UNIVERSITY COUNCIL
ACADEMIC PROGRAMS COMMITTEE
REQUEST FOR DECISION

PRESENTED BY: Susan Detmer, Chair, Academic Programs Committee

DATE OF MEETING: November 19, 2020

SUBJECT: Graduate degree-level certificates – Water Security program
- Graduate degree-level certificate in Water Resources
- Graduate degree-level certificate in Water Science
- Graduate degree-level certificate in Sustainable Water Management

DECISIONS REQUESTED:

It is recommended:
- That Council approve the graduate degree-level certificate in Water Resources, effective May 2021.
- That Council approve the graduate degree-level certificate in Water Science, effective May 2021
- That Council approve the graduate degree-level certificate in Sustainable Water Management, effective May 2021

PURPOSE:

University Council has the authority to approve degree-level programs, including certificate programs.

CONTEXT AND BACKGROUND:

The School of Environment and Sustainability proposes to introduce three new graduate degree-level certificates in the area of Water Security, to train the next generation of water scientists, engineers and policy-makers. These certificate programs represent relatively short, accessible (online) credentials and utilize course offerings already offered as part of the Master of Water Security (MWS) program. These certificates can be used to ladder into the MWS degree program, or can be taken as stand-alone programs.

These certificates will be targeted at mid-career professionals and returning students and anticipate that the certificates will be achievable for those working full-time.

The admissions requirements for the certificates will be the same as those for the MWS program and are listed in the proposal.

The graduate degree-level certificate in Water Resources will focus on enhancing foundation knowledge in water resource and hydrological theory, data analysis and modelling. The graduate degree-level certificate in Water Science will focus on knowledge of chemical risk, ecosystem
management, and hydrological processes. The graduate degree-level certificate in Sustainable Water Management will focus on the human dimension of sustainable water management and how humans affect and are affected by water quality and quantity.

The primary objective of these certificates is to provide more flexible graduate learning opportunities to meet the needs of working professionals and recent graduates.

CONSULTATION:
The academic programs committee reviewed the proposal for these certificate programs at its October 21, 2020 meeting. The committee was pleased that these certificates are specifically aimed at professionals or recent graduates and that they introduce a flexible way for new students to engage with the successful MWS program. APC voted at its October 21, 2020 meeting to recommend this termination be approve by Council.

These certificates were also reviewed and approved by the CGPS Programs committee on July 6, 2020 and by the CGPS Executive Committee on September 23, 2020.

ATTACHMENTS:

1. Proposal for Academic or Curricular Change – Graduate Certificates in Water Security.
MEMORANDUM

To: Executive Committee of CGPS

Copy: Dr. Maureen Reed, Assistant Director, School of Environment and Sustainability

From: Graduate Programs Committee

Date: September 4, 2020


On July 6, 2020, the Graduate Programs Committee considered proposals for three separate certificates that could be completed independently or as laddering components to the Master of Water Security (MWS) programming. Much consultation occurred by proponents.

The indirect costs related to program administration did not seem significant as certificate students would enroll in courses already being delivered for MWS degree students. The proposed certificate tuition was on par with the degree tuition.

The Graduate Programs Committee passed the following motions:

Motion: To recommend approval for the new graduate certificate in Water Resources. Morrison/Tanaka CARRIED Unanimous

Motion: To recommend approval for the new graduate certificate in Water Science. Morrison/Tanaka CARRIED Unanimous

Motion: To recommend approval for the new graduate certificate in Sustainable Water Management. Morrison/Tanaka CARRIED Unanimous

Attached please find the full proposal.

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

:k
PROPOSAL IDENTIFICATION: Graduate Certificates in Water Security

Title of proposal: *Suite of Graduate Certificates in Water Security*

Degree(s):  
- Graduate Certificate in Water Resources  
- Graduate Certificate in Water Science  
- Graduate Certificate in Sustainable Water Management

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

Contact person(s)

**Dr. Martha Smith**  
Associate Dean  
College of Graduate and Postdoctoral Studies (CGPS)  
306-966-2229  
kelly.clement@usask.ca

**Dr. Maureen Reed**  
Assistant Director Academic  
School of Environment and Sustainability (SENS)  
mgr774@mail.usask.ca

Proposed date of implementation: May 2021

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

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

SENS is positioned to offer three graduate certificates in Water Security to train and enhance the skills of the next generation of water scientists, engineers, managers and policy-makers to tackle the complex and interdisciplinary water problems of the future. We envision these certificates as complementary to our Master of Water Security (MWS) program, and they will enhance our MWS program by offering alternative opportunities for accessing this core strength within the University. These certificates will provide a way for SENS to focus the knowledge we can share with working professionals; these individuals do not require an additional degree, or the placement opportunities that are more valuable to less experienced students or professionals. Instead, these individuals require more specialized training in particular areas, which is why the certificates have been designed to encompass thematic areas or address gaps in particular areas of knowledge.

**These certificate programs represent relatively short, accessible (online), market-oriented micro-credentials that use ongoing course offerings (MWS). As such they are expected to expand access to our programs, increase visibility of our MWS program due to broader uptake in professional communities, and add revenues without substantive increases in costs. They may be taken as stand-alone programs or used to ladder into the MWS program.**

We envision this suite of certificates in Water Security as addressing a number of issues facing students, SENS, and the university as a whole—e.g., increased accessibility to learning opportunities for non-traditional students, increased enrolment, and increased revenue. This University is ranked #1 for water research in Canada, and we have the only water program in Canada that can boast a strong partnership with a top-ranking research partner like the Global Institute for Water Security (GIWS). However, enrolment numbers in our MWS program have not hit their target, yet. We attribute this to a number of factors, but the biggest barrier is likely accessibility and flexibility. The MWS was conceived as a way for working professionals to enhance their credentials in water-related fields. Unfortunately, the current model for delivery (in-person, weekdays, inflexible, intensive 1-year program) of the program does not account for the needs of employed professionals (e.g., a professional who brings in the sole household income, reducing a double-income household to a single income plus tuition expenses is also challenging; and across industries there is an inequity of options for paid/unpaid leaves for education, if a leave is even possible at all). We believe offering certificates will increase accessibility to our water security program for working professionals by allowing them to study while continuing to work.

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.” [1] A mobile workforce needs opportunities to transition between and upgrade within jobs. Increasing access and flexibility of educational opportunities for water security is a major motivator. SENS’s MWS program trains students to pursue careers in the water sector which includes consultants, federal and provincial government agencies and NGOs. Provincial governments are responsible for water resource management and are often faced with skill shortages in this field, which the MWS attempts to address. The certificates will provide a mechanism for further training and upskilling of existing staff with these agencies while also providing them the option to go on to obtain the MWS degree part-time. Another important demographic we have seen in the MWS program is people who have worked in a consultancy for 5 years or less, often doing a lot of field-based work or analytical work that is becoming routine and would like to move their career to the next level by accruing more technical and managerial skills. Currently, we are only able to recruit those who are able to take a full year absence from their jobs; in the current climate that is not a particularly appealing option to many. By offering the certificates, it would be possible for this demographic to take the courses they specifically are interested in (be they more technical or managerial in
nature) without having to leave their jobs. This is financially far more viable for many potential students, particularly those with a young family and other life commitments.

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.**

Water Security is one of the university’s signature areas of research and is associated with the Global Institute for Water Security. USask is ranked #1 in water resources research in Canada, according to the 2017 Shanghai Academic Ranking of World Universities. Within SENS, water security is one of our core strengths, as reflected in our Strategic Plan (to 2025) with a goal to create and enhance internationally-sought after graduate programs in the areas of Water, Energy and Food Security in partnership with other units on campus. The addition of certificates in Water Security will complement our Masters in Water Security program—which we anticipate will boost enrolment numbers in the program and ladder students into the MWS. These certificates will also address the issue of accessibility of graduate program to non-traditional students (e.g., working professionals). 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 Water Security 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.” ([University Plan 2025](#))

Growing water-related stressors affect all sectors of the economy and all aspects of society. Addressing water and environmental stressors requires integrative thinking and training; supported by this program in water security, new and more accessible certificate programs will allow active professionals to broaden and deepen their expertise. Water Security is a signature area of the university and an area where the university has many engaged partners. Partners have regularly benefitted from and have sought more activity to support capacity building as a key motivation behind development of these certificates.

Certificates related to water security will build on our professional Master’s program and be very visible contributions to this strategic priority. We anticipate that such visibility will enhance our reputation across a range of prestige indicators including leading initiatives within the Sustainable Development Solutions Network and increasing our rating in the STARRS rankings undertaken by the Association for the Advancement of Sustainability in Higher Education and the [Times Higher Education (THE) World Impact Rankings](https://www.timeshighereducation.com/world-rankings/world-ranking) in which USask participated for the first time this year.

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)**

For our water security certificates, we are aiming at a fairly broad demographic. We want to attract both mid-career professionals (who already have experience in the environmental field) and returning students wanting to work in sectors addressing water-related challenges. A mix of these cohorts is often ideal, in supporting peer-to-peer learning in an online environment. We anticipate many students will see the certificates as an achievable goal while working full time. Although some will ladder to the full degree program, many will simply seek one or two certificates as they advance through their careers. These certificate programs will be open to all students interested in a graduate professional (courses and project) program. We continue to work to make our programs relevant to Indigenous and international students. With the changes to the program we hope to increase interest and accessibility to working professionals. The target for this program is 5–10 students per certificate per year.
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 water-related graduate certificates exist across Canada (e.g., University of Alberta and McGill).

Given the dearth of micro-credential options, we believe these certificates will be attractive to many types of prospective students. The *RBC Humans Wanted* report (2018) indicates that students are not always looking for full degree programs; certificates help them gain the credentials they need in packages that are affordable in time and money. Also, we may attract strong international students who can benefit from this credential and/or who may ladder certificates into a Canadian degree without having to leaving their country.

See Appendix B for a list of other water-related certificates.

**Admissions**

a. **What are the admissions requirements of this program?**

As one or more certificates may be used to ladder into the Master of Water Security program, the admission requirements are the same for the certificates as they are for the Master’s program.

1. a four-year 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 **Bologna Declaration**, will be acceptable as the equivalent of an undergraduate degree.

2. a 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. a completed course at the undergraduate level (100-level or equivalent) in both mathematics and statistics with at least 70% (USask grade system equivalent).

4. **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 **College of Graduate and Postdoctoral Studies**. [Note: These are minimum language proficiency requirements; however, stronger scores are generally expected for successful entry into a SENS program.]

5. **Statement of Intent:** Applicants must provide a written Statement of Intent (1000-word 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 to the program.** An online interview may also be required to assess communication skills.

6. **Letters of reference:** Applicants will need to provide three letters of reference—either academic or professional letters.

**Probationary Admission:** 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 Academic Policies.

Description of the program

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

Graduate Certificate in Water Resources (9 credit units)

The Graduate Certificate in Water Resources focuses on enhancing foundational knowledge in water resource and hydrological theory, data analysis and modelling. It is designed for professionals who seek to build expertise and professional networks. Graduates of this certificate will be able to:

Curricular Objectives:
1. Identify and characterize uncertainty in current and future water resources.
2. Manage, explain, analyse, visualize, and interpret data to inform water security.
3. Integrate process-oriented hydrological understanding to predict changes to the water cycle.

Graduate Certificate in Water Science (9 credit units)

The Graduate Certificate in Water Science provides opportunities to apply knowledge in the water sciences to address extant and emerging water quality issues. This certificate is tailored for practitioners with interest in the water sciences, aiming to deepen their knowledge as it relates to chemical risk, ecosystem management and hydrogeological processes. Graduates of this certificate will be able to:

Curricular Objectives:
1. Characterize ecosystem function, services, and threats to water quality.
2. Demonstrate quantitative skills in describing hydrogeological processes.
3. Assess management and policy options to mitigate risks to aquatic environments.

Graduate Certificate in Sustainable Water Management (10 credit units)

The Graduate Certificate in Sustainable Water Management focuses on human dimensions of sustainable water management, including policy approaches and public health. It is designed for professionals who recognize that their work must include a foundational knowledge of how humans affect and are affected by water quality and quantity. Graduates of this certificate will be able to:

Curricular Objectives:
1. Work towards resolution of complex problems related to water, water management, and human health.
2. Develop principles for sustainable water governance involving multiple stakeholders, rights holders, and values.
3. Interpret and navigate policy dimensions of global and local water security and human wellbeing.
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.**

Each certificate may be taken as a stand-alone certificate or used to ladder into the MWS. The impetus behind bundling our MWS courses into micro-credentials is to further increase accessibility and flexibility, allowing students the opportunity to find graduate opportunities that meet their needs. The characteristics embedded within the certificates include:

- Case-based learning opportunities
- Clear links to addressing the Sustainable Development Goals
- Highly applied, solutions-oriented programming
- Experiential learning opportunities (i.e., learning by doing—guided by needs identified by practitioners)
- Online and blended courses

Our teaching philosophy is centered around building the skills and approaches students need to tackle deep, complex, and long-lasting sustainability problems. 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 across courses, 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 sustainability practitioners.
c. Provide an overview of the curriculum mapping.

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

Our programs and courses are centered 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.

Students will delve into courses in water security with opportunities for application, problem-solving, critical thinking, interdisciplinary collaboration and synthesis. We will sequence and network these courses appropriately to enhance student success. Some courses will include delivery by experienced practitioners. Having access to this professional expertise will help students better understand real-world applications and build their professional networks.
All courses within our graduate certificates 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 developing sets of case studies that will be used across 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.

These opportunities can be found in:

- **Problem-solving**: all courses in all certificates
- **Synthesis and analysis**: all courses in all certificates
- **Critical thinking**: 870, 820, 821, 816, 829, 805
- **Interdisciplinary collaboration**: 805, 829, 821, 820, 870
- **Application**: 826, 827, 805, 815, 817, 816, 870

**e. Explain the comprehensive breadth of the program.**

The primary objective of the certificates is to provide accessible and flexible graduate learning opportunities. The courses from the MWS have been bundled into micro-credentials to meet the needs of working professionals and recent graduates wanting to expand their skills in water-related issues.

**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 each of the proposed certificates align with the Five Learning Objectives outlined in the University’s *Learning Charter*. 
## Learning Charter: Five Learning Objectives

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<tr>
<th>Description</th>
<th>Water Resources</th>
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<tr>
<td>Pursuit of Truth and Understanding</td>
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<tr>
<td>Critical thinking</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>Multiple ways of knowing and learning</td>
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<tr>
<td>Intellectual flexibility</td>
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<tr>
<td>Pursuit of Knowledges</td>
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<tr>
<td>Depth of understanding in subject area</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Breadth of understanding how subject area intersects with related subject areas</td>
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<tr>
<td>Understanding how one’s subject area impacts communities</td>
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<td>X</td>
<td>X</td>
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<tr>
<td>Using and applying one’s knowledge with respect to all individuals</td>
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<td>X</td>
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<td>Pursuit of Integrity and Respect</td>
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<tr>
<td>Exercising intellectual integrity and ethical behavior</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Recognizing and thinking through moral and ethical issues</td>
<td>X</td>
<td>X</td>
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<td>Recognizing the limits to one’s knowledge, skills and understanding and acting in accordance with these limits</td>
<td>X</td>
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<td>Appreciate one’s own worldview while showing respect for others’ worldviews</td>
<td>X</td>
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<td>Recognizing and thinking through moral and ethical issues</td>
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<td>Develop and apply research, inquiry, knowledge creation and translation skills</td>
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<td>Communicate clearly, substantively and persuasively in different contexts</td>
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<td>Locate, understand, evaluate and use information effectively, ethically, legally and with cultural appropriateness</td>
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<tr>
<td>Pursuit of Skills and Practices</td>
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<td>Commit to positive growth and change for oneself and for local, national and global communities</td>
<td>X</td>
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<tr>
<td>Act with confidence and strength of purpose for the good of oneself and different communities</td>
<td>X</td>
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<tr>
<td>Embrace responsibilities to oneself and others in ways that are authentic and meaningful</td>
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<td>X</td>
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<tr>
<td>Sharing knowledges and exercise leadership as acts of individual and community responsibility</td>
<td>X</td>
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### g. Describe how students can enter this program from other programs (program transferability).

This suite of certificates is open to graduate students from all disciplines. There are no barriers. In fact, we encourage cohorts of students from varying disciplines. These certificates may serve as stand-alone programs for professionals; however, we also expect that some certificate students may also ladder into the professional MWS from the certificates.

### 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 two key benefits of offering this program are: 1) training highly qualified professionals in Saskatchewan, Canada, and internationally and 2) increasing enrolment numbers in the area of Water Security. 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.

Additionally, now is the time for investing in water security programming. Climate change and water security issues are of great significance at this time and working professionals need to “upskill” in these areas to meet these challenges.

We will evaluate the success of the certificates through a number of metrics.

- **Enrolment**: we project that we will meet our enrolment targets for all certificates within in 3 years
- **Demand**: measured by the number of high-quality applicants and application numbers
- **Student satisfaction**: measured by exit surveys and course evaluations
- **Graduate employment and/or advancement**: determined by alumni surveys
- **Recognition**: e.g., institutional rankings and ratings

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 three certificates are consistent with the existing Masters of Water Security Program (MWS) program, requiring no changes to the current program courses, but allowing part-time students (e.g., working professionals) or students not sure about committing to a one-year program to take one or more certificates. We see many advantages to offering this suite of courses:

- Increased accessibility of post-secondary education for non-traditional students (e.g., professionals)
- More appeal to domestic students
- Potential to ladder students into a Master’s program
- Boost enrolment numbers
- An additional revenue stream for SENS and our partner units

To receive the full MWS degree, students would need to “stack” all three certificates, plus the field course (ENVS 806) and the project (ENVS 992).

We foresee no major negative impact on student enrolment in other similar or related programs. Indeed, our proposed programs will enhance enrolment for program delivery partners. We see a net gain to enrolment numbers at USask due to more students accessing educational opportunities in the School and possibly moving on to other graduate programs (Master’s, PhD).

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.

The Department of Geography and Planning (GEPL) in the College of Arts and Science and the Johnson-Shoyama Graduate School of Public Policy (JSGS) were consulted on the creation of these certificates as two
Geography courses and one JSGS course would be included in the suite of certificates. We also consulted with the Global Institute for Water Security (GIWS). See Appendix C for their letters of support.

GEPL is proposing a certificate in hydrology. This certificate differs in scope from what is proposed in our certificate in water resources. We anticipate that students from some disciplinary backgrounds may take the SENS Water Resources certificate prior to the GEPL hydrology certificate. However, the expected audiences for these programs will differ, with the MWS and associated certificates attracting recent graduates and midcareer professionals, and the certificate in hydrology targeted at postdoctoral fellows and advanced hydrologists interested in the specifics of these offerings, hence the number of students laddering between these certificates may be low.

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.

See Appendix C for Letters of Support.

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

We do not anticipate any other demand on library resources from the addition of the certificates over and above the resources needed for the MWS.

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

As part of our market survey for the Master of Sustainability (M.Ss), we included survey questions to understand possible demand and appeal for micro-credentials. The people surveyed included recent Undergraduate Certificate in Sustainability graduates, USask alumni, SENS community partners, and adjunct faculty. Our survey included questions about likelihood of seeking education in sustainability, preference for master’s degree and certificates, program delivery options, program appeal, etc.

Budget

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).

All courses in these three certificates are required courses in the Master of Water Security program. Certificate students will enroll in the same courses and sections as their Master’s counterparts. This will boost enrolment within these courses and help ensure that they are fully subscribed. We anticipate that nine instructors will participate in delivering this suite of certificates—the same instructors that deliver the MWS program.
b. What courses or programs are being eliminated in order to provide time to teach the additional courses?

No programs will be deleted. We propose to bundle some of our existing courses into smaller micro-credentials that will be offered alongside our professional MWS as either stand-alone certificates or as a way to laddering into the MWS.

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

Because all the courses will exist as part of the MWS program, the addition of these certificates will not affect teaching assignments. No new courses will be added.

d. Describe budget allocations and how the unit resources are reallocated to accommodate this proposal.

(Unit administrative support, space issues, class room availability, studio/practice rooms laboratory/clinical or other instructional space requirements).

Because all the courses will exist as part of the MWS program, the addition of these certificates will not affect teaching assignments. No new courses will be added. We see the certificates as a way to help increase accessibility and enrolment for what are currently high-quality offerings. We have a large cohort of water-related faculty on campus, and need to develop successful and well-subscribed graduate programming in this area.

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.

As the courses will be developed and delivered as part of the MWS program, 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).

To accommodate our 3-, 2-, and 1-credit course offerings, we propose a special tuition model that charges student tuition based on a single credit unit. Our tuition projections are based $375 per credit unit:

In this model, tuition costs for each student will be assessed each semester according to how many credit units the student is taking in that semester.

For 2021–2022, we anticipate the tuition for each certificate will be
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)

Because all the certificate courses will be existing SENS courses offered through the MWS program, we do not anticipate any significant additional costs of program delivery. In fact, packaging many of the MWS courses into micro-credentials to increase accessibility and flexibility will ensure that our courses are more fully subscribed. We believe that by combining resources and drawing on increased tuition revenues from 15–30 new students per year, we will have more than sufficient resources to deliver these certificates.

However, if we see a significant demand for certificates from students, we may need to hire additional TAships to manage increased class sizes.

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 expect that, within three years, each certificate will attract an additional 5–10 students per year (approximately 15–30 additional students a year across all certificates). This number would be over and above the anticipated demand for Master of Water Security (25 students/year). Students will come from undergraduate programs and from employers in public, private, and civic sectors, with diverse academic and career backgrounds. We anticipate that they will seek out our programs to build and enhance their professional competencies and knowledge in the program areas.

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?

We anticipate that all revenue generated from the addition of these certificates to be incremental revenue. The table below provides estimates for the next two academic years for our projected minimum number of students (5 per certificate) and our maximum number of students (10 per certificate)—based on domestic tuition.

<table>
<thead>
<tr>
<th>Certificate</th>
<th># of cu</th>
<th># of students</th>
<th>Academic Year 2021–2022</th>
<th>$375/cu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Resources</td>
<td>9</td>
<td>5</td>
<td>$16,875</td>
<td>$33,750</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Science</td>
<td>9</td>
<td>5</td>
<td>$16,875</td>
<td>$33,750</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainable Water Management</td>
<td>10</td>
<td>5</td>
<td>$18,750</td>
<td>$37,500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anticipated incremental revenue (5 students/cert.)</td>
<td></td>
<td></td>
<td></td>
<td>$52,500</td>
</tr>
<tr>
<td>Anticipated incremental revenue (10 students/cert.)</td>
<td></td>
<td></td>
<td></td>
<td>$105,000</td>
</tr>
</tbody>
</table>
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?

It is not the intention for this suite of certificates to be independently sustainable. Rather, these certificates will complement the MWS program and offer students options for accessibility and flexibility. They may be taken as stand-alone certificates or used to ladder into the MWS. However, their sustainability is connected to the sustainability of the MWS itself.

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).

Because the courses within the proposed certificates are required for the MWS, we do not anticipate any addition incremental costs, except the possibility of needing additional TAships to support increased class-size. At most, we anticipate hiring an additional 1 or 2 TAs, equaling between $3720–$7440 in incremental costs where we have large class sizes.

n. List all new funding sources and amounts (including in-kind) and the anticipated contribution of each to offsetting incremental 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.

No new courses are being added, so we do not anticipate any incremental costs. If we assume our minimum projected enrolment numbers for each certificate (5 people/certificate x 3 certificates = 15 certificate students), this would result in an additional $52,500 of revenue for the 2021–2022 academic year. (See table above.)

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 a 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)
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 D) to be completed by CGPS
2. Complete Catalogue entry, if proposing a new program, or excerpt of existing program with proposed changes marked in red.

Catalogue Entry for Graduate Certificate in Water Resources

The Graduate Certificate in Water Resources focuses on enhancing foundational knowledge in water resource and hydrological theory, data analysis and modelling. It is designed for professionals who seek to build expertise and professional networks.

Admission Requirements

1. a four-year 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 Bologna Declaration, will be acceptable as the equivalent of an undergraduate degree.

2. a 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. a completed course at the undergraduate level (100-level or equivalent) in both mathematics and statistics with at least 70% (USask grade system equivalent).

4. 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 College of Graduate and Postdoctoral Studies. [Note: These are minimum language proficiency requirements; however, stronger scores are generally expected for successful entry into a SENS program.]

5. Statement of Intent: Applicants must provide a written Statement of Intent (1000-word 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 to the program. An online interview may also be required to assess communication skills.
6. **Letters of reference**: Applicants will need to provide three letters of reference—either academic or professional letters.

**Probationary Admission**: 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 Academic Policies.

**Certificate Requirements**

The certificate can be taken as a stand-alone program and/or the courses can be applied to the completion of the Master of Water Security (MWS).

A minimum of 9 credit units including:

- **GEOG 826.3** *Fundamentals of Hydrology* OR **GEOG 827.3** *Principles of Hydrology*
- **ENVS 805.3** *Data-driven Solutions for Sustainability* (title modification)
- **ENVS 815.3** *Modelling for Water Security*

**Catalogue Entry for Graduate Certificate in Water Science**

The *Graduate Certificate in Water Science* provides opportunities to apply knowledge in the water sciences to address extant and emerging water quality issues. This certificate is tailored for practitioners with interest in the water sciences, aiming to deepen their knowledge as it relates to chemical risk, ecosystem management and hydrogeological processes.

**Admission Requirements**

1. a four-year 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 *Bologna Declaration*, will be acceptable as the equivalent of an undergraduate degree.

2. a 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. a completed course at the undergraduate level (100-level or equivalent) in both mathematics and statistics with at least 70% (USask grade system equivalent).

4. **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 College of Graduate and Postdoctoral Studies. [Note: These are minimum language proficiency requirements; however, stronger scores are generally expected for successful entry into a SENS program.]

5. **Statement of Intent**: Applicants must provide a written Statement of Intent (1000-word 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 to the program.* An online interview may also be required to assess communication skills.

6. **Letters of reference**: Applicants will need to provide three letters of reference—either academic or professional letters.

**Probationary Admission**: 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 Academic Policies.

**Certificate Requirements**

The certificate can be taken as a stand-alone program and/or the courses can be applied to the completion of the Master of Water Security (MWS).

A minimum of 9 credit units including:

- **ENVS 816.3** *Chemicals in Aquatic Systems*
- **ENVS 817.3** *Fundamentals of Hydrogeology*
- **ENVS 829.3** *Rivers, Lakes, and Wetland Science*

**Catalogue Entry for Graduate Certificate in Sustainable Water Management**

The Graduate Certificate in Sustainable Water Management focuses on human dimensions of sustainable water management, including policy approaches and public health. It is designed for professionals who recognize that their work must include a foundational knowledge of how humans affect and are affected by water quality and quantity.

**Admission Requirements**

1. a four-year 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
2. a cumulative weighted average of at least 70% (USask grade system equivalent) in the last two years of study (e.g., 60 credit units)

3. a completed course at the undergraduate level (100-level or equivalent) in both mathematics and statistics with at least 70% (USask grade system equivalent).

4. 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 College of Graduate and Postdoctoral Studies. [Note: These are minimum language proficiency requirements; however, stronger scores are generally expected for successful entry into a SENS program.]

5. Statement of Intent: Applicants must provide a written Statement of Intent (1000-word 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 to the program. An online interview may also be required to assess communication skills.

6. Letters of reference: Applicants will need to provide three letters of reference—either academic or professional letters.

Probationary Admission: 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 Academic Policies.

Certificate Requirements

The certificate can be taken as a stand-alone program and/or the courses can be applied to the completion of the Master of Water Security (MWS).

A minimum of 10 credit units including:

- ENVS 818.1 Introduction to Sustainability
- JSGS 870.3 Water Policy in an Age of Uncertainty
- ENVS 820.3 Water and Human Health and Wellbeing
- ENVS 821.3 Sustainable Water Resources
3. **Course Proposal Forms**

None. All courses currently exist within the Master of Water Security program.

**Required for all new courses:**
- New Course Proposal forms *(none)*
- Calendar-draft list of new and revised courses *(none)*

**Required if resources needed:** *(none)*
- Information Technology Requirements form
- Library Requirements form
- Physical Resource Requirements form
- Budget Consultation form
Colleagues,

I am pleased to offer this proposal from the School of Environment and Sustainability (SENS). On 18 June 2020, the faculty of SENS unanimously voted in favour of pursuing this suite of new graduate certificates that can be taken as either stand-alone programs or used to ladder into the existing Masters of Water Security program.

Developing micro-credentials in Water Security was identified as an opportunity in 2019. Since that time, SENS has undertaken significant work on consultation and design. This process included discussion among program instructors from the Masters in Water Security Program, consultation with on-campus leaders in water including Global Water Futures Director Dr. John Pomeroy, and NSERC CREATE in Water Security lead Dr. Cherie Westbrook. We also sought input from members of the Global Institute for Water Security and from water researchers in Geography and Planning (Drs. Pomeroy, Clark, Westbrook, and Famiglietti) and Engineering (Drs. Elshorbagy, Ferguson). The draft program structure was submitted to SENS faculty council in early June, and final approval was given by electronic vote on 18 June 2020.

We see micro-credentials as an important addition to our programmatic strength in water security, and as a contribution to being the “University the World Needs.” In short, these certificates leverage existing offerings in our high-quality Masters of Water Security, but allow greater accessibility, while still allowing laddering into the full MWS. These micro-credentials are sought by working professionals, and help break down traditional disciplinary boundaries in the water sciences by allowing practicing professionals to both broaden and deepen their expertise.
As we developed these three certificate programs several important issues were identified and addressed—listed in the table below.

<table>
<thead>
<tr>
<th>Key issues</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target audience</td>
<td>Target audience is practitioners and early- to mid-career professionals</td>
</tr>
<tr>
<td>Mode of delivery</td>
<td>Delivered via compressed courses online in a multi-modal format (synchronous, asynchronous, and in-person when it becomes available).</td>
</tr>
<tr>
<td>Accessibility and flexibility</td>
<td>Certificates are developed to increase accessibility of our training in water security. Professionals will be able to broaden and deepen their expertise without the financial or time commitment of pursuing a full post-graduate degree. Professionals will also have the potential to attain a post-graduate degree over multiple years by laddering into the MWS program.</td>
</tr>
<tr>
<td>Professional skills v. academic offerings</td>
<td>Courses are oriented to supporting crucial skills and knowledge for water security professionals in coherent units based on interests, skill development and job futures.</td>
</tr>
<tr>
<td>Teaching requirements</td>
<td>Certificates are designed such that they leverage existing offerings, without creating new teaching demands.</td>
</tr>
<tr>
<td>Cohesive and complementary offerings across campus</td>
<td>We pursued consultation with Geography and Planning on their planned certificate in hydrology to ensure complementarity, and secure support for these offerings. We also agreed to promotion of programs via the Global Institute for Water Security.</td>
</tr>
</tbody>
</table>

We are very excited about these new directions and believe that these programmatic changes and additions are critical for moving SENS and the University of Saskatchewan forward to become the “University the World Needs.” These new certificates will help expand access to training in the signature area of Water Security, and will help leverage our research excellence in water security to increase access to, and visibility of, our outstanding training opportunities in this area.

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: Comparators

**University of Alberta**

*Water Resource Management Certificate* (12 credits)

The Water Resource Management certificate provides specialized training to increase your professional capacity of managing the aquatic resources in our environment. Course content explores the management, evaluation, and monitoring requirements of both surface water (hydrology) and groundwater (hydrogeology) resources, as well as soil classification and wetlands delineation.

- 4 courses (Applied Hydrology; Wetland Delineation, Classification, and Assessment, Applied Hydrogeology in Alberta, Soil Classification and Mapping) of 39 instructional hours each
- Tuition: $995/course

**McGill University**

*Integrated and Adaptive Water Resources Planning, Management, and Governance* (single course)

This online program takes a holistic look at water resources management at the watershed and sub-watershed level with a specific focus on watershed planning techniques, adaptive management strategies, capacity building approaches, water governance, and water business risk assessment to strengthen integrated water resources management capacities globally.

- 8-week online certification program
- Tuition $1450/course

**University of Arizona**

*Graduate Certificate in Water Policy* (12 credits)

Water issues are hard, complicated, and compelling. Water is a fundamental theme in the Western United States and other arid regions around the world. More recently, even wet regions have come to face similar problems of water scarcity and conflict, due to growing demands and competition for water. How people use and manage water is the core concern of water policy. Although the scientific and technical aspects of water issues are essential, the social and political aspects are now our larger challenge. The University of Arizona has responded to the growing public and professional interest in water policy by establishing a new Graduate Certificate in Water Policy. The Certificate builds on the world-renowned expertise of UA faculty and programs in all aspects of water resources.

- 4 courses (2 core and 2 thematic)
- No tuition listed

*Graduate Certificate in Hydrology and Water Resources* (12 credits)

The Graduate Certificate in Hydrology and Water Resources provides specialized education for those seeking professional work in hydrologic design, planning, and operation of water resources systems. The program serves three primary student groups:

- Current graduate students not currently majoring in hydrology and water resources
- Working professionals, post-baccalaureate degree
- Non-degree trainees, post-baccalaureate degree

The curriculum explores a variety of hydrology and water resources topics and provides an introduction to the fundamental principles of hydrology and water resources that are relevant to professional practice in this field through introduction of basic fluid mechanics, hydraulic engineering, and water resources systems. The curriculum also emphasizes experimental and research techniques that are applicable to hydrology and water resources.

- 4 courses (2 core and 2 thematic)
- No tuition listed

**Flinders University (Australia)**

*Graduate Certificate in Science: Water Resources Management* (18 credit units)

This program is designed to give graduates in water resources management an understanding of the scientific as well as organizational, social and economic issues facing the management of water resources. Graduates will have introductory interdisciplinary knowledge in this field, and be able to Strategically assess ways of addressing these issues.
- Courses on ecohydrology, hydrogeology, public health aspects, project governance, global climate change, groundwater modelling; hydrochemistry, etc.
- Each course is 4.5 credit units—students must take 4 courses to complete certificate
- Students pay tuition by the unit—between $850–$910 per unit—~$15,000 for full certificate (domestic students, could not find international student rate)

**Graduate Certificate in Science: Groundwater Hydrology** (18 credit units)
A groundwater hydrologist is a scientist who understands how groundwater hydrological systems operate, has an advanced interdisciplinary knowledge in this field, can apply the scientific method to explore problems of relevance to this discipline, is able to use a range of analytical methods, including computer software to analyse relevant data, and field techniques, and can contribute to an advance of knowledge in this discipline. The educational aims of this course are to provide students with an overview of processes that determine the source, amount and flows of water in aquifers with a particular focus on aspects relating to water problems facing Australia.
- Course on groundwater modelling, hydrochemistry, field methods in hydrology, ecohydrology, integrated water management, physical hydrogeology, etc.
- Each course is 4.5 credit units—students must take 4 courses to complete certificate
- International student tuition for 2020 — $18,250

**Colorado State University**

**Applied Global Stability: Water Resources** (12 credit units)
The graduate certificate: **Applied Global Stability: Water Resources** concentrates on water resources planning and management, engineering hydrology, and irrigation systems. Several of the engineering courses below require a background in hydrology (CIVE 322 Basic Hydrology) and fluid mechanics (CIVE 300 Fluid Mechanics). Students are expected to have completed the appropriate course prerequisites, including calculus, ordinary differential equations, calculus-based physics, and engineering statics. Please contact the instructor if you have questions about whether your previous training is sufficient for you to succeed in this certificate program.
- Tuition $660–$964/unit == $7920–$11,568 for full certificate (assume the difference is for domestic vs. international fees)
- 1 year program
- Offered from School of Global Environmental Sustainability

**Graduate Certificate in Water Resources** (9 credit units)
Advance your career in water resources planning, management, and policy with this graduate certificate addressing an array of water issues in the western United States and around the world. Expand your knowledge with case studies, geospatial applications, and exercises. The program of study emphasizes an understanding of the hydrologic cycle and the physical processes that drive it, how humans adapt water resources to their needs, techniques for sustainable management, the evolution of laws and policies governing water use, and basic spatial and temporal analysis of water data.
- Tuition $685-$964 per credit == $8220–$11,568 for full certificate (assume the difference is for domestic vs. international fees)
- 1-year program
- Offered by Warner College of Natural Resources—Department of Ecosystem Science and Sustainability

**Other US institutions with Certificate in Hydrology/Water Resources** (not exhaustive list)
University of Utah, **Interdisciplinary Graduate Certificate in Hydrology and Water Resources** (15 cu)
New Mexico Tech, **Graduate Certificate in Hydrology** (15 credit units)
Western Michigan University, **Certificate Program in Hydrogeology** (12 credit units)
Appendix C: Letters of Support

UNIVERSITY OF SASKATCHEWAN

To: College of Graduate and Postdoctoral Studies
   Priorities and Planning Committee of Council

From: Dr. Alec Aitken, Professor and Head, Department of Geography and Planning, College of Arts and Science

Date: 22 April 2020

Subject: Letter of Support for proposed certificates in Water Security

To the College of Graduate and Postdoctoral Studies and Priorities and Planning Committee,

I am pleased to write this letter of support on behalf of Department of Geography and Planning to express our support for the proposed suite of Water Security certificates in the School of Environment and Sustainability. We have been consulted about the plans for these new microcredentials, and we see developing a series of graduate certificates as a logical, cost-effective way forward that can serve as a model for establishing future certificate programs. These certificates would create more flexible educational opportunities for and increase accessibility to graduate programming for non-traditional students (e.g., working professionals). The addition of the graduate certificates in Water Security 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.”

Water Security is one of the University’s signature areas, and we ranked #1 in Canada for water research. The certificates will complement SENS’s current Master in Water Security, and will provide a mechanism for further training and skills to existing staff in organizations in the water sector, while also providing them the option to go on obtain the MWS degree part-time. The Department of Geography and Planning is currently engaged in a similar process of creating graduate level certificates and will follow with interest the outcome of the adjudication of this proposal.

We look forward to participating in the creation of the full proposal over the next months. When the certificates are launched, we anticipate opportunities to share in the teaching and will negotiate with SENS a fair and effective costs and revenue sharing model. We foresee no major negative impact on student enrolment in other similar or related programs in our units.

Please let me know if you require further information. Thank you.

Sincerely,

Alec Aitken, Ph.D., P. Geo.
Professor and Head
Department of Geography and Planning
College of Arts and Science

Program Proposal: Water Security Graduate Certificates—FINAL 19 June 2020
March 29, 2020

Karsten Liber
Executive Director (Interim) and Distinguished Professor
School of Environment and Sustainability

Dear Karsten:

On behalf of the Johnson-Shoyama Graduate School of Public Policy, I am pleased to provide our support for the School of Environment and Sustainability’s (SENS) proposed suite of Water Security certificates. We have been consulted about the plans for these new micro-credentials, and we see developing a series of graduate certificates as a logical, cost-effective way forward that can serve as a model for establishing future certificate programs. These certificates would create more flexible educational opportunities for and increase accessibility to graduate programming for non-traditional students (e.g., working professionals). The addition of the graduate certificates in Water Security 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.”

With the University of Saskatchewan (USask)’s 2025 Strategic Plan urging new and collaborative programming, we commend SENS for leading the way with this new initiative. We appreciate the consultation with JSGS and we are committed to offering JSGS 870.3 Water Policy in an Age of Uncertainty. This course represents an important area of knowledge and expertise for the JSGS, and it will be advantageous for us to be able to offer this material to students.

We look forward to participating in the creation of the full program proposal over the next months. When the new fields of study are launched, we anticipate opportunities to share in the teaching and will negotiate with SENS a fair and effective costs- and revenue-sharing model. We foresee no major negative impact on student enrolment in other similar or related programs in our units.

We wish you the best as you go through the university approval process.

Sincerely,

Murray Fulton
Director, USask Campus
Johnson Shoyama Graduate School of Public Policy
To: College of Graduate and Postdoctoral Studies  
Priorities and Planning Committee of Council

From: Dr. Jay Famiglietti, Executive Director, Global Institute for Water Security

Date: 14 June 2020

Subject: Letter of Support for proposed certificates in Water Security

This letter expresses support of the Global Institute for Water Security for the three proposed graduate certificates related to water security: water resources, water science and water management. These three certificate offerings, led by the School of Environment and Sustainability, and linked to the Masters in Water Security will allow increased access to University of Saskatchewan water-related programming, in particular, opening access to working professionals aiming to enhance and broaden their expertise in water security. These certificates will support our mission in the Global Institute for Water Security to develop knowledge, science and technologies for integrated water management addressing local, regional and global water security agendas. Critically, these additions to our offerings leverage our research excellence in the university signature area of water security to provide needed training in water.

I participated in recent discussions engaging faculty from my two home units to assess coordination between the planned GEPL graduate certificate in hydrology, and SENS graduate certificates in water resources, water management, and water science. The discussion was a highly fruitful one, which demonstrated mutual support for these programs based on their complementarity and potential to help advance water-related goals of the units. These conversations also highlighted the opportunity to mutually support these programs and work together to ensure success via shared courses, teaching and promotion. These new certificates will dovetail nicely with GEPL offerings which are aimed at senior practitioners and advanced postdoctoral fellows in the area of hydrology; offerings which will further enhance University of Saskatchewan’s profile in water.

The Global Institute for Water Security will continue to support, enhance, and work to coordinate water-related academic programming on campus, in particular, supporting a landing page hosted in the GIWS website directing students to the new certificate programs, and Masters of Water Security program.
These additional certificates further support the universities vision of being the University the world needs by linking research excellence to teaching excellence and accessibility in the crucial area of water security. Please reach out to me if you have any questions.

Sincerely,

[Signature]

Dr. James (Jay) Famiglietti, PhD  
Canada 150 Research Chair in Hydrology and Remote Sensing  
Executive Director, Global Institute for Water Security  
Professor, School of Environment and Sustainability  
Professor, Department of Geography and Planning  
University of Saskatchewan
Appendix D: Registrar Consultation Form (to be added by CGPS)
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? Yes [X] No _

2. Is an existing degree, diploma, or certificate being renamed? Yes _ No [X]

If you’ve answered NO to each of the previous two questions, please continue on to the next section.

3. What is the name of the new degree, diploma, or certificate? Graduate Certificate in Water Science - GCWS (suggested Banner code) and Grad Cert Water Science (suggested Banner short degree description)

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

5. If you have renamed an existing degree, diploma, or certificate, what is the current name? 

6. 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

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: GCWS In Grad Cert Water Science

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 - Water Science - WRSC (exists in Banner) / School of Environment and Sustainability [SES]

11. If this is a new graduate degree, is it thesis-based, course-based, or project-based?
Section 2: New / Revised Program for Existing or New Degree / Diploma / Certificate Information

1. Is this a new program?  
   No

2. If YES, what degree, diploma, or certificate does this new/revised program meet requirements for?  
   Graduate Certificate in Water Science - GCWS (suggested Banner code) and Grad Cert Water Science (suggested Banner short degree description)

3. What is the name of this new/revised program?  
   Graduate Certificate in Water Science - GCWS-GP (suggested Banner code) and Grad Cert Water Science (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?  
   Yes

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?  
   Project-based

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

1 Does the proposed degree, program, major, minor, concentration, or course involve mobility? Yes No X

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
- 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? Yes No

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?  
   Yes [ ] No [X] Revised [ ]  
   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?  
   Yes [ ] No [X] Revised [ ]  
   If you've answered NO, please continue on to the next section.

2. If YES, what is the name of this new / revised disciplinary area?

3. Which Department / School is the authority for this new / revised disciplinary area? (NOTE - if this disciplinary area is being offered by multiple departments see question below.)

4. Which multiple Departments / Schools are the authority for this new / revised disciplinary area?

4a. Of the multiple Departments / Schools who are the authority for this new / revised disciplinary area and what allocation percentage is assigned to each? (Note - must be whole numbers and must equal 100.)

4b. Of the multiple Departments / Schools who is the primary department? The primary department specifies which department / school policies will be followed in academic matters (ex. late adds, re-read policies, or academic misconduct). If no department / school is considered the primary, please indicate that. (In normal circumstances, a department / school with a greater percentage of responsibility - see question above - will be designated the primary department.)

5. Which current program(s) and / or degree(s) is this new / revised disciplinary area attached to?
   N/A
Section 6: New College / School / Center / Department or Renaming of Existing

1. Is this a new college, school, center, or department?  
   Yes [ ] No [X]
2. Is an existing college, school, center, or department being renamed?  
   Yes [ ] No [X]
3. Is an existing college, school, center, or department being deleted?  
   Yes [ ] No [X]
   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 (i.e. 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?

3. Have the subject area identifier and course number(s) for new and revised courses been cleared by the Registrar?

   Yes [X] No [ ]

4. Does the program timetable use standard class time slots, terms, and sessions?

   Yes [X] No [ ]

   If NO, please describe.

   It’s expected to be delivered online

5. Does this program, due to pedagogical reasons, require any special space or type of rooms?

   Yes [ ] No [X]

   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

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will students apply on-line? If not, how will they apply?</td>
<td>Yes</td>
</tr>
<tr>
<td>What term(s) can students be admitted to?</td>
<td>YYYY05, YYYY09, YYYY01</td>
</tr>
<tr>
<td>Does this impact enrollment?</td>
<td>Slight increase - within 3 years expect 5 to 10 students per year</td>
</tr>
<tr>
<td>How should Marketing and Student Recruitment handle initial inquiries about this proposal before official approval?</td>
<td>Refer to the School of Environment and Sustainability</td>
</tr>
<tr>
<td>Can classes towards this program be taken at the same time as another program?</td>
<td>No</td>
</tr>
<tr>
<td>What is the application deadline?</td>
<td>As per current</td>
</tr>
<tr>
<td>What are the admission qualifications?</td>
<td>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 undergraduate degree in an academic discipline relevant to the proposed field of study from an institution meeting the criteria set forth in the Bologna Declaration will be accepted as the equivalent of an undergraduate degree. 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.</td>
</tr>
<tr>
<td>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.)</td>
<td>Same as MSEM-P-GP Master of Sust EnvMgmt-Project program</td>
</tr>
<tr>
<td>What are the admission categories and admit types? (IE. High school students and transfer students or one group? Special admission? Aboriginal equity program?)</td>
<td>Same as MSEM-P-GP Master of Sust EnvMgmt-Project program</td>
</tr>
<tr>
<td>What is the application process? (IE. Online application and supplemental information (required checklist items) through the Admissions Office or sent to the College/Department?)</td>
<td>Online application; checklist items: undergraduate degree, proof of English proficiency (if applicable), statement of intent, 3 letters of reference</td>
</tr>
</tbody>
</table>
| Who makes the admission decision? (IE. Admissions Office or College/Department/Other?) | }
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td><strong>Letter of acceptance - are there any special requirements for communication to newly admitted students?</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Same as MSEM-P-GP Master of Sust EnvMgmt-Project program</strong></td>
</tr>
<tr>
<td>13</td>
<td><strong>Will the standard application fee apply?</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td>14</td>
<td><strong>Will all applicants be charged the fee or will current, active students be exempt?</strong></td>
</tr>
<tr>
<td></td>
<td><strong>All applicants will be charged</strong></td>
</tr>
<tr>
<td>15</td>
<td><strong>Are international students admissible to this program?</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Yes</strong></td>
</tr>
</tbody>
</table>
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 October 2021

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

NOTE: A student can graduate with the Master of Sustainability degree as well as any, or all, of the following certificates.
- Graduate Certificate in Sustainability Solutions
- Graduate Certificate in Governance Foundations for Sustainability
- Graduate Certificate in Community Energy Planning and Finance
- Graduate Certificate in Energy Transitions
- Graduate Certificate in Water Resources
- Graduate Certificate in Water Science
- Graduate Certificate in Sustainable Water Management

Section 11: Schedule of Implementation Information

1 What is the start term?
   202105 [May 2021]

2 Are students required to do anything prior to the above date (in addition to applying for admission)?
   Yes [ ] No [X]

   If YES, what and by what date?
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? Yes [X] No
   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? Yes [X] No

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? Yes [X] No

Section 15: Awards Information

1. Will terms of reference for existing awards need to be amended? Yes [X] No

2. If this is a new undergraduate program, will students in this program be eligible for College-specific awards? Yes [X] No

Section 16: Government of Saskatchewan Graduate Retention (Tax) Program

1. Will this program qualify for the Government of Saskatchewan graduate retention (tax) program? Yes [X] 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 [ ]  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 [ ]  
   - 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?

<table>
<thead>
<tr>
<th>Standard Undergraduate per credit</th>
<th>Standard Graduate per credit</th>
<th>Standard Graduate per term</th>
<th>Non standard per credit <strong>X</strong></th>
<th>Non standard per term <strong>X</strong></th>
<th>Other <strong>X</strong></th>
<th>Program Based <strong>X</strong></th>
</tr>
</thead>
</table>

* 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?

   - 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

5. What is IPA's recommendation regarding tuition assessment? When is it expected to receive approval?

   - No issues with recommendation; approval in Nov/Dec 2020 to PAC

6. IPA Additional comments?

   - n/a

7. Will students outside the program be allowed to take the classes?

   - Yes, subject to availability

8. If YES, what should they be assessed? (This is especially important for program based.)

   - Tuition is per credit; same tuition for all students

9. Do standard student fee assessment criteria apply (full-time, part-time, on-campus versus off-campus)?

   - Yes

10. Do standard cancellation fee rules apply?

    - 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? If YES, from which tuition code to which tuition code?

    - Yes **X** No

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
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?  Yes  No
2 Has TLSE, Admissions, been informed about this new / revised program?  Yes  No
3 Has TLSE, Student Finance and Awards, been informed about this new / revised program?  Yes  No
4 Has CGPS been informed about this new / revised program?  Yes  No
5 Has TLSE, Transfer Credit, been informed about any new / revised courses?  Yes  No
6 Has ICT-Data Services been informed about this new or revised degree / program / major / minor / concentration?  Yes  No
7 Has the Library been informed about this new / revised program?  Yes  No
8 Has ISA been informed of the CIP code for new degree / program / major?  Yes  No
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?  Yes  No
10 Has the Convocation Coordinator been notified of a new degree?  Yes  No
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
      OR
   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):