having BINF 151 and 351 clearly differentiated (compared to the old 200/210) will give clarity to our students taking these courses, and better demonstrate a course-sequence for them to follow if they wish to extend their understanding of bioinformatics. When the time comes, we will be updating our programs to reflect this welcome change.

Thanks again for making these improvements that will benefit our students.

Kyle Anderson, Ph.D. Assistant Professor and Undergraduate Chair of Biochemistry Department of Biochemistry, Microbiology and Immunology College of Medicine University of Saskatchewan Rm 3D30.1 Health Sciences



UNIVERSITY OF SASKATCHEWAN College of Arts and Science DEPARTMENT OF BIOLOGY ARTSANDSCIENCE.USASK.CA

Department of Biology

Telephone: (306) 966-4399 Email: biology.dept@usask.ca Web: www.artsandscience.usask.ca/biology

112 Science Place Saskatoon SK S7N 5E2 Canada Facsimile: (306) 966-4461

January 5, 2020

Kevin Stanley Department Head Department of Computer Science College of Arts and Science

Dear Kevin.

I am writing in support of the Department of Computer Science's proposal for an Applied Computing program, and for the Bioinformatics stream in particular.

I appreciate the consultation that occurred with Biology in drafting the proposal and in your Department's willingness to consider and incorporate suggestions received. In my opinion, the proposed course changes, and changes to the program as a whole, will benefit students. I see this as providing increased flexibility for individuals not initially considering Bioinformatics as their area of focus to access this program and complete it in a timely manner. Likewise, I expect it will increase access to some of these courses for students in cognate disciplines like Biology or the Biomedical Sciences.

Thank you for the opportunity to provide feedback.

Sincerely,

Christopher Todd Head, Department of Biology

Letter to Support Applied Computing Proposal

Dear Committee Members:

This letter is to inform you that, as the Department Head for Management and Marketing at the Edwards School of Business, I was consulted by Kevin Stanley on the Applied Computing Proposal. This consultation included having multiple opportunities to provide feedback and ideas in the construction of the degree. Associate Dean Noreen Mahoney from the Edwards School of Business was also consulted in this process.

After conducting analysis, our College concluded that there are spaces available in the classes listed from the Edwards School of Business in the proposal. We also anticipate that students can reasonably be expected to complete the program. In short, we see no issues with allowing computer science students into these courses.

I would also like you to know that I support the intent of the program which is to address the needs of employers for computer science students to have and be able to integrate both data analytics and applied computing skills. The skinny major model from which this degree was derived will allow students to take a minimum number of disciplinary credit units in computer science along with courses in other disciplines that can help round out their skills and abilities. Overall, the combination of courses included in this degree will synthesize knowledge for students in a way that will be valuable throughout their careers.

Thank you,

Vince Bruni-Bossio Department Head and Associate Professor, Management and Marketing, Edwards School of Business

Data Analytics

From: Sowa, Artur <sowa@math.usask.ca> Sent: Sunday, January 10, 2021 1:49 PM To: Dahl, Alexis <alexis.dahl@usask.ca> Cc: Stanley, Kevin <kgs325@mail.usask.ca> Subject: Program in Applied CS: Data Analytics

Dear Alexis,

I am writing to let you know that my Department has been consulted with regards to creation of the new program titled Applied Computer Science: Data Analytics. We have discussed the proposal with a group of faculty in Math & Stats, in particular with the Undergraduate Committee co-chairs, Prof. Juxin Liu and Dr. Christopher Duffy. I am happy to say that we support the initiative and view it as valuable all-around.

Since the program incorporates only existing mathematics and statistics courses the pressure on our resources is not going to shift significantly. A sensitive point is the need to provide a sufficient number of seats in Math 164. However, this is a challenge that we hope to be able to meet. Therefore I see no obstacles to launching the program.

We welcome further discussion on the College forum as to the structure of credit sharing between CS and Math & Stats. One possibility is to ensure that the bulk of program graduates obtain a companion three-year degree in Mathematics or Applied Mathematics. Another is through creation of appropriate certificates. My department will address these questions and undertake appropriate steps in near future.

Please do let me know if you have any questions or advice.

Sincerely yours, Artur

Artur Sowa, Ph.D. Professor & Department Head Department of Mathematics and Statistics University of Saskatchewan

106 Wiggins Road, Saskatoon, SK S7N 5E6, CANADA Home page: <u>https://math.usask.ca/~sowa/</u>



UNIVERSITY OF SASKATCHEWAN College of Arts and Science DEPARTMENT OF ART AND ART HISTORY ARTSANDSCIENCE. USASK.CA

Murray Building, 3 Campus Drive Saskatoon SK S7N 5A4 Canada Telephone: 306-966-6185 Facsimile: 306-966-4266 Email: art.arthistory@usask.ca Web: artsandscience.usask.ca/art

May 11, 2020

To whom it may concern,

This letter is to confirm that faculty in the Department of Art and Art History have been consulted and are supportive of the Applied Computing programs being proposed. In particular, both I and Prof. Lisa Birke are happy to see that the revised Interactive System Design stream still contains significant course requirements from both Studio Art and Art History, as we feel that was one of the strengths of the original Interactive Systems Design program.

I can be reached at jon.bath@usask.ca or (306)966-4213 if you have any questions.

Sincerely,

Dr. Jon Bath Associate Professor Art and Art History

Catalogue Entry

The goal of this program is to train students in core areas of Computer Science enhanced by curated specializations in Computer Science and relevant cognate areas. Computers are ubiquitous in life, society and the economy, and their application to new domains and tasks is continually growing. To help drive the application to new domains and maintain systems in those domains, knowledge of both computer science and the domain is required. This program is divided into a number of concentrations which provide curated course packages in computer science and other disciplines which complement each other and when synthesized coherent expertise.

Students who complete the program will be in demand in several industry sectors. The combined training in computer science and the diverse disciplines in the various concentrations will train students to work in sectors as diverse as mining and video games, agriculture and banking.

Please see the descriptions of each concentration for more details.

Major Average

The major average in Applied Computing Science programs includes the grades earned in:

• All courses listed in the Major Requirement C4

Residency Requirements in the Major

To receive a degree in Applied Computing, 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 Major Requirement C4.

See **<u>Residency</u>** for additional details.

Applied Computing - Bioinformatics

There has been an exponential growth in molecular biological knowledge in recent years, thanks to genome sequencing projects and technologies for determining gene expression and protein structures. The tremendous volume and complexity of data has necessitated the development of specialized computational techniques for storing, visualizing, and analyzing them. Certain techniques also require computational techniques in the derivation of data. Such techniques all fall into the realm of Bioinformatics. Bioinformatics is the interdisciplinary meeting point for computer science and molecular biology. It requires understanding of the knowledge domains of biology, chemistry, computer science, mathematics, and probability and statistics. Students in Bioinformatics can find opportunities in most life sciences fields such as medicine or agriculture.

Bachelor of Science Four-year (B.Sc. Four-	<u>Bachelor of Science Honours (B.Sc.</u>
year) – Applied Computing – Bioinformatics	Honours) – Bioinformatics
No more than 6 credit units from one subject	Students interested in entering an Honours
may be used in Requirements C1, C2, and the	program should consult advisors in the
Junior Course Requirements in C3.	department concerned before registering for

		their second year. Of the 120 credit units required for the B.Sc. Honours degree, at least 66 credit units must be at the senior level. Application for admission to Honours is not considered until successful completion of at least 60 credit units with a Cumulative Weighted Average of at least 70% overall and at least 70% in the subject of Honours. For further details, please see the <u>Academic Information</u> <u>and Policies</u> section. No more than 6 credit units from one subject may be used in Requirements C1, C2, and the Junior Course Requirements in C3.
C1		
College Require- ment (15 credit	 English Language Writing Choose 6 credit units from the following: Full list 	Indigenous Learning Choose 3 credit units from the following: • Full list
units)		Quantitative Reasoning
		 MATH 163.3 Introduction to Mathematical Reasoning MATH 164.3 Introduction to Linear Algebra
C2	Choose 6 credit units from the following areas:	
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Poquiro-	Fine Arts	
ment	Humanities	
ment (6 credit	Humanities Social Sciences	
ment (6 credit units)	Humanities Social Sciences Courses with No Program Type	
ment (6 credit units)	Humanities Social Sciences Courses with No Program Type	
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C3 Cognate	Humanities Social Sciences Courses with No Program Type (6 credit units)	
C3 Cognate Require- ment	Humanities Social Sciences Courses with No Program Type (6 credit units) • <u>CHEM 112.3</u>	
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 <u>BMSC 240.3</u> Laboratory Techniques <u>BIOL 226.3</u> Genes to Genomics Choose 3 credit units from the following: 	 Choose 3 credit units from the following: <u>BMSC 240.3</u> Laboratory Techniques <u>BIOL 226.3</u> Genes to Genomics
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 Choose 6 credit units from the following, from any of the areas listed: Simulation: <u>CMPT 214.3</u> Programming Principles and Practice <u>CMPT 394.3</u> Simulation Principles 	Choose one of the following areas (6 credit units): Simulation: • <u>CMPT 214.3</u> Programming Principles and Practice • <u>CMPT 394.3</u> Simulation Principles
 Artificial Intelligence: <u>CMPT 317.3</u> Introduction to Artificial Intelligence <u>CMPT 423.3</u> Machine Learning Theory: <u>CMPT 364.3</u> Automata and Formal 	 Artificial Intelligence: <u>CMPT 317.3</u> Introduction to Artificial Intelligence <u>CMPT 423.3</u> Machine Learning

	Languages	
	<u>CMPT 463.3</u> Advanced Algorithms	Theory:
	Visualization: • <u>CMPT 384.3</u> Information Visualization	 <u>CMPT 364.3</u> Automata and Formal Languages <u>CMPT 463.3</u> Advanced Algorithms
	<u>CMPT 484.3</u> Graph Drawing and Network Visualization	Visualization:
	 ACB 331.3 Methods in Cell and Developmental Biology ANBI 470.3 Applied Animal Biotechnology ANSC 313.3 Animal Breeding and Genetics BIOC 405.3 Structure and Function of Biomolecules BIOC 436.3 Advanced Molecular Biology BIOL 222.3 The Living Plant BIOL 325.3 Plant Cells and Tissues BIOL 420.3 Molecular Biology of Plants BIOL 421.3 Functional Genomics BMSC 210.3 Microbiology BMSC 230.3 Metabolism BMSC 320.3 Nucleic Acids from Central Dogma to Human Disease CHEM 255.3 Bio Organic Chemistry MCIM 417.3 Molecular Virology MCIM 487.3 Microbial Genetic Systems PLSC 317.3 Plant Metabolism PLSC 411.3 Plant Breeding PLSC 416.3 Applied Plant Biotechnology 	 <u>CMPT 384.3</u> Information Visualization <u>CMPT 484.3</u> Graph Drawing and Network Visualization Choose 21 credit units from the following, with at least 3 credit units at the 400-level: <u>ACB 331.3</u> Methods in Cell and Developmental Biology <u>ANBI 470.3</u> Applied Animal Biotechnology <u>ANSC 313.3</u> Animal Breeding and Genetics <u>BIOC 405.3</u> Structure and Function of Biomolecules <u>BIOL 422.3</u> The Living Plant <u>BIOL 325.3</u> Plant Cells and Tissues <u>BIOL 421.3</u> Functional Genomics <u>BIOL 421.3</u> Functional Genomics <u>BMSC 210.3</u> Microbiology <u>BMSC 230.3</u> Metabolism <u>BMSC 230.3</u> Nucleic Acids from Central Dogma to Human Disease <u>CHEM 255.3</u> Bio Organic Chemistry <u>MCIM 417.3</u> Molecular Virology <u>MCIM 487.3</u> Microbial Genetic Systems <u>PLSC 411.3</u> Plant Breeding <u>PLSC 416.3</u> Applied Plant Biotechnology
C5	(12 credit units)	(9 credit units)
Electives Require- ment	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.	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 Honours program, of which at least 66 must be at the 200-level or higher.

Applied Computing - Business

The goal of this program is to train students computer programming and business practices. The information technology sector continues to be one of the fastest growing in the world, and needs not only skilled computer programmers, but businesspeople who understand both coding and business practice. Leading software project teams, managing relationships with clients, and making strategic decisions about product development are all best undertaken by experts who understand both the potential and limitations of software and the imperatives and processes of business practice. This program combines courses Computer Science and Commerce to provide knowledge and skills in several critical areas: fundamentals of computer programming and practice, the fundamentals of business practice, marketing, and software development principles.

	Bachelor of Science Four-year (B.Sc. Four-	Bachelor of Science Honours (B.Sc. Honours)
	<u>year) – Applied Computing - Business</u>	<u>– Business</u>
	No more than 6 credit units from one subject may be used in Requirements C1, C2, and the Junior Course Requirements in C3.	Students interested in entering an Honours program should consult advisors in the department concerned before registering for their second year. Of the 120 credit units required for the B.Sc. Honours degree, at least 66 credit units must be at the senior level. Application for admission to Honours is not considered until successful completion of at least 60 credit units with a Cumulative Weighted Average of at least 70% overall and at least 70% in the subject of Honours. For further details, please see the <u>Academic Information and Policies</u> section. No more than 6 credit units from one subject may be used in Requirements C1, C2, and the Junior Course Requirements in C2
C1		Course Requirements in C3.
College	English Language Writing	Indigenous Learning
Require-	Choose 6 credit units from the following:	Choose 3 credit units from the following:
ment	• Full list	• Full list
credit units)		Quantitative Reasoning
		<u>MATH 163.3</u> Introduction to
		Mathematical Reasoning
		MATH 164.3 Introduction to Linear
C2	Choose 6 credit units from the following areas:	Algebra
Breadth	checke e broan anne henr the fellowing droad.	
Require-	Fine Arts	
ment	Humanities	
(6 credit	Social Sciences	
units)	Courses with No Program Type	
C3	(12 credit units)	
Cognate	Junior course requirements:	
Require-	Choose 9 credit units from the following:	
ment	Biology	
(12 credit	• <u>BIOL 120.3</u>	
creat		

units)	• BIOL 121.3	
	Chemistry	
	• CHEM 112.3	
	• CHEM 115.3	
	• CHEM 250.3	
	Earth Science	
	• GEOG 120 3	
	• GEOL 121.3	
	GEOL 122.3	
	Develop & Astronomy	
	• <u>ASTR 115.5</u> • DHVS 115.2	
	 <u>FITTS T15.5</u> <u>PHVS 117 3 or PHVS 125 3</u> 	
	• <u>FITS 117.3 01 FITTS 123.3</u>	
	Senior course requirements:	
	•	
	PHIL 232.3 Ethics and Professional Res	ponsibility in Computer Science
C4	(66 credit units)	(69 credit units)
Major	ONDET 4.44 2 later dusting to Computer	CMDT 444 2 Introduction to Computer
Require-	<u>CMPT 141.3</u> Introduction to Computer	<u>CMPT 141.3</u> Introduction to Computer
ment	Science	Science
	<u>CMPT 145.3</u> Principles of Computer Seienee	<u>CMPT 145.3</u> Principles of Computer Selence
	Science	Science
	<u>CMPT 260.3</u> Mathematical Logic and Computing	<u>CMPT 200.3</u> Mathematical Logic and Computing
	Computing	COMPT 270.2 Developing Object Oriented
	<u>CIMPT 270.3</u> Developing Object Oriented Systems	CIVIPT 270.3 Developing Object Oriented Systems
	CMPT 280 3 Intermediate Data	CMPT 280 3 Intermediate Data
	 <u>OMET 200.5</u> Internediate Data Structures and Algorithms 	Structures and Algorithms
	CMPT 370 3 Intermediate Software	CMPT 370 3 Intermediate Software
	Engineering	Engineering
	CMPT 371 3 Software Management	CMPT 371 3 Software Management
	COMM 100 3 Business	CMPT 407 3 Research Topics in Applied
	Communication I	Computing
	COMM 101 3 Introduction to Business	COMM 100 3 Business Communication I
	COMM 105.3 Introduction to	COMM 101.3 Introduction to Business
	Organizational Behavior	COMM 105.3 Introduction to
	COMM 201.3 Introduction to Financial	Organizational Behavior
	Accounting	COMM 201.3 Introduction to Financial
	COMM 204.3 Introduction to Marketing	Accounting
	COMM 306.3 Ethics and Decision	COMM 204.3 Introduction to Marketing
	Making	COMM 306.3 Ethics and Decision
	<u>STAT 245.3</u> Introduction to Statistical	Making
	Methods	STAT 245.3 Introduction to Statistical
		Methods
	Choose 15 credit units from the following,	
	from any of the three areas:	Choose 15 credit units from the following, from
		any of the three areas, including at least $\overline{3}$ credit
	Software Engineering:	units at the 400-level:
	<u>CMPT 214.3</u> Programming Principles	Software Engineering:
	and Practice	

	CMDT 240.2 Dromonstration	• CMDT 014.0 Decarcomenting Data starts
	 <u>CMP1 340.3</u> Programming Language Paradigms CMPT 353.3 Full Stack Web 	<u>CMPT 214.3</u> Programming Principles and Practice <u>CMPT 340.3</u> Programming Language
	 CMPT 436.3 Mobile and Cloud 	Paradigms CMPT 353.3 Full Stack Web
	Computing CMPT 470.3 Advanced Software	 Programming <u>CMPT 436.3</u> Mobile and Cloud
		Computing CMPT 470.3 Advanced Software Description
	Analytics:	Engineering
	<u>CMPT 317.3</u> Introduction to Artificial Intelligence	Analytics:
	 <u>CMPT 318.3</u> Data Analytics <u>CMPT 384.3</u> Information Visualization 	<u>CMPT 317.3</u> Introduction to Artificial Intelligence
	<u>CMPT 423.3</u> Machine Learning	<u>CMPT 318.3</u> Data Analytics
	 <u>CMPT 489.3</u> Deep Learning and Applications 	 <u>CMPT 384.3</u> Information Visualization CMPT 423.3 Machine Learning
	Lippr and Wah:	<u>CMPT 489.3</u> Deep Learning and <u>Applications</u>
		Applications
	<u>CMPT 281.3</u> Website Design and Development	User and Web:
	<u>CMPT 353.3</u> Full Stack Web	<u>CMPT 281.3</u> Website Design and Deviation and
	CMPT <u>381.3</u> Implementation of	<u>CMPT 353.3</u> Full Stack Web
	Graphical User Interfaces	Programming
	Participative Web	Graphical User Interfaces
	 <u>CMPT 481.3</u> Human Computer Interaction 	<u>CMPT 412.3</u> Social Computing and Participative Web
	Choose 9 credit units from the following:	<u>CMPT 481.3</u> Human Computer Interaction
	<u>COMM 203.3</u> Introduction to Finance <u>COMM 205.2</u> Introduction to	Choose 9 credit units from the following:
	Operations Management	<u>COMM 203.3</u> Introduction to Finance
	<u>COMM 348.3</u> Leadership <u>COMM 349.3</u> Introduction to	<u>COMM 205.3</u> Introduction to Operations Management
	Entrepreneurship	<u>COMM 348.3</u> Leadership
	<u>COMM 352.3</u> Marketing Strategy <u>COMM 354.3</u> Consumer Behavior	<u>COMM 349.3</u> Introduction to Entrepreneurship
	<u>COMM 357.3</u> Marketing Research	<u>COMM 352.3</u> Marketing Strategy
		 <u>COMM 354.3</u> Consumer Behavior <u>COMM 357.3</u> Marketing Research
C5 Electives	(21 credit units)	(18 credit units)
Require-	Arts and Science courses, or those from other Colleges that have been approved for Arts and	Arts and Science courses, or those from other Colleges that have been approved for Arts and
	Science credit, to complete the requirements	Science credit, to complete the requirements for
	tor 120 credit unit Four-year program, of which at least 66 must be at the 200-level or higher.	120 credit unit Honours program, of which at least 66 must be at the 200-level or higher.
	3 •	Ŭ

Applied Computing - Data Analytics

The goal of this program is to train students in the mathematical theory, and computational tools and techniques of data analysis. Data is now a core business commodity used to analyze everything from stock market performance, to the voting intentions of particular groups, to the conservation status of protected species. Underlying these complex analyses are mathematical and computational tools that allow the manipulation of large amounts of data to extract meaning. This program combines courses Computer Science and Mathematics and Statistics to provide knowledge and skills in several critical areas: fundamentals of computer programming and practice, the fundamentals of data analytics, mathematical fundamentals for modelling, statistical measurement and reasoning, and machine learning.

Data analytics is a dynamic discipline that impacts all sectors of the economy. Graduates could work for technology companies developing and deploying the latest analytic techniques or in more traditional industries providing insight from data in mining, agriculture, or business.

	Bachelor of Science Four-year (B.Sc. Four-	Bachelor of Science Honours (B.Sc. Honours)
	<u>year) – Applied Computing – Data</u>	<u>– Data Analytics</u>
	Analytics	
		Students interested in entering an Honours
	No more than 6 credit units from one subject	program should consult advisors in the
	may be used in Requirements C1, C2, and	department concerned before registering for their
	the Junior Course Requirements in C3.	second year. Of the 120 credit units required for
		must be at the senior level. Application for
		admission to Honours is not considered until
		successful completion of at least 60 credit units
		with a Cumulative Weighted Average of at least
		70% overall and at least 70% in the subject of
		Honours. For further details, please see the
		Academic Information and Policies section.
		No more than 6 credit units from one subject may
		be used in Requirements C1, C2, and the Junior
C1		Course Requirements in C3.
College	English Language Writing	Indigenous Learning
Require-	Choose 6 credit units from the following:	Choose 3 credit units from the following:
ment	• Full list	• Full list
(15 credit		
units)		Quantitative Reasoning
		MATH 163.3 Introduction to
		Mathematical Reasoning
		 MATH 164.3 Introduction to Linear
		Algebra
00		
CZ Breadth	Choose o creat units from the following areas:	
Require-	Fine Arts	
ment	Humanities	
(6 credit	Social Sciences	
units)	Courses with No Program Type	
	0 1	

C3	(12 credit units)	
Cognate	, ,	
Require-	Junior course requirements:	
ment	Choose 9 credit units from the following:	
(12 crodit	Dialas	
	Biology	
units)	• <u>BIOL 120.3</u>	
	• <u>BIOL 121.3</u>	
	Chemistry	
	• CHEM 112.3	
	• CHEM 115.3	
	• <u>CHEW 250.5</u>	
	Earth Science	
	• <u>GEOG 120.3</u>	
	• <u>GEOL 121.3</u>	
	• <u>GEOL 122.3</u>	
	Physics & Astronomy	
	• ASTR 113.3	
	• PHYS 115 3	
	 PHVS 117 3 or PHVS 125 3 	
	• <u>FTTTS TTT.5 01 FTTTS 125.5</u>	
	Senior course requirements:	
	DHIL 222.2 Ethics and Drofossional Bor	popolibility in Computer Science
	• FILL 232.5 Ethics and Fiblessional Res	
<u>C4</u>	(72 crodit units)	(75 - 79 prodit units)
C4 Maior	(72 creat units)	(75 - 78 ciedit units)
wajor Demuine		
Require-	• <u>CMPT 141.3</u> Introduction to Computer	• <u>CMPT 141.3</u> Introduction to Computer
ment	Science	Science
	 <u>CMPT 145.3</u> Principles of Computer 	 <u>CMPT 145.3</u> Principles of Computer
	Science	Science
	 <u>CMPT 260.3</u> Mathematical Logic and 	 <u>CMPT 260.3</u> Mathematical Logic and
	Computing	Computing
	 <u>CMPT 270.3</u> Developing Object 	 <u>CMPT 270.3</u> Developing Object Oriented
	Oriented Systems	Systems
	 CMPT 280.3 Intermediate Data 	CMPT 280.3 Intermediate Data
	Structures and Algorithms	Structures and Algorithms
	CMPT 317 3 Introduction to Artificial	CMPT 317 3 Introduction to Artificial
	Intelligence	Intelligence
	CMPT 318 3 Data Analytics	CMPT 318 3 Data Analytics
	CMPT 384 3 Information Vieualization	CMPT 360 3 Machines and Algorithms
	CMDT 422.2 Machine Learning	- <u>CMDT 294 2</u> Information Viewalization
	• <u>CMPT 423.3</u> Machine Learning	<u>CIVIPT 384.3</u> Information Visualization
	• MATH 211.3 Numerical Analysis	• <u>CMPT 423.3</u> Machine Learning
	 MATH 266.3 Linear Algebra II 	 <u>MATH 211.3</u> Numerical Analysis
	 <u>STAT 241.3</u> Probability Theory 	 <u>MATH 266.3</u> Linear Algebra II
		 <u>STAT 241.3</u> Probability Theory
	Choose 3 credit units from the following:	 <u>STAT 344.3</u> Applied Regression Analysis
		STAT 345.3 Design and Analysis of
	MATH 110.3 Calculus I	Experiments
	MATH 176.3 Advanced Calculus I	STAT 346.3 Multivariate Analysis
	Choose 3 credit units from the following:	Choose 3 credit units from the following:
	Ŭ	
	MATH 116.3 Calculus II	MATH 110.3 Calculus I
	MATH 177.3 Advanced Calculus II	MATH 176.3 Advanced Calculus I

Choose 3 credit units from the following:	Choose 3 credit units from the following:
 <u>STAT 242.3</u> Statistical Theory and Methodology <u>STAT 245.3</u> Introduction to Statistical Methods 	 MATH 116.3 Calculus II MATH 177.3 Advanced Calculus II Choose 3 credit units from the following:
 Choose 12 credit units from the following: CMPT 214.3 Programming Principles and Practice CMPT 353.3 Full Stack Web Programming CMPT 360.3 Machines and Algorithms CMPT 370.3 Intermediate Software Engineering CMPT 394.3 Simulation Principles CMPT 484.3 Graph Drawing and Network Visualization CMPT 489.3 Deep Learning and Applications CMOSE 6 credit units from the following: MATH 238.3 Introduction to Differential Equations MATH 314.3 Numerical Solutions of Ordinary Differential Equations MATH 327.3 Graph Theory Choose 6 credit units from the following: STAT 344.3 Applied Regression Analysis STAT 345.3 Design and Analysis of Experiments STAT 346.3 Multivariate Analysis Choose 3 credit units from the following: MATH 238.3 Introduction to Differential Equations 	 STAT 242.3 Statistical Theory and Methodology STAT 245.3 Introduction to Statistical Methods Choose one of the following (0 – 3 credit units): CMPT 409 MATH 402.0 Honours Thesis in Mathematics Choose 12 credit units from the following, with at least one course at the 400-level: CMPT 214.3 Programming Principles and Practice CMPT 353.3 Full Stack Web Programming CMPT 370.3 Intermediate Software Engineering CMPT 484.3 Graph Drawing and Network Visualization CMPT 489.3 Deep Learning and Applications Choose 6 credit units from the following: MATH 238.3 Introduction to Differential Equations MATH 313.3 Numerical Linear Algebra MATH 314.3 Numerical Solutions of Ordinary Differential Equations MATH 325.3 Introduction to Optimization MATH 325.3 Introduction to Optimization MATH 327.3 Graph Theory
 <u>MATH 313.3</u> Numerical Linear Algebra <u>MATH 314.3</u> Numerical Solutions of Ordinary Differential Equations <u>MATH 325.3</u> Introduction to Optimization 	

	 MATH 327.3 Graph Theory STAT 344.3 Applied Regression Analysis STAT 345.3 Design and Analysis of Experiments STAT 346.3 Multivariate Analysis 	
C5 Electives Require- ment	(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.	(9 - 12 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 Honours program, of which at least 66 must be at the 200-level or higher.

Applied Computing - Geomatics

The goal of this program is to train students in the theory, tools, and techniques of spatial data analysis. Satellite, drone, and GPS data have revolutionized how we capture, analyze, and interpret spatially anchored data, such as the distribution and health of crops or the weekly shopping habits of individuals. This program combines courses Computer Science and Geography and Planning to provide knowledge and skills in several critical areas: fundamentals of computer programming and practice, the acquisition and analysis of spatial data using Geographic Information Systems, the interpretation of spatial data given existing theory, the fundamentals of data analytics, and the fundamentals of image processing.

Geomatic analysis is an emerging area in business intelligence, agriculture, mining, and civic planning. Graduates from this program will be in demand in those sectors.

	Bachelor of Science Four-year (B.Sc. Four- year) – Applied Computing - Geomatics	Bachelor of Science Honours (B.Sc. Honours) – Applied Computing			
	No more than 6 credit units from one subject may be used in Requirements C1, C2, and the Junior Course Requirements in C3.	Students interested in entering an Honours program should consult advisors in the department concerned before registering for their second year. Of the 120 credit units required for the B.Sc. Honours degree, at least 66 credit units must be at the senior level. Application for admission to Honours is not considered until successful completion of at least 60 credit units with a Cumulative Weighted Average of at least 70% overall and at least 70% in the subject of Honours. For further details, please see the <u>Academic Information and Policies</u> section. No more than 6 credit units from one subject may			
		be used in Requirements C1, C2, and the Junior Course Requirements in C3.			
C1 College	English Language Writing	Indigenous Learning			
Require-	Choose 6 credit units from the following:	Choose 3 credit units from the following:			
ment	• Full list	Full list			

(15 credit	Quantitative Researing							
units)	Quantitative Reasoning							
		MATH 163.3 Introduction to Mathematical Descenting						
	MATH 164.3 Introduction to Linear							
		Algebra						
C2	Choose 6 credit units from the following areas:							
Breadth	Fine Arte							
Require-	Fille Alts Humanities							
(6 credit	Social Sciences							
units)	Courses with No Program Type							
<u>C2</u>	(12 prodit unito)							
Cognate	(12 credit units)							
Require-	Junior course requirements:							
ment	Choose 9 credit units from the following:							
(12 credit	Biology							
unitsj	 BIOL 120.3 BIOL 121.3 							
	Chemistry							
	• <u>CHEM 112.3</u>							
	• <u>CHEM 115.3</u>							
	• <u>CHEM 250.3</u>							
	Earth Science							
	• <u>GEOG 120.3</u> • GEOL 121.3							
	• GEOL 121.3 • GEOL 122.3							
	Physics & Astronomy							
	• ASTR 113.3							
	• <u>PHYS 115.3</u>							
	• <u>PHYS 117.3 or PHYS 125.3</u>							
	Senior course requirements:							
	PHIL 232.3 Ethics and Professional Responsibility in Computer Science							
C4	(60 credit units)	(63 credit units)						
Major Poquiro-	• CMPT 141.2 Introduction to Computer	• CMPT 111 2 Introduction to Computer						
ment	Science	Science						
	<u>CMPT 145.3</u> Principles of Computer	<u>CMPT 145.3</u> Principles of Computer						
	Science	Science						
	<u>CMPT 260.3</u> Mathematical Logic and Computing	<u>CMPT 260.3</u> Mathematical Logic and Computing						
	CMPT 270.3 Developing Object CMPT 270.3 Developing Object CMPT 270.3 Developing Object							
	Oriented Systems Systems							
	<u>CMPT 280.3</u> Intermediate Data <u>Structures and Algorithms</u>	<u>CMPT 280.3</u> Intermediate Data Structures and Algorithms						
	Structures and Algorithms Structures and Algorithms							
	CMPT 318.3 Data Analytics CMPT 384.3 Information Visualization CMPT 384.3 Information Visualization CMPT 384.3 Information Visualization							
	<u>CMPT 487.3</u> Image Processing and	<u>CMPT 487.3</u> Image Processing and						

Computer Vision	Computer Vision
GEOG 222 3 Introduction to	GEOG 222 3 Introduction to Geometrics
<u>Coomation</u>	CEOC 222.2 Introduction to Coorranbia
Geomatics	GEOG 322.3 Introduction to Geographic
 <u>GEOG 322.3</u> Introduction to 	Information Systems
Geographic Information Systems	 GEOG 302.3 Quantitative Methods in
GEOG 302 3 Quantitative Methods in	Geography
<u>Goography</u>	CEOC 222 2 Domoto Sonoing
Geography	• GEOG 323.3 Remote Sensing
 <u>GEOG 323.3</u> Remote Sensing 	 <u>STAT 245.3</u> Introduction to Statistical
 STAT 245.3 Introduction to Statistical 	Methods
Methods	
	Choose 3 credit units from the following:
Chasses 2 exadit units from the following	Choose 5 creat and show the following.
Choose 5 creat units from the following.	
	 <u>GEOG 120.3</u> Introduction to Global
 GEOG 120.3 Introduction to Global 	Information Systems
Information Systems	GEOG 125.3 Environmental Science and
GEOG 125 3 Environmental Science	Society
• <u>GLOG 123.5</u> Litvitorinterital Science	
and Society	 <u>GEOG 130.3</u> Environment Health and
 <u>GEOG 130.3</u> Environment Health and 	Planning
Planning	
	Choose 3 credit units from the following:
Chappen 12 gradit units from the following	Choose 5 creat and show the following.
Choose 12 credit units from the following,	
from any of the three areas:	 <u>CMPT 407.3</u> Research Topics in Applied
	Computing
Software Engineering:	GEOG 490 3 Honours Thesis in
3 4 3	Hydrology or Geometrics
• CMDT 214.2 Drogramming Dringiples	
CMPT 214.3 Programming Principles	 <u>PLAN 490.3</u> Senior Planning Studio
and Practice	
 CMPT 353.3 Full Stack Web 	Choose 12 credit units from the following, from
Programming	any of the three areas with at least one course
CMPT 270 2 Intermediate Software	at the 400 level:
• <u>CIVIET 370.3</u> Interneulate Software	
Engineering	
	Software Engineering:
Analytics:	
	CMPT 214 3 Programming Principles
CMPT 317 3 Introduction to Artificial	and Practice
Intelligence	CIMPT 353.3 Full Stack Web
 <u>CMPT 360.3</u> Machines and 	Programming
Algorithms	CMPT 370.3 Intermediate Software
CMPT 423 3 Machine Learning	Engineering
CMPT 480.3 Doop Loorning and	
• <u>CIVIPT 469.5</u> Deep Learning and	Analytica
Applications	Analytics:
User Interface and Visualization:	 CMPT 317.3 Introduction to Artificial
	Intelligence
CMPT 260.2 Introduction to Artificial	CMPT 260 2 Machines and Algerithms
	• <u>CIVIPT 300.3</u> Wachines and Algorithms
Intelligence	<u>CMPT 423.3</u> Machine Learning
 <u>CMPT 381.3</u> Implementation of 	 <u>CMPT 489.3</u> Deep Learning and
Graphical User Interfaces	Applications
CMPT 481 3 Human Computer	
Interaction	Liser Interface and Visualization:
	USET ITTETTALE ATTU VISUAIIZALIUII.
 <u>CMPT 484.3</u> Graph Drawing and 	
Network Visualization	 <u>CMPT 360.3</u> Introduction to Artificial
	Intelligence
Choose 6 credit units from the following	CMPT 381 3 Implementation of
from any of the two areas:	Graphical Lloor Interferen
1011 any 01 the two aleas.	Giaphical User interfaces

	 Planning: PLAN 350.3 Transportation Planning and Geography PLAN 360.3 Urban Data Analysis and Visualization PLAN 390.3 Research and Field Methods in Planning 	 <u>CMPT 481.3</u> Human Computer Interaction <u>CMPT 484.3</u> Graph Drawing and Network Visualization Choose 6 credit units from the following, from any of the two areas: 		
	 Geography: <u>GEOG 420.3</u> Cartography and Professional Communication <u>GEOG 423.3</u> Advanced Remote Sensing 	 PLAN 350.3 Transportation Planning and Geography PLAN 360.3 Urban Data Analysis and Visualization PLAN 390.3 Research and Field Methods in Planning Geography: 		
		Professional Communication GEOG 423.3 Advanced Remote Sensing		
C5 Electives Require- ment	(27 creat 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.	(24 creat 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 Honours program, of which at least 66 must be at the 200-level or higher.		

Applied Computing - Interactive System Design

The goal of this program is to train students in all aspects of the design and development of interactive systems. Interactive systems are now a ubiquitous part of people's lives - from web applications to games to embedded devices - and the design and usability of these systems is having an increasingly large effect on the quality of people's relationship to technology. This program combines courses in Art and Art History, Psychology, and Computer Science, and these courses will provide knowledge and skills in several critical areas: principles of visual communication; critical approaches to visual systems; fundamentals of human perception, memory, and cognition; and the principles of computation and programming needed to design, build, and evaluate games and interactive systems.

Students who complete the program will be in demand in several industry sectors. The combined training in art, psychology, and computer science prepares students well for jobs in web design, interface development, game design, usability testing, and front-end requirements analysis.

E	Bachelor of Science Four-year (B.Sc. Four-	Bachelor of Science Honours (B.Sc. Honours)
	year) – Applied Computing – Interactive	 Applied Computing – Interactive Systems
5	Systems Design	Design

	No more than 6 credit units from one subject may be used in Requirements C1, C2, and the Junior Course Requirements in C3.	Students interested in entering an Honours program should consult advisors in the department concerned before registering for their second year. Of the 120 credit units required for the B.Sc. Honours degree, at least 66 credit units must be at the senior level. Application for admission to Honours is not considered until successful completion of at least 60 credit units with a Cumulative Weighted Average of at least 70% overall and at least 70% in the subject of Honours. For further details, please see the Academic Information and Policies section. No more than 6 credit units from one subject may be used in Requirements C1, C2, and the Junior Course Requirements in C3.
C1 College Require- ment (15 credit units)	 English Language Writing Choose 6 credit units from the following: Full list 	 Indigenous Learning Choose 3 credit units from the following: Full list Quantitative Reasoning MATH 163.3 Introduction to Mathematical Reasoning MATH 164.3 Introduction to Linear Algebra
C2	Choose 6 credit units from the following areas:	
Breadth Require- ment (6 credit units)	Fine Arts Humanities Social Sciences Courses with No Program Type	
C3	(12 credit units)	
Cognate Require- ment (12 credit units)	Junior course requirements: Choose 9 credit units from the following: Biology BIOL 120.3 BIOL 121.3 Chemistry CHEM 112.3 CHEM 115.3 CHEM 250.3 Earth Science GEOG 120.3 GEOL 121.3 GEOL 121.3 Physics & Astronomy	

	 <u>ASTR 113.3</u> <u>PHYS 115.3</u> <u>DHYS 117.3</u> or <u>DHYS 125.3</u> 							
	Senior course requirements:							
	PHIL 232.3 Ethics and Professional Responsibility in Computer Science							
C4	(72 credit units)	(75 credit units)						
C4 Major Require- ment	 (72 credit units) ARTH 120.3 Art and Visual Culture I ARTH 121.3 Art and Visual Culture I CMPT 141.3 Introduction to Computer Science CMPT 145.3 Principles of Computer Science CMPT 260.3 Mathematical Logic and Computing CMPT 270.3 Developing Object Oriented Systems CMPT 280.3 Intermediate Data Structures and Algorithms CMPT 281.3 Website Design and Development CMPT 370.3 Intermediate Software Engineering CMPT 481.3 Implementation of Graphical User Interfaces CMPT 481.3 Human Computer Interaction PSY 120.3 Biological and Cognitive Bases of Psychology PSY 121.3 Social Clinical Cultural and Developmental Behaviour STAT 245.3 Introduction to Statistical Methods Choose 3 credit units from the following: 100-level ART courses numbered 111 or higher 	 (75 credit units) ARTH 120.3 Art and Visual Culture I ARTH 121.3 Art and Visual Culture I CMPT 141.3 Introduction to Computer Science CMPT 145.3 Principles of Computer Science CMPT 260.3 Mathematical Logic and Computing CMPT 270.3 Developing Object Oriented Systems CMPT 280.3 Intermediate Data Structures and Algorithms CMPT 281.3 Website Design and Development CMPT 370.3 Intermediate Software Engineering CMPT 407.3 Research Topics in Applied Computing CMPT 481.3 Human Computer Interaction PSY 120.3 Biological and Cognitive Bases of Psychology PSY 121.3 Social Clinical Cultural and Developmental Behaviour STAT 245.3 Introduction to Statistical Methods 						
	Game Design:	400-level:						
	 <u>CMPT 306.3</u> Game Mechanics <u>CMPT 406.3</u> Game Design Workshop 	Game Design:						
	Information Visualization:	 <u>CMPT 306.3</u> Game Mechanics <u>CMPT 406.3</u> Game Design Workshop 						
	 <u>CMPT 384.3</u> Information Visualization <u>CMPT 484.3</u> Graph Drawing and Network Visualization 	 Information Visualization: CMPT 384.3 Information Visualization 						

	Choose 3 credit units from the following:	<u>CMP1 484.3</u> Graph Drawing and Network Visualization			
	 <u>CMPT 306.3</u> Game Mechanics <u>CMPT 318.3</u> Data Analytics <u>CMPT 353.3</u> Full Stack Web Programming <u>CMPT 360.3</u> Machines and Algorithms <u>CMPT 371.3</u> Software Management <u>CMPT 384.3</u> Information Visualization Choose 3 credit units from the following: <u>ARTH 250.3</u> Introduction to Visual Culture <u>ARTH 251.3</u> Art of the Internet 	 Choose 3 credit units from the following: CMPT 306.3 Game Mechanics CMPT 318.3 Data Analytics CMPT 353.3 Full Stack Web Programming CMPT 360.3 Machines and Algorithms CMPT 371.3 Software Management CMPT 384.3 Information Visualization Choose 3 credit units from the following: ARTH 250.3 Introduction to Visual Culture ARTH 251.3 Art of the Internet 			
	Choose 6 credit units from the following:	Choose 6 credit units from the following:			
	 INTS 111.3 Design and Society ART 231.3 Animation and Digital Space ART 235.3 Digital Imagery ART 236.3 Digital and Integrated Practice IIA ART 237.3 Digital and Integrated Practice IIB ART 331.3 Animation and Digital Space II 	 INTS 111.3 Design and Society ART 231.3 Animation and Digital Space ART 235.3 Digital Imagery ART 236.3 Digital and Integrated Practice IIA ART 237.3 Digital and Integrated Practice IIB ART 331.3 Animation and Digital Space II Choose 9 credit units from the following: 			
	 Choose 9 credit units from the following: PSY 213.3 Child Development PSY 214.3 Adolescent Development PSY 216.3 Psychology of Aging PSY 226.3 Social Psychology PSY 252.3 Perceptual Processes PSY 253.3 Introduction to Cognitive Psychology PSY 255.3 Human Memory PSY 256.3 Psychology of Language 	 PSY 213.3 Child Development PSY 214.3 Adolescent Development PSY 216.3 Psychology of Aging PSY 226.3 Social Psychology PSY 252.3 Perceptual Processes PSY 253.3 Introduction to Cognitive Psychology PSY 255.3 Human Memory PSY 256.3 Psychology of Language 			
C5	(21 credit units)	(18 credit units)			
Electives Require- ment	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.	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 Honours program, of which at least 66 must be at the 200-level or higher.			

Applied Computing

Professional Internship Option

In the Applied Computing Professional Internship Option, students typically complete 16 consecutive months of supervised work experience with a sponsoring employer in addition to the requirements for an Applied Computing program. Normally, the work placement commences after the student has completed three years of a four-year degree program in Applied Computing. The placement lasts from May 1 of one year to August 31 of the next year. Twelve-month internship placements are also allowed. However, only in exceptional circumstances (e.g. for medical reasons) will a shorter duration work period be permitted. Students should note that an internship is NOT a summer work program.

Benefits to Students: For students who go on internship placements, there are several benefits: (1) acquiring practical training and valuable experience in their prospective career area, adding strength to their résumé, and thus improving their job prospects upon graduation; (2) getting the "inside track" on fulltime employment opportunities with the same company in which the student interned, through established professional contacts; and (3) earning an income to help finance the final year of their university education.

Only a limited number of internship placements will be available in a given year. Eligibility for an internship placement will be decided by the Internship Coordinator in the Department of Computer Science, while hiring decisions for internship students are made by the employers.

Students are required to apply by September 30 for admission to an internship in May of the following year. If selected for an internship placement, students must complete all degree requirements, and the following courses:

- CMPT 401.0 Professional Internship I
- CMPT 402.0 Professional Internship II
- <u>CMPT 403.0</u> Professional Internship III
- <u>CMPT 404.0</u> Professional Internship IV (only for students pursuing a 16-month internship)

A student must successfully complete all requirements of the internship option in order to receive the Professional Internship designation on the University transcript.

Interested students are encouraged to contact the Internship Coordinator in the Department of Computer Science for further details about internship opportunities.

The prerequisite for the internship option is permission of the internship coordinator. Internship typically occurs after the third year of study.

Record of Consultation

Geomatics:

From: Aitken, Alec <alec.aitken@usask.ca>
Sent: Wednesday, January 6, 2021 6:28 AM
To: Stanley, Kevin <kgs325@mail.usask.ca>; Dahl, Alexis <alexis.dahl@usask.ca>
Subject: Program proposal in Applied Computing

Good morning Kevin and Alexis,

I am writing in support of the program proposal in Applied Computing, especially the Geomatics stream within this program. Kevin has insured that the department of Geography and Planning was consulted on several occasions over the past year about the proposed curricula. These consultations involved direct engagement with Geography and Planning faculty who will instruct the courses in the Geomatics stream (Scott Bell, Krystopher Chutko, Ehab Diab, Xulin Guo). There is enrolment capacity in all of the geography and planning courses identified in the Geomatics stream and we look forward to working with Computing Science students in our course offerings. I recommend approval of this innovative program.

Sincerely,

Alec Aitken Professor and Head Geography and Planning

Bioinformatics

From: McQuillan, Ian <mcquillan@cs.usask.ca> Sent: Wednesday, January 6, 2021 2:37 PM To: challenge.coordinator@artsandscience.usask.ca Subject: Fwd: Bioinformatics courses and program

To whom it may concern,

This email is to accompany the proposal to create a new course BINF 151 (and the deletion of BINF 210) for the January 2021 Challenge period. The email indicates that the Department of Biochemistry, Microbiology and Immunology will change their undergraduate program requirement from requiring "either BINF 210 or BINF 200" to "either BINF 151 or BINF 351".

Sincerely, lan

Ian McQuillan

Professor of Computer Science

mcquillan@cs.usask.ca ianmcquillan.com Department of Computer Science The University of Saskatchewan Saskatoon, Canada

Begin forwarded message:

From: "Anderson, Kyle" <<u>kyle.anderson@usask.ca</u>> Subject: RE: Bioinformatics courses and program Date: December 18, 2020 at 10:38:45 AM CST To: "McQuillan, Ian" <<u>mcquillan@cs.usask.ca</u>> Cc: "Bull, Harold" <<u>hib133@mail.usask.ca</u>>

Hi lan,

Thanks for taking the time to meet with Harold and I a few weeks ago to discuss the proposed changes to the bioinformatics courses offered through computer science and answer our questions. I shared the details of the proposal at the December BMI departmental meeting and we are in support of the changes that are proposed. Having BINF 151 and 351 clearly differentiated (compared to the old 200/210) will give clarity to our students taking these courses, and better demonstrate a course-sequence for them to follow if they wish to extend their understanding of bioinformatics. When the time comes, we will be updating our programs to reflect this welcome change.

Thanks again for making these improvements that will benefit our students.

Kyle Anderson, Ph.D. Assistant Professor and Undergraduate Chair of Biochemistry Department of Biochemistry, Microbiology and Immunology College of Medicine University of Saskatchewan Rm 3D30.1 Health Sciences

Data Analytics

From: Sowa, Artur <sowa@math.usask.ca> Sent: Sunday, January 10, 2021 1:49 PM To: Dahl, Alexis <alexis.dahl@usask.ca> Cc: Stanley, Kevin <kgs325@mail.usask.ca> Subject: Program in Applied CS: Data Analytics

Dear Alexis,

I am writing to let you know that my Department has been consulted with regards to creation of the new program titled Applied Computer Science: Data Analytics. We have discussed the proposal with a group of faculty in Math & Stats, in particular with the Undergraduate Committee co-chairs, Prof. Juxin Liu and Dr. Christopher Duffy. I am happy to say that we support the initiative and view it as valuable all-around.

Since the program incorporates only existing mathematics and statistics courses the pressure on our resources is not going to shift significantly. A sensitive point is the need to provide a sufficient number of seats in Math 164. However, this is a challenge that we hope to be able to meet. Therefore I see no obstacles to launching the program.

We welcome further discussion on the College forum as to the structure of credit sharing between CS and Math & Stats. One possibility is to ensure that the bulk of program graduates obtain a companion three-year degree in Mathematics or Applied Mathematics. Another is through creation of appropriate certificates. My department will address these questions and undertake appropriate steps in near future.

Please do let me know if you have any questions or advice.

Sincerely yours, Artur

Artur Sowa, Ph.D. Professor & Department Head Department of Mathematics and Statistics University of Saskatchewan

106 Wiggins Road, Saskatoon, SK S7N 5E6, CANADA Home page: <u>https://math.usask.ca/~sowa/</u>

New Courses



UNIVERSITY OF SASKATCHEWAN Proposal & Creation Form

1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: Arts and Science
- 1.2 Department with academic authority: Computer Science
- 1.3 Term from which the course is effective: 202205

2. Information required for the Catalogue

- 2.1 Label & Number of course: BINF 151
- 2.2 Academic credit units: 3
- 2.3 Course Long Title (maximum 100 characters): Computing in the Biological Sciences Course Short Title (maximum 30 characters): Computing in Biology

2.4	Total Hours:	39 Lecture	Seminar	18	Lab	Tutoria	l Other
2.5	Weekly Hours	: 3 Lecture	Seminar	1.5	Lab	Tutoria	l Other
2.6	Term in which	it will be offered	: T1	Т2	T1 or T	Г2	T1 and T2

2.7 Prerequisite: One of BIOL 120.3 or BIOL 121.3 or BMSC 200.3

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):

This course offers a gently-paced introduction to concepts in computing such as algorithms, problem solving, and programming, with particular focus on their applications in the life sciences. Basic skills in problem solving, programming, as well as in accessing, storing, and manipulating biological data are developed. The course will consist of two components. First, basic concepts in computing will be explored using introductory programming techniques. Second, select bioinformatics programs and databases currently utilized in the life sciences will be introduced, including resources for sequence similarity search, sequence alignment, and inferring phylogeny. Hands-on exercises will provide students with the opportunity to apply basic computing skills to specific tasks in biology.

2.9 Do you allow this course to be repeated for credit? No.

3. Please list rationale for introducing this course:

There is an existing course, BINF 210, that teaches some bioinformatics concepts and bioinformatics tools and databases (on the web) primarily targeting to students in the life and health sciences. The vast majority of its enrolments are from the Department of Biochemistry, Microbiology and Immunology who require their students to take it (or another more advanced bioinformatics course). However, the course does not teach any programming. The lack of programming is very limiting in terms of the tools that are available to them as most are available within programming languages, and it is also not helpful in terms of taking further computational or bioinformatics courses, which all require programming. Also, most students take it too late in their program, making it difficult to take any further computational or bioinformatics courses.

The proposed new course, BINF 151, similarly assumes no programming background which is important for students in the biological or health science. But it teaches an introduction to programming in Python (the most common language in bioinformatics) along with some basic bioinformatics analysis mostly within the Python programming language itself. Indeed, this will be significantly more helpful in terms of taking further computational and bioinformatics courses. The programming material overlaps quite a bit with the existing Computer Science course CMPT 140: Introduction to Creative Computing. It can also serve as a prerequisite for the follow-on course to CMPT 140, which is CMPT 141. We expect students to take it earlier in their programs as it is a first year course with less restrictive prerequisites. Taking BIOL 120 in T1 of first year followed by BINF 151 in T2 of first year should be common.

4. Please list the learning objectives for this course:

See syllabus.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? If so, were these departments consulted? (Include correspondence) Were any other departments asked to review or comment on the proposal?

Email discussions with the Department Head Dr. Christopher Todd in the Department of Biology indicated that they are keen to list BINF 151 in their C3 Cognate Junior course requirement (within a list of courses from which 18CUs must be taken).

Communication with Dr. Kyle Anderson and Dr. Harold Bull of the Undergraduate Affairs Committee of the Department of Biochemistry, Microbiology and Immunology indicated that they plan to make "either BINF 151 or BINF 351" a requirement of their program (replacing their existing requirement "either BINF 210 or BINF 200"). Email communication will be provided.

6. **Other courses or program affected** (please list course titles as well as numbers)

- 6.1 Courses to be deleted? BINF 210
- 6.2 Courses for which this course will be a prerequisite? CMPT 141 will list BINF 151 as a possible prerequisite.
- 6.3 Is this course to be required by your majors, or by majors in another program? Will be required for Applied Computing with a concentration in Bioinformatics.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See syllabus.

8. Enrolment
- 8.1 Expected enrollment: 100
- 8.2 From which colleges? 80 from Arts & Science; 20 from other colleges.

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

See syllabus.

- 9.1 How should this course be graded?
 N Numeric/Percentage (Grade options for instructor: grade of 0% to 100%, IP in Progress)
- 9.2 Is the course exempt from the final examination? No.

10. Required text

Include a bibliography for the course.

See syllabus.

11. Resources

- 11.1 Proposed instructor: Lingling Jin, Ian McQuillan
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Teaching and other course expenses will be accommodated within the departmental 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.)? The course will require the use of the labs which are already run by the Department of Computer Science.

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) Yes, TCO3
- 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 additional fees are required.

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description
LEC	Lecture
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 N/A
- 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)

Does this course satisfy one of the official college requirements: No

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: N/A
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program **N/A**
- 3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course

Prerequisite(s): One of BIOL 120.3 or BIOL 121.3 or BMSC 200.3

- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course **N/A**
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course N/A
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

Note: Students may receive credit for only one of CMPT 140.3 or BINF 151.3. BINF 151 can be taken for credit after the completion of CMPT 100, but CMPT 100 cannot be taken for credit after completion of BINF 151. Students with credit for CMPT 141, CMPT 105, CMPT 111, CMPT 113, or CMPT 116 cannot obtain credit for BINF 151.

- 4. List Equivalent Course(s) here: N/A
- 5. List Mutually-Exclusive Course(s) here: CMPT 140.3
- 6. Additional Notes: N/A

BINF 151: Computing in the Biological Sciences

Class Location: TBD Class Time: TBD

Ian McQuillan Office: Spinks S423 email mcquillan@cs.usask.ca

Catalogue Description

This course offers a gently-paced introduction to concepts in computing such as algorithms, problem solving, and programming, with particular focus on their applications in the life sciences. Basic skills in problem solving, programming, as well as in accessing, storing, and manipulating biological data are developed. The course will consist of two components. First, basic concepts in computing will be explored using introductory programming techniques. Second, select bioinformatics programs and databases currently utilized in the life sciences will be introduced, including resources for sequence similarity search, sequence alignment, and inferring phylogeny. Hands-on exercises will provide students with the opportunity to apply basic computing skills to specific tasks in biology.

Prerequisite(s): One of BIOL 120.3 or BIOL 121.3 or BMSC 200.3.

Class Time and Location: 3 hours per week, class time and location TBD.

Lab Time and Location: 1.5 hours per week, lab time and location

TBD.

Website: [on Canvas, URL TBD]

Note: Students may receive credit for only one of CMPT 140.3 or BINF 151.3. BINF 151 can be taken for credit after the completion of CMPT 100, but CMPT 100 cannot be taken for credit after completion of BINF 151. Students with credit for CMPT 141, CMPT 105, CMPT 111, CMPT 113, or CMPT 116 cannot obtain credit for BINF 151.

Learning Outcomes

By the end of this course, students will be expected to:

- Design and implement simple Python programs from scratch.
- Test and debug simple Python programs.
- Employ conditionals and loops in simple Python programs.
- Employ variables and lists in simple Python programs.
- Define and call Python functions in Python programs.
- Trace through the execution of simple Python programs by hand.
- Implement simple numerical algorithms, such as computing the average of a list of numbers, finding the *min*, *max* of a list.
- Demonstrate the effective use of biological databases.

- Manipulate biological sequence information in different file formats using Biopython.
- Perform similarity search, sequence alignments and create phylogenetic trees, while interpreting results and generating conclusions.
- Apply various bioinformatics programs to compare biological sequences.
- Assess the effects of parameters for various bioinformatics programs.
- Justify the interplay between biology, algorithms, and mathematics.

Student Evaluation

Grading Scheme

Assignments (five @ 6% each)	
Labs Exercises or Quizzes (ten @ 1% each)	10%
Midterm Exam	20%
Final Exam	40%
Total	100%

Final Exam Scheduling

Midterm and final examinations must be written on the date scheduled. Final examinations may be scheduled at any time during the examination period; 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 his or her 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.usak.ca/academics/exams.php

Textbook Information

There is no required textbook. However, there will be reading material posted on the course website before each lecture. Lecture notes will be available on the course website after each lecture.

Lecture Schedule

Topics overview and time allocation:

Topic Order	Торіс	Class Time
1	Algorithms and How to Think Like a Computer	1 hour
2	Abstraction and Encapsulation	1 hour
3	Data, expressions, variables	3 hour

4	Control Flow: Conditional Branching	2 hour
5	Control Flow: Repetition	2 hour
6	Control Flow: Nesting Constructs and Problem Solving	2 hour
7	Functions Part 1: Calling and defining functions, parameters	2 hour
8	Functions Part 2: Return values, nested function calls	3 hour
9	Lists	3 hour
10	File I/O	1 hour
11	Sequence Database (NCBI)	3 hours
12	Sequence Alignments, BLAST	5 hours
13	Python Modules (Biopython)	2 hour
14	Phylogenetic Trees	4 hours
	Total	34 hours

University of Saskatchewan Grading System (for undergraduate courses)

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

Course Overview

- As this is a reading course, the class will meet weekly at a time that is mutually agreeable to everyone.
- Every week, there will be a set of notes distributed for the upcoming week, and an assignment for the next week (on the same topic as the notes). We will discuss any problem areas or questions from the previous week, as well as hand-in the assignment from the previous week.

Policies:

Late Assignments

Extensions on assignments will be granted only by the course instructor. Individual requests for extensions will only be granted for extraordinary circumstances out of the student's control (such as significant illness or death in the family). Suitable documentation may be required to support your request for an extension.

Missed Examinations

http://artsandscience.usask.ca/undergraduate/advising/strategies.php

- 1. Students who miss an exam should contact the instructor as soon as possible. If it is known in advance that an exam will be missed, the instructor should be contacted before the exam.
- 2. "A student who is absent from a final examination due to medical, compassionate, or other valid reasons, may apply to the College of Arts and Science Undergraduate Students Office for a deferred exam. Application must be made within three business days of the missed examination and be accompanied by supporting documents."

Incomplete Course Work and Final Grades

"When a student has not completed the required course 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 percentile grade for the class which factors in the incomplete coursework as a zero, along with a grade comment of INF (Incomplete Failure) if a failing grade.

In the case where the student has a passing percentile grade but the instructor has indicated in the course outline that failure to complete the required coursework will result in failure in the course, 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 course on the basis of work completed in the course provided that any incomplete course work has not been deemed mandatory by the instructor in the course outline and/or by College regulations for achieving a passing grade." (http://policies.usask.ca/policies/academic-affairs/academiccourses.php)

For policies governing examinations and grading, students are referred to the Assessment of Students section of the University policy "Academic courses: class delivery, examinations, and assessment of student learning" (<u>http://policies.usask.ca/policies/academic-affairs/academic-courses.php)</u>

Copyright

Course materials are provided to you based on your registration in a class, and anything created by your professors and instructors is their intellectual property, unless materials are designated as open education resources. 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 you 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 you copy or distribute others' copyright-protected materials, please ensure that your use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at <u>https://library.usask.ca/copyright/general-information/fair-dealing-guidelines.php.</u> For example, posting others' copyright-protected materials on the open web 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 <u>https://library.usask.ca/copyright/index.php</u> where there is information for students available at <u>https://library.usask.ca/copyright/students/rights.php</u> or contact the University's Copyright Coordinator at <u>mailto:copyright.coordinator@usask.ca</u> or 306-9668817.

Examinations with Access and Equity Services (AES)

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.

For information on AES services and remote learning please visit https://updates.usask.ca/info/current/accessibility.php#AccessandEquityServices

Student Supports

Academic Help for Students

The University Library offers a range of learning and academic support to assist USask undergrad and graduate students. For information on specific services, please see the Learning page on the Library web site https://library.usask.ca/support/learning.php.

Remote learning support information https://students.usask.ca/remote-learning/index.php

Class and study tips https://students.usask.ca/remote-learning/class-and-study-tips.php

Remote learning tutorial https://libguides.usask.ca/remote_learning

Study skills materials for online learning https://libguides.usask.ca/studyskills

A guide on netiquette, principles to guide respectful online learning interactions <u>https://teaching.usask.ca/remoteteaching/netiquette.php</u>

Teaching, Learning and Student Experience

Teaching, Learning and Student Experience (TLSE) provides developmental and support services and programs to students and the university community. For more information, see the students' web site http://students.usak.ca.

College Supports

Students in Arts & Science are encouraged to contact the Undergraduate Student Office and/or the Trish Monture Centre for Success with any questions on how to choose a major; understand program requirements; choose courses; develop strategies to improve grades; understand university policies and

procedures; overcome personal barriers; initiate pre-career inquiries; and identify career planning resources. Contact information is available at: (<u>http://artsandscience.usask.ca/undergraduate/advising/</u>)

Financial Support

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact Student Central (<u>https://students.usask.ca/student-central.php</u>).

Aboriginal Students' Centre

The Aboriginal Students' Centre (ASC) is dedicated to supporting Aboriginal student academic and personal success. The centre offers personal, social, cultural and some academic supports to Métis, First Nations, and Inuit students. The centre is also dedicated to intercultural education, brining Aboriginal and non-Aboriginal students together to learn from, with and about one another in a respectful, inclusive and safe environment. Students are encouraged to visit the ASC's Facebook page (https://www.facebook.com/ aboriginalstudentscentre/) to learn more.

International Student and Study Abroad Centre

The International Student and Study Abroad Centre (ISSAC) supports student success in their international education experiences at the U of S and abroad. ISSAC is here to assist all international undergraduate, graduate, exchange and English as a Second Language students and their families in their transition to the U of S and Saskatoon. ISSAC offers advising and support on all matters that affect international students and their families and on all matters related to studying abroad. . Please visit students.usask.ca or updates.usask.ca for more information.

Land Acknowledgement

As we engage in Remote Teaching and Learning, I would like to acknowledge that the Saskatoon campus of the University of Saskatchewan is 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. I would also like to recognize that some may be attending this course from other traditional Indigenous lands. I ask that you take a moment to make your own Land Acknowledgement to the peoples of those lands. In doing so, we are actively participating in reconciliation as we navigate our time in this course, learning and supporting each other.





New Course Proposal & Creation Form

1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: Arts and Science
- 1.2 Department with academic authority: Computer Science
- 1.3 Term from which the course is effective: 202205

2. Information required for the Catalogue

- 2.1 Label & Number of course: CMPT 318
- 2.2 Academic credit units: 3

2.3 Course Long Title (maximum 100 characters): **Data Analytics** Course Short Title (maximum 30 characters): **Data Analytics**

2.4	Total Hours: 39 Lecture	Seminar	16.5	Lab Tuto	rial Other
2.5	Weekly Hours: 3 Lecture	Seminar	1.5	Lab Tuto	rial Other
2.6	Term in which it will be off	ered: T1	Т2	T1 or T2	T1 and T2

2.7 Prerequisite: CMPT 270, and MATH164, and STAT 245 or equivalent

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 computational tools for the analysis of data. This course will focus on the design and implementation of data analytic pipelines, and the appropriate interpretation of the results of that analysis.

2.9 Do you allow this course to be repeated for credit? No.

3. Please list rationale for introducing this course:

This course is being created to meet a competitive and industry need. Computer technology now permeates society. Much of the recent growth in Computer Science has been driven by more traditional sectors of the economy such as retail, mining, agriculture and hospitality leveraging the data they collect to increase efficiency and decrease costs. This data revolution is unlikely to abate any time soon as most organizations have substantial data reserves, and little capacity to exploit them. Most of our comparator institutions offer some form of Data Analytics programming. As we see increasing demand for students with a Data Analytics background, the university must either offer this type of programming or lose

students to nearby institutions such as the Universities of Alberta or Manitoba.

Computer Science at the University of Saskatchewan currently offers courses in Machine Learning and Deep Learning at the fourth year level, but has no course that covers the fundamentals of data analytics from a computational perspective. Courses in Statistics cover aspects of analytic pipeline design, but do not address the pipeline in its entirety or the efficient and maintainable construction of code to perform the analysis. Some of the advanced labs in the natural and social sciences cover discipline or inquiry specific pipelines, but do not cover how to create new pipelines for new problems, which is the major focus of the course. It should be noted that Data Analytics typically focusses on practical data tasks and computational efficiency, whereas Data Science focusses on the fundamentals of data and statistics and is typically taught in Mathematics departments.

4. Please list the learning objectives for this course:

See syllabus.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? If so, were these departments consulted? (Include correspondence) Were any other departments asked to review or comment on the proposal?

No changes to curriculum to any other unit are required.

The broader impact is reflected in the creation of the new programs in Data Analytics, Geomatics, ISD, and Bioinformatics. Consultation occurred in conjunction with the creation of these programs.

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? N/A
- 6.3 Is this course to be required by your majors, or by majors in another program? Will be required for Applied Computing with a concentration in Data Analytics.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See syllabus.

8. Enrolment

- 8.1 Expected enrollment: 90
- 8.2 From which colleges? 70 from Arts & Science; 20 from other colleges.

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

See syllabus.

9.1 How should this course be graded? N – Numeric/Percentage (Grade options for instructor: grade of 0% to 100%, IP in Progress)

9.2 Is the course exempt from the final examination? No.

10. Required text

Include a bibliography for the course.

See syllabus.

11. Resources

- 11.1 Proposed instructor: Kevin Stanley
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Initial offerings of the course will be accommodated within the existing departmental budget. Should the course provide popular and grow the student base additional TA supports might be necessary, which should be reflected through the annual budgeting exercise with the college.
- 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 tuition category) Yes, TCO3
- 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 additional fees are required.

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code Description

LEC Lecture 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 N/A
- 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
 - SCIE Science SOCS Social Science
 - ARNP No Program Type (Arts and Science)

Does this course satisfy one of the official college requirements: No

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: N/A
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program **N/A**

3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course **Prerequisite(s): CMPT 270, and MATH 164, and STAT 245 or equivalent**

- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course **N/A**
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course N/A
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

Note: CMPT 280.3 is recommended as a pre- or co-requisite. Any calculus course is recommended as a prerequisite.

- 4. List Equivalent Course(s) here: N/A
- 5. List Mutually-Exclusive Course(s) here: N/A
- 6. Additional Notes: N/A

COURSE SYLLABUS

CMPT 318.3: Data Analytics

Someday, sometime

Dr. Kevin Stanley

Office: Thorv ??? 306-966-6747 kevin.stanley@usask.ca

Office hours: 2:00-3:00 pm Fridays, or by appointment

Catalogue Description

Introduces computational tools for the analysis of data. This course will focus on the design and implementation of data analytic pipelines, and the appropriate interpretation of the results of that analysis.

Prerequisite(s): CMPT 270, and MATH 164, and STAT 245 or equivalent

Note: CMPT 280 and any calculus class are recommended.

Learning Outcomes

By the completion of this course, students will be expected to:

- 1. Explain a data analytic design pattern and how it can be applied to a specific data analytic problem
- 2. Create data analytic pipelines using the scikit family of Python libraries and SQL scripts
- 3. Filter static and time varying data according to rules
- 4. Meaningfully aggregate data, and describe the impact of the aggregation on the statistical properties of the data and their potential interpretation
- 5. Appropriately identify and implement solutions for regression, classification and clustering problems
- 6. Create narratives corresponding to the data analytic pipeline, and the outcomes observed
- 7. Extend in-memory scale analysis to larger Big Data Analysis using Dask

Course Overview

Data Analytics comprises the tools and techniques to extract meaning from data, usually obtained in an unstructured rather than experimental environment. This course will teach the fundamentals of designing data analytic pipelines for canonical classes of data. We will begin with simple tabular data, small enough

to be manipulated in memory, and study the fundamental processes of filtering, stratification and aggregation, and their effect on downstream classification or regression models. We will then study the use of metrics or features, and how pipelines can be chained together to derive higher-order insights. In streaming data, each analysis step can often be performed in memory, but the overall stream size can too large to accommodate in its entirety. Meaningful information is expected from sequential relationships between the data points as well as the datapoints themselves. Finally, we will introduce the concepts surrounding Big Data, and provide an overview of techniques required to manage and manipulate data too large for memory. Most of the course will rely on the Python programming language and the scikit family of data libraries. The final section of the course will cover Dask, which provides scikit-like abstractions over big data frameworks like Spark and Hadoop. The architectures of these frameworks will be introduced, but not covered in detail. The course evaluation will be comprised of a number of small lab assignments, four substantial assignments, and a final exam covering all course content. Lectures will cover the major topics in the course, and underlying theory. Labs will focus on scikit tool tutorials and provide small worked problems.

Class Schedule

- Week 1: What is Data Analytics and Data Analytics Design Patterns
- Week 2: Tabular Data in Python
- Week 3: Data Pipelines for Classification and Regression of Tabular Data
- Week 4: Statistical and Aggregate Metrics, Assignment 1
- Week 5: Graph and Tree Metrics
- Week 6: Streaming Data in Python, Assignment 2
- Week 7: Common String Analysis Algorithms
- Week 8: Data Pipelines for Classification or Clustering of Streaming Data
- Week 9: Big Data in Dask, Assignment 3
- Week 10: Schedulers for handling big data
- Week 11: Big Data case study
- Week 12: Putting it all together, data analytics as data narratives, Assignment 4
- Week 13: Review and special topics

Midterm and Final Examination Scheduling

Midterm and final examinations must be written on the date scheduled.

Final examinations may be scheduled at any time during the examination period <u>(INSERT FIRST AND</u> <u>LAST DAY OF CURRENT EXAM PERIOD</u>); 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 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

Length and Mode of Final Examination

A three hour final exam will be administered containing a mixture of multiple choice, short answer, and coding and design problems.

Required Resources

Readings/Textbooks

Textbooks are available from the University of Saskatchewan Bookstore:

www.usask.ca/consumer services/bookstore/textbooks

Required Text Grus, J. (2019). *Data science from scratch: first principles with python*. O'Reilly Media.

Optional Text Daniel, J. C. (2019). *Data science with Python and Dask*.

Other Required Materials

Electronic Resources

This course will make use of Python and the scikit family of libraries available on all Computer Science servers and laboratory computers. We will use both Jupyter notebooks and PyCharm (Jetbrains) as interfaces. The scikit family of libraries can be downloaded using anaconda.

Grading Scheme

Assignments	52
Labs	11
Final Exam	37
Total	100%

Evaluation Components

Assignment 1: Tabular Data and Classification

Value: 13% of final grade

Duration: 2 weeks

Introduces using data analytic design patterns to cluster data. Students will employ Python and associated scikit libraries to implement a data analytic pipeline, and cluster the results using k-means or a comparable algorithm. Written documentation will describe the results.

Assignment 2: Tabular Data and Metrics

Value: 13% of final grade

Duration: 2 weeks

Introduces the idea of aggregate measures using graph or tree constructs. Students will create Python and SQL scripts and written documentation that implements a measure on a graph or tree construct created from the data then run one or more clustering algorithms on that construct. Students will comment on the properties of the resulting clusters.

Assignment 3: Streaming Data

Value: 13% of final grade

Duration: 2 weeks

Texts, DNA and temporal measurements have a built in direction which streams data towards an outcome. Students will build a data analytics pipeline for streaming data in Python. The results of the analysis will be used to inform a network routing or similar problem.

Assignment 4: Big Data

Value: 13% of final grade

Duration: 2 weeks

Some datasets are distinguished not by their complexity but their size. This assignment will introduce students to data where scale is a factor. Common examples include search engine data, image repositories or video or audio streaming service records. Students will learn how to adapt pipelines to handle data volume.

Lab Assignments

Value: 1% of final grade each, total of 11%

Duration: 30 minutes

The lab assignments are meant to introduce practical data analytic coding concepts in small doses and can easily be completed during the lab period. They are meant to provide practice using the tools leading to the assignments. Grades are provided more to encourage participation than for evaluation.

Final Exam

Value: 37% of final grade

Length: 3 hours

Type: Comprehensive, Invigilated, no electronic devices

Information on literal descriptors for grading at the University of Saskatchewan can be found at: <u>http://students.usask.ca/academics/grading/grading-system.php</u>

Please note: There are different literal descriptors for undergraduate and graduate students.

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>

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

Submitting Assignments

Assignments will be submitted through Canvas.

Late Assignments

Late assignments are not accepted. Students with a valid reason (medical, personal) may receive an extension individually.

Criteria That Must Be Met to Pass

Students must complete three of four assignments and pass the final exam to be eligible to pass the course.

Recording of the Course

Recording of the course will only be allowed in certain circumstances. Please see the instructor for information on how to receive approval.

Copyright

Materials posted on Canvas or distributed in class will be made available in accordance with Canadian copyright laws. Students are reminded of their obligation to also abide by this legislation.

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</u>#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

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 services.php, or contact AES at 306-966-7273 or <a href="https://students.usask.ca/health/centres/acce

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.

Student Supports

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://students.usask.ca/.

College Supports

Students in Arts & Science are encouraged to contact the Undergraduate Student Office and/or the Trish Monture Centre for Success with any questions on how to choose a major; understand program requirements; choose courses; develop strategies to improve grades; understand university policies and procedures; overcome personal barriers; initiate pre-career inquiries; and identify career planning resources. Contact information is available at: (http://artsandscience.usask.ca/undergraduate/advising/)





New Course Proposal & Creation Form

1. Approval by Department Head or Dean

- 1.1 College or School with academic authority: Arts and Science
- 1.2 Department with academic authority: Computer Science
- 1.3 Term from which the course is effective: 202205

2. Information required for the Catalogue

- 2.1 Label & Number of course: CMPT 407
- 2.2 Academic credit units: 3
- 2.3 Course Long Title (maximum 100 characters): **Research Topics in Applied Computing** Course Short Title (maximum 30 characters): **Research in Applied Computing**

2.4	Total Hours:	Lecture	39 Sen	ninar L	ab	Tutorial	65 Other:	Research
2.5	Weekly Hours	: Lecture	1.5 Se	eminar	Lab	Tutorial	2.5 Other:	Research
2.6	Term in which	it will be of	fered:	T1	Т2	T1 or	T2 T1	and T2

2.7 Prerequisite: In the final year of Honours program in Applied Computing; or a cumulative percentage of at least 70% in 24 credit units of courses in the C4 Major Requirement (for the chosen concentration) and written permission of the department.

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):

Senior students will be introduced to research in an advanced area of Applied Computing under the supervision of a faculty member specializing in the area, often with co-supervision with another faculty member in a cognate department.

2.9 Do you allow this course to be repeated for credit? No.

3. Please list rationale for introducing this course:

This course will serve as the Honours thesis for all concentrations in the Applied Computing program. The syllabus is virtually identical to CMPT 400, the Honours thesis in Computer Science. This course is being proposed to facilitate book keeping between the different Honours programs.

4. Please list the learning objectives for this course:

See syllabus.

5. Impact of this course

Are the programs of other departments or Colleges affected by this course? If so, were these departments consulted? (Include correspondence) Were any other departments asked to review or comment on the proposal?

No changes to curriculum to any other unit are required.

Students in this program may work on research projects that involve other departments. See letters of support for the program concentrations.

- 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? N/A
 - 6.3 Is this course to be required by your majors, or by majors in another program? Will be required for Applied Computing at the Honours level.

7. Course outline

(Weekly outline of lectures or include a draft of the course information sheet.)

See syllabus.

8. Enrolment

- 8.1 Expected enrollment: 10
- 8.2 From which colleges? 10 from Arts & Science

9. Student evaluation

Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

See syllabus.

- 9.1 How should this course be graded?
 N Numeric/Percentage
 (Grade options for instructor: grade of 0% to 100%, IP in Progress)
- 9.2 Is the course exempt from the final examination? No.

10. Required text

Include a bibliography for the course.

See syllabus.

11. Resources

- 11.1 Proposed instructor: Ian Stavness
- 11.2 How does the department plan to handle the additional teaching or administrative workload? Teaching and other course expenses will be accommodated within the departmental 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.)? No

12. Tuition

- 12.1 Will this course attract tuition charges? If so, how much? (use tuition category) Yes, TCO3
- 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 additional fees are required.**

Detailed Course Information

1. Schedule Types

Please choose the Schedule Types that can be used for sections that fall under this course:

Code Description

SEM Seminar RES Research

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 N/A
- 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)

Does this course satisfy one of the official college requirements: No

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

- 3.1 Permission Required: N/A
- 3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program **Restricted to students in Applied Computing**

3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course Prerequisite(s): In the final year of Honours program in Applied Computing; or a cumulative percentage of at least 70% in 24 credit units of courses in the C4 Major Requirement (for the chosen concentration) and written permission of the department.

- 3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course N/A
- 3.5 Corequisite(s): course(s) that must be taken at the same time as this course N/A
- 3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

Note: Students in the Geomatics Stream may take GEOG 490.3 or PLAN 490.3 in place of CMPT 407.3. Students in the Data Analytics Stream may take MATH 402.0 in place of CMPT 407.3. Students cannot count more than one of these courses toward a degree in Applied Computing.

- 4. List Equivalent Course(s) here: N/A
- 5. List Mutually-Exclusive Course(s) here: CMPT 400.3, CMPT 405.3

6. Additional Notes: N/A

CMPT 407.3

Research Topics in Applied Computing

Coordinator: I. Stavness

Course Description

Senior students will be introduced to research in an advanced area of Applied Computing under the supervision of a faculty member specializing in the area, often with co-supervision with another faculty member in a cognate department.

Prerequisites: In the final year of an Honours program in Applied Computing

The course involves three main phases:

- 1. An introduction to Computer Science Research and Development (see Moodle for more details);
- 2. The individual directed project work under the guidance of a faculty advisor (weekly meetings with faculty advisor);
- The presentation of the research results to an audience consisting of all students in CMPT 400 and CMPT 405 and their supervisors, and the production of a report or paper summarizing the work (at the end of the course).

CMPT 407 has the additional requirement that students <u>must</u> attend and critically review two presentations in the Computer Science Seminar Series.

Permission to Enroll

CMPT 407 provides access to a variety of different and independent topics, registering involves more than just completing traditional course enrollment procedures. A special registration form has been provided to facilitate this. Students should complete this form as soon as possible. **Once permission has been granted, students can register for the course via PAWS. Remember, CMPT 407 is a two-term 3 credit unit class.**

Additional notes include:

- The course is designed for students in their "fourth year";
- The course requires a faculty supervisor in the area of the student's project work. Efforts will be made to match students with their choice of projects or specific supervisor; however, this cannot be guaranteed. These matches are open to negotiation between individual students and faculty members;
- Group work may be permitted in 407. Department experience has found that group size, if allowed, should be limited to a maximum of 2 students;

• The "independent" nature of these courses may pose new challenges in personal time management to many students. Students are not permitted to register in 400, 405 or 407 simultaneously.

Project Topic Areas

- The objectives for the courses include providing the students with an in-depth understanding of a selected area of applied computing:
 - o beyond that available from other undergraduate courses
 - o at or near the state of the art
 - o under the guidance of an active researcher in the area
- CMPT 407 is not designed to replace any existing CMPT courses. Rather they are designed either for more concentrated study in some area or for study of some area not covered by an existing CMPT course.
- Students are encouraged to propose their own projects or at least to consider what type of project they want to undertake. Faculty can be called upon to provide suggestions and may have a set of potential project topics available for students to consider.
- Students may wish to consider the following in selecting a project:
 - o their personal interest in a topic
 - o the resources (including supervisor and clients) available to help with the project
 - the value that completing the project may add to the student potential job skills.
 - o the potential workload required to complete the project.

Specific project topics will be approved by the supervisor in consultation with the course coordinator to ensure that they contain appropriate academic content commensurate with a 4xx level course.

Student Evaluation

The method of student evaluation for both courses is:

2 Seminar Reviews:		
Ideas Presentation:		
Proposal Presentation:		
Final Project presentation:		
Attendance (Final Project Presentation):		
Final project paper:		

Learning Contract

A learning contract must be prepared by the student in consultation with the supervisor and signed by both parties. A copy should be given to the course coordinator prior to the end of September.

It is suggested that the learning contract will identify:

- The objectives of the project;
- The resources needed for the project and how they will be obtained;
- The phases of the project, represented by at least two milestones of identified accomplishments;
- The final artifacts of the project;
- The proportion of the project mark allotted to each artifact.

The exact form of the contract depends on the project.

Evaluation processes for each project deliverable will be provided in discussions with the faculty supervisor and course coordinator.

Example Checkpoints for 2020-2021

Week of Sept. 30, 2020	Final agreement of faculty member to supervise a student; upload to Moodle and inform coordinator by email (with cc to supervisor).
Week of Oct. 28, 2020	Completed/signed learning contract.
Week of Nov. 4, 2020	Project Idea Presentation: video presentation of the idea you have for the project; uploaded to Moodle
Week of Nov. 18, 2020	1 st Progress Report – milestones met? (see Learning Contract)
Week of Nov. 25, 2020	Project proposal due to supervisor
Week of Jan. 20, 2021	Project Proposal Presentation: video presentation of your detailed project proposal for the project;
Week of Feb. 3, 2021	2 nd Progress Report – milestones met? (see Learning Contract)
Feb. 26, 2021	Abstract for final presentation uploaded to Moodle
March 3, 10, 17, 24, 31	Final presentation of project
April 7, 2021 Deadline	*Final written report submitted to supervisor (with copy to coordinator) for marking. *Last date for submitting two seminar reviews to Moodle. Reviews must be signed by supervisor to indicate approval.

Schedule of Class Sessions

- Project activity and weekly interaction with faculty advisor is to be arranged between the student and advisor at a time convenient to both parties.
- The <u>Wednesday, 3:30 4:50 p.m</u> timeslot is reserved for course activity. This will primarily be the final course projects in March. Attendance at all student final presentation sessions is required and part of the final course grade
- All course announcements will be provided via the LMS, so it is your responsibility to monitor class pages for announcements.

Computer Science Seminars

All students in CMPT 407 <u>must</u> review <u>two</u> Computer Science Seminars of their choice during the year. The choice of seminars should be approved by the faculty advisor.

After viewing the seminar a written review should be prepared. A draft copy of your review should be approved by your supervisor; a good copy is then uploaded to moodle. The coordinator will be keeping track of these reviews and assign final grades to them; the reviews will be graded on an acceptable/not acceptable basis.

You may use the follow the following format for your seminar review:

Each review should be approximately 1 page long and must be printed on 8.5" by 11" paper. Identify the following at the top:

Student Name, NSID and Student Number Speaker Name Title Date and Time

An *example format* of a report is the following. You may deviate from this format upon approval from your supervisor.

The content of the review should be divided into two paragraphs. In the first paragraph you should describe <u>in your own words</u> what the seminar was about as you understood it. What was the speaker trying to accomplish?

In the second paragraph you should evaluate the seminar from your own viewpoint. How well was it delivered? How good were the overheads or displays? What did you learn from it? Be honest! If you learned little from it, explain why.

PDF is the <u>only</u> acceptable format.

Project Presentations/Report

1) Project Idea Presentation: you will give a very brief presentation in mid-November of the idea you've decided to pursue on your project. This presentation is to be recorded by video and uploaded to the LMS along with a PDF of the slides.

2) Project Proposal Presentation: you will give a detailed presentation in early January of the project you are pursuing. This presentation is to be recorded by video and uploaded to Moodle along with a PDF of the slides.

3) Final Project Presentation: A Schedule for your final project presentation will be released around the end of February; the actual presentation period is each Wednesday in March. You will be required to submit a title for your presentation at the time the schedule is developed. The presentations will be delivered live.

4) Final Project Report: The **deadline** for submission of your final written reports **to your supervisor by email** (and **uploaded to Moodle**) is XX. The final report will be 4000-8000 words, demonstrating that a project has been completed (not a literature review), and that you have learned something about the topic you proposed.

All students registered in CMPT 407 are required to attend <u>all</u> of the Final Presentations; attendance will be taken and will be factored into your final mark!

Learning Objectives

The starting point in developing the learning contract for either class is to identify a number of learning objectives, typically at least four. These learning objectives will specify what you plan to accomplish as part of the course. Academically, they provide evidence of suitable fourth year level academic work.

Learning objectives should be as concrete or objective as possible in the accomplishments they specify.

The learning objectives for each course should reflect the "research" orientation of CMPT 407.

Each CMPT 407 project normally involves:

- Identifying project objectives, their importance, and how they relate to current research or practice in the field in question.
- Elaborating on the objectives by exploring relevant research literature
- Presenting a unique view of the topic via synthesis or further exploration
- Presenting conclusions, including an analysis of accomplishments and future directions

Typical learning objectives suitable for CMPT 400 might make use of the following wordings:

- identify and compare
- determine which are more efficient in terms of ______
- develop changes or additions to improve
- evaluate alternate methods to
- synthesize various recommendations on the design of
- design and conduct an experiment on
- evaluate the results of an experiment on
- develop recommendations for
- develop a new technique for
- apply technique(s) to _____

Students in CMPT 407 are expected to go beyond summarizing instances of existing information in their project paper. Students are expected to demonstrate their understanding of the material by techniques such as: comparing, contrasting, synthesizing, hypothesizing, and evaluating. Additionally students may wish to utilize experiments to test their ideas or to gain knowledge in areas lacking in or beyond published information.

In addition to the above project-based Learning Outcomes, all students will be expected to:

1. Utilize research techniques from at least one subdomain of computer science or a cognate discipline

- 2. Articulate a research question and discuss its validity
- 3. Write a paper in a format consistent with a subdomain of computer science or a cognate discipline
- 4. Present research findings and answer questions related to the findings and process of obtaining them

Land Acknowledgement

As we engage in Remote Teaching and Learning, I would like to acknowledge that the Saskatoon campus of the University of Saskatchewan is 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. I would also like to recognize that some may be attending this course from other traditional Indigenous lands. I ask that you take a moment to make your own Land Acknowledgement to the peoples of those lands. In doing so, we are actively participating in reconciliation as we navigate our time in this course, learning and supporting each other.

Remote Learning Context

I acknowledge the complex circumstances in which the course is taking place. The remote teaching and learning context is new to most, and that all participations in the course should interact with empathy and care.

Criteria That Must Be Met to Pass

The Final Project Presentation and the Final Project Report are required to be completed in order to pass the course.

Attendance Expectations (for synchronous components)

Attendance is required for the Final Project Presentations. Regular remote meeting with faculty advisor is required.

Late submissions

Students will receive a zero grade for late submission of project deliverables unless they have written confirmation of an extension from their faculty supervisor and course coordinator. Students must provide presentation deliverables on the date specified, or will receive a zero grade on that deliverable.

Use of video and recording of the course:

Video conference sessions in this course, including your participation, will be recorded and made available only to students in the course for viewing via Moodle after each session. This is done, in part, to ensure that students unable to join the session (due to, for example, issues with their internet connection) can view the session at a later time. This will also provide you the opportunity to review any material discussed.

Please remember that course recordings belong to your instructor, the University, and/or others (like a guest lecturer) depending on the circumstance of each session, and are protected by copyright. Do not download, copy, or share recordings without the explicit permission of the instructor.

For questions about recording and use of sessions in which you have participated, including any concerns related to your privacy, please contact your instructor. More information on class recordings can

be found in the Academic Courses Policy <u>https://policies.usask.ca/policies/academic-affairs/academic-courses.php#5ClassRecordings</u>.

Required video use:

At times in this course you will be required to have your video on during video conferencing sessions. It will be necessary for you to use of a webcam built into or connected to your computer. Video is required for you to participate in presentation discussions and Q&A sessions. For questions about use of video in your sessions, including those related to your privacy, contact your instructor.

<u>Copyright</u>

Course materials are provided to you based on your registration in a class, and anything created by your professors and instructors is their intellectual property, unless materials are designated as open education resources. 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 you 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 you copy or distribute others' copyright-protected materials, please ensure that your use of the materials is covered under the University's Fair Dealing Copyright Guidelines available at https://library.usask.ca/copyright/general-information/fair-dealing-guidelines.php. For example, posting others' copyright-protected materials on the open web 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 <u>https://library.usask.ca/copyright/index.php</u>where there is information for students available at <u>https://library.usask.ca/copyright/students/rights.php</u>, or contact the University's Copyright Coordinator at <u>mailto:copyright.coordinator@usask.ca</u> or 306-966-8817.

Integrity in a Remote Learning Context

Although the face of teaching and learning has changed due to covid-19, the rules and principles governing academic integrity remain the same. If you ever have questions about what may or may not be permitted, ask your instructor. Students have found it especially important to clarify rules related to exams administered remotely and to follow these carefully and completely.

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</u>#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

Examinations with Access and Equity Services (AES)

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 services.php, or contact AES at 306-966-7273 or services.php, or contact AES at 306-966-7273 or services.php, or contact AES at 306-966-7273 or services.php.

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.

For information on AES services and remote learning please visit https://updates.usask.ca/info/current/accessibility.php#AccessandEquityServices

Student Supports

Academic Help for Students

The University Library offers a range of learning and academic support to assist USask undergrad and graduate students. For information on specific services, please see the Learning page on the Library web site https://library.usask.ca/support/learning.php.

Remote learning support information <u>https://students.usask.ca/remote-learning/index.php</u>

Class and study tips https://students.usask.ca/remote-learning/class-and-study-tips.php

Remote learning tutorial https://libguides.usask.ca/remote_learning

Study skills materials for online learning https://libguides.usask.ca/studyskills

A guide on netiquette, principles to guide respectful online learning interactions <u>https://teaching.usask.ca/remote-teaching/netiquette.php</u>

Teaching, Learning and Student Experience

Teaching, Learning and Student Experience (TLSE) provides developmental and support services and programs to students and the university community. For more information, see the students' web site <u>http://students.usask.ca</u>.

College Supports

Students in Arts & Science are encouraged to contact the Undergraduate Student Office and/or the Trish Monture Centre for Success with any questions on how to choose a major; understand program requirements; choose courses; develop strategies to improve grades; understand university policies and procedures; overcome personal barriers; initiate pre-career inquiries; and identify career planning resources. Contact information is available at: (http://artsandscience.usask.ca/undergraduate/advising/)

Financial Support

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact Student Central (<u>https://students.usask.ca/student-central.php</u>).

Aboriginal Students' Centre

The Aboriginal Students' Centre (ASC) is dedicated to supporting Aboriginal student academic and personal success. The centre offers personal, social, cultural and some academic supports to Métis, First Nations, and Inuit students. The centre is also dedicated to intercultural education, brining Aboriginal and non-Aboriginal students together to learn from, with and about one another in a respectful, inclusive and safe environment. Students are encouraged to visit the ASC's Facebook page (https://www.facebook.com/aboriginalstudentscentre/) to learn more.

International Student and Study Abroad Centre

The International Student and Study Abroad Centre (ISSAC) supports student success and facilitates international education experiences at USask and abroad. ISSAC is here to assist all international undergraduate, graduate, exchange and English as a Second Language students in their transition to the University of Saskatchewan and to life in Canada. ISSAC offers advising and support on matters that affect international students and their families and on matters related to studying abroad as University of Saskatchewan students. Please visit <u>students.usask.ca</u> or <u>updates.usask.ca</u> for more information.

Recommended Technology for Remote Learning

Students are reminded of the importance of having the appropriate technology for remote learning. The list of recommendations can be found at <u>https://students.usask.ca/remote-learning/tech-requirements.php</u>.

Remember, there are <u>many supports available</u> to help you thrive in the remote learning context.

Course Deletions

BINF 210.3 Introduction to Bioinformatics Applications

Rationale: The Bioinformatics program is being proposed to be deleted and replaced as a new Concentration in Bioinformatics within a new Applied Computing program. The department is taking this opportunity to try to revitalize the dedicated Bioinformatics courses which will be taught for the Bioinformatics concentration.

BINF 210 was created approximately 7 years ago, well after the Bioinformatics program was created. The intention at the time was to create a course that did not require any computer programming background, which would be more appropriate for students in the Biochemistry program or in other life or health science departments. Instead of teaching programming, it used bioinformatics tools only on the web. Although we believe that not requiring any prior programming experience is important for students in these programs, we now believe it would be superior to teach programming within the class. The former approach was essentially a "service terminal course" in that it did not effectively lead into other computational courses. Furthermore, its appeal was largely limited to BMSC students. Also, requiring BMSC 200 made the ramp-up time too lengthy, and most students ended up taking it in the later years of their program. We believe that offering it as a first year course (BINF 151.3) that combines an introduction to programming (with overlap with the course CMPT 140: Introduction to Creative Computing) will significantly improve its reach. Discussions with various members of life science and health science programs supports this thinking. We believe that enrolment in the newer class will end up being higher, and the course will have a greater impact on its students.

BINF 400.3 Advanced Techniques in Bioinformatics

Rationale: BINF 400 is currently required for Honours program in Bioinformatics students, which is being proposed for deletion. The concentration in Bioinformatics in the Applied Computing program will use the proposed CMPT 407 course instead. Students who remain in the old Bioinformatics program will be allowed to substitute CMPT 407 for BINF 400 to complete their program requirements.

Minor Course Revisions

BINF 200.3 Introduction to Bioinformatics

Prerequisite change:

Old prerequisite: BMSC 200.3 or equivalent

New prerequisite: BIOL 121.3 or BMSC 200.3; and one of CMPT 145.3 or (BINF 151.3 with permission of the department).

New Note: Students with credit for BINF 200.3 may not take this course for credit.

New course number: BINF 351.3

New course description: This course introduces core bioinformatic competencies and resources. Topics include algorithms for sequence alignment, genome assembly, phylogenetics, structure prediction, functional genomics, sequence motifs and proteomics. Students will also learn to use major proteomic and genomic databases, to utilize bioinformatics software toolboxes, and to write simple bioinformatics programs in a scripting language.

Rationale: With the deletion of the existing Bioinformatics program, and making the new Applied Computing program with a Concentration in Bioinformatics, we took the opportunity to examine paths into the bioinformatics program and consistency within the computer science department. Overall, the material is more appropriate for a third year course. It also provides more opportunity to discover bioinformatics within the first two years of a four year degree in order to take this course, vs a second year class. The material taught in the class is nearly identical to that of BINF 200. Lastly, this course would be quite useful for graduate students who need to apply bioinformatics in their research, and therefore it is more useful as a third year class versus a second year course.

BINF 300.3 Algorithms in Bioinformatics

Old prerequisite: CMPT 280.3, BINF 200.3, and one of BIOC 300.3, BIOL 226.3, or MCIM 326.3 New prerequisite: CMPT 280.3, and one of BIOL 120.3 or BMSC 200.3 New Note: Students with credit for BINF 300.3 may take this course for credit.

New subject code and course number: CMPT 451.3

New course title: Modelling and Algorithms for Biological Systems

New short title: Algorithms in Biology

New course description: This course focusses on mathematical and computational modelling of various real world processes, with the main focus on biological systems. Using discrete models, algorithmic strategies will be explored including exact algorithms, approximation algorithms, heuristic algorithms, and evolutionary algorithms. The algorithms and models used will involve sets, graphs, strings, trees, machines, and grammars. For each algorithmic technique, we will study applications from biological systems and bioinformatics, including biomolecule string matching, sequence alignment, sequence assembly, gene finding, structure prediction, gene expression data analysis, phylogeny, genome rearrangement, and simulations of molecular evolution.

Rationale: As part of the transition from the existing Bioinformatics to the Bioinformatics concentration of Applied Computing, the department proposes to reinvigorate the program. Enrolment in BINF 300 has always been guite limited, usually between 3-5 students. As such, it has been run as a reading course (and taught with teaching overload) for a number of years. Essentially, the prerequisites are such that it is only possible to take the class if a student is in the Bioinformatics degree program. We are attempting to improve this in two ways.

1) We are changing the prerequisite structure to more accurately reflect the material taught in the class. The class teaches bioinformatics problems, builds models for the problems, and then analyzes different algorithmic techniques to solve the problems, paying particular focus to the complexity and accuracy of the algorithms to determine the best options. These can be taught with significantly less biological prerequisites, and in fact, independently from BINF 351 (formerly BINF 200). To reflect this, we are changing the subject code to be CMPT so that it is more likely for computer science students to take the class without fear of their lack of biological background.

2) The course will become cross-listed with a new graduate Computer Science class proposed for creation to CGPS, CMPT 841, open to all Computer Science graduate students. By cross-listing the class, enrolment between the two will naturally be significantly higher combined (as Computer Science has the largest thesis-based graduate program at U of S). This also is another advantage of reducing the undergraduate biological prerequisites, as it becomes more feasible for computer science graduate students to take the course. Lastly, it is standard for each faculty member in Computer Science to teach one graduate course, for which this cross-listed course will count. Therefore, by making this course a fourth year course and making it cross-listed, the undergraduate students can be taught "for free" in terms of the assignment of duties. The course will also be a much better experience for students in this class versus having a reading class, and it significantly solidifies the Bioinformatics concentration.

CMPT 140.3 Introduction to Creative Computing

Change to Note:

Old Note: Recommended for students who do not have Computer Science 30. CMPT 140 can be taken for credit after the completion of CMPT 100, but CMPT 100 cannot be taken for credit after completion of CMPT 140. Students with credit for CMPT 105, CMPT 111, CMPT 113, or CMPT 116 cannot obtain credit for CMPT 140. Students majoring the Interactive Systems Design, Computer Science, and Bioinformatics programs may not use CMPT 140 as a course in their major, but may count it as a junior elective. New Note: Recommended for students who do not have Computer Science 30. CMPT 140 can be taken for credit after the completion of CMPT 100, but CMPT 100 cannot be taken for credit after completion of CMPT 140. Students with credit for CMPT 105, CMPT 111, CMPT 113, or CMPT 116 cannot obtain credit for CMPT 140. Students majoring the Computer Science and Applied Computing programs may not use CMPT 140 as a course in their major, but may count it as a junior elective. Students may receive credit for only one of CMPT 140 or BINF 151.

New restriction: CMPT 140 will be mutually exclusive with BINF 151.

Rationale: Interactive Systems Design and Bioinformatics are both being removed, and replaced with separate concentrations in Applied Computing, along with other concentrations. CMPT 140 and BINF 151 overlap significantly in content, and should not both be taken for credit.

CMPT 141.3 Introduction to Computer Science

Prerequisite change:

Old prerequisite: One of (Computer Science 30, CMPT 105, CMPT 140) and one of (Mathematics B30, Foundations of Mathematics 30, Pre-Calculus 30); or MATH 110, MATH 123, or MATH 176 (can be taken concurrently).

New prerequisite: One of (Computer Science 30, CMPT 105.3, CMPT 140.3, BINF 151.3) and one of (Mathematics B30, Foundations of Mathematics 30, Pre-Calculus 30); or MATH 110.3, MATH 123.3, MATH 133.4 or MATH 176.3 (can be taken concurrently).

Change to Note:

Old Note: Recommended for students with Computer Science 30, CMPT 140 or CMPT 105, or for students in programs that require MATH 110 (or equivalent). Students with credit for CMPT 115 or CMPT 117 cannot take this course for credit. Students may not take CMPT 100 or 120 for credit concurrently with or after CMPT 141.

New Note: Recommended for students with Computer Science 30, CMPT 140, BINF 151, or CMPT 105, or for students in programs that require MATH 110 (or equivalent). Students with credit for CMPT 115 or CMPT 117 cannot take this course for credit. Students may not take CMPT 100 or 120 for credit concurrently with or after CMPT 141.

Rationale: A new course is being created, BINF 151: Computing in the Biological Sciences. This course will teach the basics of programming, with a focus towards biological applications. This course will be especially appropriate for students interested in the life or health sciences, or agriculture. But it opens up the possibility of taking further computational courses, such as CMPT 141. BINF 151 will absolutely provide sufficient programming to take CMPT 141.

CMPT 381.3 Implementation of Graphical User Interfaces

Prerequisite change:

Old prerequisite: CMPT 270

New prerequisite: CMPT 280.3

Rationale: CMPT 280 has been added to the Interactive System Design Program as part of the Applied Computing proposal. More rigorous knowledge of data structures will be beneficial to students entering CMPT 381.

From: Warrington, Seanine <<u>seanine.warrington@usask.ca</u>>

Sent: Tuesday, March 9, 2021 2:27 PM

To: Isinger, Russ <<u>russell.isinger@usask.ca</u>>; DesBrisay, Gordon <<u>gordon.desbrisay@usask.ca</u>>; Vuong, Lucy <<u>lucy.vuong@usask.ca</u>>

Cc: Doell, Jason <<u>jason.doell@usask.ca</u>>; Dahl, Alexis <<u>alexis.dahl@usask.ca</u>>; Zagiel, Eileen <<u>eileen.zagiel@usask.ca</u>>

Subject: Consultation with the Registrar (CWR) Forms - College of Arts and Science proposals for 2022-23

Good afternoon,

I've attached four completed CWR Forms for the following proposals going forward for implementation in the upcoming 2022-23 academic catalogue year:

- A new field of study in Applied Computing for the B.Sc. 4-Year and Honours programs, including 5 new concentrations, as follows: Bioinformatics; Interactive Systems Design; Data Analytics; Geomatics; Business
- 2. Termination of the field of study in Bioinformatics (related to the above)
- 3. Termination of the field of study in Interactive Systems Design (related to the above)
- 4. Termination of the Minor in Digital Culture and New Media (unrelated to the above)

The proposals here follow standard setup and standard tuition, so an in-person meeting was not felt to be necessary; however, if anyone would like a meeting, I would be happy to book one!

Russ, Gordon, and Lucy, please "reply-all" with your confirmation that the details in the forms are correct. Your confirmation email will replace a signature of approval in the midst of the coronavirus pandemic (COVID-19) disruptions.

Thank you,

Seanine

Seanine Warrington, M.A. Senior Editor and Coordinator Catalogue and Academic Programs Registrarial Services University of Saskatchewan Teaching, Learning and Student Experience Ph: 306-966-1874

I acknowledge that I live and work on Treaty 6 Territory and the Homeland of the Métis. I pay respect to the First Nations and Métis ancestors of this place and reaffirm our relationship with one another.

From: Vuong, Lucy <lucy.vuong@usask.ca>
Sent: Tuesday, March 9, 2021 2:39 PM
To: Warrington, Seanine <seanine.warrington@usask.ca>; Isinger, Russ <russell.isinger@usask.ca>;
DesBrisay, Gordon <gordon.desbrisay@usask.ca>
Cc: Doell, Jason <jason.doell@usask.ca>; Dahl, Alexis <alexis.dahl@usask.ca>; Zagiel, Eileen
 <eileen.zagiel@usask.ca>
 Subject: Re: Consultation with the Registrar (CWR) Forms - College of Arts and Science proposals for 2022-23

Approved. Thanks. L

From: Isinger, Russ <russell.isinger@usask.ca>
Sent: Tuesday, March 9, 2021 2:50 PM
To: Vuong, Lucy <lucy.vuong@usask.ca>; Zagiel, Eileen <eileen.zagiel@usask.ca>; Warrington, Seanine
<seanine.warrington@usask.ca>; DesBrisay, Gordon <gordon.desbrisay@usask.ca>
Cc: Doell, Jason <jason.doell@usask.ca>; Dahl, Alexis <alexis.dahl@usask.ca>
Subject: RE: Consultation with the Registrar (CWR) Forms - College of Arts and Science proposals for 2022-23

Approved.

Russell Isinger, BA, MA

University Registrar Professional Affiliate, Department of Political Studies, College of Arts and Science University Registrar's Office Teaching, Learning and Student Experience Room E-34, 105 Administration Place University of Saskatchewan Saskatoon, Saskatchewan, Canada S7N 5A2 Office: 306-966-6723 Cell: 306-280-6178 Fax: 306-966-6730

From: DesBrisay, Gordon <<u>gordon.desbrisay@usask.ca</u>>
Sent: Tuesday, March 9, 2021 2:51 PM
To: Warrington, Seanine <<u>seanine.warrington@usask.ca</u>>; Isinger, Russ <<u>russell.isinger@usask.ca</u>>; Vuong, Lucy <<u>lucy.vuong@usask.ca</u>>
Cc: Doell, Jason <<u>jason.doell@usask.ca</u>>; Dahl, Alexis <<u>alexis.dahl@usask.ca</u>>; Zagiel, Eileen
<<u>eileen.zagiel@usask.ca</u>>
Subject: Re: Consultation with the Registrar (CWR) Forms - College of Arts and Science proposals for 2022-23

Hi Seanine,

I am happy to approve these forms and the details that sail in them.

Cheers, Gordon Gordon DesBrisay, Ph.D. Associate Professor and Vice-Dean, Academic **College of Arts & Science** University of Saskatchewan Saskatoon SK Phone: (306) 966-4315 <u>https://artsandscience.usask.ca/</u>

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

- 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?

Is there more than one program to fulfill the requirements for this degree, diploma, or certificate? If yes, please list these programs.

10

9

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	Х
Yes	No	Х



Section 2: New / Revised Program for Existing or New Degree / Diploma / Certificate Information

- ¹ Is this a new program?
 - 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?

³ What is the name of this new/revised program?

- ⁴ What other program(s) currently exist that will also meet the requirements for this same degree(s)?
- ⁵ What College/Department is the academic authority for this program?
- ⁶ Is this a replacement for a current program?
- ⁷ If YES, will students in the current program complete that program or be grandfathered?
- ⁸ If this is a new graduate program, is it thesis-based, course-based, or project-based?
 - If this is a new non-degree or undergraduate level program, what is the expected completion time?

Section 3: Mobility

9

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.

¹ Does the proposed degree, program, major, minor, concentration, or course involve mobility? If yes, choose one of the following?

Domestic Mobility (both jurisdictions are within Canada)

- International Mobility (one jurisdiction is outside of Canada)
- ² Please indicate the mobility type (refer to Nomenclature for definitions).

Joint Program

Yes	No	Х
Yes	No	Х

Yes No

- Yes No X

Joint Degree Dual Degree Professional Internship Program Faculty-Led Course Abroad Term Abroad Program

The U of S enters into partnerships or agreements with external partners for the above mobility types in order to allow students collaborative opportunities for research, studies, or activities. Has an agreement been signed?

⁴ Please state the full name of the agreement that the U of S is entering into.

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.

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.

Major Applied	Computing	(ACDC)	suggested	now Pannar cada
major - Applied	Computing	(ACPG) -	suggesteu	new banner coue

- Concentration Bioinformatics (BINF)
- Concentration Interactive Systems Design (ISDE)
- Concentration Data Analytics (DTAN) suggested new Banner code
- Concentration Geomatics (GEOM)
- Concentration Business (BUES)
- Concentration Professional Internship Option (BPIO)
- ³ What is the name of this new / revised major, minor, or concentration?

See above

3

2

Computer Science (CMPT)

⁵ Which current program(s), degree(s), and/or program type(s) is this new / revised major, minor, or concentration attached to?

Bachelor of Science (4 Yr) (BSC4Y) and Bachelor of Science (Honours) (BSCHON)





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?

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?

Of the **multiple** Departments / Schools who are the authority for this new / revised disciplinary area <u>and</u> what allocation percentage is assigned to each? (Note - must be whole numbers and must equal 100.)

4b

4a

3

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?

Section 6: New College / School / Center / Department or Renaming of Existing

- 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?

Yes	No	Х	
Yes	No	Х	
Yes	No	Х	

Yes	No	Х	
-----	----	---	--

What is the effective term of this new (renamed or deleted) coll	lege, school, center, o	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.)?

Section 7: Course Information

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?

No

² If there is a new subject area(s) of offerings what College / Department is the academic authority for this new subject area?

N/A

³ Have the subject area identifier and course number(s) for new and revised courses been cleared by the Registrar?

 N/A

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.

Some courses will be scheduled in department lab space.

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.

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?

Yes X No



3	What is the application of	deadline for each	term(s) students ca	n be admitted to?
---	----------------------------	-------------------	---------------------	-------------------

⁴ For undergraduate programs, will students be admitted to one of the approved majors or an undeclared major?

⁵ For undergraduate programs, if there's more than one degree proposed (ex. 3Y and 4Y), which program/degree will students be admitted to?

⁶ Does this impact enrollment?

⁷ How should Marketing and Student Recruitment handle initial inquiries about this proposal before official approval?

⁸ Can classes towards this program be taken at the same time as another program?

⁹ What is the application deadline?

¹⁰ What are the admission qualifications? (IE. High school transcript required, grade 12 standing, minimum average, any required courses, etc.)

11

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.)

12

What are the admission categories and admit types? (IE. High school students and transfer students or one group? Special admission? Aboriginal equity program?)

¹³ What is the application process? (IE. Online application and supplemental information (required checklist items) through the Admissions Office or sent to the College/Department?)

¹⁴ Who makes the admission decision? (IE. Admissions Office or College/Department/Other?)

¹⁵ Letter of acceptance - are there any special requirements for communication to newly admitted students?

¹⁶ Will the standard application fee apply?

¹⁷ Will all applicants be charged the fee or will current, active students be exempt?

18	Are international	students	admissible	to	this	program?
----	-------------------	----------	------------	----	------	----------

If YES, what is the tuition amount for the first 12 months for a full-time international student? This information is required for the Immigration, Refugees and Citizenship Canada [IRCC] form (this form is for students who need to get a visa to study here).

Yes

Yes

No X

No

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) - NOT APPLICABLE

- 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?

202205 (May 2022)

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?

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; undergraduate degree level certificates will use numeric year.)]
2	Will students register themselves?	Yes No
	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?	Yes No
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?	Yes No
	Section 15: Awards Information	
1	Will terms of reference for existing awards need to be amended?	Yes No X
2	If this is a new undergraduate program, will students in this program be eligible for College-specific awards?	1
	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?	Yes No
	To gualify 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?	_	
3	Will there be any courses closed as a result of this termination?	Yes	No
	If yes, what courses?	_	
4	Are there currently any students enrolled in the program?	Yes	No
i	If yes, will they be able to complete the program?	1	
5	If not, what alternate arrangements are being made for these students?	1	
6	When do you expect the last student to complete this program?	1	
7	Is there mobility associated with this program termination?	Yes	No
	If yes, please select one of the following mobility activity types.		
	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

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	No
	If NO, please describe.	_	
5	What is IPA's recommendation regarding tuition assessment? When is it expected to receive approval?		
[
6	IPA Additional comments?		
Ī			
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	No
	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?		
[

NOTE: Please remember to submit a completed "Application for New Fee or Fee Change Form" for every new course with additional fees.

Section 19: TLSE - Information Dissemination (internal for TLSE use only)

1 Has TLSE, Marketing and Student Recruitmer	t, 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

<u>OR</u>

- 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 Representative(s):

IPA Representative(s):

Yes	No	
Yes	No	
Yes	No	
Yes	No	



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

- 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?

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?

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?

Is there more than one program to fulfill the requirements for this degree, diploma, or certificate? If yes, please list these programs.

10

9

5

7

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	Х
Yes	No	Х

Yes

Section 2: New / Revised Program for Existing or New Degree / Diploma / Certificate Information

- ¹ Is this a new program?
 - 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?

³ What is the name of this new/revised program?

⁴ What other program(s) currently exist that will also meet the requirements for this same degree(s)?

⁵ <u>What College/Department is the academic authority for this program?</u>

- ⁶ Is this a replacement for a current program?
- ⁷ If YES, will students in the current program complete that program or be grandfathered?
- ⁸ If this is a new graduate program, is it thesis-based, course-based, or project-based?

If this is a new non-degree or undergraduate level program, what is the expected completion time?

Section 3: Mobility

9

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.

1	Does the proposed degree, program, major, minor, concentration, or course involve mobility?
	If yes, choose one of the following?

Domestic Mobility (both jurisdictions are within Canada)

- International Mobility (one jurisdiction is outside of Canada)
- ² Please indicate the mobility type (refer to Nomenclature for definitions).

Joint Program

Yes	No	Х
Yes	No	Х

Yes

Yes

No

No

Joint Degree Dual Degree Professional Internship Program Faculty-Led Course Abroad

Term Abroad Program

³ The U of S enters into partnerships or agreements with external partners for the above mobility types in order to allow students collaborative opportunities for research, studies, or activities. Has an agreement been signed?

⁴ Please state the full name of the agreement that the U of S is entering into.

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?

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

4

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?



/es	No	х
62	UNI	~

Yes	No	Х

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

3

Of the **multiple** Departments / Schools who are the authority for this new / revised disciplinary area <u>and</u> what allocation percentage is assigned to each? (Note - must be whole numbers and must equal 100.)

4b

1

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?

Section 6: New College / School / Center / Department or Renaming of Existing

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?

Yes	No	Х
Yes	No	Х
Yes	No	Х

⁷ Are there any ceremonial consequences for Convocation (ie. New degree hood, adjustment to parchments, etc.)?

Section 7: Course Information - NOT APPLICABLE

1

5

Is there a new subject area(s) of course offering proposed for this new degree? If so, what is the subject area(s) an	ıd
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?

Yes

Yes

No

No

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.

Section 8: Admissions, Recruitment, and Quota Information - NOT APPLICABLE

¹ Will students apply on-line? If not, how will they apply?

² What term(s) can students be admitted to?

³ What is the application deadline for each term(s) students can be admitted to?

⁴ For undergraduate programs, will students be admitted to one of the approved majors or an undeclared major?

For undergraduate programs, if there's more than one degree proposed (ex. 3Y and 4Y), which program/degree will students be admitted to?

Does this impact enrollment? 6

How should Marketing and Student Recruitment handle initial inquiries about this proposal before official approval? 7

8 Can classes towards this program be taken at the same time as another program?

9 What is the application deadline?

10 What are the admission qualifications? (IE. High school transcript required, grade 12 standing, minimum average, any required courses, etc.)

11 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.)

12 What are the admission categories and admit types? (IE. High school students and transfer students or one group? Special admission? Aboriginal equity program?)

13 What is the application process? (IE. Online application and supplemental information (required checklist items) through the Admissions Office or sent to the College/Department?)

Who makes the admission decision? (IE. Admissions Office or College/Department/Other?) 14

15 Letter of acceptance - are there any special requirements for communication to newly admitted students?

16 Will the standard application fee apply?

17 Will all applicants be charged the fee or will current, active students be exempt?

Are international students admissible to this program? 18

If YES, what is the tuition amount for the first 12 months for a full-time international student? This information is required for the Immigration, Refugees and Citizenship Canada [IRCC] form (this form is for students who need to get a visa to study here).

Yes

No

Section 9: Government Loan Information - NOT APPLICABLE

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

1

If this is a new program, do you intend that students be eligible for student loans?

Section 10: Convocation Information (only for new degrees) - NOT APPLICABLE

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 - NOT APPLICABLE

¹ What is the start term?

² Are students required to do anything prior to the above date (in addition to applying for admission)?

Yes No

If YES, what and by what date?

Section 12: Registration Information - NOT APPLICABLE

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; undergraduate degree level certificates will use numeric year.) 2 Will students register themselves? Yes No If YES, what priority group should they be in? Section 13: Academic History Information - NOT APPLICABLE Will instructors submit grades through self-serve? 1 Yes No Who will approve grades (Department Head, Assistant Dean, etc.)? 2 Section 14: T2202 Information (tax form) - NOT APPLICABLE Should classes count towards T2202s? Yes 1 No Section 15: Awards Information - NOT APPLICABLE Will terms of reference for existing awards need to be amended? 1 Yes No If this is a new undergraduate program, will students in this program be eligible for College-specific awards? 2 Section 16: Government of Saskatchewan Graduate Retention (Tax) Program - NOT APPLICABLE Will this program qualify for the Government of Saskatchewan graduate retention (tax) program? 1 Yes No 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 X No If yes, what is the name of the program?

1

	Bioinformatics (BINF) major and Professional Internship Option (BPIO) concentration These are available on the BSC4Y and BSCHON programs				
2	What is the effective date of this termination?				
	202209 (September 2022)				
3	Will there be any courses closed as a result of this termination?	Yes	Х	No	
	If yes, what courses?				
	BINF 210.3				
	BINF 400.3				
4	Are there currently any students enrolled in the program?	Yes	Х	No	
	A search in Degree Works for active students in the Bioinformatics major returns 15 students				
	If yes, will they be able to complete the program?				
	Students enrolled at the time of the deletion will be allowed to complete to the 10 year time limit				
5	If not, what alternate arrangements are being made for these students?				
6	When do you expect the last student to complete this program?				
	All students must complete by 2030-2031 at the latest				
7	Is there mobility associated with this program termination?	Yes		No	Х
	If yes, please select one of the following mobility activity types.				
	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	
	Section 18: Proposed Tuition and Student Fees Information - NOT APPLICABLE				

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?	1		
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	N	0
	If NO please describe			-
5	What is IPA's recommendation regarding tuition assessment? When is it expected to receive approval?			
	what is it As recommendation regarding tation assessment: when is it expected to receive approvat:			
6	IDA Additional commonte?			
•				
7	Will students sutside the pressure he allowed to take the algebra?	I.		
-	will students outside the program be allowed to take the classes?	l		
8		I		
U	If YES, what should they be assessed? (This is especially important for program based.)	i		
٥		I		
9	Do standard student fee assessment criteria apply (full-time, part-time, on-campus versus off-campus)?	1		
10		1		
10	Do standard cancellation fee rules apply?	I		
		ł		
11	Are there any additional fees (e.g. materials, excursion)? If yes, see NOTE below.	1		
		_		
12	Are you moving from one tuition code (TC) to another tuition code?	Yes	Ν	o
	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?	_		

NOTE: Please remember to submit a completed "Application for New Fee or Fee Change Form" for every new course with additional fees.

Section 19: TLSE - Information Dissemination (internal for TLSE use only)

- 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

<u>OR</u>

- 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 Representative(s):

IPA Representative(s):





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

- 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?

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?

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?

Is there more than one program to fulfill the requirements for this degree, diploma, or certificate? If yes, please list these programs.

10

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7

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	Х
Yes		No	Х

Yes

Section 2: New / Revised Program for Existing or New Degree / Diploma / Certificate Information

- ¹ Is this a new program?
 - 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?

³ What is the name of this new/revised program?

⁴ What other program(s) currently exist that will also meet the requirements for this same degree(s)?

⁵ <u>What College/Department is the academic authority for this program?</u>

- ⁶ Is this a replacement for a current program?
- ⁷ If YES, will students in the current program complete that program or be grandfathered?
- ⁸ If this is a new graduate program, is it thesis-based, course-based, or project-based?

If this is a new non-degree or undergraduate level program, what is the expected completion time?

Section 3: Mobility

9

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.

1	Does the proposed degree, program, major, minor, concentration, or course involve mobility?
	If yes, choose one of the following?

Domestic Mobility (both jurisdictions are within Canada)

- International Mobility (one jurisdiction is outside of Canada)
- ² Please indicate the mobility type (refer to Nomenclature for definitions).

Joint Program

Yes	Yes No		Х		
Yes		No	Х		

Yes

Yes

No

No

Joint Degree Dual Degree Professional Internship Program Faculty-Led Course Abroad

Term Abroad Program

³ The U of S enters into partnerships or agreements with external partners for the above mobility types in order to allow students collaborative opportunities for research, studies, or activities. Has an agreement been signed?

⁴ Please state the full name of the agreement that the U of S is entering into.

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?

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

4

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?



(es	No	Х
C2	110	~

Yes	No	Х
-----	----	---

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

3

Of the **multiple** Departments / Schools who are the authority for this new / revised disciplinary area <u>and</u> what allocation percentage is assigned to each? (Note - must be whole numbers and must equal 100.)

4b

1

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?

Section 6: New College / School / Center / Department or Renaming of Existing

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?

Yes	No	Х
Yes	No	Х
Yes	No	Х

⁷ Are there any ceremonial consequences for Convocation (ie. New degree hood, adjustment to parchments, etc.)?

Section 7: Course Information - NOT APPLICABLE

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Is there a new subject area(s) of course offering proposed for this new degree? If so, what is the subject area(s) and	ł
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?

Yes

Yes

No

No

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.

Section 8: Admissions, Recruitment, and Quota Information - NOT APPLICABLE

¹ Will students apply on-line? If not, how will they apply?

² What term(s) can students be admitted to?

³ What is the application deadline for each term(s) students can be admitted to?

⁴ For undergraduate programs, will students be admitted to one of the approved majors or an undeclared major?

For undergraduate programs, if there's more than one degree proposed (ex. 3Y and 4Y), which program/degree will students be admitted to?

Does this impact enrollment? 6

How should Marketing and Student Recruitment handle initial inquiries about this proposal before official approval? 7

8 Can classes towards this program be taken at the same time as another program?

9 What is the application deadline?

10 What are the admission qualifications? (IE. High school transcript required, grade 12 standing, minimum average, any required courses, etc.)

11 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.)

12 What are the admission categories and admit types? (IE. High school students and transfer students or one group? Special admission? Aboriginal equity program?)

13 What is the application process? (IE. Online application and supplemental information (required checklist items) through the Admissions Office or sent to the College/Department?)

Who makes the admission decision? (IE. Admissions Office or College/Department/Other?) 14

15 Letter of acceptance - are there any special requirements for communication to newly admitted students?

16 Will the standard application fee apply?

17 Will all applicants be charged the fee or will current, active students be exempt?

Are international students admissible to this program? 18

If YES, what is the tuition amount for the first 12 months for a full-time international student? This information is required for the Immigration, Refugees and Citizenship Canada [IRCC] form (this form is for students who need to get a visa to study here).

Yes

No

Section 9: Government Loan Information - NOT APPLICABLE

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

1

If this is a new program, do you intend that students be eligible for student loans?

Section 10: Convocation Information (only for new degrees) - NOT APPLICABLE

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 - NOT APPLICABLE

¹ What is the start term?

² Are students required to do anything prior to the above date (in addition to applying for admission)?

Yes No

If YES, what and by what date?

Section 12: Registration Information - NOT APPLICABLE

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; undergraduate degree level certificates will use numeric year.) 2 Will students register themselves? Yes No If YES, what priority group should they be in? Section 13: Academic History Information - NOT APPLICABLE Will instructors submit grades through self-serve? 1 Yes No Who will approve grades (Department Head, Assistant Dean, etc.)? 2 Section 14: T2202 Information (tax form) - NOT APPLICABLE Should classes count towards T2202s? Yes 1 No Section 15: Awards Information - NOT APPLICABLE Will terms of reference for existing awards need to be amended? 1 Yes No If this is a new undergraduate program, will students in this program be eligible for College-specific awards? 2 Section 16: Government of Saskatchewan Graduate Retention (Tax) Program - NOT APPLICABLE Will this program qualify for the Government of Saskatchewan graduate retention (tax) program? 1 Yes No 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 X No If yes, what is the name of the program?

1

Interactive Systems Design (ISDE) Major This is available in the BASC4Y program only 2 What is the effective date of this termination? 202209 (September 2022) 3 Will there be any courses closed as a result of this termination? Yes No X If yes, what courses? 4 Are there currently any students enrolled in the program? Yes X No A search in Degree Works for active students in the Interactive Systems Design major returns 80 students If yes, will they be able to complete the program? Students enrolled at the time of the deletion will be allowed to complete to the 10 year time limit 5 If not, what alternate arrangements are being made for these students? 6 When do you expect the last student to complete this program? All students must complete by 2030-2031 at the latest 7 Is there mobility associated with this program termination? No X Yes If yes, please select one of the following mobility activity types. **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

Section 18: Proposed Tuition and Student Fees Information - NOT APPLICABLE

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	No	
	If NO, please describe.	L		
5	What is IPA's recommendation regarding tuition assessment? When is it expected to receive approval?			
	mat is in its recommendation regarding tartion assessment. Mich is to expected to receive approval			
6	IPA Additional comments?			
7	Will students outside the program be allowed to take the classes?			
8	If VES, what should they be assessed? (This is especially important for program based.)			
-	IT TES, what should they be assessed: (This is especially important for program based.)			
9	De standend student for energy with size and a (full time, new time, and energy of energy)?			
,	Do standard student fee assessment criteria apply (full-time, part-time, on-campus versus off-campus)?			
10				
10	Do standard cancellation fee rules apply?			
11		I.		
11	Are there any additional fees (e.g. materials, excursion)? If yes, see NOTE below.	1		
40		' r		-
12	Are you moving from one tuition code (TC) to another tuition code?	Yes	No	
	If YES, from which tuition code to which tuition code?	1		
		I		
13	Are international students admissible to the program? If yes, will they pay the international tuition differential?	ı		
		l		

NOTE: Please remember to submit a completed "Application for New Fee or Fee Change Form" for every new course with additional fees.

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

<u>OR</u>

- 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 Representative(s):

IPA Representative(s):





UNIVERSITY COUNCIL ACADEMIC PROGRAMS COMMITTEE REPORT FOR INFORMATION

PRESENTED BY:	Susan Detmer, Chair, Academic Programs Committee		
DATE OF MEETING:	May 20, 2021		
SUBJECT:	Termination – Minor in Digital Culture and New Media		
COUNCIL ACTION:	For Information Only		

SUMMARY:

The College of Arts and Science submitted a proposal to terminate the minor in Digital Culture and New Media.

The department no longer has the faculty or institutional support to deliver the requirement of the program. The college suspended enrollment in the program in 2018-19.

There are currently eight students enrolled, though a number are not actively taking classes. Students currently enrolled in the program will be permitted to complete their program using course substitutions.

The Academic Programs Committee considered this proposal and passed the following motion at its April 14, 2021 meeting:

It is recommended that the Academic Programs Committee approve the deletion of the minor in Digital Culture and New Media, effective May 2022


Program(s) to be deleted: Digital Culture and New Media - Minor

Effective date of termination: May 2022

1. List reasons for termination and describe the background leading to this decision.

The department no longer has the faculty and instructional support needed to deliver the core requirements for the program. Enrolment in this program was suspended in 2018-19, and the department feels that it is time to remove it from the Catalogue.

2. Technical information.

2.1 Courses offered in the program and faculty resources required for these courses.

INCC 210, INCC 310, INCC 311 and INCC 401 are the only courses that were created for this program. INCC 210 and 401 (required for the program) were last offered in 2017-18. INCC 310 and 311 (options) were last offered in 201601 and 201605, respectively, and both are currently moribund. The department does not intend to offer these courses again.

2.2 Other resources (staff, technology, physical resources, etc.) used for this program.

No staff resources are assigned to this program. Faculty who taught in this program are now teaching courses for other programs.

2.3 Courses to be deleted, if any.

INCC 210.3 Digital Communication and Design: Introduction to Methods and Applications INCC 310.3 Cultural Heritage Mapping INCC 311.3 Digital Storytelling and New Media Poetics INCC 401.3 Digital Culture and New Media: Capstone Collaborative Design Project

2.4 Number of students presently enrolled.

8 students are shown in Degree Works, though one is not eligible to be in this program, and two are not actively taking courses.

2.5 Number of students enrolled and graduated over the last five years.

Enrolment information is not available in uView.

Graduation information taken from a report from the Convocation Office:

2016: 6 2017: 0 2018: 3 2019: 4 2020: 2

3. Impact of the termination.

Internal

3.1 What if any impact will this termination have on undergraduate and graduate students? How will they be advised to complete their programs?

Substitutions will be made to allow active students to fulfill the program requirements.

3.2 What impact will this termination have on faculty and teaching assignments?

Faculty assignments have already been changed away from the required courses for this program. Entry into the program was suspended as of the 2018-19 academic year.

3.3 Will this termination affect other programs, departments or colleges?

No effect on other programs or colleges. Consultation has been undertaken with the founding members of the program, and all agree that resources are better directed to the major programs.

3.4 If courses are also to be deleted, will these deletions affect any other programs?

Course deletions will not impact other programs.

3.5 Is it likely, or appropriate, that another department or college will develop a program to replace this one?

No.

3.6 Is it likely, or appropriate, that another department or college will develop courses to replace the ones deleted?

No.

3.7 Describe any impact on research projects.

No impact.

3.8 Will this deletion affect resource areas such as library resources, physical facilities, and information technology?

No. Resources that were used for this program are also used by related courses in Art History, Computer Science, and English.

3.9 Describe the budgetary implications of this deletion.

Deletion of this program allows the departments to devote teaching resources to major programs. No direct funding is received for students who complete a Minor.

External

3.10 Describe any external impact (e.g. university reputation, accreditation, other institutions, high schools, community organizations, professional bodies).

N/A

3.11 Is it likely or appropriate that another educational institution will offer this program if it is deleted at the University of Saskatchewan?

No.

<u>Other</u>

3.12 Are there any other relevant impacts or considerations?

N/A

3.13 Please provide any statements or opinions received about this termination.

N/A

DATE:	March 22, 2021
TO:	Susan Detmer, Chair, Academic Programs Committee, University Council
FROM:	Brent Nelson
RE:	Deletion of the Minor in Digital Culture and New Media

This memo confirms that the Department of English is in favour of the deletion of the Minor in Digital Culture and New Media.

Brent Nelson, Department Head

Cc: Ann Martin, Undergraduate Chair Alexis Dahl, Director of Programs, College of Arts and Science

TO:	Susan Detmer, Chair, Academic Programs Committee
FROM:	Gordon DesBrisay, Vice-Dean Academic
DATE:	March 22, 2021
RE:	Deletion of the Minor in Digital Culture and New Media

This memo confirms that the College of Arts and Science supports the deletion of the Minor in Digital Culture and New Media, as set out in the Program Termination form. This program creates a demand on teaching resources that cannot be sustainably met by the department.

Students who were accepted to the program before enrolment was suspended in 2017-18 will be allowed to complete, per College of Arts and Science regulations. These students will be advised on a case-by-case basis.

The proposal to terminate the program was submitted to the Arts and Science Course and Program Challenge in November 2020, and was approved by the Academic Programs Committee (B.A., B.F.A., B.Mus.) on November 18, 2020. The proposal was approved by the College of Arts and Science Faculty Council on February 24, 2021.

Jorden Dos Lusury

Gordon DesBrisay

From: Warrington, Seanine <<u>seanine.warrington@usask.ca</u>>
Sent: Tuesday, March 9, 2021 2:27 PM
To: Isinger, Russ <<u>russell.isinger@usask.ca</u>>; DesBrisay, Gordon <<u>gordon.desbrisay@usask.ca</u>>; Vuong, Lucy <<u>lucy.vuong@usask.ca</u>>
Cc: Doell, Jason <<u>jason.doell@usask.ca</u>>; Dahl, Alexis <<u>alexis.dahl@usask.ca</u>>; Zagiel, Eileen
<<u>eileen.zagiel@usask.ca</u>>
Subject: Consultation with the Registrar (CWR) Forms - College of Arts and Science proposals for 2022-23

Good afternoon,

I've attached four completed CWR Forms for the following proposals going forward for implementation in the upcoming 2022-23 academic catalogue year:

- A new field of study in Applied Computing for the B.Sc. 4-Year and Honours programs, including 5 new concentrations, as follows: Bioinformatics; Interactive Systems Design; Data Analytics; Geomatics; Business
- 2. Termination of the field of study in Bioinformatics (related to the above)
- 3. Termination of the field of study in Interactive Systems Design (related to the above)
- 4. Termination of the Minor in Digital Culture and New Media (unrelated to the above)

The proposals here follow standard setup and standard tuition, so an in-person meeting was not felt to be necessary; however, if anyone would like a meeting, I would be happy to book one!

Russ, Gordon, and Lucy, please "reply-all" with your confirmation that the details in the forms are correct. Your confirmation email will replace a signature of approval in the midst of the coronavirus pandemic (COVID-19) disruptions.

Thank you,

Seanine

Seanine Warrington, M.A. Senior Editor and Coordinator Catalogue and Academic Programs Registrarial Services University of Saskatchewan Teaching, Learning and Student Experience Ph: 306-966-1874

I acknowledge that I live and work on Treaty 6 Territory and the Homeland of the Métis. I pay respect to the First Nations and Métis ancestors of this place and reaffirm our relationship with one another.

From: Vuong, Lucy <lucy.vuong@usask.ca>
Sent: Tuesday, March 9, 2021 2:39 PM
To: Warrington, Seanine <seanine.warrington@usask.ca>; Isinger, Russ <russell.isinger@usask.ca>;

DesBrisay, Gordon <gordon.desbrisay@usask.ca> Cc: Doell, Jason <jason.doell@usask.ca>; Dahl, Alexis <alexis.dahl@usask.ca>; Zagiel, Eileen <eileen.zagiel@usask.ca> Subject: Re: Consultation with the Registrar (CWR) Forms - College of Arts and Science proposals for 2022-23

Approved. Thanks. L

From: Isinger, Russ <russell.isinger@usask.ca>
Sent: Tuesday, March 9, 2021 2:50 PM
To: Vuong, Lucy <lucy.vuong@usask.ca>; Zagiel, Eileen <eileen.zagiel@usask.ca>; Warrington, Seanine
<seanine.warrington@usask.ca>; DesBrisay, Gordon <gordon.desbrisay@usask.ca>
Cc: Doell, Jason <jason.doell@usask.ca>; Dahl, Alexis <alexis.dahl@usask.ca>
Subject: RE: Consultation with the Registrar (CWR) Forms - College of Arts and Science proposals for 2022-23

Approved.

Russell Isinger, BA, MA

University Registrar Professional Affiliate, Department of Political Studies, College of Arts and Science University Registrar's Office Teaching, Learning and Student Experience Room E-34, 105 Administration Place University of Saskatchewan Saskatoon, Saskatchewan, Canada S7N 5A2 Office: 306-966-6723 Cell: 306-280-6178 Fax: 306-966-6730

From: DesBrisay, Gordon <gordon.desbrisay@usask.ca>
Sent: Tuesday, March 9, 2021 2:51 PM
To: Warrington, Seanine <seanine.warrington@usask.ca>; Isinger, Russ <russell.isinger@usask.ca>;
Vuong, Lucy <lucy.vuong@usask.ca>
Cc: Doell, Jason <jason.doell@usask.ca>; Dahl, Alexis <alexis.dahl@usask.ca>; Zagiel, Eileen
<eileen.zagiel@usask.ca>
Subject: Re: Consultation with the Registrar (CWR) Forms - College of Arts and Science proposals for
2022-23

Hi Seanine,

I am happy to approve these forms and the details that sail in them.

Cheers, Gordon Gordon DesBrisay, Ph.D. Associate Professor and Vice-Dean, Academic **College of Arts & Science** University of Saskatchewan Saskatoon SK Phone: (306) 966-4315 <u>https://artsandscience.usask.ca/</u>

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

- 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?

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?

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?

Is there more than one program to fulfill the requirements for this degree, diploma, or certificate? If yes, please list these programs.

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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	Х
Yes	No	Х

Yes

Section 2: New / Revised Program for Existing or New Degree / Diploma / Certificate Information

- ¹ Is this a new program?
 - 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?

³ What is the name of this new/revised program?

⁴ What other program(s) currently exist that will also meet the requirements for this same degree(s)?

⁵ <u>What College/Department is the academic authority for this program?</u>

- ⁶ Is this a replacement for a current program?
- ⁷ If YES, will students in the current program complete that program or be grandfathered?
- ⁸ If this is a new graduate program, is it thesis-based, course-based, or project-based?

If this is a new non-degree or undergraduate level program, what is the expected completion time?

Section 3: Mobility

9

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.

1	Does the proposed degree, program, major, minor, concentration, or course involve mobility?
	If yes, choose one of the following?

Domestic Mobility (both jurisdictions are within Canada)

- International Mobility (one jurisdiction is outside of Canada)
- ² Please indicate the mobility type (refer to Nomenclature for definitions).

Joint Program

Yes	No	Х
Yes	No	Х

Yes

Yes

No

No

Joint Degree Dual Degree Professional Internship Program Faculty-Led Course Abroad

Term Abroad Program

³ The U of S enters into partnerships or agreements with external partners for the above mobility types in order to allow students collaborative opportunities for research, studies, or activities. Has an agreement been signed?

⁴ <u>Please state the full name of the agreement that the U of S is entering into.</u>

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?

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

4

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?



res No X

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

3

Of the **multiple** Departments / Schools who are the authority for this new / revised disciplinary area <u>and</u> 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?

Section 6: New College / School / Center / Department or Renaming of Existing

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?

Yes	No	Х
Yes	No	Х
Yes	No	Х

⁷ Are there any ceremonial consequences for Convocation (ie. New degree hood, adjustment to parchments, etc.)?

Section 7: Course Information - NOT APPLICABLE

1

5

Is there a new subject area(s) of course offering proposed for this new degree? If so, what is the subject area(s) and	d
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?

Yes

Yes

No

No

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.

Section 8: Admissions, Recruitment, and Quota Information - NOT APPLICABLE

¹ Will students apply on-line? If not, how will they apply?

² What term(s) can students be admitted to?

³ What is the application deadline for each term(s) students can be admitted to?

⁴ For undergraduate programs, will students be admitted to one of the approved majors or an undeclared major?

For undergraduate programs, if there's more than one degree proposed (ex. 3Y and 4Y), which program/degree will students be admitted to?

⁶ Does this impact enrollment?

⁷ How should Marketing and Student Recruitment handle initial inquiries about this proposal before official approval?

⁸ Can classes towards this program be taken at the same time as another program?

⁹ What is the application deadline?

¹⁰ What are the admission qualifications? (IE. High school transcript required, grade 12 standing, minimum average, any required courses, etc.)

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.)

¹² What are the admission categories and admit types? (IE. High school students and transfer students or one group? Special admission? Aboriginal equity program?)

¹³ What is the application process? (IE. Online application and supplemental information (required checklist items) through the Admissions Office or sent to the College/Department?)

¹⁴ Who makes the admission decision? (IE. Admissions Office or College/Department/Other?)

¹⁵ Letter of acceptance - are there any special requirements for communication to newly admitted students?

¹⁶ Will the standard application fee apply?

¹⁷ Will all applicants be charged the fee or will current, active students be exempt?

¹⁸ Are international students admissible to this program?

If YES, what is the tuition amount for the first 12 months for a full-time international student? This information is required for the Immigration, Refugees and Citizenship Canada [IRCC] form (this form is for students who need to get a visa to study here).

Yes

No

11

Section 9: Government Loan Information - NOT APPLICABLE

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

1

If this is a new program, do you intend that students be eligible for student loans?

Section 10: Convocation Information (only for new degrees) - NOT APPLICABLE

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 - NOT APPLICABLE

¹ What is the start term?

² Are students required to do anything prior to the above date (in addition to applying for admission)?

Yes No

If YES, what and by what date?

Section 12: Registration Information - NOT APPLICABLE

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; undergraduate degree level certificates will use numeric year.) 2 Will students register themselves? Yes No If YES, what priority group should they be in? Section 13: Academic History Information - NOT APPLICABLE Will instructors submit grades through self-serve? 1 Yes No Who will approve grades (Department Head, Assistant Dean, etc.)? 2 Section 14: T2202 Information (tax form) - NOT APPLICABLE Should classes count towards T2202s? Yes No 1 Section 15: Awards Information Will terms of reference for existing awards need to be amended? 1 Yes No If this is a new undergraduate program, will students in this program be eligible for College-specific awards? 2 Section 16: Government of Saskatchewan Graduate Retention (Tax) Program - NOT APPLICABLE Will this program qualify for the Government of Saskatchewan graduate retention (tax) program? 1 Yes No 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 X No If yes, what is the name of the program?

1

	Digital Culture and New Media (DCNM) Minor]			
		-			
	This minor is available in the following programs:				
	BA3Y				
	BA4Y				
	BASCAY				
	BASHON				
	BFA				
	BSC4Y				
	BSCHON				
r	BSCHOND	J			
2	What is the effective date of this termination?	1			
S	202209 (September 2022)]			
S	Will there be any courses closed as a result of this termination?	Yes	Х	No	
	If yes, what courses?	1			
	INCC 310.3				
	INCC 311.3				
	INCC 401.3]			
4	Are there currently any students enrolled in the program?	Yes	Х	No	
	A search in Degree Works for active students in the Digital Culture and New Media minor returns 12 students]			
	If yes, will they be able to complete the program?	1			
_	Students enrolled at the time of the deletion will be allowed to complete to the 10 year time limit]			
5	If not, what alternate arrangements are being made for these students?	1			
6	When do you expect the last student to complete this program?	7			
	All students must complete by 2026-2027 at the latest				
7	Is there mobility associated with this program termination?	Yes		No	Х
	If yes, please select one of the following mobility activity types.				
	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?

Section 18: Proposed Tuition and Student Fees Information - NOT APPLICABLE

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	No	
	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?			

Has Yes No 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? If YES, from which tuition code to which tuition code?

¹³ <u>Are international students admissible to the program?</u> If yes, will they pay the international tuition differential?

NOTE: Please remember to submit a completed "Application for New Fee or Fee Change Form" for every new course with additional fees.

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?

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





Yes No

Date:

Registrar (Russell Isinger):

College Representative(s):

IPA Representative(s):

UNIVERSITY COUNCIL

GOVERNANCE COMMITTEE

REQUEST FOR DECISION

PRESENTED BY:	Terry Wotherspoon, Chair, Governance Committee of Council
DATE OF MEETING:	May 20, 2021
SUBJECT:	Nominations to the Nominations Committee 2021/22
DECISION REQUESTED:	It is recommended that Council approve the nominations to the Nominations Committee for 2021-22 effective July 1, 2021, as

DISCUSSION SUMMARY:

The Governance Committee is responsible for nominating members of the Nominations Committee. At the May 11, 2021 Governance Committee meeting, each vacancy on the Nominations Committee that needed to be filled for 2021-22 was considered, along with the current membership of the committee. The committee examined the list of eligible volunteers to Council and Collective Agreement committees, considered a wide variety of disciplinary backgrounds from across campus, experience, workload, equity, diversity, and gender balance.

The nominees to the Nominations Committee are:

• Veronika Makarova, Languages & Linguistics

attached.

• Keith Walker, Educational Administration

The Governance Committee also considered the role of chair and is recommending the renewal of the current Chair of Nominations, Paul Jones.

ATTACHED: 2021/22 List of Nominees (highlighted in yellow)

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)-Exec	SENS/Toxicology	2022
Tom Steele	Physics	2023
Eric Lamb(Vice-chair)-Exec	Plant Sciences	2023
Teresa Paslawski	School of Rehabilitation Sciences	2023
<mark>Veronika Makarova</mark>	Languages & Linguistics	<mark>2024</mark>
TBD	TBD	<mark>2024</mark>
Yvonne Shevchuk	Pharmacy & Nutrition	2023
Keith Walker	Educational Administration	2024 (renewal)
Jaswant Singh	WCVM	2022

Resource Members

Jacquie Thomarat-Exec Michelle Kjargaard Associate Secretary, Academic Governance Administrative Assistant, Governance Office

UNIVERSITY COUNCIL PLANNING AND PRIORITIES COMMITTEE REQUEST FOR INPUT

SUBJECT:	Inventions Policy
DATE OF MEETING:	May 20, 2021
PRESENTED BY:	Terry Wotherspoon, Chair, Governance Committee

PURPOSE:

The purpose of this submission is to seek input from University Council on the draft *Inventions Policy*. The attached draft was presented to the Governance Committee on May 11, 2021 by Dion Martens, Director, Research Excellence and Innovation. At that meeting, the committee recommended proceeding to Council for input on May 20, 2021, and pending feedback and revisions, that it be presented as a request for decision to Council on June 17, 2021.

DISCUSSION SUMMARY:

Please see attached briefing note.

FURTHER ACTION REQUIRED:

Pending approval of University Council, approval of the Board of Governors will also be requested.

ATTACHMENT:

- a. Inventions Policy brief
- b. Inventions Policy draft



university of saskatchewan Research Excellence and Innovation office of the vice-president research research.usask.ca

Briefing Note The University's Draft Inventions Policy

- In summer 2020, we commenced a review of our intellectual property (IP) policy, because:
 - There was considerable frustration expressed by researchers, industry and investors about the rigidity of the university's IP policy and processes, specifically that we are too slow, risk averse, greedy, and opaque;
 - USask had experienced a steady decline in technology licensing, with only half of disclosed inventions commercialized over the last decade; and
 - There was increasing recognition that fulfilling each of the strategic commitments within *University Plan 2025* (courageous curiosity, boundless collaboration and inspired communities) requires uplifting a culture of innovation and entrepreneurship.
- Informed by an advisory group¹, Research Excellence and Innovation (REI) in the Office of the VP Research prepared a draft policy, entitled *Inventions Policy* to distinguish it from other types of IP at a university.
- Noteworthy changes from the previous policy include:
 - Shifting the default ownership regime from institutional ownership, which is currently applied across the board, to embrace **inventor ownership as the default, with limited exceptions**, as follows:
 - If the invention arises as a result of funding or resources provided under the auspices of a university research institute, and if that institute houses its own commercialization services², then ownership remains with the university and the institute is responsible for incubating, aggregating and mobilizing the IP;
 - If an industry sponsorship or other contract (e.g., inter-institutional agreement) encumbers the IP, then the negotiated contract provisions determine IP ownership and mobilization; and
 - If the invention arises from Indigenous knowledges and cultural expressions, the relevant Indigenous communities retain ownership (a scan of other Canadian university policies indicates that this new policy would put us at the forefront in this regard).

Adopting default inventor ownership aligns our policy with Dalhousie, Queen's, Toronto, Western, Waterloo, Manitoba, Alberta and Calgary. More importantly, it signals a fundamental shift in our approach, which will help provide a much-needed reset of internal and external perceptions.

¹ The advisory group is composed of: Lorne Babiuk (former VPR at UAlberta); Kari Harvey (Innovation Saskatchewan CEO); Jerome Konescni (former CEO of Innovation Saskatchewan); Aaron Genest (SaskTech President); Steve Webb (GIFS CEO); Jane Alcorn (Pharmacy Dean); Terry Fonstad (Engineering ADR); Julian Demkiw (President's Office); Dion Martens (REI Director); Alix Hayden (REI Associate Director); and Christopher Martin (Executive Officer to VPR).

² This currently only applies to the Vaccine and Infectious Disease Organization (VIDO) and the Crop Development Centre (CDC), but it will soon include the Global Institute for Food Security (GIFS) once the AgTech Portal and Opportunity Development Hub is fully operational.

- Stating explicitly within the fundamental principles that our primary motivation is not revenue generation, though that is of course helpful to the university, but rather the key driver of our IP mobilization activities is to support high-quality research and move discoveries out into the world for the benefit of society, the economy and the environment.
- Identifying how we want to be perceived by:
 - Inventors as actively and meaningfully involving them and supporting them throughout the process;
 - External partners as transparent, consistent, responsive, timely and motivated to make mutually beneficial deals;
 - Indigenous communities, organizations, entrepreneurs and researchers as working to strengthen bonds of respect, trust and shared benefit; and
 - Women and BIPOC researchers as working to advance equity, diversity and inclusion and promoting the equitable involvement of underrepresented populations in the innovation ecosystem.
- Identifying measures of success, including improved IP literacy, a strengthened culture of innovation and entrepreneurship, and amplified external impact (greater deal flow, more start-ups, and more meaningful partnerships).
- Revising our revenue sharing formula to address situations in which inventors commercialize independently from the university, specifying a 25% return of the inventor's share of net revenues to the university, which is consistent with nearly all U15 counterparts, and which represents a fair return to the university for the institutional infrastructure, resources and supports that enabled the research activity.
- Confirming support for inventors who opt to commercialize independently of the university (with a helpful commercialization guide and, to the extent that resources allow, by providing advice and facilitating connections).
- o Confirming assistance for industry partners and investors wishing to access inventor-owned IP.
- Attempting to address the conundrum presented by computer code, which is owned by faculty members under the collective agreement, but which must be consolidated with the rest of the IP when it is integral to an invention. To respect the collective agreement, the new policy simply states that researchers must agree to license or assign any computer code integral to an invention to the university if the university is mobilizing the invention. Without such an assignment of copyright, the university cannot undertake IP mobilization activities.



INVENTIONS POLICY

Draft – May 3, 2021

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Preamble

The University's Inventions Policy has two primary objectives:

- To support and encourage creativity, innovation and entrepreneurship throughout the University community; and,
- To deliver significant and sustainable value for society, the economy and the environment by bringing researchers, industry, investors and communities together to turn discoveries into solutions the world needs, primarily through development of intellectual property (IP) into commercial products, processes and start-up companies. (The University values and embraces myriad other approaches to knowledge mobilization, however this policy is primarily focused on commercialization of IP).

The University's approach to Inventions is based on these **fundamental principles**. Specifically, the University wants:

- To actively and meaningfully involve and support inventors throughout the technologycommercialization process;
- To ensure partners experience the University as transparent, consistent, responsive, timely and motivated to make mutually beneficial deals;
- To embrace *manacihitowin*, strengthening bonds of respect, trust and shared benefit through constructive, collaborative processes with Indigenous communities, organizations, entrepreneurs and researchers;
- To advance equity, diversity and inclusion by working for equitable involvement of women and Black, Indigenous and People of Colour (BIPOC) in the innovation ecosystem;
- To be nimble and flexible, adopting innovative approaches to incubate, aggregate and mobilize discoveries; and
- To recognize that the key driver of technology-commercialization activities is not revenue generation, but rather to support high-quality research and move discoveries out into the world for the benefit of society, the economy and the environment.

The University measures the success of its Inventions Policy through evidence of:

- Improved IP literacy across the University and amongst our partners, including:
 - Increased awareness about commercialization and other knowledge mobilization options and the supports and services available through the University;
 - Improved understanding of IP rights; and
 - Greater understanding and respect for Indigenous Knowledges and Cultural Expressions.
- A strengthened culture of innovation and entrepreneurship within the University, including:
 - More researchers including more women and BIPOC researchers disclosing inventions and engaging in technology transfer and commercialization activities; and
 - Enhanced involvement of and support for inventors in the commercialization process.
- Amplified value and inspired communities, including:
 - Greater deal flow, quantified by investment agreements for industry- and communitysponsored research activities and technology licenses and options;
 - o More start-up companies based on discoveries at the University; and
 - More meaningful, reciprocal and equally engaged partnerships with Indigenous communities, organizations, entrepreneurs and researchers that strengthen bonds of respect, trust and shared benefit.

The University has a flexible approach to invention ownership and mobilization, which respects Indigenous Knowledges and Cultural Expressions, gives inventors a choice and uses specialized streams, where most appropriate, to incubate, aggregate and mobilize Inventions:



* For start-ups, the University is flexible in adopting a revenue-sharing approach that supports company growth (e.g., equity)

1. Definitions

- 1.1 **"Commercialization**" means activities relating to realizing and attempting to realize monetary and/or other value from Inventions, including patenting, marketing, manufacturing, sale, distribution, licensing, sublicensing, transferring, granting of rights or use or leasing.
- 1.2 **"Traditional Knowledge Keeper**" means the person(s) responsible for the Indigenous Knowledges and Cultural Expressions, according to their laws and customs.
- 1.3 **"Indigenous Knowledges and Cultural Expressions**" includes Indigenous people's cultural heritage, traditional knowledge and traditional cultural expressions, as well as new ideas or ways of doing things that have been developed by Indigenous peoples which respect their traditions, cultures and practices. This unique body of knowledge is culturally based, context-specific, holistic and differs from nation to nation. It includes the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts.
- 1.4 **"Intellectual Property**" means any result of intellectual or artistic activity, whether or not registerable or registered or protected under the law.
- 1.5 "Invention" or "Inventions" means any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter" [Patent Act, R.S. 1985,c.P-4,s.2], including such know-how required to practice it, whether or not patentable and includes all legal and equitable rights relating to such property.
- 1.6 **"Inventor**" or **"Inventors**" means any person, including any member of the academic staff, librarian, administrative staff, post-doctoral fellow, visitor, student, or person holding an academic appointment at the University, who participates in the conception or reduction to practice of an Invention using, in any way, facilities owned, operated or administered by the University and/or funds of, or funds administered by, the University.
- 1.7 **"Net Revenue"** means the royalty, licensing and other income or equivalent financial return, including the proceeds of disposition of share capital or other financial instruments, received from the assignment or licensing of the rights in an Invention, less legal and other fees incurred directly in the process of establishing and maintaining the legal protection of those rights.
- 1.8 **"Patent"** means a type of Intellectual Property that grants its owner the legal right to exclude others from making, using, or selling an invention for a limited period of time, in exchange for publishing an enabling public disclosure of the invention. For the purpose of this policy, "Patent" also means patent application.
- 1.9 **"Research Institute**" means the Crop Development Centre or a University-level centre (<u>https://centres.usask.ca/#About</u>) that houses its own Invention commercialization services in collaboration with central Office of the Vice-President Research commercialization services.

1.10 **"University**" means the Board of Governors of the University of Saskatchewan, as represented by its duly appointed officers and officials and their designates.

2. Respect for Academic Freedom and Critical Inquiry

- 2.1 The University is an environment in which ideas can flourish through the pursuit of research, scholarly and artistic work. In working with sponsors or licensees, the University seeks to preserve the rights of researchers to determine the extent and timing of the communication and publication of the results of their work. Without the informed consent of researchers, the University will not enter into arrangements which restrict researchers from disseminating results, or from using results for future research or academic purposes.
- 2.2 When premature disclosure of research results may prejudice the interests of a research sponsor or licensee, and only with the informed consent of the affected researchers, the University may agree to delay the release of the results under terms mutually agreed upon in good faith.

3. Respect for Indigenous Knowledges and Cultural Expressions

- 3.1 The University acknowledges that typical forms of intellectual property protection and mobilization are based on western worldviews, values, legal systems and concepts that are often incompatible with Indigenous Knowledges and Cultural Expressions.
- 3.2 The University recognizes and respects the rights of Indigenous peoples as set out in Article 31 of the United Nations Declaration on the Rights of Indigenous Peoples: *Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.*
- 3.3 To protect the exercise of the rights outlined in section 3.2, the University makes no claim of ownership of Inventions arising from Indigenous Knowledges and Cultural Expressions and requires researchers to:
 - a) Ensure that research involving Indigenous Knowledges and Cultural Expressions is respectful and that all relevant protocols, processes and procedures involved in accessing the Indigenous Knowledges and Cultural Expressions are followed faithfully;
 - b) Ensure that the rights of Indigenous communities to data sovereignty and ownership, control, access and possession (OCAP[®]) are respected, recognizing that these rights will be contextually expressed and asserted according to each Nation's respective world view, traditional knowledge and protocols.
 - c) Ensure that any use of Indigenous Knowledges and Cultural Expressions is agreed to by the Traditional Knowledge Keepers, or appropriate representatives of the community or Nation

whose knowledge is being shared and used, with free, prior and informed consent that is regularly reviewed and reconfirmed;

- d) Ensure that Indigenous peoples benefit reciprocally, and have the right to determine to what extent, how and when they share Indigenous Knowledges and Cultural Expressions, through an equitable relationship that appropriately recognizes all contributions; and
- e) Ensure that any mobilization of Indigenous Knowledges and Cultural Expressions has the full agreement of Traditional Knowledge Keepers, or appropriate representatives of the community or Nation whose knowledge is being shared and used, before and throughout the process, recognizing that ownership, control, access and possession resides with Indigenous communities or Nations; and
- 3.4 To further protect the exercise of the rights outlined in section 3.2, the University commits to the inclusion and participation of appropriate Indigenous authorities in all substantive matters relating to Indigenous Knowledges and Cultural Expressions. These determinations will involve the Vice-Provost Indigenous Engagement and the relevant Indigenous communities or Nations.

4. Requirement for Timely Disclosure of Inventions

- 4.1 Inventors must disclose to the Office of the Vice-President Research any Invention conceived or first reduced to practice in whole or in part by Inventors in the course of their University responsibilities or with the use of University facilities, support personnel or services.
- 4.2 Disclosure of Inventions is expected to occur in a timely manner, when Inventors have identified that their work may have commercial or external value, whether or not additional research or development may be required to realize that value. The Invention disclosure form is available through the Office of the Vice-President Research.

5. Flexible Approach to Ownership of Inventions

- 5.1 The University will review Invention disclosures and complete a path-forward assessment, determining which ownership stream applies, within two (2) calendar weeks of receipt of the Invention disclosure.
- 5.2 The University has a flexible approach to ownership of Inventions, with Inventor choice as the default. Unless the Invention arises from Indigenous Knowledges and Cultural Expressions, as outlined in Section 3, or the Invention qualifies for a specialized stream of mobilization, as outlined in the remainder of section 5, the University offers rapid assignment of ownership to Inventors:
 - a) Inventors may choose to commercialize the Invention on their own, in which case they are responsible for commercialization costs and the University's role is limited to an advisory capacity, as resources permit; or
 - b) Inventors may choose to work with the University to commercialize the Invention, in which case they agree to assign the Invention to the University.

- i. The University engages with the Inventors in determining the Invention's scope and commercial or strategic value.
- ii. If the University deems the Invention of strategic interest or market value, the University manages patenting and the licensing process and is responsible for commercialization costs.
- 5.3 Where a disclosed Invention has come about as a result of funding or resources provided under the auspices of a University Research Institute which houses its own Invention commercialization function in collaboration with central commercialization services, ownership remains with the University and the relevant Research Institute is responsible for incubating, aggregating and mobilizing any such Inventions.
- 5.4 For industry-sponsored research, the University generally agrees to assign arising Intellectual Property to the sponsor, provided there are no compelling reasons why it should not be. This determination is made at the discretion of the University prior to research beginning, with agreement required from the research team.
- 5.5 When any factor prevents assignment of ownership to Inventors, be it industry sponsorship, other contracts, or other factors at the discretion of the University, the University will advise Inventors in writing of the rationale for retaining institutional ownership of the Invention.

6. Requirement to Unify Computer Code with Other Intellectual Property to Create Value

- 6.1 The University respects the copyrights of faculty, staff and students who create papers, manuscripts, presentations and books. Faculty members also own copyright of computer code. Students also own copyright of computer code when it is created in the course of their studies, however not when it is created as part of an employment relationship with the University, or when a research contract provides otherwise. The University owns computer code written by all other employees that is created using University resources.
- 6.2 When computer code is an integral part of an Invention, the Intellectual Property must be consolidated to create value. In any such cases under section 5.2b and 5.3, in which the disclosed Invention is commercialized through the University, Intellectual Property mobilization activities will only proceed if the Inventors license or assign the computer code to the University.

7. Support for Inventors, Industry Partners and Investors

- 7.1 Inventors are strongly encouraged to pursue commercialization of Inventions through the University, in which case the University manages patenting, the licensing process, and pays all commercialization costs. However, given the significant expense of patent filings, prosecution and maintenance, the University can only consider filing patents for technologies that meet the following criteria:
 - a) A reasonable assessment of market potential and the strength of a patent position that could allow recouping a multiple of the patenting costs; or,
 - b) Strategic importance to the University, through promotion of significant and sustainable societal or academic benefit.

The University will provide Inventors with a report setting out the results of the assessment.

- 7.2 For those Inventors who have been assigned ownership of an Invention and opt to commercialize it independent of the University, the University will provide a concise guide to assist Inventors with that process. To the extent that resources allow, the University will also:
 - a) Provide advice to such Inventors and facilitate connections for them; and
 - b) Assist any industry partners and investors wishing to access and mobilize Inventor-owned Intellectual Property.

8. Motivation to Make Mutually Beneficial Deals

- 8.1 In all dealings with external partners, the University desires to be transparent, consistent, responsive, timely and motivated to make mutually beneficial agreements. This includes:
 - a) Offering standardized but flexible templates for sponsored research agreements to serve as a sound and fair foundation for simplified and quick negotiations;
 - b) Using the publicly available simplified terms and template of the Fast License whenever possible; and
 - c) Incubating and aggregating discoveries and supporting product development and deployment through the University's Research Institutes in ways that are beneficial to the University, Inventors, the economy, industry and investors.

9. Fair Revenue Sharing

- 9.1 The following revenue-sharing model applies to royalties and other revenues associated with Inventions:
 - a) If the University commercializes, Net Revenue received by the University is split evenly between the University and Inventors. Any alternative revenue split between Inventors must be negotiated as between Inventors with the aid of third-party counsel, and Inventors must inform the University in writing of the same;
 - b) If Inventors commercialize independently from the University, Inventors are wholly responsible for costs, including patent costs; 25 percent of Inventors' share of Net Revenue returns to the University, in recognition of the institutional infrastructure, resources and services that supported the Invention.
- 9.2 In the case of pre-funding or early stage ventures ("start-ups") established as part of the mobilization of Inventions, the University is committed to a flexible revenue-sharing approach that best supports the growth of the new venture, including receiving equity.

10. Management of Conflicts of Interest

- 10.1 All activities related to mobilization of Inventions are expected to adhere to the University's *Conflict of Interest Policy*.
- 10.2 The primary conflict of interest that arises with mobilization of Inventions relates to involvement of Inventors in start-up companies:
 - a) The University fully supports the efforts of Inventors to participate in mobilization of Inventions through start-up companies.
 - b) The University recognizes that Inventor participation in start-ups may create a conflict of commitment, or actual or perceived conflict of interest (collectively referred to as "conflicts"). The University is committed to identifying and appropriately managing conflicts, while simultaneously supporting the appropriate entrepreneurial participation and external engagement of Inventors. Accordingly, with respect to any negotiations or dealings with an Inventor start-up:
 - i. Inventor founders are encouraged to engage third-party support for license and other negotiations. The University will not negotiate license terms directly with any Inventors associated with the University other than in exceptional circumstances; and
 - ii. In addition to any disclosure required of the relevant Inventors, the University may require that any Inventor provide assurances, to the University's satisfaction, with respect to any compensation received or to be received by the Inventors as direct compensation by a company receiving any rights in relation to the commercial mobilization of Intellectual Property.

11. Administration and Dispute Resolution

- 11.1 The responsibility for the administration of this policy lies with Research Excellence and Innovation within the Office of the Vice-President Research. Research Excellence and Innovation will maintain procedures and guidelines in user-friendly language to assist all parties involved in technology commercialization and mobilization of Intellectual Property. These procedures and guidelines will be available on the Research Excellence and Innovation web page.
- 11.2 In cases where one or more Inventors dispute a determination made by the University pursuant to this policy:
 - a) The Inventors may, within 60 days after the date the disputed determination was made, refer the dispute to the Director of Research Excellence and Innovation and the Dean or Executive Director of the relevant academic unit, centre, or Research Institute to facilitate a resolution to the dispute.
 - b) In the event the dispute cannot be resolved to the satisfaction of the parties within 60 days after the date of referral, the matter will be referred to the Vice-President Research, to facilitate a resolution or, if necessary, make a final determination. The Vice-President Research may convene an expert panel to assist in the making of any determination.

UNIVERSITY COUNCIL PLANNING AND PRIORITIES COMMITTEE REQUEST FOR INPUT

SUBJECT:	Living our Values Policy
DATE OF MEETING:	May 20, 2021
PRESENTED BY:	Terry Wotherspoon, Chair, Governance Committee

PURPOSE:

The purpose of this submission is to seek input from University Council on the revised draft *Living our Values Policy*. Given its strategic importance for the university's *Mission, Vision and Values Statement,* the draft policy was presented to the Planning and Priorities Committee (PPC) for input on February 24, 2021. Feedback was considered and an updated draft was presented to PPC on May 5, 2021. That version was presented to the Governance Committee on May 11, 2021. At that meeting, the committee recommended proceeding to Council for input on May 20, 2021, and pending feedback and revisions, that it be presented as a request for decision to Council June 17, 2021.

The *Living our Values Policy* translates the values adopted by the governing bodies of the University of Saskatchewan into a statement of expectations for the conduct of members of the university community. The policy provides definitions of these values and reaffirms the responsibility of all those connected with the university to act in accordance with them.

DISCUSSION SUMMARY:

The development of this policy was completed between 2017 - 2021 in collaboration among the Associate Vice-President People and Resources; Vice-Provost Teaching, Learning, and Student Experience; University Secretary; and Vice-Provost Faculty Relations.

Consultation has taken place with the USFA, CUPE 1975, ASPA, USSU, and GSA, as well as the governing bodies and relevant committees. The policy was first brought to PPC in September 2019. Feedback received from Council, Senate and the Board, received in the Fall of 2019 as a result of calls for input, has been considered and the policy was updated to reflect the feedback.

There is currently no policy at the university pertaining to values. A new *Living our Values Policy* is intended to set the basic standard of expected behaviour; all members

of the USask community have a responsibility to live our values and to reflect them in our daily interactions and decisions.

This policy is intended to be aspirational and inspire members of our community to live our values. It also complements the existing Discrimination and Harassment Prevention (DHP) Policy and the Equity, Diversity and Inclusion (EDI) policy that received final approval by the governing bodies in October 2020. It also contemplates the development of an Anti-Racism Policy being driven by the Office of the Vice-Provost Indigenous Engagement.

Much has changed in our external environment since the original recommendation that has required an internal response. Key drivers for this policy to which we must respond include but are not limited to: answering the Truth and Reconciliation Committee's (TRC's) Calls to Action and acknowledging and standing up to racism in the wake of the Black Lives Matter movement. Now more than ever it seems we need to enshrine behavioural expectations into policy.

This policy is not intended to modify the university's commitment to the principle of academic freedom or other principles adopted in the *Mission, Vision and Values* statement.

This policy can enhance the reputation of USask by communicating to the campus community and public stakeholders that the university can govern itself by adopting basic standards of conduct. This is noteworthy as legislatures in other provinces have imposed requirements upon universities to develop codes of conduct. Adopting our own values policy through self-regulation will reduce the need for imposed external regulation.

FURTHER ACTION REQUIRED:

Pending Council's approval of the *Living our Values Policy*, approval of the Board of Governors and Senate will also be requested.

Once approved, ongoing education and awareness will outline how values can inform the work we do and how we might incorporate values into everyday practice. In addition, values form an anchor for our Greystone Foundations and Greystone Leadership programs.

ATTACHMENT:

a. Living our Values Policy draft
University of Saskatchewan Policy Template

Living Our Values

Category:	Leave this blank; a category will be assigned	
Number:	Leave this blank; a number will be assigned	
Responsibility:	Indicate the senior administrative position responsible for the policy(the sponsor)	
Approval:	<i>The University Secretary, on the advice of the Policy Oversight</i> <i>Committee, will identify the appropriate</i> approvals <i>e.g. Board of</i> <i>Governors, Council, Senate, PEC.</i>	
Date:	Date initially approved: Date(s) reformatted or revised	

Purpose:

This policy translates the values adopted by the governing bodies of the University of Saskatchewan in 2016 as part of the Mission, Vision and Values statement into a statement of expectations for the conduct of members of the university community. The policy provides definitions of these values, and reaffirms the responsibility of all those connected with the university to act in accordance with them.

Principles:

The principles set out in the Mission, Vision and Values statement create a conceptual framework for the kind of university we want the University of Saskatchewan to be. These principles include academic freedom, which is the foundation for innovation and inquiry in an academic institution. This policy is not intended to modify or undermine the university's commitment to the principle of academic freedom or the other principles adopted in the Mission, Vision and Values statement.

Being accountable for how we conduct ourselves is contingent upon good judgement and sensitivity to the way others see and interpret our actions. All members of the University community have a priority responsibility to live our values and reflect them back in our daily interactions and decisions.

Definitions:

- **Collegiality**: A cornerstone of our University, collegiality is evidenced when we are congenial and work cooperatively to achieve a common purpose. A collegial approach assumes an equitable and democratic responsibility for the good of each particular discipline and our institution as a whole. A spirit of collegiality allows for a diversity of views and perspectives expressed within a climate of respect.
- **Fairness and Equitable Treatment**: Fairness is achieved when all members of the community are treated evenhandedly. As a value, equity recognizes and appreciates everyone's unique contributions and encourages full participation through the elimination of discriminatory practices and behaviors. It entails an appreciation of and respect for the personal attributes that are essential to the identity of others. These may include, for example, race, gender or sexual

orientation, but include all of the broad range of elements that make people who they are.

- **Inclusiveness**: Inclusiveness is achieved through embracing diversity and appreciating everyone's unique contributions, and makes it possible for each member of the community to participate fully in the fulfillment of the university's mission. It fosters a welcoming and accessible environment.
- **Integrity, Honesty and Ethical Behavior:** The values of this university require everyone to maintain a high standard of personal integrity, which includes upholding and observing truthfulness, transparency, responsibility and openness.
- **Respect**: **nīkānītān manācihitowinihk** | **ni manachīhitoonaan** ("Let us lead with respect") is the name gifted by the Indigenous community to the University Plan 2025; nīkānītān manācihitowinihk in Cree and ni manachīhitoonaan in Michif reflects the humility and boldness that inextricably define the University of Saskatchewan's spirit. A respectful environment is free from unlawful discrimination and harassment, however, it involves more than compliance with human rights legislation and other laws. Respectful approaches support the productivity, the safety, and the dignity and self-esteem of every member of the University community by fostering positive relationships through kindness, empowerment and cooperation.

Scope:

This policy applies to all members of the University community including individuals employed directly or indirectly, students, members of governing bodies, volunteers and visitors of any kind. It is also intended to apply to any virtual spaces where members of the University community may gather as well as in-person spaces.

Policy:

This policy defines the core values that all members of the University community are expected to exemplify on a daily basis. Ongoing education and awareness will outline how values can inform the work we do and how to incorporate our values into everyday practice.

Responsibilities:

All members of the university community own the responsibility for understanding and upholding this policy. Members of the community should encourage reflection on the meaning and significance of these values, take opportunities to give or receive mentorship and guidance, and bring to light significant departures from these values in an appropriate way. Persons within the scope of this policy may consult the policies, regulations and agreements identified in the list of Associated Documents below for guidance on specific procedures for raising concerns.

Non-compliance:

This policy does not incorporate a separate regime for compliance, but articulates the basic values already reflected in existing compliance-based University policies. All members of the University community are accountable for how they conduct themselves and are expected to comply with the accepted standards of conduct in existing policies. See Associated Documents for applicable existing policies, regulations and agreements.

Procedures:

All members of the University community will be supported to ensure they understand how to advance a commitment to putting values into action.

All new members of the University community will be asked to review this policy and participate in education and awareness opportunities pursuant to preemployment and/or on-boarding requirements. This will reinforce that each individual is accountable for acting in accordance with the values outlined in this policy.

All supervisors are encouraged to discuss the expectations for living our values with their direct reports.

The management of this policy including policy education, monitoring, implementation and amendment is the responsibility of People and Resources.

Revision History:

A review of this policy will occur every two (2) years unless circumstances warrant a review in the interim.

Contact:

Associate Vice-President, People & Resources Vice-Provost Teaching, Learning & Student Experience

Associated Documents:

See USask Policies website: <u>https://policies.usask.ca/</u>

- University of Saskatchewan Mission, Vision and Values
- Employment Practices
- Animal Control
- BioSafety
- Compliance Enforcement Pertaining to Hazardous Agents
- Discrimination and Harassment Prevention
- Equity, Diversity and Inclusion Policy
- Energy and Water Conservation
- Health and Safety
- Radiation Safety
- Sexual Assault Prevention Policy
- Smoking, Alcohol and Substance Policy
- Violence Prevention Policy
- Accountable Professional Expense Funds (APEF)
- Assets Management Policy
- Commercial Directorships held by Faculty and Staff
- Conflict of Interest

- Use of Materials Protected by Copyright
- Deans' and Senior Administrators' Expense (DSAE)
- Information Technology Use Policy
- Fraud Deterrence Policy
- Freedom of Information and Protection of Privacy
- Hospitality
- Information Technology Security
- Procurement
- Property Used Off Campus
- Safe Disclosure Policy
- Travel
- Use of University Property and Services
- Academic Courses Policy on Class Delivery, Examinations and Assessment of Student Learning
- Students with Disabilities: Academic Accommodation and Access
- Medical Faculty Policy
- Care and Use of Animals in Research
- Human Research Ethics policy
- Responsible Conduct of Research Policy
- Research Publications
- Principles of Evaluations of Teaching (Council, 2002)
- Guidelines for Faculty and Students using Internet Social Networking in the Academic Context at the University of Saskatchewan (ASC, 2009)
- Learning Charter (Council, 2018)
- Academic Advising Charter (Advising Council, 2013)
- Guidelines for Academic Conduct (Council 1999)
- Student Academic Misconduct Regulations (Council 2017)
- Student Appeals of Evaluation, Grading and Academic Standing (Council 2012)
- Standard of Student Conduct in Non-Academic Matters (Senate, 2017)

Collective agreements – disciplines, grievance procedures, non-discrimination clauses

Common law powers of employer to discipline for insubordination, theft, violence, disruptive behavior

UNIVERSITY COUNCIL RESEARCH SCHOLARLY AND ARTISTIC WORK COMMITTEE REQUEST FOR INPUT

PRESENTED BY:	Marjorie Delbaere, chair, Research, Scholarly, and Artistic Work Committee
DATE OF MEETING:	May 20, 2021
SUBJECT:	Revisions to the Responsible Conduct of Research Policy

DISCUSSION SUMMARY:

To be eligible to receive Tri-Agency funding, the University of Saskatchewan is required to have a Responsible Conduct of Research (RCR) Policy that meets the minimum requirements of the Tri-Agency Responsible Conduct of Research Framework. USask has signed the Agreement on the Administration of Agency Grants and Awards by Research Institutions and is required to apply its RCR Policy to all research conducted under its auspices or jurisdiction.

The existing USask Policy was approved in 2013 and does not meet the minimum requirements of the 2016 <u>Tri-Agency Framework</u>. Section 6.0 Breaches of this revised Policy is revised to match the breaches in the RCR Framework. The revised policy now also meets the requirements for yearly public institutional reporting and a central point of contact at a senior administrative level, the Associate Vice President Research (AVPR) to receive all confidential enquiries, allegations of breaches of policies, and information related to allegations. The revised policy also clarifies that student breaches are handled under the RCR Policy as required by the Tri-Agencies.

In addition, after eight years of implementing the 2013 Policy, experience has shown the need to address a number of issues. Consultation on a revised policy began in August 2019 with discussion with University administrators who had experience with implementing the 2013 Policy, former hearing board chairs and the University of Saskatchewan Faculty Association (USFA). These consultations brought out the following issues that were raised multiple times:

- the need to address potential conflicts of interest In the 2013 policy, a Senior Administrator could be responsible for submitting an allegation, managing an inquiry, managing a hearing and also determining discipline. In the revised policy, the potential for conflicts of interest is reduced since the AVPR is only responsible for the inquiry and investigation, the Senior Administrator is responsible for discipline for employee groups as determined by collective agreements. Student discipline would be determined by the Hearing Board as required by the University of Saskatchewan Act.
- the need for an improved process for Students -The 2013 policy required two hearing boards when investigating a breach by a student. It is extremely difficult for a student to endure two hearing boards, so the revised policy allows the allegation to be heard and if

needed, discipline to be decided with one hearing board. **Hearing boards involving students will be revised and include student perspective.** Student supports are also addressed by centralized management of the Policy and Procedures and relationship building with the CGPS, GSA and Student Affairs to ensure supports for students are in place.

The following concerns, which were raised multiple times by many, are addressed by changes to the Policy which centralize the management of the RCR Policy and Procedures with the AVPR. The OVPR has allocated additional resources to support effective implementation, communication and education.

- the need for clarification of the roles and responsibilities in the Policy to make the process more transparent - rather than inquiries and investigations being handled by senior administrators in each of the Colleges, these will be handled by a single point of contact the AVPR - who will manage the Inquiry and Investigation stages of the Procedures. Potential consequences would still be determined by the Senior Administrator.
- clarity on how to initiate a complaint addressed by a single point of contact (AVPR) and supported by website development and improved education and communication on the Policy and Procedures.
- inconsistent application of the Policy, Procedures and discipline for students and faculty addressed by having management of the RCR Policy and Procedures for both faculty and students in one office. Discipline will be managed as required by collective agreements and the University of Saskatchewan Act.
- **need for reduction in the length of time for the Procedures to be completed** addressed by dedicated support to complete the Procedures in a timely way and revising timelines to adhere to the Tri-Agency Framework.
- the need for support for Senior Administrators and Hearing Board Chairs addressed by the creating of a RCR Specialist Position reporting to the AVPR who supports investigation procedures and reporting to University and the Tri-Agencies.
- challenges in finding Hearing Board Chairs and Members addressed by creating a group of Hearing Board Chairs and Members who will have experience and education to serve in these roles.
- **Centralized management of the Policy in a single office** will also address concerns about where to access advice, information and education; correct implementation of collective agreement processes; improved use of University resources and supports; and clarity on the intersection of university policies.

Consultation on drafts of the Policy raised the following major issues:

- The need to retain the hearing board as part of the procedures rather than move to an investigation committee similar to other U15 Universities addressed by retaining the Hearing Board to conduct an investigation of an allegation.
- The need to define which student activities are considered research so allegations that a student has breached either the Student Academic Misconduct Regulations or the RCR Policy are addressed under the appropriate policy. This is important as there are specific hearing board composition, timelines and reporting requirements for allegations of an RCR breach required by the Tri-Agencies addressed by creation of a standard operating procedure in consultation with CGPS and the Associate Deans Academic that defines research to facilitate an allegation being heard through the correct Policy.
- Reduction of the required number of people on a hearing board to reduce administrative burden addressed by reducing the number of people on a hearing board to between 3 and 5.

- Reduction of Conflicts of Interest that may arise when inquiries, investigations and appeals are all handled by the OVPR - addressed by having appeals addressed by the Governance Office.
- Concerns that the breaches in the Policy do not reflect the full range of Research, Scholarly and Artistic work undertaken by researchers at USask – the RCR Policy is required to reflect the breaches in the Tri-Agency RCR Framework as a condition of funding. These breaches are broadly defined in an attempt to encompass the range of research activity and are informed through national consultation processes. Every hearing board is required to include at least one subject matter expert to ensure that disciplinary perspectives are heard and considered. As well, the revised policy empowers the AVPR to consult with experts at the Inquiry stage. In recognition of this issue and with extensive consultation with legal opinions and faculty relations, new language has been inserted into the revised policy.
- Concerns that the Policy does not reflect new initiatives at USask on Indigenization and Equity, Diversity and Inclusion These are emerging initiatives and consultation is ongoing to consider how to better reflect them in this Policy, and other policies dealing with administrative justice practices.

CONSULTATION:

Consultation has included the following individuals, groups and committees:

An initial consultation to seek advice on revisions to the 2013 RCR Policy was held with the following:

University Administration

- Anthony Vanelli, Provost and Vice President Academic
- Jim Basinger, Acting Vice Provost Faculty Relations, former AVP Research
- Mary Buhr, Dean, College of Agriculture and BioResources
- Trever Crowe, Acting Dean, College of Graduate and Postdoctoral Studies
- Beth Bilson, University Secretary
- Amanda Storey, Academic Programs/Student Hearings and Appeals Coordinator
- Ana Crespo-Martin, Labour and Faculty Relations Specialist, Human Resources

Previous Hearing Board Chairs

- Brent Cotter, Faculty Member, Law, former Dean of Law.
- Jack Gray, Vice Dean Research, College of Arts and Science.

USask Grievance Committee

• Fran Walley, Vice Dean, College of Agriculture and BioResources

USFA Representatives

- Patricia Farnese, Faculty Member, Law, Senior Grievance Officer, USFA (2 meetings)
- Maureen Fryett, Professional Officer, USFA
- Sina Adl, Faculty Member, College of Agriculture and BioResources, Executive Committee Member, USFA
- Doug Chivers, Chair, USFA.

Following this round of consultations, a revised RCR policy was prepared. Consultations on the revised policy began in January 2020 as follows:

Office / Organization	Date
Governance Office	
Amanda Storey	15 Apr 2020 (email)
Amanda Storey	07 Dec 2020
Chelsea Willness, Jacquie Thomarat	01 Dec 2020
Chelsea Willness, Jacquie Thomarat, Amanda Storey	11 Feb 2021
Access and Privacy Officer (Rayelle Johnson)	10 Mar 2020 (email)
Committees of Council	
Research, Scholarly and Artistic Work	30 Jan 2020
	10 Dec 2020
	29 Apr 2021
Policy Oversight Committee	05 Feb 2020
	18 May 2021
Centres' Subcommittee	07 Dec 2020
Governance Committee	11 May 2020
VP Research Office	
VPR Executive Committee	29 Jan 2020
	17 Feb 2021
	14 Apr 2021
As sociate Deans Research Forum	26 Feb 2020
	Dec 16, 2020
	28 Apr 2021
VP Finance and Resources Office	
Controller's Office Trevor Batters)	13 Mar 2020
IT Security, Risk and Compliance (Jason Hlady & Jon Coller)	06 Apr 2020 (email)
	•
Provosts' Office	
Vice Provost Faculty Relations (Ken Wilson, Ana Crespo-Martin)	18 Feb 2020
Vice Provost Teaching, Learning and Student Experience (Patti McDougall)	01 Dec 2020
Student Affairs and Outreach (Tracy Spencer and Peter Hedley)	10 Feb 2021
Associate Deans Academic	17 Dec 2020
	18 Feb 2021
	•
College of Graduate and Postdoctoral Studies	
Dean Debbie Burshtyn	01 Dec 2020
Vice Dean Ryan Walker	03 Mar 2021 (email)
Grad Chairs Cttee	21 Apr 2021
	1 1
USSU President (Kiefer Roberts)	22 Jan 2021 (email)
GSA President (Humaira Iman)	01 Feb 2021 (email)
USFA (Chivers, Adl, Fryett)	03 Mar 2020
	•
Others	
David Stack and Robert Affleck, McKercher LLP	May 2020 to present
Secretariate on Responsible Conduct of Research (Susan Zimmerman)	03 May 2021

Scientific Director, CIHR Institute of Indigenous People's Health (Carrie	06 May 2021
Bourassa)	

RSAW reviewed the policy at its May 13, 2021 meeting and a motion by majority vote to recommend it to Council for approval. Concerns listed above, specifically concerns that the policy do not reflect the full range of Research, Scholarly and Artistic work undertaken by researchers at USask, concerns about the lack of consideration of EDI, and concerns about the level of consultation with USFA and legal counsel were raised.

FURTHER ACTION REQUIRED:

This policy and associated procedures will come to Council for decision at a future meeting.

ATTACHMENTS:

- Responsible Conduct of Research Policy
- Responsible Conduct of Research Procedures
- Responsible Conduct of Research Procedures Flowchart
- Responsible Conduct of Research Outline of Changes
- Responsibly Conduct of Research Policy and its application to students

1 **Responsible Conduct of Research Policy (effective TBD)**

Category:	Research and Scholarly Activities
Responsibility:	Vice-President Research
Authorization:	University Council
Approval Datas	TBD, effective date TBD Complaints received on or after the effective date
Approvar Date.	will be considered under this Policy and Procedures.

2

RCR Policy Version 1.12

3 1.0 Purpose:

- 4 To set forth the standards for responsible conduct of research and the procedures to assess
- 5 allegations of a breach of those standards for all those involved in any capacity in all research
- 6 conducted at the University of Saskatchewan.

7 2.0 Principles

- 8 The research, scholarly and artistic work of university members must be held in the highest
- 9 regard and be seen as rigorous and scrupulously honest. Research, scholarly and artistic work is
- 10 expected to be conducted in an exemplary fashion, be ethically sound, and contribute to the
- 11 creation, application and refinement of knowledge. Stewardship of resources associated with
- 12 research must be transparent and comply with all university and funding agency policies and
- 13 regulatory requirements.
- 14 Allegations of breaches of this Policy at the University will be dealt with by prompt, effective
- 15 procedures that ensure fairness and protect both those whose integrity is brought into
- 16 question and those who bring forward allegations of breaches or misconduct. The university
- 17 will provide an environment that supports the best research and that fosters researchers'
- 18 "abilities to act honestly, accountably, openly and fairly in the search for and dissemination of
- 19 knowledge"¹ including but not limited to providing ongoing educational opportunities in
- 20 research integrity.

21 3.0 Definitions for the purpose of the Policy and associated

22 Procedures.

- "Advocate" means an advocate or advisor selected by a bargaining unit, or a friend, advisor or
 legal counsel. Where the person is a member of a bargaining unit, the Advocate may be
 selected by the appropriate bargaining unit; where the person is not a member of a bargaining
 unit, this may be a friend, advisor or legal counsel.
- **"Agencies**" and **"Tri-Agency**" means Canada's three federal granting Agencies: the Canadian
 Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council
 (NSERC), and the Social Sciences and Humanities Research Council (SSHRC).
- 31
- "Allegation" means a declaration, statement, or assertion communicated in writing to the
 University or one of the Agencies to the effect that there has been, or continues to be, a breach
 of one or more University or Agency policies, the validity of which has not been established.
- 35

¹ From the CCA (2010). <u>Honesty, Accountability and Trust: Fostering Research Integrity in Canada</u>. Ottawa: Council of Canadian Academies as cited in The Tri-Agency Framework: Responsible Conduct of Research, section 4.2. <u>www.rcr.ethics.gc.ca/eng/policy-politique/framework-cadre/</u>

- 36 **"Appeal Board"** means a committee established by the University Council pursuant to section
- 61 of *The University of Saskatchewan Act, 1995* to hear appeals of decisions made pursuant to
 this Policy and/or the related Procedures.
- 39

"Associate Vice-President Research" and "AVPR" mean the Associate Vice President Research
 identified as the University's central point of contact to the Tri-Agency on matters related to
 Responsible Conduct of Research or their designate.

- 43
- 44 "Complainant" means the individual who has notified the University or one of the Agencies45 with an Allegation of a breach of this Policy.
- 46

47 "Hearing Board" means a committee established by University Council pursuant to section 61
48 of *The University of Saskatchewan Act, 1995* to conduct hearings into alleged breaches of this
49 Policy for the purpose of determining the validity of an allegation.

- 50 **"Inquiry"** means the process of reviewing an Allegation to determine whether the Allegation is
- responsible (as defined below), the particular policy or policies that may have been breached,
- 52 and whether an Investigation is warranted based on the information provided in the Allegation.
- 53 "Investigation" means the process of examining an allegation, collecting and examining the
- 54 evidence related to the allegation, providing both Complainants and Respondents with an
- 55 opportunity to be heard at a hearing before a Hearing Board and making a decision as to
- 56 whether a breach of the Policy has occurred.
- 57 **"Policy"** means the Responsible Conduct of Research Policy.
- 58
- 59 "Procedures" mean the Procedures for Addressing Allegations of Breaches of the Responsible60 Conduct of Research Policy.
- 61

62 **"Regulations"** mean the Regulations on Student Academic Misconduct.

63

"Research" is an undertaking or a commitment to an undertaking, intended to extend
 knowledge through a disciplined inquiry or systematic investigation. Research includes but is
 not limited to the following scholarly activities:

- 66 not limited to the following scholarly activities:
- a. the preparation and publication, in either traditional or electronic format of scholarly
- books, articles, theses, reviews, translations, critical editions, bibliographies, textbooks
 and pedagogical materials;
- b. creative works in drama, music and the visual arts, including recordings, exhibitions,
 plays and musical compositions in all forms;
- 72 c. literary works in prose, poetry and drama; and
- 73 d. contract research and consultancy contracts.

74 "Respondent" means an individual who is identified in an Allegation as having possibly

- 75 breached this Policy and/or Agency policy.
- 76

77 **"Responsible Allegation"** means an Allegation which corresponds to the definition of a

78 Responsible Allegation in the <u>Tri-Agency Framework on Responsible Conduct of Research</u>.

79 "Secretariat on Responsible Conduct of Research" and "SRCR" means the Canadian 80 government agency which provides substantive and administrative support for the Panel on 81 Responsible Conduct of Research (PRCR), and the Agencies (CIHR, NSERC and SSHRC) with 82 respect to the Tri-Agency Framework: Responsible Conduct of Research (the Framework). 83 84 "Senior Administrator" means deans or executive directors (when Respondents are faculty 85 members, sessional lecturers, staff or undergraduate students in a college); directors, executive 86 directors or associate vice-presidents in charge of an administrative Unit (when Respondents 87 are employees); the provost (when Respondents are Deans or visiting professors); the Dean of Graduate and Postdoctoral Studies (when Respondents are adjunct professors, postdoctoral 88 89 fellows, graduate students, or professional affiliates); vice-presidents (when Respondents are 90 directors of an administrative unit or associate vice-presidents), the president (when 91 Respondents are vice-presidents); and the Board of Governors (when the Respondent is the 92 President). 93 94 "Tri-Agency Framework" and "RCR Framework" means the Tri-Agency Framework: Responsible 95 Conduct of Research which describes policies and requirements for researchers, institutions, and the Agencies related to applying for and managing Tri-Agency funds, 96 97 performing research, and disseminating results, as well as the processes that institutions and agencies receiving Tri-Agency funding must follow in the event of an Allegation of a breach of 98 99 an Agency policy.

100 **"University"** means the University of Saskatchewan.

"University Members" means those participating in Research at or under the auspices of the
 University. This includes, but is not limited to faculty, librarians, professors emeriti, sessional
 lecturers, staff, trainees, clinical faculty, graduate and undergraduate students, adjunct
 professors, visiting professors, visiting scholars, professional affiliates, associate members,
 residents, and postdoctoral fellows (PDFs).

107 "University Officials" include Senior Administrators, department heads, directors, and108 managers.

109

110 4.0 Scope of this Policy

- 111 This Policy applies to all University Members involved in Research, in any capacity
- 112 whatsoever. Nothing in this Policy and related Procedures will limit or amend the provisions of
- any existing collective agreement at the University. The Procedures in this Policy will not be
- used if an Allegation is, or has been addressed using another University procedure.

Lack of awareness of the Policy and/or impairment by alcohol or drugs are not defenses for a

116 breach of this Policy.

117 5.0 Responsibilities

- 118 Research at the University will be conducted in accordance with the following assigned
- 119 responsibilities and as required by the <u>Tri-Agency Framework on Responsible Conduct of</u>
- 120 <u>Research</u>:

121 **University Members** are responsible for conducting their Research according to the highest 122 standards of research integrity. University Members are responsible for:

- a. Obtaining all required University and respective agency approvals for Research including,
 but not limited to Research involving human participants or animal subjects, fieldwork,
 biohazards, radioisotopes, or environmental impact.
- b. Ensuring that their Research is conducted in accordance with approved protocols and that
 they adhere to all reporting requirements.
- c. Ensuring students and research staff are carefully supervised and trained in the conduct
 of Research, including experiments, processing of acquired data, recording of data and
 other results, interpretation of results, publication, and the storage and protection of
 Research records and materials.
- d. Exercising scholarly and scientific rigour and integrity in recording, analyzing and
 interpreting data, and in reporting and publishing data and findings. This includes
 keeping complete and accurate records of data, methodologies and findings, including
 graphs and images, in accordance with the applicable funding agreements, institutional
 policies, laws, regulations and professional or disciplinary standards in a manner that will
 allow verification or replication of the work by others.
- Ensuring institutional expert resources and supports are accessed to secure data and to
 protect the privacy of any individuals whose personal information has been obtained as
 part of any Research activities as required under the University's Freedom of Information
 and Protection of Privacy Policy, The Local Authority Freedom of Information and
 Protection of Privacy Act, The Health Information Protection Act, and the Tri-Council Policy
 Statement: Ethical Conduct of Research Involving Humans (TCPS 2, 2018).
- 145 f. Managing funds acquired for the support of Research as required by the Tri-Agency Guide 145 on Financial Administration, research funding agreements and University policies on
- 146Research Administration. Grant fund expenditures must contribute to the direct costs of147the research/activities for which the funds were awarded, with benefits directly
- 148 attributable to the grant; not be provided by the administering institution to their
- research personnel; be effective and economical and not result in personal gain for members of the research team.
- g. Including as authors, with their consent, all those and only those who have materially or
 conceptually contributed to, and share responsibility for, the contents of the publication
- 153 or document, in a manner consistent with their respective contributions and authorship

454		
154		policies of relevant publications.
155	n.	Acknowledging, in addition to authors, all contributors and contributions to research,
156		including writers, funders and sponsors.
157	i.	Reporting conflicts of interest as per the University's policy on <u>Conflict of Interest</u> .
158	j.	Disclosing to the Associate Vice-President Research any breach of this Policy of which
159		they have become aware.
160		
161	Univ	versity Officials are responsible for:
162	a.	Promoting and overseeing Research that is conducted with the highest standards of
163		research integrity.
164	b.	Encouraging activities that support research integrity among University Members.
165	c.	Participating in Inquiries and Investigations as defined in these Procedures.
166		
167	The	Associate Vice-President Research is responsible for:
168	a.	Initiating, directing and overseeing an Inquiry, as outlined in the Procedures.
169	b.	Determining whether an Investigation will occur and overseeing that Investigation as
170		outlined in the Procedures.
171	C.	Other responsibilities as defined in the Procedures.
470		
1/2		
173	6.0) Breaches of this Policy
174	Brea	ches of this Policy (as defined by the <u>Tri-Agency Framework: Responsible Conduct of</u>
175	Rese	earch) include, but are not limited to:
176	a.	<i>Fabrication:</i> making up data, source material, methodologies or findings, including graphs
177		and images.
178	b.	Falsification: manipulating, changing, or omitting data, source material, methodologies
179		or findings, including graphs and images, without acknowledgement and which results in
180		inaccurate findings or conclusions.
181	c	Destruction of research records, the destruction of one's own or another's research data
182	0.	or records to specifically avoid the detection of wrongdoing or in contravention of the
183		applicable funding agreement institutional policy and/or laws regulations and
18/		nrofessional or disciplinary standards
185	Ч	Plagiarism: presenting and using another's published or uppublished work including
185	u.	theories concents data source material methodologies or findings including graphs and
100		images as one's own without appropriate referencing and if required without
107		normission
100	0	permission. Redundant nublications: the re-nublication of one's own proviously nublished work or
109	е.	next thereof or data in any language without adequate acknowledgment of the source
190		part thereof, of data, in any language, without adequate acknowledgment of the source,
102 191	£	Ur justinication.
192	T.	invalia authorship: inaccurate attribution of authorship, including failing to include as an
193		author someone who has materially or conceptually contributed to and shares
194		responsibility for, the contents of the publication or document and/or attribution of

195 196 197 198 199 200	g. h.	auth who cons <i>Inac</i> mar <i>Misi</i>	norship to persons other than those who have made a substantial contribution to and b accept responsibility for, the contents of a publication or document in a manner sistent with the authorship policies of relevant publications. dequate acknowledgement: failure to appropriately recognize contributors in a oner consistent with the authorship policies of relevant publications. management of Conflict of Interest: failure to appropriately identify and address any
201		real	, potential or perceived conflict of interest, in accordance with the University's policy
202	•	on <u>(</u>	<u>.onflict of interest</u> .
203	١.	Fall	ure to comply with applicable policies, laws or regulations for the conduct of Research
204			uding, but not limited to:
205		۱. ::	Tri-Agency policies of requirements;
200		11.	Th-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS
207		:::	2, 2010), Canadian Council on Animal Caro guidelines and policies:
200		iv	Applicable environmental protection legislation:
205		· · · ·	Licenses from appropriate governing bodies for research in the field:
210		vi vi	Laboratory biosafety guidelines
212		vii.	Canadian Nuclear Safety Commission (CNSC) regulations, and Radiation Safety
213			guidelines:
214		viii.	Controlled Goods Program;
215		ix.	Public Health Agency of Canada guidelines;
216		х.	Canada Food Inspection Agency guidelines and Canada's Food and Drugs Act; and
217		xi.	All applicable University Policies.
218	j.	Misi	representation in a Funding Application or Related Document:
219		i. p	providing incomplete, inaccurate, or false information in a funding application or
220		rela	ted document, such as a letter of support or progress report;
221		ii. A	pplying for and/or holding a Tri-Agency award when deemed ineligible by NSERC,
222		SSH	RC, CIHR or any other research funding organization world-wide for reasons of breach
223		of re	esponsible conduct of research policies such as ethics, integrity or financial
224		mar	nagement policies.
225		iii.	listing of co-applicants, collaborators, or partners without their agreement.
226	k.	Misi	management of Funds: using grant and award funds for purposes inconsistent with
227		the	policies of the funding agency or University policies, misappropriating grant and
228		awa	rd funds, contravening funding agency financial policies, for example the Tri-Agency
229		Guio	de on Financial Administration, funding agency grants and awards guidelines, or
230		pro	viding inaccurate or false documentation for expenditures from grant or award
231		acco	ounts.
232	١.	. Brec	ach of Th-Agency Review Processes
233 224		١.	Non-compliance with the Conflict of Interest and Confidentiality Policy of the Federal
234 22⊑		::	Research Funding Organizations. Darticipating in Tri Agangy roviow processor while under Investigation for a breach of
235			ratucipating in In-Agency review processes while under investigation for a breach of
230			unis Poncy.

- 237 Breaches of this Policy should not be interpreted as including disciplinary differences of opinion
- 238 regarding research methodologies, theoretical frameworks, data sources, data analysis, or
- 239 publication conventions.
- 240

241 **7.0 Privacy**

242 University Members will protect the privacy of individuals involved in an Inquiry or Investigation

- 243 under this Policy as far as is possible. However, if an Allegation is substantiated, the University
- reserves the right to use or disclose information in accordance with *The Local Authority Freedom of Information and Protection of Privacy Act*, as noted in Section 10.0 of this Policy.
- 246

247 8.0 Education

- 248 To promote a greater understanding of responsible conduct of research and research ethics,
- 249 the University will offer workshops, seminars, web-based materials, courses, and research
- 250 ethics training for University Members along with orientation for those members who are new
- to the university. When examples of Investigations at the University are used for the purpose
- of educating University Members on acceptable practices for scholarly integrity and research
- 253 ethics, personal identifiers will be removed from these cases in order to maintain
- 254 confidentiality.

255 9.0 Procedures

- 256 This Policy is supported by two procedural documents entitled *Procedures for Addressing*
- 257 Allegations of Breaches of the Responsible Conduct of Research Policy at the University of

258 Saskatchewan and Procedures for Stewardship of Research Records and Materials at the

- 259 University of Saskatchewan.
- Responsibility for the implementation and maintenance of these Procedures is delegated to the
 Office of the Vice-President Research. Revisions to the Procedures will be approved by Council.

10.0 Reporting

- The OVPR will report annually to Council relevant data resulting from the application of this
 Policy through the Research Scholarly and Artistics Works Committee of Council.
- 265 The OVPR will post annually on its web site, information on confirmed findings of breaches of
- 266 this Policy (e.g., the number, general nature of the breaches and outcomes), subject to
- 267 applicable laws, including privacy laws.
- 268
- 269 Subject to any applicable laws, including privacy laws, the OVPR shall comply with the

- requirements of funding agencies regarding reporting of breaches of this Policy in accordance
 with the procedures identified by the specific agency. The University and the researcher may
 not enter into confidentiality agreements or other agreements related to an Allegation, Inquiry
 Investigation or Appeal that prevent the University from reporting to funding agencies.
 In the case of a breach of this Policy, and subject to applicable privacy laws, the President may
- disclose any information relevant to the breach that is in the public interest including the nameof the researcher subject to the decision, the nature of the breach, and the recourse imposed.
- 278 To inform disclosure of this information, the extent to which the breach jeopardizes the safety
- of the public, potentially damages the integrity of or brings the conduct of research and/or the
 University into disrepute will be considered.
- 281 11.0 Contact
- For further information please contact the Associate Vice-President Research at +1 (306) 844 1148.
 Effective date TBD

Procedures for addressing an alleged breach of the Responsible Conduct of Research policy by a Researcher at the U of S







- ¹ Procedures for Addressing Allegations of
- ² Breaches of the University of Saskatchewan
- Responsible Conduct of Research Policy
- 4

5 1.0 Application

- 6 These Procedures accompany the Responsible Conduct of Research Policy (the "Policy") and
- 7 apply to all Allegations of breaches of the Policy by University Members.¹ Responsibility for the
- 8 development, maintenance and oversight of these Procedures is delegated to the Office of the
- 9 Vice-President Research (OVPR).
- 10 These Procedures shall be consistent with applicable clauses in collective agreements including
- 11 University of Saskatchewan Faculty Association (USFA), Canadian Union of Public Employees
- 12 (CUPE) Local 1975, the Administrative and Supervisory Personnel Association (ASPA), Canadian
- 13 Union of Public Employees (CUPE) Local 3287, the Resident Doctors of Saskatchewan (RDoS),
- 14 the Public Service Alliance of Canada, Local 40004 (Postdoctoral Fellows (PSAC)), and the Public
- 15 Service Alliance of Canada, Local 40004 (Graduate Student Employees (PSAC)).

16 2.0 Reporting Breaches of the Responsible Conduct of Research

17 Policy

- 18 a. Any person, including a representative of a funding agency, who believes they have
- 19 knowledge of a breach of the Policy should immediately report their Allegation in writing to
- 20 the Associate Vice-President Research (AVPR)). They may also send a copy of their
- 21 Allegation to the Secretariat on Responsible Conduct of Research (SRCR). The AVPR will
- 22 notify the relevant Senior Administrator(s) that an Allegation of a breach of the Policy
- 23 involving a University Member from their unit(s) has been received.
- b. If the AVPR receives an Allegation that a student may be in breach of the Policy, the AVPR
 will consult with the appropriate Senior Administrator to determine whether the Allegation
 relates to a breach of the Policy or is a matter under the *Regulations on Student Academic Misconduct*.
- c. Anonymous Allegations will be considered only if all relevant facts are publicly available or
 otherwise independently verifiable. If all relevant facts are verifiable, the AVPR will initiate
- 30 an Inquiry to determine whether the complaint should be dismissed or investigated.
- 31 Anonymous Complainants are not entitled to participate or receive information on any part
- 32 of the outcome.

¹ These Procedures adopt and incorporate the Definitions from the Policy.

- d. Allegations should be in writing, with sufficient detail about the nature of the alleged
- breach, the location and time of its occurrence. It should be supported by all available
 documentation and contain enough information to permit a determination of whether the
 alleged conduct, if substantiated, would constitute a breach of the Policy and to permit
 further information gethering about the alleged breach
- 37 further information gathering about the alleged breach.
- e. If an Allegation is received related to conduct that occurred at another institution (whether
 as an employee, a student or in some other capacity), the AVPR will contact the other
- 40 institution and consult to determine which institution is best placed to conduct the Inquiry
- 41 and Investigation if warranted. The AVPR will communicate to the Complainant which
- 42 institution will be responsible for responding to the Allegation.
- 43

44 3.0 Procedures for Inquiry

- Subject to the provisions in section 4.0 of the Policy, the AVPR will conduct an Inquiry into theAllegations.
- 47 a. The AVPR will assess whether the Allegation:
- 48 i. is outside the jurisdiction of these Procedures as outlined in section 4.0 of the Policy;
- ii. involves Allegations that, if proven, would constitute a breach as defined in section
 6.0 of the Policy and/or in the Tri-Agency Framework on Responsible Conduct of
 Research;
- 52 iii. is frivolous, vexatious, or in bad faith;
- iv. has been previously determined under the Policy and these Procedures, under
 another University policy, or other comparable proceeding;
- 55 v. warrants an Investigation; or
- vi. may involve significant financial, health and safety or other risks. If the allegation
 involves significant financial, health and safety or other risks and is related to activities
 funded by the Tri-Agencies, the AVPR is required to advise the relevant Tri-Agency or
 the SRCR as outlined in section 7.0 of these Procedures.
- b. The AVPR may discuss the Allegation with the Complainant and request additionalinformation.
- c. The AVPR will provide a copy of the Allegation and supporting information in writing to the
 Respondent and inform the Respondent of their right to submit a written response to the
- Allegation and/or request a meeting with the AVPR within ten (10) working days of receipt
 of the Allegation. The Respondent and Complainant will be advised they are entitled to
 consult with an Advocate. The Respondent and Complainant will be instructed in writing to
 preserve all evidence and not to communicate with each other about the Allegation until
 further notice.
- d. During the Inquiry, the AVPR may consult in confidence with University Members, including
 accessing University records; with outside experts; and where the research involves human
 participants or animal subjects with the Research Ethics Board Chair responsible for
 approval of the research.
 - Revised RCR Procedures V 1.12

73 74	e.	The AVPR may consult with both the Complainant and Respondent to determine whether an informal resolution is possible. Where appropriate, and with the consent of the
75		Complainant and Respondent, other parties affected by the underlying Allegation may
76		narticipate in efforts towards an informal resolution. Discussions around informal
77		resolutions may not be included as evidence if the Allegation proceeds to an Investigation
78	f	The AVPR will inform the Complainant and the Respondent in writing of their decision as to
79		whether the Allegation is a Responsible Allegation and whether an Investigation is
80		warranted within thirty (30) working days of having received the written Allegation. This
81		period may be extended with justification and if required, the AVPR will consult with the
82		SRCR regarding extensions.
83	g.	If deemed necessary, the AVPR may restrict research and/or related activities until the
84	U	Allegation is resolved.
85		
86	3.	1 Acknowledgement of Misconduct
87		
88	lf t	the Respondent agrees to the facts alleged in the Allegation, the AVPR may conclude the
89	Ind	guiry or Investigation. The AVPR must be confident there is sufficient evidence in support of
90	th	e acknowledgement.
91	a.	The AVPR must obtain a written statement from the Respondent attesting to the
92		occurrence and extent of the breach, acknowledging that the statement was voluntary and
93		stating that the Respondent was advised of the right to consult an Advocate.
94	b.	The AVPR will forward a report along with the Respondent's statement to the responsible
95		Senior Administrator(s) who will make a decision as to what discipline or other
96	_	consequences are warranted.
97	C.	If the Respondent is a student, the AVPR will empanel a Hearing Board to determine what discipling another some any expression of the solution
90		Drocoduros ofter receiving written statements regarding notential consequences and (or
100		sanctions from each of the parties
100		salicitoris nom each of the parties.
101	л	O Dragoduros for Investigations
102	4.	o Procedures for investigations
102	\\/	hen it has been determined that an Allegation should proceed to an Investigation, the
103		ine in this been determined that an Anegation should proteed to an investigation, the

- 104 following steps will be taken.
- a. The AVPR shall appoint a Hearing Board within a reasonable time frame composed of
 three to five members, one of whom will be designated as chair, at least two of whom will
 be senior members of the University², and at least one of whom will be external and with

² Senior members of the university include senior administrators, full professors, associate professors and adjunct professors of equivalent seniority.

108 109		no current student, employment, contractual or academic affiliation to the University ³ . If
110		addition to the above mentioned members. The chair will be appointed by the AV/DP
111	h	The members of the Hearing Board will have no actual or perceived conflicts of interest or
112	υ.	hiss and will jointly have appropriate subject matter expertise and administrative
112		background to evaluate the Allegation and the response to it. Each member of the
113		Leaving Deard must sign a declaration denving any conflicts of interact and must sign a
114		Rearing Board must sign a declaration denying any commuts of interest and must sign a
115	~	Confidential non-disclosure agreement.
110	ι.	The AVPR will provide the Respondent and the Complement with the names and positions
11/		of the chair and members of the Hearing Board. If the Complainant or Respondent have
118		any objection to the composition of the Hearing Board, an objection must be made in
119		writing to the AVPR within five (5) working days of receiving that information. The AVPR
120		will make the final decision as to whether a reasonable apprehension of bias or conflict of
121		interest exists.
122	d.	The AVPR will provide the Hearing Board with a copy of the Allegation, the Respondent's
123		written response from the Inquiry (section 3.0) and any other information gathered at the
124		Inquiry that is pertinent to the Investigation. The AVPR will provide guidance and suitable
125		administrative support for the Investigation.
126	e.	Once appointed, the chair will, within ten (10) working days, send a letter to the
127		Respondent and the Complainant. This letter will convey the following information and
128		documentation:
129		i. the right of both the Respondent and the Complainant to jointly appear at a hearing to
130		make submissions to the Hearing Board within thirty (30) working days of receipt of
131		this letter, or such other time as determined by the chair;
132		ii. a copy of the Allegation, the Respondent's written response from the Inquiry, and any
133		other information gathered during the Inquiry that is pertinent to the Investigation.
134		iii. a statement of confidentiality of the proceedings for the protection of privacy and
135		reputation of the Respondent and the Complainant;
136		iv. the requirement to preserve evidence;
137		v. a proscription against improper acts of retaliation;
138		vi. that the Respondent, Complainant and witnesses have a right to be advised during the
139		Investigation and accompanied by an Advocate at the hearing;
140		vii. that both the Respondent and the Complainant should, at least ten (10) working days
141		prior to the hearing or such other time as determined by the chair, provide the
142		Hearing Board with any additional written materials, evidence, as well as names and
143		statements of potential witnesses they propose to include as part of the hearing;
144		viii.a copy of these Procedures; and
145		ix. anything else that the chair deems necessary to facilitate the commencement of the
146		hearing.
147	f.	The role of the Hearing Board is to examine the Allegation, collect and examine the

³ Tri-Agency Framework: Responsible Conduct of Research <u>www.rcr.ethics.gc.ca/eng/policy-politique/framework-cadre/</u>

148		evidence related to the Allegation, make a decision as to whether a breach of this Policy
149		has occurred including the severity of the breach and if so, make recommendations in
150		accordance with sections 4.1 b and 4.1 c of these Procedures.
151	g.	The Hearing Board is not bound to observe strict legal procedures or rules of evidence but
152	-	shall establish its own procedures, including but not limited to determining what evidence
153		it will hear and/or accept. Further, and without limitation, the Hearing Board may:
154		i. ask guestions of the Complainant and Respondent;
155		ii. ask questions of witnesses;
156		iii. request and examine any documents, data, records, or equipment they deem relevant
157		to the Allegation:
158		iv. arrange for the testing of physical evidence relevant to the Allegation.
159	h.	The Hearing Board will conduct the hearing in accordance with the principles of
160		procedural fairness, and the following requirements must be followed in the
161		Investigation:
162		i. a University Member against whom an Allegation is made is to be treated as being
163		innocent until it has been established on the balance of probabilities and before a
164		Hearing Board of impartial and unbiased decision-makers, that they have committed a
165		breach of the Policy:
166		ii. Respondents must be informed of the details of the alleged breach, including having
167		access to all documentary and other evidence relevant to the alleged breach:
168		iii. Respondents who are alleged to have caused or contribute to a breach must be given
169		an opportunity to respond to the Allegations:
170		iv. the Respondent, Complainant and witnesses have a right to be advised and /or
171		accompanied by an Advocate at the hearing. The Advocate may speak as an advocate
172		on behalf of the Respondent or Complainant, but the Hearing Board expects that it
173		will hear directly from the Complainant and/or Respondent wherever possible. This
174		right is subject to the provision that the names of any Advocates are provided to the
175		Chair at least five (5) working days prior to the hearing:
176		v. while strict rules of evidence do not apply, appropriate weight must be given to
177		evidence based on its credibility and reliability:
178		vi. if one or both of the parties chooses not to appear at the hearing, the Hearing Board
179		may proceed to make its decision based on the material and information already
180		gathered:
181		vii, while it is generally intended that all of the evidence from the witnesses will be
182		gathered and shared with the parties prior to the hearing, the chair has the discretion
183		to allow witnesses to present their evidence at the hearing if the fairness of the
184		process requires it. The chair may also adjourn proceedings to allow a party an
185		appropriate opportunity to respond to new evidence:
186		viji. the chair has authority to extend the Investigation timelines when necessary in the
187		circumstances to conduct a fair process. The chair may also permit any and all of the
188		participants to the hearing to appear by way of telephone or videoconference.
189	i.	If, during the course of the hearing, the evidence discloses a new related instance of a
190	-	breach of the Policy that was not part of the original Allegation or which implicates
191		additional Respondents, the Hearing Board may expand the hearing, provided that the
189 190 191	i.	If, during the course of the hearing, the evidence discloses a new related instance of a breach of the Policy that was not part of the original Allegation or which implicates additional Respondents, the Hearing Board may expand the hearing, provided that the

- Complainant and Respondent are notified and are given an opportunity to respond to the
 new Allegations. If the expanded hearing involves new Respondents, they will be
 provided with reasonable notice and shall for the purpose of these Procedures, be
 entitled to all rights as Respondents.
- 196 j. The chair shall notify the AVPR of interim findings, if any, that they believe should be
- reported because of the University's obligations to students, staff, and faculty members,
 funding agencies and sponsors or, where there are compelling issues of public safety. Any
- 198 funding agencies and sponsors or, where there are compelling issues of public safety. Any 199 interim report shall be in writing and copied to all members of the Hearing Board, to the
- 200 Complainant and Respondent, and the AVPR. The interim report shall set out the
- findings, the reason for the interim report, and a recommendation regarding appropriate
 administrative action.
- 203

4.1 Decision of the Hearing Board

205 The Investigation will normally be completed within sixty (60) working days of the Hearing

Board being appointed. In exceptional circumstances, the chair may apply to the AVPR for an

- extension of twenty (20) working days. Further extensions may be granted for twenty (20)
- working days at a time. If an Investigation is anticipated to take longer than one hundred (100)
 working days from the time the board is appointed, if required by the Tri-Agencies, the AVPR

working days from the time the board is appointed, if required by the Tri-Agencies, the AVPR
 will consult with the relevant Tri-Agency and/or SRCR. The AVPR will inform the Respondent

and Complainant in writing of any extensions granted. Where required, the AVPR will also

212 provide periodic updates to the relevant Tri-Agency and/or SRCR until the Investigation is

complete. The frequency of the periodic updates will be determined jointly by the SRCR and

- the AVPR.
- a. The Hearing Board shall complete its Investigation and shall report its decision in writing
 to the AVPR. The AVPR shall advise the Respondent, the Complainant, and the relevant
 Senior Administrator(s) of the decision.
- b. If there is more than one Respondent or Complainant, reasonable efforts will be made to
 provide each with parts of the report that are pertinent to them. It is recommended that
 the format of the Hearing Board report contain the following:
- i. the full Allegation of a breach of the Policy;
- ii. a list of Hearing Board members and their credentials;
- iii. a summary of the Complainant's position including reference to relevant witnesses
 and/or evidence put forward;
- iv. a summary of the Respondent's position including reference to relevant witnesses
 and/or evidence put forward;
- v. a determination of whether a breach of the Policy occurred;
- vi. if a breach has occurred, its extent and seriousness; and
- vii. recommendations of changes to procedures or practices, if any, to avoid similarsituations in the future.
- 231 c. Recommendations of the Hearing Board may also include, without limitation:
- 232 i. withdrawing all pending relevant publications;
- ii. notifying publishers of publications in which the involved research was reported;

- 234 iii. notifying co-investigators, collaborators, students and other project personnel of the 235 decision; 236 iv. ensuring the unit(s) involved is informed of appropriate practices for promoting the 237 proper conduct of research; 238 v. informing any outside funding sponsor(s) of the results of the Inquiry and of actions to 239 be taken. 240 d. The Hearing Board's decision is based on majority vote. No minority reports shall be 241 allowed. 242 The Hearing Board report is final and not subject to revision. e. 243 4.2 Dismissal of the Allegation 244 245
- a. If the Hearing Board advises that the Allegation should be dismissed, the AVPR shall so
 advise any person identified in the Allegation, the Respondent, the Complainant and other
 appropriate University Officials. In addition, the notification requirements of the applicable
 collective agreement shall be followed.
- 250 b. Where the Allegation is dismissed, the AVPR and appropriate Senior Administrator, shall 251 take all reasonable steps to repair any damage that the Respondent's reputation for 252 scholarly integrity or research activities may have suffered by virtue of the Allegation. The 253 AVPR shall ensure that a letter confirming the finding that no breach of the Policy was 254 substantiated is sent to the Respondent, with a copy to the Complainant, and to the Senior 255 Administrator(s). With the consent of the Respondent, a letter confirming the finding that 256 no breach was substantiated may be sent to other persons with knowledge of the 257 Allegation. These persons may include, but are not limited to, co-authors, co-investigators,
- collaborators, and others who may have been notified by the AVPR.
- 259

260 4.3 Determination of Consequences

If the Allegation is found to have been made in good faith, no disciplinary measures or
retaliatory action shall be taken against the Complainant. If the Allegation is found to have been
made in bad faith, the AVPR will refer the matter to Discrimination and Harassment Prevention
Services for resolution under the University Discrimination and Harassment Prevention Policy⁴.
Any acts of retaliation (including threats, intimidation, reprisals or adverse employment or
education action) made against the Complainant, Respondent or any individual who
participated in any manner in the Investigation or resolution of a report of a breach of the

268 Policy are subject to the University Discrimination and Harassment Prevention Policy.

269 4.3.1 For Students

a. If a Respondent who is an undergraduate or graduate student is found to have breached the

⁴ Discrimination and Harassment Prevention Policy <u>https://policies.usask.ca/policies/health-safety-and-environment/discrimination-and-harassment-prevention.php</u>

271		Policy, the consequences and sanctions shall be determined by the Hearing Board. The
272		Respondent and Complainant will have seven (7) working days from the receipt of the
273		Hearing Board report to make a written statement to the Hearing Board with a copy to the
274		AVPR, regarding the findings, in advance of any disciplinary action determined by the
275		Hearing Board.
276	b.	The Hearing Board shall request from the Governance Office a record (if any) of any
277		sanctions imposed by other University hearing boards or appeal boards for similar academic
278		misconduct matters.
279	C.	The Hearing Board shall have the authority to impose one or more sanctions which may
280	-	include, but are not limited to, the following:
281		i. that the student(s) be reprimanded or censured:
282		ii that a mark of zero or other appropriate grade he assigned for the entire course for
282		an assignment or that a credit or mark for the course be modified or cancelled:
203		iii that an assignment be redone or any other academic performance be repeated:
204		iv that the student(s) be required to submit an essay or assignment relating to the tonic
205		of academic misconduct, or to proparo and/or deliver a procontation on that tonic:
200		$v_{\rm responsible}$ complete additional training in responsible conduct
207		of research
200		vi that the student(s) be suspended from the University for a specified period of time:
209		vi. that the student(s) be expelled normanently from the University or
200		viii that the scale formal of a degree diploma or cortificate be nostponed depied or
202		royokod
292	Ч	If the decision of the bearing beard results in surposeion or expulsion of the student(s) or
293	u.	reversion of a degree, the Hearing Board will follow Sections VIII 4.6.8.7 and VIII of the
294		Regulations
295		Regulations
290		
297		4.3.2 For Other University Members
298		
299		a. If it is established that the Respondent who is NOT an undergraduate or graduate
300		student has breached the Policy, the Respondent and Complainant will have seven (7)
301		working days from the receipt of the Hearing Board report to make a written statement
302		to the Senior Administrator with a copy to the AVPR, regarding the findings, in advance
303		of any disciplinary action recommended by the Senior Administrator.
304		b. The Senior Administrator shall, upon receipt of the Hearing Board report, determine and
305		communicate to the Complainant, the Respondent, and the AVPR within twenty-five
306		(25) working days whether or not formal disciplinary action is to be taken or where
307		appropriate, recommend formal disciplinary action to the President, taking into
308		consideration collective agreements, contractual and other obligations to external
309		organizations and prior offenses under the Policy.
310		c. The Respondent and the Complainant who brought the Allegation shall be advised of
311		the right to appeal as set out in section 5.0. Any penalties that are the outcome of a
312		Hearing Board remain in force unless and until they are overturned by an appeal or
313		through a grievance process.

314

315 5.0 Appeals under this Policy

- Either the Complainant or the Respondent⁵ may appeal the decision of the Hearing Board 316 a. 317 by delivering to the University Secretary a written notice of appeal within twenty (20) 318 working days of receipt of a copy of the Hearing Board report (section 4.1 b). The notice 319 should include a written statement of appeal that indicates the grounds on which the 320 appellant intends to rely, and any evidence the appellant wishes to present to support 321 those grounds. 322 An appeal will be considered only on one or more of the following grounds: b. 323 That the decision maker(s) had no authority or jurisdiction to reach the decision it did; i. 324 ii. That there was a reasonable apprehension of bias on the part of one or more of the 325 decision makers: 326 iii. That the original Hearing Board made a fundamental procedural error that seriously 327 affected the outcome; 328 iv. That new evidence has arisen that could not reasonably have been presented at the 329 initial hearing and that would likely have affected the decision of the original Hearing 330 Board. 331 Upon receipt of a notice of appeal, the University Secretary will review the record of the c. 332 original hearing and the written statement of appeal and determine whether or not the 333 grounds for appeal are valid. If the University Secretary determines that there are no valid grounds under these Procedures for an appeal, then the appeal will be dismissed 334 335 without a hearing. If the University Secretary determines that there may be valid grounds 336 for an appeal, then the appeal will proceed as provided for in section 5.1. The decision of 337 the University Secretary with respect to allowing an appeal to go forward is final, with no 338 further appeal. 339 d. The appeal under this Policy relates only to the original Hearing Board's determination of 340 whether a breach of this Policy occurred. The subsequent determination of discipline 341 imposed for the breach of this Policy is not appealable under this Policy. 342
- 343 5.1 Procedures for Appeals
- 344 When it has been determined that an Appeal should proceed, the following steps will be taken.
- a. The University Secretary shall appoint an Appeal Board within a reasonable time frame
- 346 composed of three to five members, one of whom shall be designated as chair, at least
- 347 two of whom will be senior⁶ members of the University or of another academic
- 348 institution, and at least one member who is external and with no current student,

⁵ In remainder of section 5.0, the term "respondent" is used to refer to the respondent in the appeal (not necessarily the Respondent to the original complaint).

⁶ Senior members of the university include senior administrators, full professors, associate professors and adjunct professors of equivalent seniority.

349	employment, contractual or academic affiliation to the University. If the Respondent or
350	appellant is a student, the Appeal Board shall include a student member in addition to the
351	above-mentioned members. The chair will be appointed by the University Secretary.
352	Individuals appointed to serve on an Appeal Board shall exclude anyone who was involved
353	in the original Investigation of the case.

- b. The members of the Appeal Board will have no actual or perceived conflicts of interest or
 bias and will jointly have appropriate subject matter expertise and administrative
 background to evaluate the appeal and the response to it. Each member of the Appeal
 Board must sign a declaration denying any conflicts of interest and must sign a
 confidential non-disclosure agreement.
- 359 c. The University Secretary will provide the respondent and the appellant with the names
 360 and positions of the chair and members of the Appeal Board. If the appellant or
 361 respondent have any objection to the composition of the Appeal Board, an objection
- must be made to the University Secretary within five (5) working days of receiving that
 information. The University Secretary will make the final decision as to whether a
 reasonable apprehension of bias or conflict of interest exists.
- 365 d. Once appointed, the chair will, within ten (10) working days, send a letter to the
 366 respondent and the appellant. This letter will convey the following information and
 367 documentation:
- i. the right of both the respondent and the appellant to jointly appear before the Appeal
 Board to make submissions within thirty (30) working days of receipt of this letter, or
 such other time as determined by the chair;
- ii. a copy of the statement of appeal, and any other information gathered in theInvestigation pertinent to the appeal;
- iii. a statement of confidentiality of the proceedings for the protection of privacy and
 reputation of the respondent and the appellant;
- iv. a proscription against improper acts of retaliation;
- v. that the respondent and appellant have a right to be advised and /or accompanied by
 an Advocate at the appeal hearing;
- vi. if the respondent wishes to provide a written argument to the Appeal Board, the
 respondent should submit the argument to the Appeal Board at least (10) working
 days prior to the appeal hearing, and a copy of this written argument will be provided
 to the appellant;
- 382 vii. a copy of these Procedures; and
- viii. anything else that the chair deems necessary to facilitate the commencement of the
 hearing.
- 385 e. The chair may modify timelines for parties providing submissions where, in their
 386 discretion, it is reasonable and appropriate.
- f. If any party to these proceedings does not attend the hearing, the Appeal Board has the
 right to proceed, and may decide the appeal based on the written record of the original
 Hearing Board and the statement of appeal, and any written arguments submitted by the
 respondent. An appellant who chooses to be absent from the hearing may appoint an
 Advocate to present their case at a hearing.
- 392 g. The Appeal Board is not bound to observe strict legal procedures or rules of evidence but

393	sha	Il establish its own procedures subject to the following principles:
394	i.	the Appeal Board under these regulations will not hear the case again but is limited to
395		considering the grounds of appeal prescribed in section 5.0 b;
396	ii.	the parties to the appeal shall be the appellant (who may be either the original
397		Complainant or the original Respondent) and the other party to the original
398		Investigation as respondent;
399	iii.	the original Hearing Board chair (or another member designated by the chair) may be
400		invited to attend to answer questions of either party or of the Appeal Board. The
401		original Hearing Board chair cannot discuss the <i>in-camera</i> deliberations but can
402		provide facts regarding the process followed;
403	iv.	except as provided for under section 5.0 b. iv. above, no new evidence will be
404		considered by the Appeal Board. The record of the original hearing, including a copy
405		of all material filed by both sides at the Hearing Board, and the written statement of
406		appeal, will form the basis of the Appeal Board's deliberations;
407	۷.	it shall be the responsibility of the appellant to demonstrate that the appeal has
408		merit;
409	vi.	the chair of the Appeal Board has authority to extend the appeal procedure timelines
410		when necessary in the circumstances to conduct a fair appeal process;
411	vii.	the chair may also permit any and all of the participants to the appeal hearing to
412		appear by way of telephone or videoconference.
413		

414 5.2 Decision by the Appeal Board

The Appeal will normally be completed within sixty (60) working days of the Appeal Board being 415 416 appointed. In exceptional circumstances, the chair may apply to the University Secretary for an 417 extension of twenty (20) working days. Further extensions may be granted for twenty (20) 418 working days at a time. If an Appeal is anticipated to take longer than sixty (60) working days 419 from the time the board is appointed, if required by the Tri-Agencies, the University Secretary 420 will consult with the relevant Tri-Agency and/or SRCR. The University Secretary will inform the 421 respondent and appellant in writing of any extensions granted. Where required, the University 422 Secretary will also provide periodic updates to the relevant Tri-Agency and/or SRCR until the 423 Appeal is complete. The frequency of the periodic updates will be determined jointly by the 424 SRCR and the University Secretary. 425 426 After the hearing is completed, the Appeal Board will meet to decide whether to uphold, a. 427 overturn or modify the decision of the original Hearing Board. The deliberations of the 428 Appeal Board are confidential. 429 b. The Appeal Board may, by majority, 430 i. conclude that the appellant received a fair hearing from the original Hearing Board, 431 and uphold the original decision; or 432 ii. conclude that the appellant did not receive a fair hearing, but that the decision 433 remains appropriate and the original decision is upheld; or

434 iii. conclude that the appellant did not receive a fair hearing, and dismiss or modify the

- 435 original decision; or
- iv. order that a new Hearing Board be struck to re-investigate the case. This provision
 should be limited to cases that in the view of the Appeal Board are significant enough
 to warrant a new hearing, including but not limited to cases when new evidence has
 been introduced that could not reasonable have been available to the original Hearing
 Board.
- c. The chair of the Appeal Board shall prepare a report of the board's deliberations that shall
 recite the evidence on which the board based its conclusions. The report shall be
 delivered to the University Secretary and distributed to the appellant, the respondent, the
- 444 Associate Vice President Research and the relevant Senior Administrator(s).
- d. If the decision of a Hearing Board is successfully appealed, the AVPR and the appropriate
 Senior Administrator shall take all reasonable steps to repair any damage that the
 appellant's or respondent's reputation for academic integrity may have suffered by virtue
- 448 of the earlier finding of the Hearing Board.
- 449

450 **5.3 No Further Appeal**

- 451 The findings and ruling of the Appeal Board shall be final with no further appeal.
- 452

453 6.0 Records

- 454 a. Hearing Boards and Appeal Boards will provide their report and all records from the hearing
 455 to the AVPR for retention in accordance with this section 6.0. Complainants, Respondents,
 456 Hearing and Appeal Board members will securely destroy all copies of evidence or materials
 457 they have received related to the hearing or provide them to the AVPR for secure
 458 destruction.
- b. Records pertaining to Allegations that result in disciplinary action will be retained in the
 Respondent's official file in accordance with existing University policies, procedures and
 collective bargaining agreements.
- 462 c. No record of an Allegation of a breach of the Policy will be kept in the Complainant's official
 463 file except the record of disciplinary action resulting from a complaint that is made in bad
 464 faith.
- 465 d. Subject to the provisions of the Policy, these Procedures and the requirements of law, any
 466 and all records pertaining to charges and/or hearings and/or sanctions under these
- 467 Procedures are confidential and should be kept in a file accessible only to the AVPR and
- 468 their confidential assistants for a period of ten (10) years or while any legal or official
- 469 proceedings are pending. After this time, the records may be destroyed. With the
- exception of records supporting disciplinary action that are placed in the Respondent's
 official file, these records are strictly confidential and will be disclosed only when disclosure
- 4/1 Official file, these records are strictly confidential and will be disclosed of 472 is required by law or by a logal or official procooding
- 472 is required by law or by a legal or official proceeding.
- 473 474

475 7.0 Reporting to the Tri-Agencies

- a. Reporting Allegations of a breach of the Policy to the Tri-Agencies: Subject to any applicable
 laws, including privacy laws, the AVPR shall advise the relevant Tri-Agency or the SRCR
 immediately of any Allegations related to activities funded by the Tri-Agency that may
 involve significant financial, health and safety, or other risks.
- 480 b. Reporting results of an Inquiry to the Tri-Agencies: If the SRCR was copied on the Allegation
 481 or advised of an Allegation related to activities funded by the Agencies, the AVPR shall write
 482 a letter to the SRCR confirming whether or not the Institution is proceeding with an
 483 Investigation within two (2) months of the receipt of the Allegation.
- c. Reporting an Acknowledgement of Misconduct to the Tri-Agencies: If the Allegation
 resulted in an Acknowledgement of Misconduct, a report will be submitted to the SRCR
 within seven (7) months of the receipt of the Allegation.
- 487 d. Reporting Results of an Investigation to the Tri-Agencies: The AVPR shall prepare a report 488 for the SRCR on each Investigation it conducts in response to an Allegation of a breach of
- 489 the Policy related to a funding application submitted to an Agency or to an activity funded
- 490 by an Agency. A report will be submitted to the SRCR within seven (7) months of the receipt
- 491 of the Allegation by the institution. Subject to any applicable laws, including privacy laws,
- 492 each report shall include content as specified by the current Tri-Agency Framework:
- 493 Responsible Conduct of Research.
- 494

495 7.1 Reporting to Other Funding Agencies and Institutions

- a. Other sponsors or funding agencies that require similar notification will be notified
- 497 inaccordance with the procedures identified by the specific agency.
- b. In instances involving researchers and research collaborators associated with other
- institutions, the AVPR shall inform the appropriate Senior Adminstrator of the collaborator'sinstitution of the substantiated Allegation of a breach of the Policy.
- 501
- 502 503

Effective date TBD

Major Changes to the

USask Responsible Conduct of Research (RCR) Policy and Procedures (2013)

A. Rationale for Changes to the RCR Policy:

- USask has signed the Agreement on the Administration of Agency Grants and Awards by Research Institutions with the Canadian Tri-Agencies. Accordingly, USask is required to develop and administer a policy to address allegations of policy breaches by researchers that meets the minimum requirements set out in the RCR Framework. The institution applies its policy to all research conducted under its auspices or jurisdiction. The existing policy was approved in 2013 and must be updated to align with the 2016 Tri-Agency Framework.
- After eight years of implementing the Policy, experience has shown a need to improve the consistency and effectiveness of the application of the policy and procedures.

B. Activities Informing the Proposed Revisions

- 1) Interviews with 13 USask members with experience working with the RCR Policy.
- 2) Environmental Scan of the RCR Policies and Procedures of 12 of the U15 Universities plus UVic. University RCR Websites were reviewed where available.
- 3) Review of the Tri-Agency Framework on Responsible Conduct of Research, 2016, interpretation bulletins, published cases and statistics.
- 4) Consultation with Policy Oversight Cttee; Governance Committee; RSAW; Associate Deans Research; Associate Dean Academic; Centres SubCommittee; Access and Privacy Officer; University Secretary's Office; Provost and Vice President Academic; Vice Provost, Teaching and Learning; Vice Provost, Faculty Relations; College of Graduate and Postdoctoral Studies; Graduate Chairs Committee; VPR Executive Cttee; Controlers Office; ICT; McKercher and McKercher; GSA; USSU; Student Affairs and Outreach. A meeting was held with the USFA on the draft policy in March, 2020 but no comments have been received.

C. Major Recommended Policy Changes

- 1) Management of the RCR policy and procedures is moved to a centralized and more senior level of the university by designating the Associate Vice President Research (AVPR) as a single point of contact for implementation:
 - a) Aligns with the Tri-Agency Framework on Responsible Conduct of Research (RCR) requirement for a single point of contact at a Senior Administrative Level to receive all confidential enquiries, allegations of breaches of policies and information related to allegations of a complaint of a breach of the RCR Policy.
 - a) Transparently simplifies the process of making and handling an allegation.
 - b) Facilitates meeting mandated timelines and reporting to the Tri-Agency and other funders when required.
 - c) Clarifies the roles of the Senior Administrator and AVPR, and removes potential conflicts of interest for the Senior Administrator which may arise from being responsible for the Inquiry, Investigation and discipline, and at times being the role of Complainant making an allegation.

- 2) Revises the section on Breaches of the policy to reflect the current RCR Framework
 - a) The list of breaches is revised to reflect the 2016 revisions to the RCR Framework.
- 3) Revises public reporting to meet the Tri-Agency RCR Framework standard.
 - a) To conform with the requirements of the 2016 RCR Framework, a statement is added that the University of Saskatchewan will post annually on its Web site, information on confirmed findings of breaches of its policy (e.g., the number and general nature of the breaches, without unique identification), subject to applicable laws, including the privacy laws.
- 4) Opens the possibility of public disclosure of a breach of the RCR Policy
 - a) A statement is added indicating the possibility of public disclosure of the identity of researchers involved in a serious breach of the RCR Policy. The University may disclose information relevant to the serious breach that is in the public interest including the name of the researcher subject to the decision, the nature of the breach, and the recourse imposed. In determining whether a breach is serious, the University will consider the extent to which the breach jeopardizes the safety of the public and/or would potentially damage the integrity of or bring the conduct of research and/or the University into disrepute.
- 5) Includes Librarians in the list of University Members.

D. Major Recommended Procedural Changes

- 1) Inquiry
 - a) The AVPR will handle the Inquiry into an Allegation rather than the relevant Senior Administrator. The AVPR may delegate the Inquiry, but will maintain oversight.
 - b) Guidelines on the content of an allegation to ensure allegations meet the Framework criteria for a Responsible Allegation.
 - c) Increased guidance on the specific activities at the Inquiry stage.
 - d) Lengthened timeline for the Inquiry and possibility of extensions if warranted.

2) Investigation

- a) Centralized support for hearing boards from the OVPR.
- b) Clarification of the authority of the hearing board.

3) Students

a) All aspects of a breach of the RCR Policy involving students will be handled under the RCR Policy rather than the Student Academic Misconduct Procedures in order to ensure all complainants and respondents to an RCR allegation are treated consistently and reporting meets all Tri-Agency requirements.

4) Appeals

a) Appeals will now be made to the University Secretary who will consider on procedural grounds whether or not to grant an appeal.
5) Confidentiality

a) Declarations of potential conflicts of interest are required from hearing board members and Chairs.

6) Informal Procedures

a) Option for Acknowledgement of Misconduct when a respondent agrees to the statement of facts alleged in the complaint and guidelines on documenting these. The respondent will have had the opportunity to consult with an advisor prior to signing the Acknowledgement of Misconduct. This option follows guidance from the SRCR issued in January 2015.

E. Practical Implications of the Recommended Changes:

- Centralized management of RCR Policy and Procedures in the OVPR. An AVPR is designated as USask's central point of contact to the Tri-Agencies for RCR and will oversee implementation of the Policy and Procedures. Senior Administrators will be informed of RCR inquiries and investigations involving their students and personnel but will only be formally involved if a breach is confirmed and consequences or discipline are to be considered.
- 2) Active and ongoing support is required to ensure USask meets its Tri-Agency obligations regarding RCR, improve consistency, timeliness and better serve members of the University.
 - a) Recommendation for a pilot program to appoint a Research Integrity Officer from USask Faculty. The Research Integrity Officer would be a resource for information requests and for hearing boards and could be delegated to undertake the Inquiry under the RCR Procedures.
 - b) Appointment of an RCR Senior Advisor, reporting to the AVPR who would support the AVPR/RIO with investigations of allegations of breaches of the RCR Policy, assist with the activities of hearing boards established to hear allegations, ensure records of the inquiry and hearings and copies of all documents and materials provided to the hearing boards are complete and securely stored, assist the AVPR/RIO with reporting requirements to the Tri-Agencies, maintaining the website content and reporting to University Council
- 3) Online and ongoing education regarding RCR for university students, faculty and staff. This is a significant need, will require appropriate resourcing and will be coordinated by AVPR, RCR Senior Advisor and Research Integrity Officer.
- 4) Establishment of a standing bench of RCR Hearing Board Chairs and Hearing Board members, who will be trained and supported to fulfill their role and responsibilities.
- 5) Guidance is being developed on what activities are defined as research for the purposes of determining whether the RCR Policy or the Students Academic Misconduct Regulations will apply to a student facing an allegation.
- 6) Development of a series of guidance documents and templates to facilitate and standardize processes.
- 7) Development of a website that identifies who to contact when an RCR issue arises, houses guidance documents and templates, USask statistics, and links to online education.

Revised Responsible Conduct of Research Policy (2021) and its Application to Students

Tri-Agency Definition of Research

The Tri-Agency Framework Responsible Conduct of Research defines research as "an undertaking to extend knowledge through a disciplined inquiry or systematic investigation".

Proposed Tri-Agency Definition of Responsible Conduct of Research

The behavior expected of anyone who conducts research activities throughout the life cycle of a research project (i.e. from the formulation of the research question, through the design, conduct and analysis of the research, to its reporting, publication and dissemination). It involves the awareness and application of established professional norms as well as values and ethical principles that are essential in the performance of all activities related to scholarly research. These values include honesty, fairness, trust, accountability and openness.

Making a decision on consideration of an Allegation under the RCR Policy or the Regulations on Student Academic Misconduct

If the AVPR receives an Allegation that a student may be in breach of the Policy, the AVPR will consult with the appropriate Senior Administrator to determine whether the Allegation relates to a breach of the Policy or is a matter under the *Regulations on Student Academic Misconduct* (the *"Regulations"*).

Activities categorized as research activity for the purposes of determining whether an allegation naming a student respondent is investigated under the RCR Policy include but are not limited to:

- 1. Funding applications, research and projects supported by the Tri-Agencies or other research funding organizations;
- 2. Contract, consulting or industrial research;
- 3. Research that requires review by a Human or Animal REB;
- 4. Course based activity defined as research requiring Human REB review;
- 5. Undergraduate Theses, Masters Theses or PhD Dissertations;
- 6. Original investigations to apply existing knowledge in a novel way; to produce new products, devices, systems and services, offer improvements over those already produced or installed;

[Adapted from the University of Waterloo]

Investigations and Appeals when a Student is the Respondent

If the Respondent is a student, the Hearing Board and/or the Appeal Board shall include a student member.

Student Discipline when an RCR Hearing Board finds the Policy has been breached

- a. If a Respondent who is an undergraduate or graduate student is found to have breached the Policy, the consequences and sanctions shall be determined by the Hearing Board. The Respondent and Complainant will have seven (7) working days from the receipt of the Hearing Board report to make a written statement to the Hearing Board with a copy to the AVPR, regarding the findings, in advance of any disciplinary action determined by the Hearing Board.
- b. The Hearing Board shall request from the Governance Office a record (if any) of any sanctions imposed by other University hearing boards or appeal boards for similar academic misconduct matters.
- c. The Hearing Board shall have the authority to impose one or more sanctions which may include, *but are not limited to*, the following:
 - i. that the student(s) be reprimanded or censured;

- ii. that a mark of zero or other appropriate grade be assigned for the entire course, for an assignment, or that a credit or mark for the course be modified or cancelled;
- iii. that an assignment be redone or any other academic performance be repeated;
- iv. that the student(s) be required to submit an essay or assignment relating to the topic of academic misconduct, or to prepare and/or deliver a presentation on that topic;
- v. that the student(s) be required to complete additional training in responsible conduct of research;
- vi. that the student(s) be suspended from the University for a specified period of time;
- vii. that the student(s) be expelled permanently from the University; or
- viii. that the conferral of a degree, diploma or certificate be postponed, denied or revoked.
- d. If the decision of the hearing board results in suspension or expulsion of the student(s) or revocation of a degree, the Hearing Board will follow Sections VIII.4.6&7 and XIII of the Regulations

Student Discipline when a Student Acknowledges a Breach.

If the Respondent Acknowledging a Breach is a student, the AVPR will empanel a Hearing Board to determine what discipline or other consequences are warranted as outlined in Section 5g of the Procedures after receiving submissions regarding potential consequences and/or sanctions from each of the parties.

Student Support

Students will be encouraged to contact Student Affairs and Outreach for support and the GSA for advocacy in the letter sent to Respondents by the AVPR and the Chair of the Hearing or Appeal Board.

Current RCR POLICY (2013) and Students

Research misconduct is one aspect of academic misconduct and a number of the breaches listed in the RCR Policy are also in the Regulations. There is specific guidance in the Regulations on page 9 and 11 that reference the RCR Policy.

In Section IV (7)

Special Procedures Applying Only to Allegations Relating to Responsible Conduct of Research (sp) *Policy*: Allegations that relate to a breach of the Responsible Conduct of Research Policy must be determined in accordance with special hearing procedures set out in that Policy

(http://policies.usask.ca/policies/research-and-scholarly-activities/responsible-conduct-of-researchpolicy.php) before such allegations can be addressed under these Regulations. Upon receipt of an allegation of academic misconduct, the Academic Administrator shall first determine whether the allegation must be heard under the procedures in the Responsible Conduct of Research Policy. The decision of the Academic Administrator in this matter is final and not subject to appeal. The University Secretary will be notified of the decision of the Academic Administrator in this regard.

And Section VII (A) (6)

Special Hearing Procedures for Breaches of Responsible Conduct of Research Policy: If a hearing under the Responsible Conduct of Research Policy determines that a breach of that Policy has occurred, then a hearing under these Regulations will occur with regard solely to sanctions. The hearing board will be provided the report (decision) of the Responsible Conduct of Research Policy hearing board and will hear evidence and submissions only in relation to sanctions. The hearing board will render a decision in accordance with Section VIII of these Regulations. In the event a student appeals the finding of breach (in accordance with the Procedures under the Responsible Conduct of Research Policy), the hearing under these Regulations to determine sanctions is suspended until the resolution of the appeal.