AGENDA ITEM NO: 13.7

UNIVERSITY COUNCIL ACADEMIC

PROGRAMS COMMITTEE REPORT

FOR INFORMATION

PRESENTED BY: **Alison Oates, Chair, Academic Programs Committee**

DATE OF MEETING: October 21, 2021

SUBJECT: COUNCIL **Certificate in Geomatics**

ACTION: **For Information Only**

SUMMARY:
The Academic Programs Committee has the authority to approve degrees and degree-level programs for colleges that have an approved template. The College of Arts and Science has an approved template.

The College of Arts and Science proposed to replace the Minor in Geomatics with a Certificate in Geomatics. This change will allow students from other colleges to take the program. The certificate program will provide students with a strong understanding of the technologies and techniques used in spatial data acquisition and analysis. The change to a certificate program includes the addition of a capstone course in cartography and communication.

On September 22, 2021 the Academic Programs Committee passed the following motions:

That the Academic Programs Committee approve the degree-level certificate in Geomatics, effective May 2022.

That the Academic Programs Committee approve the termination of the minor in Geomatics, effective May 2022.

ATTACHMENTS:

1. Proposal for a degree-level Certificate in Geomatics
2. Report for Program Termination – Minor in Geomatics

UNIVERSITY OF SASKATCHEWAN

Proposal for Academic or Curricular Change

PROPOSAL IDENTIFICATION

Title of proposal: Degree-level Certificate in Geomatics

Field(s) of Specialization: Geomatics

Level(s) of Concentration: Degree-level Certificate

Degree College: Arts & Science

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

Krys Chutko
Assistant Professor, Department of Geography and Planning
krys.chutko@usask.ca
306-966-4907

Alec Aitken
Professor and Head, Department of Geography and Planning
alec.aitken@usask.ca
306-966-5672

Proposed date of implementation: May 2022

Proposal Document

Note that this program revision will replace the Minor in Geomatics with a Certificate in Geomatics.

Spatial (or geographical) data is all around us. We are collecting it at an ever-growing speed through rapid growth of Earth or extraterrestrial observing satellites, ground surveys, and any other research that identifies location as an important variable. The ability to effectively manage, analyze, and display this data is critical to the responsible use of these data. Geomatics, also known as geospatial technology, focuses on the techniques and methods of spatial data collection, analysis, and display. These are used by a wide range of practitioners, including land surveyors, urban planners, wildlife managers, demographers, and geophysicists. This certificate is designed to provide students from a range of disciplines and backgrounds an understanding of geomatics tools and techniques as well as the associated software. Students that complete the certificate will be supplied with the skills necessary to acquire, manage, analyze, and display spatial data using industry-leading techniques and approaches.

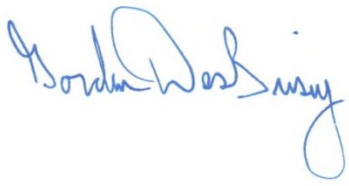
College Statement

From Gordon DesBrisay, Vice-Dean Academic

I am pleased to confirm that the College of Arts and Science supports the replacement of the Minor in Geomatics with a Degree-Level Certificate in this same area of study.

The College strives to provide innovative program options that meet student needs and demand. The current Minor in Geomatic, open only to Arts and Science students, is already well-subscribed, and we feel that the proposed Certificate will further attract students from other colleges or people working in the area who want to add to their existing credentials.

The Academic Programs Committee (BA&Sc) approved the proposal on April 16, 2021, as did the College Faculty Council on May 18, 2021.



Program Description

Degree Level Certificate in Geomatics

The Certificate in Geomatics provides students with a strong and structured understanding of modern technologies and techniques employed in spatial data acquisition and analysis. Students will build a skill set in quantitative analysis through examination of spatial datasets covering a range of disciplines. The primary topics to be covered are geographical information systems, remote sensing, and spatial data analysis. The capstone course in cartography and communication will provide students with the background to convey their work in a professional manner to a wide range of audiences.

Major Average

The major average in the Certificate in Geomatics includes the grades earned in:

- All courses eligible to be used in the program.

Residency Requirements

To receive a Certificate in Geomatics, students must complete at least two-thirds of the following coursework (to the nearest highest multiple of 3 credit units) from the University of Saskatchewan.

- Minimum credit units required in the program

See Residency for additional details.

Requirements (27 credit units)

Students who have no background in computer programming (especially using the Python language) should consider taking CMPT 141.3 to build these skills.

- GEOG 222.3 Introduction to Geomatics
- GEOG 302.3 Quantitative Methods in Geography
- GEOG 322.3 Introduction to Geographic Information Systems
- GEOG 323.3 Remote Sensing
- GEOG 420.3: Cartography and Professional Communication

Choose **3 credit units** from the following:

- GEOG 120.3 Introduction to Global Environmental Systems
- GEOG 125.3 Environmental Science and Society
- GEOG 130.3 Environment, Health and Planning
- GEOG 150.3 Introduction to the Circumpolar World

Choose **3 credit units** from the following:

- PLSC 214.3 Statistical Methods
- STAT 242.3 Statistical Theory and Methodology
- STAT 245.3 Introduction to Statistical Methods
- STAT 246.3 Introduction to Biostatistics

Choose **6 credit units** from the following:

- GEOG 402.3 Spatial Data Analysis [Proposed new course]
- GEOG 423.3: Advanced Remote Sensing
- PLAN 360.3: Urban Data Analysis and Visualization

Note: Students may receive credit for either the Minor in Geomatics or the Certificate in Geomatics, not both.

Rationale: Spatial (or geographical) data is all around us. We are collecting it at an ever-growing speed through rapid growth of Earth or extraterrestrial observing satellites, ground surveys, and any other research that identifies location as an important variable. The ability to effectively manage, analyze, and display this data is critical to the responsible use of these data. Geomatics, also known as geospatial technology, focuses on the techniques and methods of spatial data collection, analysis, and display. These are used by a wide range of practitioners, including land surveyors, urban planners, wildlife managers, demographers, and geophysicists. This certificate is designed to provide students from a range of disciplines and backgrounds an understanding of geomatics tools and techniques as well as the associated software. Students that complete the certificate will be supplied with the skills necessary to acquire, manage, analyze, and display spatial data using industry-leading techniques and approaches.

The Certificate in Geomatics will replace the Minor in Geomatics.

UNIVERSITY OF SASKATCHEWAN

Report Form for Program Termination

Program(s) to be deleted: Geomatics - Minor

Effective date of termination: May 2022

1. List reasons for termination and describe the background leading to this decision.

The Minor in Geomatics will be replaced by the proposed Degree Level Certificate in Geomatics. This change allows the program to be taken by students in all colleges, as well as by students who already have or are not interested in completing a degree.

2. Technical information.

2.1 Courses offered in the program and faculty resources required for these courses.

GEOG 402.3 is proposed as the capstone course for this program, and it will be taught by the Department of Geography and Planning. All other courses included in the program are pre-existing, and are taught on a regular basis.

2.2 Other resources (staff, technology, physical resources, etc.) used for this program.

This program will continue to use the existing resources devoted to the Minor in Geomatics.

2.3 Courses to be deleted, if any.

No courses will be deleted.

2.4 Number of students presently enrolled.

32 students are currently, officially, enrolled in the minor (information taken from Degree Works). It is possible that this number should be higher, as some students do not take steps to declare a Minor until they apply to graduate.

2.5 Number of students enrolled and graduated over the last five years.

This information is not available through Degree Works or Crystal Reports. Students who are continuing in the program as of May 2022 will have the option to receive either the Minor or the Certificate.

3. Impact of the termination.

Internal

3.1 What if any impact will this termination have on undergraduate and graduate students? How will they be advised to complete their programs?

No impact on current students. The courses will all continue to be offered, and students can complete this program within a 10 year period from the time they started.

3.2 What impact will this termination have on faculty and teaching assignments?

None. Courses will continue to be offered.

3.3 Will this termination affect other programs, departments or colleges?

No impact on other programs.

3.4 If courses are also to be deleted, will these deletions affect any other programs?

N/A

3.5 Is it likely, or appropriate, that another department or college will develop a program to replace this one?

Certificate proposed to replace Minor.

3.6 Is it likely, or appropriate, that another department or college will develop courses to replace the ones deleted?

N/A

3.7 Describe any impact on research projects.

No impact. Geomatics will continue to be an area of study.

3.8 Will this deletion affect resource areas such as library resources, physical facilities, and information technology?

No impact.

3.9 Describe the budgetary implications of this deletion.

No impact. One additional course will be added for the Certificate, which will be accommodated within the current department budget.

External

3.10 Describe any external impact (e.g. university reputation, accreditation, other institutions, high schools, community organizations, professional bodies).

3.11 Is it likely or appropriate that another educational institution will offer this program if it is deleted at the University of Saskatchewan?

Replacing the Minor with a Certificate will increase the profile of the program, and open the program to a wider array of students.

Other

3.12 Are there any other relevant impacts or considerations?

Because students in any College may be awarded a Certificate, the change from a Minor to a Certificate may increase the number of students choosing this area of study. This could raise awareness of this option at the University of Saskatchewan.

3.13 Please provide any statements or opinions received about this termination.

N/A

(Optional)

4. Additional information. *Programs which have not undergone recent formal reviews should provide additional relevant information about quality, demand, efficiency, unique features, and relevance to the province.*

N/A

Notice of Intent – Certificate in Geomatics

1. Overview of the program

The proposed program is a change from the Minor in Geomatics to a Certificate in Geomatics. The Certificate will offer a broad examination and application of the tools and techniques used in geomatics, including geographic information systems, remote sensing, and spatial data analysis. Course content focuses on application and problem solving, primarily through the use of specialized software such as *ArcGIS*, *Geomatica*, and *R*. The Certificate compliments the current programs in the Department of Geography and Planning (B.A&Sc. in Environment and Society; B.Sc. in Hydrology; B.A in Regional and Urban Planning). Students enrolled in the current Minor program come from a range of disciplines, including Environmental Biology, Geology, and Modern Languages. The Certificate will build on the quantitative reasoning/numeracy skills training promoted by the College of Arts and Science.

The program will consist of 27 credit units, 24 of which will be required courses from the Department of Geography and Planning, and 3 of which will be selected from a list of relevant introductory STAT, CMPT, and/or PLSC courses.

2. University and/or societal need

Whether we know it or not, humans conduct spatial analysis all of the time. However, to understand spatial relationships better or to make better use of the rapidly growing industry of spatial data collection (eg, Google Earth), training in the science and art of geomatics is needed. Many academic disciplines use spatial data in one way or another, and this Certificate will provide an accessible program for training students in geomatics. The goal of the Certificate is to provide students with the ability to use these data responsibly and accurately in research and decision making. This goal is in line with the University's maxim *The University the World Needs*.

3. Student demand for the program

The Minor in Geomatics has been a popular option for students for several years. In the 2020-21 year, 27 active students were registered in the program, 22 of which are in non-Geography and Planning major programs. The purpose of changing the Minor to a Certificate is to make the program available to students outside the College and for practitioners outside the University, while also maintaining the availability of the program to students within the College.

4. Assessment of perceived need within the National Context

Although an understanding of geomatics and spatial data is needed everywhere, in becomes more important in a country as large as Canada. As Canada, particularly northern Canada, changes in response to the wide variety of external stressors, the ability to rapidly and accurately observe and assess environmental change is critical to support a safe and healthy population. This can be illustrated by the

recent need to evaluate the spread and incidence of COVID-19 throughout Canada, or to evaluate drinking water security shortfalls in remote Indigenous communities.

5. Relationship to University, college and divisional integrated plans

The Certificate in Geomatics will support the integrated plans of the University and the College of Arts and Science. The Certificate in Geomatics is founded on interdisciplinarity and providing students with the tools to make change in their communities. State-of-the-art software is used in the courses and students will gain the ability to responsibly uses these in whatever career they choose to pursue. Geomatics focuses on tools and techniques and the courses included in the Certificate provide application and problem solving skills that students from a range of disciplines will carry into their future.

6. Relationship to other programs offered by the College of Arts and Science

This program is intended to complement and will not compete with the undergraduate programs offered by the Department of Geography and Planning. The Minor in Geomatics, which the Certificate will be replacing, has been a popular addition to students' majors, particularly those in the BSc in Geology and BSc in Environment Biology programs. It is anticipated that this relationship will continue after changing the program to a certificate.

7. Relationship to programs offered elsewhere

Program requirements include the option of 3 credit units of plant science statistics, offered by the College of Agriculture and Bioresources. The change to a certificate program is intended to attract students from outside the College of Arts and Science. This program may also be used as a stepping-stone in the process for Professional Geoscientist certification by the Association of Professional Engineers and Geoscientists of Saskatchewan; GIS, remote sensing, and geostatistics are all identified in the Environmental Geoscience knowledge requirements (note that the program does not offer all courses necessary for certification).

8. Is there justification to proceed regardless of any perceived duplication?

Since this certificate program is replacing a minor program, there is no duplication.

9. Resources for the program

This certificate requires a new course to be added – Spatial Data Analysis. This 3-cu course will require an instructor, and it is anticipated that a tenured or tenure-track faculty member in the Department of Geography and Planning will take this in their assignment of duties. Courses in the Certificate make extensive use of software, all of which is currently licensed by the University. This will continue to be an

ongoing cost. In all other cases, the courses are currently offered on a regular basis by the relevant departments and no additional resources are expected to be required for the Certificate to operate sufficiently.

10. Risks

The risks associated with changing the Minor in Geomatics to a certificate program are minimal. All associated existing courses are offered regularly as required courses in other programs. Any increases in enrollments are anticipated to be absorbed by the relevant courses.

11. Anticipated start date

The program is proposed to begin in May 2022. All of the courses in the program are currently taught on an annual basis. The only constraint is the process to propose and approve the program.

Record of Consultation

On Mon, Feb 22, 2021 at 12:37 PM Chutko, Krystopher <krys.chutko@usask.ca> wrote:

Hi Dr. Stanley. The Department of Geography and Planning is currently replacing our Minor in Geomatics with a Certificate in Geomatics. It is not a complete duplication of the minor but they are largely the same in the core courses. We are also proposing CMPT 141 as an introductory quantitative course option. I would expect any increase in enrollment in the class to be small.

I have attached the program description. Would you please take a look at it and let me know if you have any questions or comments prior to submitting this to the Course Challenge in April.

Thanks
Krys

Krystopher Chutko, PhD
Assistant Professor & Chair, GEPL Environmental Programs
Department of Geography and Planning
Ph: 306-966-4907

From: Kevin Stanley <kstanley@cs.usask.ca>
Sent: February 22, 2021 1:12 PM
To: Chutko, Krystopher
Subject: Re: Certificate in Geomatics

Sounds good. I assumed that this might happen.

Good luck!

Kevin

From: Chutko, Krys
Sent: March 5, 2021 4:12 PM
To: Sowa, Artur
Subject: Certificate in Geomatics
Attachments: CertGeomatics.pdf

Hello Dr. Sowa. The Department of Geography and Planning will be replacing our Minor in Geomatics with a Certificate in Geomatics program. I have attached the program description. I am alerting you to this since we identify several STAT courses as prerequisites in the program. These are not new prerequisites as we already depend on them in the minor. However, if enrollment in the Certificate increases, it may result in an increase in enrollment in the STAT prerequisites. I do not anticipate that increase to be large.

Please let me know if you have any questions or concerns about this. I intend to submit this to the next challenge, therefore I respectfully request any feedback before March 25.

Thank you
Krys

Krystopher Chutko, PhD
Assistant Professor & Chair, GEPL Environmental Programs
Department of Geography and Planning
Ph: 306-966-4907

From: Sowa, Artur <sowa@math.usask.ca>
Sent: April 8, 2021 9:51 AM
To: Chutko, Krys <krys.chutko@usask.ca>
Subject: RE: Certificate in Geomatics

Dear Krys,

I apologize for responding with a delay; it has been a very busy time. Anyhow, I do not have any concerns about the suggested change at present. I wish you a lot of success with the certificate program.

Best wishes,
Artur

From: Chutko, Krys <krys.chutko@usask.ca>
Sent: Wednesday, April 14, 2021 2:54 PM
To: Sowa, Artur <sowa@math.usask.ca>
Subject: Urgent: Proposed course
Importance: High

Hi Dr. Sowa. I made a mistake in my submissions for the proposed Geomatics certificate that I asked you to look at last month. I'm also proposing a new course called Spatial Data Analysis, and I didn't send you a copy of the syllabus to review. The course is intended to complete our undergraduate training in spatial analysis using a range of statistical techniques. Naturally this will overlap with content in several STAT courses. But I feel that the focus on spatial statistics addressed in the course is sufficiently different than the content in the STAT courses. Mapping, using various geocomputing packages in R, will for the underlie the work done in the course.

I have attached the course syllabus. Would you be able to send me your comments and/or concerns by the end of tomorrow so that I can submit them to the next APC meeting. Apologies for the rush on this.

Krys

From: Sowa, Artur
Sent: Thursday, April 15, 2021 9:54 AM
To: Chutko, Krys <krys.chutko@usask.ca>
Subject: RE: Urgent: Proposed course

Hi Krys,

I need to consult with my undergraduate committee. We will try to give some preliminary comments today, if only possible. However, if necessary, more ample remarks would be given at the course challenge stage.

All the best,
Artur
From: Sowa, Artur <sowa@math.usask.ca>
Sent: April 15, 2021 2:37 PM
To: Chutko, Krys <krys.chutko@usask.ca>
Subject: FW: Urgent: Proposed course

Krys, hi again~

So the Undergraduate Committee has voiced some concerns. To be sure, there are no objections to GEOG 402 that is being proposed. However, we see a problem with the stream, and it is concentrated in an inappropriate choice of prerequisites to the prerequisite (GEOG 302). Specifically:

"[We] have consulted with our colleagues who taught STAT 244, 245, 246, and STAT 242 before and/or served on UGC before. Please see below for a collective response from us.

On reviewing the new course proposal and its pre-requisites, we are very concerned about the proposed pre-requisite changes to GEOG 302.
A review of the course description and past course syllabus for GEOG 302 show clearly that GEOG 302 is applied statistics course which needs a complete introductory statistics course as a pre-requisite.
Complete introductory statistics courses are those listed in List a. of the College Statistics Course Regulations (https://programs.usask.ca/arts-and-science/policies.php#StatisticsCourseRegulations)
a. PLSC 214.3, GE 210.3, STAT 242.3, STAT 245.3 STAT 246.3

While there is a review of introductory statistics in the first few weeks of GEOG 302, such a quick review would not be sufficient for students without a List a. course and certainly NOT sufficient for a student with CMPT 141 which does not cover topics in Statistics at all.

Hence the appropriate pre-requisites for GEOG 302 should be:
One of PLSC 214.3, STAT 242.3, STAT 245.3 STAT 246.3 "

I hope this is helpful to you.

Best regards,
Artur

From: Chutko, Krys <krys.chutko@usask.ca>
Sent: Thursday, April 15, 2021 2:58 PM
To: Dahl, Alexis <alexis.dahl@usask.ca>
Cc: Aitken, Alec <alec.aitken@usask.ca>
Subject: FW: Urgent: Proposed course

Hi Alexis. Please see below the response from Math on the proposed GEOG 402 course.

Their concerns, along with the APCs, certainly focus around including CMPT 141 in the program and as a prerequisite for 302. While I stand by my earlier comments, I can see there is little taste for including CMPT 141 in either place. I therefore request that it is removed from both the Certificate in Geomatics proposal and the GEOG 302 minor change.

In the future, we may consider CMPT 141 as a substitution on a case-by-case basis, along with other STAT courses as appropriate.

Please let me know if these changes can be done on your end or if you need me to change the submissions.

Krys

UNIVERSITY OF SASKATCHEWAN

New Course Proposal & Creation Form

1**. Approval by Department Head or Dean**

1.1 College or School with academic authority: **Arts & Science**
1.2 Department with academic authority: **Geography and Planning**
1.3 Term from which the course is effective: **May 2022**

2. **Information required for the Catalogue**

2.1 Label & Number of course: **GEOG 402**
2.2 Academic credit units: **3 credit units**

2.3 Course Long Title (maximum 100 characters): Critical Perspectives on Catholic Studies
Course Short Title (maximum 30 characters): Critical Catholic Studies

2.4 Total Hours: **39** Lecture Seminar **26** Lab Tutorial Other

2.5 Weekly Hours: **3** Lecture Seminar **2** Lab Tutorial Other

2.6 Term in which it will be offered: T1 T2 T1 or T2 T1 and T2

2.7 Prerequisite: **GEOG 222.3 and GEOG 302.3**

If there is a prerequisite waiver, who is responsible for signing it?
D – Instructor/Dept Approval
H – Department Approval
I – Instructor Approval

2.8 Catalogue description (150 words or less):

In 1854, Dr. Snow used basic mapping techniques to identify the source of the deadly cholera outbreak in London. Since then, various spatial analysis techniques have been developed to solve a wide range of location-based problems. This course takes students beyond the art and science of mapping people and places to develop skills in identifying and quantifying relationships amongst those phenomena. Topics include pattern analysis techniques such as hot-spot analysis, considerations for designing spatially-oriented research, spatial regression, and spatial interpolation. Students will develop their understanding of these techniques and relevant software (R/Python) through assignments and a term-long project. This course builds on the skills developed in statistics and mapping courses.

2.9 Do you allow this course to be repeated for credit? **No**

3. **Please list rationale for introducing this course:**

This course will be a capstone course in the proposed Certificate in Geomatics program. This program currently exists as a Minor. This course will act as the data analysis capstone for one of the three pillars of geomatics, i.e. GIS, remote sensing, and spatial data analysis. This course is a direct continuation from GEOG 302: Quantitative Methods in Geography, which introduces students to spatial data analysis. The proposed course will build on this through development of skills in data analysis and digital literacy. This proposed course is needed to support the proposed Certificate to provide advance instruction in spatial data analysis techniques and software related to the discipline of geomatics. The course will prepare students for further undergraduate data-based projects, graduate studies, and a wide range of careers.

4. **Please list the learning objectives for this course:**

See syllabus.

5. **Impact of this course**
   Are the programs of other departments or Colleges affected by this course?
   If so, were these departments consulted? (Include correspondence)
   Were any other departments asked to review or comment on the proposal?

See program proposal.

6. **Other courses or program affected** (please list course titles as well as numbers)
   6.1 Courses to be deleted? **None**
   6.2 Courses for which this course will be a prerequisite? **None**
   6.3 Is this course to be required by your majors, or by majors in another program? **Required for the proposed Certificate in Geomatics.**

7. **Course outline**
   (Weekly outline of lectures or include a draft of the course information sheet.)

See syllabus.

8. **Enrolment**
   8.1 Expected enrollment: **18 students**
   8.2 From which colleges? **15 from Arts & Science; 3 from other colleges.**

9. **Student evaluation**
   Give approximate weighting assigned to each indicator (assignments, laboratory work, mid-term test, final examination, essays or projects, etc.)

   9.1 How should this course be graded?
   C – Completed Requirements
   (Grade options for instructor: Completed Requirements, Fail, IP In Progress)
   N – Numeric/Percentage
   (Grade options for instructor: grade of 0% to 100%, IP in Progress)
   P – Pass/Fail
   (Grade options for instructor: Pass, Fail, In Progress)
   S – Special
   (Grade options for instructor: NA – Grade Not Applicable) If other, please specify:

   9.2 Is the course exempt from the final examination? **Yes**

10. **Required text**
    Include a bibliography for the course.
See syllabus.

11. **Resources**
    11.1 Proposed instructor: **Krystopher Chutko, Scott Bell**
    11.2 How does the department plan to handle the additional teaching or administrative workload? **Teaching and other course expenses will be accommodated within the departmental budget.**
    11.3 Are sufficient library or other research resources available for this course? **Yes**
    11.4 Are any additional resources required (library, audio-visual, technology, etc.)? **No**

12. **Tuition**
    12.1 Will this course attract tuition charges? If so, how much? (use tuition category) **Yes, TC08**

12.2 Does this course require non-standard fees, such as materials or excursion fees? If so, please include an approved "Application for New Fee or Fee Change Form" http://www.usask.ca/sesd/info-for-instructors/program-course-preparation.php#course-fees

No additional fees required

Detailed Course Information

1. Schedule Types
Please choose the Schedule Types that can be used for sections that fall under this course:

Code	Description	Code	Description
CL	Clinical	PRB	Problem Session
COO	Coop Class	RDG	Reading Class
FLD	Field Trip	RES	Research
ICR	Internet Chat Relay	ROS	Roster (Dent Only)
IHP	Internet Help	SEM	Seminar
IN1	Internship - Education	SSI	Supervised Self Instruction
IN2	Internship - CMPT & EPIP	STU	Studio
IN3	Internship - General	SUP	Teacher Supervision
IND	Independent Studies	TEL	Televised Class
LAB	Laboratory	TUT	Tutorial
LC	Lecture/Clinical (Dent Only)	WEB	Web Based Class
LEC	Lecture	XCH	Exchange Program
LL	Lecture/Laboratory (Dent Only)	XGN	Ghost Schedule Type Not Applicable
MM	Multimode	XHS	High School Class
PCL	Pre-Clinical (Dent Only)	XNA	Schedule Type Not Applicable
PRA	Practicum	XNC	No Academic Credit

2. Course Attributes
Please highlight the attributes that should be attached to the course (they will apply to all sections):

2.1 NOAC No Academic Credit
0 Credit Unit courses that possess "deemed" CUs (Called Operational Credit Units). NOAC causes the system to roll 0 academic credit units to academic history.

2.2 For the College of Arts and Science only: To which program type does this course belong?

FNAR Fine Arts
HUM Humanities
SCIE Science
SOCS Social Science
ARNP No Program Type (Arts and Science)

Does this course satisfy one of the official college requirements:

ELWR – English Language Writing Requirement
ILRQ – Indigenous Learning Requirement
QRRQ – Quantitative Reasoning Requirement

3. Registration Information (Note: multi-term courses cannot be automated as corequisites)

3.1 Permission Required: **N/A**
3.2 Restriction(s): course only open to students in a specific college, program/degree, major, year in program **N/A**
3.3 Prerequisite(s): course(s) that must be completed prior to the start of this course
Prerequisite(s): GEOG 222.3 and GEOG 302.3
3.4 Prerequisite(s) or Corequisite(s): course(s) that can be completed prior to or taken at the same time as this course **N/A**
3.5 Corequisite(s): course(s) that must be taken at the same time as this course **N/A**

3.6 Notes: recommended courses, repeat restrictions/content overlap, other additional information

4. List Equivalent Course(s) here: N/A

5. List Mutually-Exclusive Course(s) here: N/A

***Please note:** SiRIUS cannot enforce a situation where the exclusion goes only one way.

6. Additional Notes: N/A

COURSE SYLLABUS

COURSE TITLE:	**Spatial Data Analysis**		
COURSE CODE:	GEOG 402.3 (proposed)	**TERM:**	
COURSE CREDITS:	3 credit units	**DELIVERY:**	
CLASS LOCATION: **CLASS TIME:**		**START DATE:**	

In 1854, Dr. Snow used basic mapping techniques to identify the source of the deadly cholera outbreak in London. Since then, various spatial analysis techniques have been developed to solve a wide range of location-based problems. This course takes students beyond the art and science of mapping people and places to develop skills in identifying and quantifying relationships amongst those phenomena. Topics include pattern analysis techniques such as hot-spot analysis, considerations for designing spatially-oriented research, spatial regression, and spatial interpolation. Students will develop their understanding of these techniques and relevant software (R/Python) through assignments and a term-long project. This course builds on the skills developed in statistics and mapping courses.

Prerequisites: GEOG 222.3 and GEOG 302.3

Learning Outcomes

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

1. Explain the special considerations required for analyzing spatial data;

2. Apply a range of spatial analysis techniques using relevant software;

3. Develop a research project that examines a spatial dataset using the techniques developed in the course.

The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: *http://www.usask.ca/university_secretary/LearningCharter.pdf*.

Possible Resources

Bivand, RS, E Pebesma, and V Gomez-Rubio. 2013. Applied Spatial Data Analysis with R. Springer. 405 pgs.

Brunsdon C, and L Comber. 2015. An Introduction to R for Spatial Analysis & Mapping. Sage Publications.343 pgs.

Chi, G, and J Zhu. 2020. Spatial regression models for the social sciences. Sage Publications. 243 pgs.

Chun, Y, and DA Griffith. 2013. Spatial Statistics & Geostatistics. Sage Publications. 181 pgs.

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Course Overview

Module	Lectures	Topics
1	Spatial sampling	Spatial sampling designs, resampling techniques (bootstrap, jackknife), sample size
2	Spatial autocorrelation	Point-pattern analysis, hot/cold spot analysis
3	Spatial regression models	Spatial lag/error models, geographically weighted regression, spatio-temporal regression models, spatial regression forecasting models
4	Spatial interpolation	IDW/natural neighbor/trend surface analysis, semi-variogram models, kriging
5	Advanced topics	Baysian methods, Markov chain Monte Carlo simulations

Grading Scheme

Assignments	60%
Project	40%
Total	100%

Evaluation Components

Homework assignments

Value: 60% (evenly weighted)

Due Date: Two weeks.

Description: Students will complete six assignments related to spatial data analysis through the course. Assignments will be completed two weeks after assigned and will require students to work outside the scheduled class time. Assignment problems will be demonstrated in the accompanying practicum session. Completion of the assignments will require access to relevant software. Students are required to download software to their personal computers (where possible) or access a University computer in the computer labs or via the virtual lab (vlab.usask.ca). Late assignments will be penalized 10% per day (incl. weekends) and no assignments will be accepted after 1 week past due and will therefore receive a 0 mark.

- *Assignment #1: R refresher*

Building upon training using R in GEOG 302, students will revisit the key data entry and manipulation functions and introduce new packages (eg, `maptools`, `spdep`) designed specifically for spatial data analysis. Data sets used in this assignment will be those included in the R software (eg, `mtcars`, `wrld_smpl`).

- *Assignment #2: Spatial sampling and resampling*

  Using a spatial data set of Saskatoon neighbourhoods, students will explore random sampling techniques using R/Python, such as stratified sampling and hexagonal tessellation. Resampling techniques (eg, bootstrapping, jackknife) will be used to assess bias in sampling estimates.

- *Assignment #3: Spatial autocorrelation*

  Point and areal data will be examined for spatial autocorrelation using various techniques in R/Python (Moran's coefficient, hot spot analysis, kernel density estimation). Automated methods of establishing spatial connectivity will also be addressed. This assignment will add a variety of socioeconomic data to the Saskatoon neighbourhood data set used previously.

- *Assignment #4: Spatial regression models*

  Spatial regression models will be applied to a socioeconomic data set for Saskatchewan, primarily using geographically weighted regression (GWR).

- *Assignment #5: Spatial interpolation*

  The three primary spatial interpolation methods employed by R/Python are inverse distance weighting (IDW) nearest neighbour (Theissen polygons), and kriging. Using a data set of relative humidity across Saskatchewan, students will apply these techniques to generate predicted value surfaces. Cross-validation techniques (eg, validation set, leave-one-out) will be used to assess accuracy of these predictions.

- *Assignment #6: Markov chain Monte Carlo simulations*

  This assignment will introduce students to advanced techniques of determining category transition probabilities in space. A data set of complex sediment facies from an Arctic lake will be used.

Project

Value: 40%

Date: End of term

Description: Students will undertake a project analyzing a spatial data set of their own choosing. Requirements of the data set include: 1) must be spatial in scope, i.e., the data must be georeferenced in some way such that the spatial relationships amongst variables can be analyzed; and 2) the data set must be robust enough to allow for a variety of techniques to be applied, e.g. minimum 5 variables and 20 observations. Using spatial data analysis software of the students choosing (e.g. ArcGIS, R, Python, GeoDa), students will import the data, perform a minimum of 4 distinct spatial analysis techniques, and summarize the results using maps and graphics. Results will be shared with the class via an oral presentation during the final week of term.

Students will be responsible for determining how their own project will be evaluated (e.g. a written report, an oral presentation, or some other form of assessment agreed upon with the course instructor). Project marking rubrics will also be determined by the student in cooperation with the course instructor.

Criteria That Must Be Met to Pass

Students must submit the final project to be eligible to receive a passing grade in this course. Students who fail to meet this criterion will receive a grade of 49% or less, and a grade comment of INF (Incomplete Failure).

Late submissions

Late assignments will be penalized 10% per day, and no assignment will be accepted after 1 week after the due date. Assignments deposited in an incorrect drop box are subject to regular late penalties.

Absences from Class

The instructor for this course is sensitive to situations beyond a student's control that affect their ability to complete assigned work in a timely fashion. Circumstances arise that may require your absence from class. Please inform your course instructor of planned absences (i.e., does not include vacations) in advance so that alternate arrangements can be made to complete the assigned work. In the case of illness or other personal situations, please inform the course instructor of your circumstances within 72 hours of your first absence from class. Requests for extensions exceeding one week beyond the scheduled date for writing an exam will require a written explanation: all other requests will be dealt with informally by the instructor.

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

> All students should read and be familiar with the **Regulations on Academic Student Misconduct** - (http://www.usask.ca/university_secretary/honesty/StudentAcademicMisconduct.pdf)
>
> as well as the **Standard of Student Conduct in Non-Academic Matters** and **Procedures for Resolution of Complaints and Appeals** - (http://www.usask.ca/university_secretary/honesty/StudentNon-AcademicMisconduct2012.pdf).
>
> For more information on what academic integrity means for students see the **Student Conduct & Appeals** section of the University Secretary Website at: http://www.usask.ca/university_secretary/pdf/dishonesty_info_sheet.pdf

Access and Equity Services (AES) for Students

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add/drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit AES or contact their office at 306-966-7273 or aes@usask.ca.

Students registered with AES may request alternative arrangements for midterm and final examinations. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

Student Supports

Student Learning Services

Student Learning Services (SLS) offers assistance to U of S undergraduate and graduate students. For information on specific services, please see the SLS website.

Teaching, Learning and Student Experience

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the University community. For more information, visit Students.

College Supports

Students in Arts & Science are encouraged to contact the Undergraduate Student Office and/or the Trish Monture Centre for Success with any questions on how to choose a major, understand program requirements, choose courses, develop strategies to improve grades, understand University policies and procedures, overcome personal barrier, initiate pre-career inquiries, and identify career planning resources. Contact information is available at UGSO.

Minor course revisions:

GEOG 222.3 Introduction to Geomatics
Prerequisite change:
Old prerequisite(s): 3 credit units of Science courses and 21 credit units of additional University course work.
New prerequisite(s): One of GEOG 120.3, GEOG 125.3, GEOG 130.3, or GEOG 150.3; or 3 credit units of Science courses and 21 credit units of additional University course work.
Rationale: Students who have taken one of the noted Geography courses will have the necessary preparation to be successful in this course.

GEOG 302.3 Quantitative Methods in Geography
Prerequisite change:
Old prerequisite(s): STAT 244 or STAT 245
New prerequisite(s): One of PLSC 214.3, STAT 242.3, STAT 245.3, or STAT 246.3.
Rationale: GEOG 302 is a required course in the proposed Certificate in Geomatics. The expanded prerequisites provide appropriate preparation for this course, as well as a complete pathway for students through the certificate program. The Department of Mathematics and Statistics advised that a "complete introductory statistics course" would be the best prerequisite for this course.

PLAN 360.3 Urban Data Analysis and Visualization
Prerequisite change:
Old prerequisite(s): ECON 211 and GEOG 222
New prerequisite(s): GEOG 222; and one of ECON 211.3, GEOG 302.3, STAT 242.3, STAT 245.3, or STAT 246.3.
Rationale: PLAN 360 is an optional course in the proposed Certificate in Geomatics. The updated prerequisites provide a clear path for non-majors through the certificate. The addition of additional statistics/data analysis courses will provide a more robust set of available prerequisites for students.

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 [ ]

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.

2 What is the name of the new degree, diploma, or certificate?

Certificate in Geomatics [CGEOM - Certificate in Geomatics] - suggested Banner code and description

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

Cert.

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

5 Does this new or renamed degree / diploma / certificate require completion of degree level courses or non-degree level courses, thus implying the attainment of either a degree level or non-degree level standard of achievement?

Degree level

6 If this is a new degree level certificate, can a student take it at the same time as pursuing another degree level program? Yes [X] No [ ]

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:

CGEOM - In Certificate in Geomatics - suggested Banner code and description

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

Arts and Science [AR]

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.

GEOM [Geomatics] - exists in Banner

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? Yes [X] No [ ]

Is an existing program being revised? Yes [ ] No [X]

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

2 If YES, what degree, diploma, or certificate does this new/revised program meet requirements for?

Certificate in Geomatics [CGEOM - Certificate in Geomatics] - suggested Banner code and description

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

Certificate in Geomatics [CGEOM - Certificate in Geomatics] - suggested Banner code and 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 Arts and Science [AR] / Department of Geography and Planning [GEPL]

6 Is this a replacement for a current program? Yes [X] No [ ]

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

Students in the current minor of Geomatics will be allowed to complete or move to the certificate program

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

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

1 year (27 credit units total)

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? If you've answered NO, please continue on to the next section.

Yes [ ] No [X] Revised [ ]

2 If YES, please specify whether it is a major, minor, or concentration. If it is more than one, please fill out a separate form for each.

3 What is the name of this new / revised major, minor, or concentration?

4 Which department is the authority for this major, minor, or concentration? If this is a cross-College relationship, please state the Jurisdictional College and the Adopting College.

5 Which current program(s), degree(s), and/or program type(s) is this new / revised major, minor, or concentration attached to?

Section 5: New / Revised Disciplinary Area for Existing Degree Information (Graduate)

1 Is this a new or revised disciplinary area attached to an existing graduate degree program? If you've answered NO, please continue on to the next section.

Yes [ ] No [X] Revised [ ]

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?

Section 6: New College / School / Center / Department or Renaming of Existing

1	Is this a new college, school, center, or department?	Yes		No	X
	Is an existing college, school, center, or department being renamed?	Yes		No	X
	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 (ie. New degree hood, adjustment to parchments, etc.)?

Section 7: Course Information - as per current set-up

1 Is there a new subject area(s) of course offering proposed for this new degree? If so, what is the subject area(s) and the suggested four (4) character abbreviation(s) to be used in course listings?

2 If there is a new subject area(s) of offerings what College / Department is the academic authority for this new subject area?

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

4 Does the program timetable use standard class time slots, terms, and sessions? Yes ☐ No ☐

If NO, please describe.

5 Does this program, due to pedagogical reasons, require any special space or type or rooms? Yes ☐ No ☐

If YES, please describe.

NOTE: Please remember to submit a new "Course Creation Form" for every new course required for this new program / major. Attached completed "Course Creation Forms" to this document would be helpful.

Section 8: Admissions, Recruitment, and Quota Information - as per current set-up for certificate programs

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

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

3 What is the application deadline for each term(s) students can be admitted to?

4 For undergraduate programs, will students be admitted to one of the approved majors or an undeclared major?

5 For undergraduate programs, if there's more than one degree proposed (ex. 3Y and 4Y), which program/degree will students be admitted to?

6 Does this impact enrollment?

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

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

9 What is the application deadline?

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

11 What is the selection criteria? (IE. If only average then 100% weighting; if other factors such as interview, essay, etc. what is the weighting of each of these in the admission decision.)

12 What are the admission categories and admit types? (IE. High school students and transfer students or one group? Special admission? Aboriginal equity program?)

13 What is the application process? (IE. Online application and supplemental information (required checklist items) through the Admissions Office or sent to the College/Department?)

14 Who makes the admission decision? (IE. Admissions Office or College/Department/Other?)

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

16 Will the standard application fee apply?

17 Will all applicants be charged the fee or will current, active students be exempt?

18 Are international students admissible to this program? Yes No

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

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?

As early as Fall Convocation 2022

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

Expected enrolment is 18 students per year

Section 11: Schedule of Implementation Information

1 What is the start term?

202205 [May 2022]

2 Are students required to do anything prior to the above date (in addition to applying for admission)? 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; undergraduate degree level certificates will use numeric year.)

Numeric year

2 Will students register themselves? Yes [X] No [ ]
If YES, what priority group should they be in?

As per current set-up

Section 13: Academic History Information - as per current set-up

1 Will instructors submit grades through self-serve? Yes [ ] No [ ]
2 Who will approve grades (Department Head, Assistant Dean, etc.)?

Section 14: T2202 Information (tax form)

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

Not eligible for awards for degree graduates but eligible for entering student and continuing student awards (where mandatory minimum credit units are met)

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 [X] No [ ]

If yes, what is the name of the program?

Minor in Geomatics - attached to the following programs
BA3Y Bachelor of Arts (3 Yr)
BA4Y Bachelor of Arts (4 Yr)
BAHON Bachelor of Arts (Honours)
BASC4Y Bach of Arts and Science (4Yr)
BASHON Bach of Art and Science Honour
BFA Bachelor of Fine Arts
BFAHON Bachelor of Fine Arts(Honours)
BMUS Bachelor of Music
BMUSHON Bachelor of Music (Honours)
BSBM3Y Bach of Sc (Biomed Sc) ThreeYr
BSBM4Y Bach of Sc (Biomed Sc) FourYr
BSBMHON Bach of Sc (Biomed Sc) Honours
BSC3Y Bachelor of Science (3 Yr)
BSC4Y Bachelor of Science (4 Yr)
BSCHON Bachelor of Science (Honours)

2 What is the effective date of this termination?

202205 (May 2022)

3 Will there be any courses closed as a result of this termination? Yes [ ] No [X]

If yes, what courses?

4 Are there currently any students enrolled in the program? Yes [X] No [ ]

A search in Degree Works for active students in the College of Arts and Science and the Minor of Geomatics returns 32 students.

If yes, will they be able to complete the program?

Students will have the option to complete the minor or move to the certificate

5 If not, what alternate arrangements are being made for these students?

6 When do you expect the last student to complete this program?

Students are given 10 years to complete; all students must be done by 2030-2031

7 Is there mobility associated with this program termination? Yes [ ] No [X]

If yes, please select one of the following mobility activity types.

Dual Degree Program [ ]
Joint Degree Program [ ]

Internship Abroad Program ☐

Term Abroad Program ☐

Taught Abroad Course ☐

Student Exchange Program ☐

Partnership agreements, coordinated by the International Office, are signed for these types of mobility activities. Has the International Office been informed of this program termination?

Yes ☐ No ☐

Section 18: Proposed Tuition and Student Fees Information - as per current set-up

1 How will tuition be assessed?

Standard Undergraduate per credit	X
Standard Graduate per credit	
Standard Graduate per term	
Non standard per credit*	
Non standard per term*	
Other *	
Program Based*	

* See attached documents for further details

2 If fees are per credit, do they conform to existing categories for per credit tuition? If YES, what category or rate?

3 If program based tuition, how will it be assessed? By credit unit? By term? Elsehow?

4 Does proponent's proposal contain detailed information regarding requested tuition? Yes [ ] No [ ]

If NO, please describe.

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

6 IPA Additional comments?

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

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

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

10 Do standard cancellation fee rules apply?

11 Are there any additional fees (e.g. materials, excursion)? If yes, see NOTE below.

12 Are you moving from one tuition code (TC) to another tuition code? Yes [ ] No [X]

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

13 Are international students admissible to the program? If yes, will they pay the international tuition differential?

Yes - they will pay the international tuition differential

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

Section 19: TLSE - Information Dissemination (internal for TLSE use only)

1	Has TLSE, Marketing and Student Recruitment, been informed about this new / revised program?	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: May 11, 2021

Registrar (Russell Isinger): Approved (by email) - May 11, 2021

College Representative(s): Gordon DesBrisay (by email) - May 20, 2021

IPA Representative(s): Lucy Vuong (by email) - May 11, 2021