1. Approval of the Agenda

2. Approval of the Minutes of the Open Session on May 22, 2018

3. Minutes of the Open Session of June 11, 2018 will be considered for approval at the Senate meeting on September 10, 2018

4. Business Arising from the Minutes

5. Report of the Chair

6. Question Period *

7. Reports of Committees
   A) Senate Committee on Agenda and Rules (SCAR)
      i) Establishment of the School of Environmental Science S.18-70 Addendum S.18-70

   B) Senate Committee on Undergraduate Studies (SCUS)
      i) Program Changes (For Information) S.18-76
      ii) New Course Proposals (For Information) S.18-77
      iii) Course Changes (For Information) S.18-78

   C) Senate Graduate Studies Committee (SGSC)
      i) Program Changes (For Information) S.18-79
      ii) New Course Proposals (For Information) S.18-80
      iii) Course Changes (For Information) S.18-81

   D) Senate Nominating Committee (SNC)
      i) Senate Committee Elections (For Information) S.18-82

8. Other Business

9. Information
   i) Date of the next regular meeting – Monday, September 10, 2018.
Agenda items and papers for the September meeting will be required by the Secretary at noon on Thursday, August 23, 2018. Submissions may be emailed to senate@sfu.ca, but must be followed up by a signed paper submission. These items will be considered by the Senate Committee on Agenda and Rules on Tuesday, August 28, 2018 with Senate distribution on Friday, August 31, 2018

The Senate agenda and papers for this meeting are available on the Senate website at http://www.sfu.ca/senate/agenda.html.

Detailed curriculum papers can be found on Docushare at https://docushare.sfu.ca/dsweb/View/Collection-12682

Rummana Khan Hemani
Registrar

*Questions should be submitted in writing to Rummana Khan Hemani (email khan@sfu.ca) with “Senate Question” in the subject line by Wednesday, July 4th at 9:00 am.
TO: Senate

FROM Andrew Petter
Chair of SCAR

DATE: June 29, 2018

SUBJECT: Establishment of the School of Environmental Science Addendum

Paper S.18-70 - Establishment of the School of Environmental Science was distributed with the agenda for the June 11, 2018 meeting of Senate. Upon presenting the motion, debate commenced and a motion was approved.

“That S.18-70 be tabled to the next meeting of Senate.”

The Senate Committee on Agenda and Rules recommends continuation at the July 9, 2018 meeting of Senate.

MOTION: “That Senate take from the table and continue debate and action on S.18-70 - Establishment of the School of Environmental Science”
MEMORANDUM

ATTENTION: Senate

FROM: Peter Keller, Vice-President, Academic and Provost, and Chair, SCUP

RE: Establishment of the School of Environmental Science (SCUP 18-24)

DATE: May 18, 2018

TEL +1 778 782 3925
FAX +1 778 782 5876
sfu.ca/vpacademic

Simon Fraser University
Strand Hall 3100
8888 University Drive
Burnaby BC
Canada V5A 1S6

At its May 16, 2018 meeting, SCUP reviewed and approved the proposal to establish the School of Environmental Science within the Faculty of Environment.

Motion:

That Senate approve and recommend to the Board of Governors the establishment of the School of Environmental Science within the Faculty of Environment.

c: J. Venditti
I. Leman Stefanovic
MEMORANDUM

TO: Peter Keller, Chair, SCUP
DATE: May 4, 2018
FROM: Ingrid Leman Stefanovic, Dean
RE: School of Environmental Science Proposal

Please find enclosed the proposal to create a School of Environmental Science within the Faculty of Environment. The School will house both the current, highly-successful undergraduate program as well as the Professional Masters of Ecological Restoration, currently offered as a collaborative program between FENV SFU and BCIT.

We ask that the proposal be submitted for consideration at the next SCUP meeting.

Please let me know if you have any questions.

Sincerely,

Ingrid Leman Stefanovic
Dean

Cc: Dr. Jeremy Venditti, Director, Environmental Science Program
    Dr. Alex Clapp, Associate Dean, Undergraduate, Faculty of Environment
    Dr. Dongya Yang, Associate Dean, Graduate and Research, Faculty of Environment
    Ms. Rebecca Ho, Academic Program Coordinator, Faculty of Environment
    Ms. Michele Black, Director of Administration, Faculty of Environment
    Dr. Jon Driver, Special Advisor to the Dean, Faculty of Environment
Proposal for a
School of Environmental Science
Simon Fraser University

May 4, 2018

Jeremy Venditti
Director of Environmental Science
Correspondence: EVSC_Director@sfu.ca

Ingrid Leman Stefanovic
Dean, Faculty of Environment
Correspondence: FENVDean@sfu.ca
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Executive Summary

The Faculty of Environment (FENV) proposes the creation of a new School of Environmental Science, to house the Environmental Science (EVSC) Undergraduate Program as well as the joint SFU/BCIT Graduate Master of Science in Ecological Restoration (MER).

The Environmental Science (EVSC) Undergraduate Program at SFU has been a part of the Faculty of Environment since it was created in 2009. A 2015 external review, as well as an earlier one in 2006 when the program was in the Faculty of Science, have recommended the creation of a new unit structure (either a "department" or a "School") to house the growing program.

The MSc of Ecological Restoration was launched in 2015. Like the EVSC undergraduate program, it is administered through the Dean’s Office at present.

The Faculty of Environment currently functions as a hybrid Faculty, hosting both departments as well as non-departmentalized programs. To facilitate a consistent governance structure, the Dean has expressed the desire to move to a fully departmentalized Faculty. Some changes in this direction have already occurred. Two Bachelor of Environment (BEnv) offerings, previously administered in the Dean’s office, have moved to the Department of Geography and the School of Resource and Environmental Management.

Deans of the Faculty of Environment, Faculty of Science, and Faculty of Health Sciences have begun to meet to discuss harmonizing life sciences programming on campus and those discussions will continue.

Building on the spirit of these conversations, the current proposal aims to provide a more legible, unit-level home for the EVSC and MER programs within a coherent structure that supports their further growth.
1. History and Context

The Environmental Science (EVSC) Undergraduate Program at SFU has provided interdisciplinary science education for more than 20 years. Located in the Faculty of Science since 1995, it remained a smaller undergraduate program with enrolments of approximately 60 students before it was relocated to the Faculty of Environment in 2009. In response to an earlier external review (2006), the program was redesigned and in 2011, the present set of concentrations was launched.

The program historically has operated as a collaboration amongst science departments in both the Faculty of Science and Faculty of Environment. Currently, it offers programming in Applied Biology, Environmental Earth Systems, Environmetrics and Water Science. In the academic year 2014/15, the program went through a second external review process. This statement from the External Reviewers’ report summarizes the current state-of-affairs for the Environmental Science Program:

*The EVSC Program is at a crossroads. It has 234 students currently enrolled, with considerable potential for more, but it needs a better administrative framework, more resources including dedicated space and faculty, and a strategy for growth, with metrics for measuring accomplishment in order for the unit to realize its potential. Programs such as this, which serve a particular need but operate outside a departmental framework, face a variety of challenges and resource limitations. For the EVSC Program to thrive, support needs to be in place at the highest levels of university administration. It is up to SFU and FENV to commit to providing the EVSC Program with the means to develop and grow. The recent appointments of a new Dean of FENV [Faculty of Environment] and a new Director of EVSC make this an opportune time for elevating environmental sciences at SFU to a higher level.*

The reviewers’ recommendations were unambiguous in recommending the reorganization of the program’s administrative and governance framework in the form of a School to house both the EVSC program, as well as other related non-departmentalized FENV programs. The reviewers argued that such a School would provide the students with a centralized home unit where dedicated faculty and staff could be appointed. They also argued that a School would form an interdisciplinary hub to which discipline-based units could continue to contribute course offerings and benefit from course enrollments.

The MSc in Ecological Restoration (MER) is the first graduate programming partnership between SFU and the BC Institute of Technology (BCIT). Launched in 2015, the program accepted 18 graduate students in its first year, an additional 24 in its second year and 25 in the Fall of 2017. The first cohort graduated in 2017. At present, the program is administered through the Dean’s Office with the occasional assistance of the Faculty of Graduate Studies.

Through a formal survey as well as through meetings and informal discussions, students in both programs have expressed a desire for a clearer identity and focus on their field of study at SFU. With the growth of teaching needs within both programs, there is a need to also define a unit that can support

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1 Note the number of majors has risen to 296 in 2016/17.
direct faculty hires. In response to student feedback, as well as to the fact that both programs boast enrolments that exceed that of most FENV departments – there is a need to develop a more meaningful administrative structure for future growth and stability.

2. Interdisciplinary Environmental Governance Models

In Canada, housing interdisciplinary Environmental Science programs within their own administrative units is far from unusual. At present, there are 15 Environmental Science units at Canadian Universities (Table 1; based on an inventory developed by the FENV Dean as part of a SSHRC Insight grant that investigates interdisciplinary environmental programming across the country).

Table 1: Environmental Science units across Canada

<table>
<thead>
<tr>
<th>University</th>
<th>Unit</th>
<th>Year Founded</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Guelph</td>
<td>School of Environmental Sciences</td>
<td>2009</td>
</tr>
<tr>
<td>McGill University</td>
<td>McGill School of Environment</td>
<td>1988</td>
</tr>
<tr>
<td>Acadia University</td>
<td>Department of Environmental Sciences</td>
<td>2006</td>
</tr>
<tr>
<td>Dalhousie University,</td>
<td>Department of Environmental Sciences</td>
<td>Not reported</td>
</tr>
<tr>
<td>Mount Royal University</td>
<td>Department of Environmental Sciences</td>
<td>Not reported</td>
</tr>
<tr>
<td>University of Northern British Columbia</td>
<td>Department of Environmental Sciences</td>
<td>1990s</td>
</tr>
<tr>
<td>Saint Mary’s University</td>
<td>Department of Environmental Sciences</td>
<td>Not reported</td>
</tr>
<tr>
<td>Saint Francis Xavier University</td>
<td>Department of Environmental Sciences</td>
<td>Not reported</td>
</tr>
<tr>
<td>University of Toronto Scarborough</td>
<td>Department of Physical and Environmental Sciences</td>
<td>1980s</td>
</tr>
<tr>
<td>Université de Québec à Trois-Rivières</td>
<td>Sciences de l’Environnement</td>
<td>Not reported</td>
</tr>
<tr>
<td>University of Waterloo</td>
<td>Department of Earth and Environmental Sciences</td>
<td>1969</td>
</tr>
<tr>
<td>University of Windsor</td>
<td>Department of Earth and Environmental Sciences</td>
<td>Not reported</td>
</tr>
<tr>
<td>Carleton University</td>
<td>Institute of Environmental Science</td>
<td>1998</td>
</tr>
<tr>
<td>Université de Québec à Montréal</td>
<td>Institute des sciences de l’environnement</td>
<td>1990s</td>
</tr>
<tr>
<td>Wilfrid Laurier University</td>
<td>Institute for Water Science</td>
<td>2008</td>
</tr>
</tbody>
</table>
These units were created at various stages from 1965 onward. The oldest department that houses environmental science programming was developed at the University of Waterloo. The most recent unit, created in 2009, is the School of Environmental Sciences at the University of Guelph.  

The chart above shows that “Departments” are clearly a preferred designation in a cross-Canadian survey of Environmental Science units. However, the Faculty of Environment prefers to opt for creation of a “School” for a variety of reasons.  

The principal explanation is that, in our view, “departments” are most often historically understood to be disciplinary units. As Rustom Roy (1990) points out in his discussion of disciplinary boundaries, “for all intents and purposes on any one campus, discipline = department.” While interpretations may be changing, a search of dictionary definitions confirms that a department is generally understood to be “a part of an organization...that deals with a particular area of study of work. E.g. Department of Chemistry.” (Cambridge Dictionary).  

Such an understanding of the meaning of “department” does not square with the interdisciplinary nature of Environmental Science programming, nor with the challenges of cross-institutional teaching that occurs in the MER graduate program.  

The concept of a “School,” on the other hand, is open to broader interpretation than a “department”, particularly at SFU where there is a faculty, disciplinary units and several interdisciplinary units that are called “schools.” SFU hosts the Beedie “School” of Business that operates on the level of a Faculty. The Faculty of Applied Sciences supports the Schools of Computing Science, Engineering Science and Mechatronic Systems Engineering and the Faculty of Communication, Art and Technology supports Schools of Communication, Contemporary Arts and Interactive Arts and Technology, all of which operate as independent units. The Faculty of Arts and Social Sciences hosts several schools that support distinctively interdisciplinary undergraduate and graduate programming including the School of Criminology and School for International Studies. In FENV, we support the School of Resource and Environmental Management (REM that functions as an interdisciplinary unit, integrating social and natural sciences.  

The reality is that a “School” can, in principle, point to broader, more flexible, cross-disciplinary academic opportunities in a way that the notion of a department typically cannot. Moreover, a “School” allows for the possibility of a different governance model than a traditional department. While a department often functions as a discrete, independent unit with robust disciplinary boundaries, a School offers the option of a different organizational structure that better accommodates interdisciplinary programming as evidenced by the Schools of Criminology, International Studies and the School of Resource and Environmental Management.  

In fact, instead of supporting a circumscribed, departmental structure, the new School of Environmental Science will be differently organized (Figure 1). The Undergraduate Environmental Science program

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already functions in the manner of a “hub-and-spoke” model: an integrative, interdisciplinary core (hub) of EVSC offerings connects to discipline-based, science courses (spokes), ensuring that the collaboration is more than simply a multi-disciplinary assemblage of courses. Such a structure will continue in the new School because we feel that it is the optimal pedagogical model for delivery of environmental science programs that support the individual scientific disciplines (both in terms of enrolments but also in terms of academic content) while providing an opportunity for interdisciplinary integration within the context of complex environmental concerns. Given that the graduate MSc in Ecological Restoration is itself an innovative, cross-institutional experiment, once again, a School is a more appropriate home for such a program that crosses disciplinary boundaries in interdisciplinary environmental teaching and research.

To be sure, a “School” can, in principle, also function like any other department. The School of Resource and Environmental Management does not have well-defined disciplinary boundaries, but it does operate very much like a department. In the case of the current proposal, there will be some similarities between the School of Environmental Science and other departmental units. For instance, it will support a tenure and promotions committee (TPC) and it will allow for tenured faculty and lecturer appointments to be housed within the unit.

That being said, the new School aims to be an essentially collaborative unit, drawing from other departments across other Faculties and even across other institutions such as BCIT, to ensure delivery of an academically sound, interdisciplinary set of programs to address a complexity of scientific issues arising from a variety of environmental concerns.

![Collaborative Hub-and-Spoke Model](image)

**Figure 1: Contrasting models of unit organization.**

Other sorts of models are possible and have been considered by the FENV Dean, her executive committee and by the EVSC steering committee prior to the decision to pursue a School of Environmental Science. These alternate options included:

1. Distributing the EVSC concentrations to other units in FENV and the Faculty of Science while continuing to administer the graduate MER program within the Dean’s office.
2. Merging the EVSC and MER programs with other FENV units (Geography or REM).

Option #1 above would effectively dismantle the EVSC program – an unwise move, given that the program has strong student interest, is growing and continues to provide enrollments to the disciplinary units within FENV and the Faculty of Science. Dismantling the program would eliminate the central branding of Environmental Science that is attracting students and, ultimately, can legitimately be expected to do damage to those enrollment numbers. The MER program would have to continue to be administered through the Dean’s office because it does not fit into any single FENV unit’s scope, nor has there been expressed interest in adopting the program. A more legible home base for the MER program can be provided by a school without disrupting the current structure of FENV units.

Option #2 was carefully considered in light of expressions of interest by the Chair of the Department of Geography to merge with the EVSC program. Discussions within the EVSC steering committee revealed a number of concerns with this path forward. Primary among the concerns was that merging EVSC with any single, disciplinary unit would damage the collaboration between units that has been the hallmark of the program at SFU since its inception. There is a sense of communal ‘ownership’ of the program by participating (partner) units, which include the Departments of Geography and Resource and Environmental Management (REM) in FENV and the Departments of Biological Sciences, Earth Sciences and Statistics and Actuarial Sciences in the Faculty of Science. Many of the steering committee members felt that all units with representation on the steering committee have an equal say in the direction and future of the EVSC program. Members from the Faculty of Science in particular felt that placing the program into an existing unit in FENV would distance them from the program. The Faculty of Science offers over half the EVSC program (by enrolments), so any dilution of the collaborative structure currently in place, was of major concern to steering committee members and is a major concern to the Director and Dean of the Faculty of Environment.

Furthermore, there has been expressed interest from some units (Archaeology, Chemistry and Statistics and Actuarial Sciences) for greater participation in the program. Given the number of FENV and Science departments which have interest in collaborating in interdisciplinary Environmental Science offerings, placing programs within a single Department would signal the predominance of a single discipline over interdisciplinary collaboration.

Scientific understanding of environmental problems is advanced in significant ways through discipline-based learning at SFU. Nevertheless, complex environmental problems require collaboration amongst the sciences and this needs to be reflected in the education of our students. A School of Environmental Science will serve as an interdisciplinary hub for education that integrates disciplinary expertise from other units, while not replacing disciplinary teaching. This will reinforce the various units by adding course enrolments to the disciplinary units, while allowing EVSC to grow and prosper from the collegial interactions of the various units with some expertise in Environmental Science.

Finally, formation of a School of Environmental Science will provide a unit unlike others in FENV. There exist hybrid units within FENV that combine the humanities, social science and science traditions in teaching and research (Archaeology and Geography), and we support an interdisciplinary unit
integrating social and natural sciences that focuses on management issues (REM). In the Faculty of Science, there are several disciplinary units that house environmental scientists (Biological Sciences, Earth Sciences, Statistics and Actuarial Sciences). There is no unit within the FENV that has the traditions and culture of an interdisciplinary science unit. A School of Environmental Science — supporting undergraduate programs in Environmental Science and a Professional Masters Program in Ecological Restoration — provides an opportunity for a unit that focuses on interdisciplinary science and will form a strong and coherent hub for both teaching and research. Importantly, the formation of a new school provides a unit that can support appointments and the opportunity to develop a faculty cohort to enhance rapidly expanding interdisciplinary science programs at the undergraduate and graduate levels.

3. The Student Experience

Students are the principal driving force behind this proposal. Repeatedly, they have voiced their interest in strengthening the cohort model for the undergraduate program. At the graduate level, they are seeking a more legible sense of belonging to SFU as, occasionally, BCIT has been seen to be their current, exclusive home base — something that we would like to change.

EVSC students are typically passionate about environmental issues, engaged in the community and remarkably proactive about their education. This engagement leads to high quality students. Several of the top scholarships in the university have gone to entering EVSC students in the past few years. Most of the students are attracted to the EVSC program, because it allows them to take a broader range of science courses than available through departmentalized science programs at SFU. They are also adamant that they want a science-based program with the integration of some social sciences to help them better understand the societal context of environmental problems.

On their own initiative, the EVSC Student Union undertook an online survey, designed by them to assess the quality of the program and the student experience. (The Student Union has been in existence since 2001 and is particularly active to this day. Please see http://www.sfu.ca/~evscsu/.) Appendix A presents unedited results, as provided by the steering committee student representative. Students are generally satisfied with the program, but not “extremely satisfied”. They appear to want a greater sense of community within the EVSC program, more courses offered directly by the program to foster a more coherent cohort and to improve scheduling problems across departments and faculties, and opportunities to learn field and laboratory methods that will lead to job opportunities in environmental fields. Their responses leave some room for improvement of the program — improvements that are intended to be addressed through the formation of a School with a more legible cohort program, improved space and dedicated classroom and lab instructors. It is not currently possible to appoint faculty, lecturers, lab instructors and staff to a program, reiterating the need for a school.

While the MSc in Ecological Restoration is still new, the Dean has met with students informally to discuss their experiences within the program. Shortly after that meeting, the Ecological Restoration MSc cohort ratified a constitution for the new Ecological Restoration Student Association (ERSA). For more
Students have expressed the need for a clearer pathway to SFU advisory services and, like their undergraduate colleagues, voiced their desire for a gathering place in the form of a student lounge. They remain confused as to whom to turn to at SFU for guidance and, consequently, appear to draw principally from BCIT for assistance. This is problematic, given that the program is billed as an SFU/BCIT (in that order) joint graduate program.

Recently, and in response to student requests, student lounges have now been put into place and furnished by the Dean’s office within TASC2. All EVSC offices for teaching and advisory staff are also now in one location in TASC 2. We expect that by developing a School, graduate students will similarly find it easier to navigate in locating advisory and administrative support services for the MER program as well.

4. Undergraduate Programming and Enrolments

4.1 Educational Goals and Program

Educational goals for the EVSC program were developed by the EVSC Steering Committee in 2014 and revised in 2016 (See Appendix B). These goals are partly aspirational and currently guide program development. They recognize the need to develop environmental scientists who have a solid grounding in the natural and mathematical sciences as well as core competencies in scientific communication, critical thinking and an understanding of social science perspectives on environmental issues. At the upper division, core competencies and skills are developed thematically through disciplinary course work.

There are three versions of the EVSC program that include the EVSC Major, EVSC Honours and EVSC Cooperative Education. In all three versions, students take a common first year, including courses from Biological Sciences, Geography, Mathematics, Chemistry, Physics and Statistics and Actuarial Science. Students choose from four areas of concentration, for which they complete a series of required lower and upper division courses (see Appendix C for complete program details). The four concentrations are:

1) Applied Biology: Designed to develop a firm background in various aspects of ecology, whole-organism biology, and applied conservation biology.

2) Environmental Earth Systems: Provides students with an integrative coverage of environmental processes and systems, as well as the opportunity to develop technical skills in quantitative methods, geographic information systems and remote sensing.

3) Environmetrics: Designed to provide training in the design and analysis of sampling schemes for environmental monitoring and related experiments.

4) Water Science: Provides a focused interdisciplinary science-based training in hydrologic, climate, and aquatic science, complemented by courses in social sciences and law (governance).
4.2 Enrollments

The EVSC program is the 4th largest science program on campus (Table 2). The size of the EVSC program is now larger than many of the departmentalized BSc programs in the Faculty of Science (e.g. Earth Science, Chemistry, Mathematics, Physics and Statistics). In the Faculty of Science, EVSC program enrolments were ~60 students, but began increasing in 2006 (Table 3). Since establishment of FENV in 2009, enrolments have almost tripled and continue to grow every semester. This can be attributed to marketing in the high schools by SFU Recruitment Services and FENV’s Manager of Recruitment & Community Liaison, and the higher profile the program maintains in FENV than it did in the Faculty of Science.

Table 2: Majors in BSc programs at SFU. Includes Majors only.

<table>
<thead>
<tr>
<th>Program</th>
<th>Faculty</th>
<th>Headcount*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical Physiology &amp; Kinesiology</td>
<td>Science</td>
<td>877</td>
</tr>
<tr>
<td>Department of Molecular Biology and Biochemistry</td>
<td>Science</td>
<td>593</td>
</tr>
<tr>
<td>Department of Biological Sciences</td>
<td>Science</td>
<td>546</td>
</tr>
<tr>
<td>Environmental Sciences Program</td>
<td>Environment</td>
<td>296</td>
</tr>
<tr>
<td>Department of Chemistry</td>
<td>Science</td>
<td>292</td>
</tr>
<tr>
<td>Department of Statistics and Actuarial Science</td>
<td>Science</td>
<td>247</td>
</tr>
<tr>
<td>Department of Mathematics</td>
<td>Science</td>
<td>214</td>
</tr>
<tr>
<td>Department of Physics</td>
<td>Science</td>
<td>194</td>
</tr>
<tr>
<td>Department of Earth Sciences</td>
<td>Science</td>
<td>100</td>
</tr>
<tr>
<td>Department of Geography (BSc Physical Geography)</td>
<td>Environment</td>
<td>34</td>
</tr>
</tbody>
</table>

* Includes majors for the most recent year available from IRP departmental profiles (2016/17), but excludes minors because there is no comparable minor in EVSC.

Most of the increase in enrolments comes from new students entering the program from high schools and the BC college system, where they can undertake two years of studies and then transfer to Bachelor’s degree programs at SFU. Internal transfers within SFU are a significantly smaller proportion of new students. The Director or the EVSC limited-term lecturer attends the British Columbia Environmental Articulation Committee meetings to ensure that college credit transferability is maintained. Continued growth is expected as the brand of the new program becomes better established, but at what rate is not currently clear. Our expectation is for modest growth over the next few years. Prior to its move to the FENV in 2009 and a program redesign completed in 2011, students enrolled in one of 6 different concentrations (Figure 2). The most popular concentration prior was Biology, followed by Physical Geography and Chemistry. The other concentrations were not well
subscribed throughout most of the program’s history. There is substantial increase in enrolments since 2006, which coincides with an increase in majors without a declared concentration, suggesting students were attracted to the environmental science brand, but uncertain about what specific area defined their interests.

Table 3: EVSC program headcounts

<table>
<thead>
<tr>
<th>Year</th>
<th>Honors</th>
<th>Majors</th>
<th>Total</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995/96</td>
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<td>17</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>1996/97</td>
<td>2</td>
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<td>1997/98</td>
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<td>1998/99</td>
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<td>2000/01</td>
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</tr>
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<td>2001/02</td>
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<td></td>
</tr>
<tr>
<td>2006/07</td>
<td>1</td>
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<td>82</td>
<td></td>
</tr>
<tr>
<td>2007/08</td>
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<td>98</td>
<td></td>
</tr>
<tr>
<td>2008/09</td>
<td>0</td>
<td>96</td>
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<td>2009/10</td>
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<td>2011/12</td>
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<td>2012/13</td>
<td>7</td>
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<td>186</td>
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<td>2013/14</td>
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<td>194</td>
<td>201</td>
<td></td>
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<tr>
<td>2014/15</td>
<td>6</td>
<td>248</td>
<td>254</td>
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<tr>
<td>2015/16</td>
<td>7</td>
<td>282</td>
<td>289</td>
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</tr>
<tr>
<td>2016/17</td>
<td>8</td>
<td>288</td>
<td>296</td>
<td></td>
</tr>
</tbody>
</table>

The program was redesigned in 2011 and students can now choose from concentrations in Applied Biology, Environmental Earth Systems, Environmetrics (statistics for environmental scientists) and Water
Science. Figure 2 shows enrollments in all the concentrations have grown. Applied Biology remains the most popular. The Environmental Earth Systems concentration is a close second. Water Science is experiencing rapid growth. It is expected that declarations in the Environmetrics concentration will continue to be low, based on its historical levels of popularity. The popularity of biology-centered concentrations may be partly related to the content of the EVSC 100. For some years, the course content consisted essentially of applied ecology. The current director and EVSC limited-term lecturer have made attempts to broaden the course content to better represent the breadth of the program. Whether this broadens enrollments across the concentrations remains to be seen but the increasing popularity of Environmental Earth Systems and Water Science, both programs dominated by Geography and Earth Science courses at the upper division, suggest some success. The reorganization of the Introduction to Environmental Science course (EVSC 100) and recent appointment of a dedicated limited-term lecturer to teach EVSC courses seem to be having some effect. Many EVSC students have not declared a concentration and they form the largest cohort in the program. In fact, the number of undeclared students is nearly equivalent to the number of declared students. Growth patterns (Figure 3) suggest that these undeclared students will distribute primarily across Applied Biology, Environmental Earth Systems and Water Science.

![Graph showing student enrollments in different concentrations](image)

Figure 2: Students enrolled in the old EVSC concentrations (before fall 2011). The vertical dashed line indicates the year when the new concentrations were launched.

### 4.3 Graduates

A total of 409 degrees have been conferred in EVSC at SFU since 1995 at a rate of approximately 20 per year following the initial startup period (1995-1999) with a slight increase in the past two years (Table
4) Over 50% of the degrees have been conferred to majors in the biology-related concentrations. The average time to completion since 1995 is 5.5 years for students entering from high school and has not significantly changed through time. The formation of a School would support a stronger cohort for the program, which would promote more timely completion because students’ shared experiences will help them direct their own studies.

Figure 3: Students enrolled in the current EVSC program concentrations (since Fall 2011). Students who started the program prior to 2011 were able to declare their concentration in the current program, even though it did not exist when they first registered.

Table 4: Graduates from each EVSC concentration as of Fall 2017

<table>
<thead>
<tr>
<th>New concentrations</th>
<th>Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Biology</td>
<td>56</td>
</tr>
<tr>
<td>Environmental Earth Systems</td>
<td>43</td>
</tr>
<tr>
<td>Environmetrics</td>
<td>12</td>
</tr>
<tr>
<td>Water Science</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Old concentrations</th>
<th>Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological</td>
<td>164</td>
</tr>
<tr>
<td>Chemistry</td>
<td>31</td>
</tr>
<tr>
<td>Environmetrics</td>
<td>7</td>
</tr>
<tr>
<td>Physical Geography</td>
<td>77</td>
</tr>
</tbody>
</table>
4.4 Courses

The EVSC program has historically offered 3 types of courses, which have changed their names and numbering over the years a few times, but the purpose and delivery of those courses have remained the same. The program has always offered: 1) An introductory survey course on the science underlying environmental problems; 2) A laboratory and field methods course; and 3) a seminar course for discussion of the science underlying environmental problems and their societal context. The 2015 External Review of the Environmental Science program recommended several changes intended to: 1) improve cohesion among the student cohort; 2) develop missing skillsets; 3) better align the program with program-level educational goals (Appendix B); and 4) provide a venue to assess program-level goals, which was not possible with the existing EVSC course progression.

In Fall 2017, a new cohort program was introduced (Table 5), which added several new courses to the program and adjusted the existing course sequencing. The successful breadth science course, ‘EVSC 100: Introduction to Environmental Science’, remained unchanged. A new second-year W course entitled ‘EVSC 201W: Environmental Science in Practice’ was developed to help students develop science communications skills and expose students to what environmental scientists do. The course draws upon guest lectures from environmental scientists and practitioners across contributing disciplines and workplaces. The methods course was moved from the second year to the upper division where, it became ‘EVSC 305: Methods in Environmental Science’. This change recognized that students needed more exposure to disciplinary courses before learning field and laboratory methods. The seminar courses which were being taught as single credit pass/fail courses (EVSC 399 and EVSC 499) were consolidated into a single 300-level seminar course called ‘EVSC 300: Environmental Science Seminar’, which is now 3-units and graded. The course provides Environmental Science students the opportunity to investigate an environmental science topic in depth, through lectures and bi-weekly guest speakers from diverse sectors (academia, government, industry and NGOs). In Fall 2017, EVSC 300 focused on Canada’s Climate Adaptation Plan and in Spring 2018, the environmental impacts of the Site C dam on the Peace River in Northern British Columbia. A fourth year, project-based capstone course called ‘EVSC 400: Environmental Science Capstone’ has been created to allow EVSC students to integrate their disciplinary, science backgrounds to solve environmental problems. Project-based coursework will promote collaborative group work, emphasizing research skills, data analysis, scientific writing and communication, preparing students for employment as environmental scientists. The first offering of EVSC 400 was planned to coincide with the Fall 2017 cohort progression to 4th year (Fall 2020), but demand from exiting students switching into the new program necessitates teaching it Fall 2019. A new thesis course ‘EVSC 490: Environmental Science Thesis’ has also been created for the honours program. It is to be completed in the 4th year under the supervision of any SFU faculty member. The course is
designed for those who want to do the honours program, but cannot take the 15 unit Biology thesis courses (BISC 490, 491, 492W) or the Geography Honours Essay (GEOG 491) (see Appendix C).

The EVSC cohort model is further supported by social science courses offered in FENV, which provide a ‘social science perspectives on environmental issues’, a key program-level educational goal (Appendix B). These courses include: Environmental Law (ENV 319), Ethics and the Environment (ENV 320W), Ecological Economics (REM 321) and Institutional Arrangements for Sustainable Environmental Management (REM 356), of which two are required. The new set of required EVSC courses (100, 201W, 300, 305 and 400), and the core social science-perspective courses, provide a set of courses that EVSC students will take together. This provides an opportunity to apply some of the things they learn in their disciplinary Biology, Geography, Earth Science, REM and Statistics courses and a better context for the societal, legal and ethical issues they will deal with in their careers as environmental scientists.

Table 5: EVSC cohort program introduced in Fall 2017

<table>
<thead>
<tr>
<th>Cohort courses in 2017/18</th>
<th>Previously</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVSC 100 Introduction to Environmental Science*</td>
<td>EVPL 200, EVSC 200</td>
</tr>
<tr>
<td>EVSC 201W: Environmental Science in Practice*</td>
<td>New in 2017</td>
</tr>
<tr>
<td>EVSC 300: Environmental Science Seminar*</td>
<td>EVSC 401, EVSC 399, EVSC 499</td>
</tr>
<tr>
<td>EVSC 305: Methods in Environmental Science*</td>
<td>EVSC 491W, EVSC 205</td>
</tr>
<tr>
<td>EVSC 400: Environmental Science Capstone</td>
<td>New in 2017; to be taught in 2019</td>
</tr>
<tr>
<td>EVSC 490: Environmental Science Thesis</td>
<td>New in 2017</td>
</tr>
</tbody>
</table>

*The most recent course outlines and syllabi are included in Appendix D.

The popularity of EVSC courses has increased over time. Figure 4 (top) shows the enrollment in EVSC 100 is dramatically larger than its predecessor EVSC 200, which was taught until 2011. EVSC 100 is a popular breadth science course and increasingly a service course for the university. The enrollments have been increasing because we have been adding sections of the course over the past 5 years. EVSC 100 is now taught in the Fall, Spring and Summer semesters at both the Surrey and Burnaby Campuses. It was also offered at the Vancouver Campus in 2016 as part of the continuing education program. The course routinely fills to capacity and the primary limitation on the number of students enrolled is physical class size. Larger classrooms would facilitate higher enrollments. These expanded offerings of EVSC 100 benefit the program by attracting students to the major who might not have otherwise considered EVSC. It also benefits FENV because it generates revenue under the current responsibility-based budgetary Faculty Allocation Model. There have also been increases in the Methods in Environmental Science class, which routinely has 40-50 students enrolled and the seminar courses that attract >60 students per year from EVSC and REM (Figure 4 bottom).

Co-operative Education (co-op) is a popular option at SFU and the EVSC program is no exception. Participating students alternate semesters on campus and study-related employment. The program includes pre-employment orientation and four full-time, paid work semesters. A major and honors co-
operative education program leading to a B.Sc. degree in Environmental Science is available to qualified students. To enroll in the co-op program, students attend information meetings held in the first two weeks of the semester prior to the semester in which they wish to work. Students seek advice from the FENV coordinator as early as possible in their university careers to facilitate optimal scheduling. There has been a small but noticeable increase in the number of co-op placements as the program has grown (Figure 4 bottom).

Figure 4: Enrollments in EVSC courses. Course codes explained in Table 5. The decline in enrollment in EVSC 100 in 2016/17 was because we reduced the number of sections from 7 to 6 that year. Enrollments in EVSC 399/499 were purposely limited in Spring 2017.
4.5 Overlap and Similar Programming at Simon Fraser University

There are several undergraduate programs that are closely aligned — but also quite distinctive — from the EVSC Program. These include the Physical Geography Program in Geography, the Ecology, Evolution and Conservation stream in Biological Sciences and the Bachelor of Environment Programs in Geography and REM.

**Physical Geography Program in Geography:**
The Department of Geography offers an undergraduate Bachelor of Science in Physical Geography where students can specialize in one of three streams: 1) Biogeophysical Science, 2) Geoscience, 3) Physical Geography and Spatial Information Science. The Biogeophysical Science stream and the Environmental Earth Systems in EVSC are similar. EVSC students have more lower division science requirements, can take a broader range of upper division science electives, and are also offered a broader range of ‘techniques’ courses at the upper division, beyond GIS and remote sensing courses. A further distinction is that Physical Geography students take some Human Geography courses while EVSC students take courses more directly related to the practice of environmental science (environmental ethics, policy/law and economics). Current enrollment in the Physical Geography program is 34 with <10 in the Biogeophysical Science stream.

**Ecology, Evolution and Conservation (EEC) Stream in Biological Sciences:**
The Department of Biological Sciences offers an undergraduate stream in Ecology, Evolution and Conservation (EEC) Stream. The Applied Biology concentration and EEC stream share most lower division courses and many upper division courses. Applied Biology EVSC majors take a greater breadth of science courses than in the EEC stream, including courses from Geography and REM, as well as some social science courses. The EVSC steering committee is currently working with applied biologists in Biological Sciences and REM to identify opportunities to better differentiate the Applied Biology concentration in EVSC from the EEC stream in Biological Sciences. Current enrollment in the EEC stream in Biological Sciences is 46.

**Bachelor of Environment:**
FENV recently developed a new undergraduate Bachelor of Environment (BEnv) credential. The BEnv provides students with a core foundation in earth systems, ecology, biology, the human role in nature, the social and built environments, environmental stewardship and governance and the global scale. Students can choose to specialize in one of two majors: Global Environmental Systems (GES) or Resource and Environmental Management REM). Sustainable Business, a joint major in Business and Environment, is offered collaboratively between the Beedie School of Business and the Faculty of Environment. The BEnv program provides some training in Biology, Ecology and Earth Systems, but focuses on the integration of the social and natural sciences. While the BSc in Environmental Science is also interdisciplinary in incorporating traditional science disciplines, the BEnv is more broadly inclusive of the social sciences and humanities within its curriculum. The BEnv program began in Fall 2014 and,
overall, has exceeded enrolment expectations. There 294 BEnv students enrolled in Spring 2018; 90 students in the GES major, 174 in the REM major and 20 in the Sustainable Business major.

5. Graduate Programming and Enrolments

The aim of the proposed Master of Science in Ecological Restoration (MER) degree is to create a highly qualified personnel talent pool urgently needed in Canada’s ecological restoration industry. The master’s program significantly builds upon the knowledge students gain in their undergraduate degrees, to provide them with the critical thinking and experiential skills to be leaders and educators in the rapidly developing ecological restoration industry. The unique, multi-institutional curriculum aims to produce graduates with an integrated body of knowledge, methods, and tools for advancing the practice and science of restoring degraded ecosystems.

The program, equally shared across SFU and BCIT, requires the completion of a minimum of 36 units at the graduate level, composed of 10 core courses (30 units) and two elective courses in the student’s area of specialization (6 to 10 units). Included in the core program is a capstone applied research project composed of two courses (6 units). Only graduate-level courses will contribute to the requirements for graduation. Students require four academic semesters over two years to complete the degree requirements in the full-time program. Part-time study in the program is not yet an option, but is being considered, which would give working professionals a maximum of six years to complete the program. The calendar entry for the MER program is given in Appendix E.

The conceptual design of the program is shown in Figure 5. Practically, the program is broken into three main areas: 1) the core program; 2) an area of specialization; and 3) an applied research project. All students complete the core program that includes the following courses:

- ECO 611 - Concepts of Ecological Restoration and the Biological Environment
- ECO 621 - Graduate Seminars in Research Methods
- ECO 622 - Project Management & Policy for Ecological Restoration
- ECO 641 - First Nations & Social Perspectives of Ecological Restoration
- ECOR 9100 - Concepts of Ecological Restoration and the Physical Environment
- ECOR 9110 - Planning and Monitoring for Ecological Restoration
- ECOR 9200 - Field Applications of Restoration Principles
- ECOR 9210 - Restoration of Terrestrial Ecosystems or ECOR 9220 (BCIT) - Restoration of Aquatic Ecosystems
- ECO 930/ECOR 9300 Applied Research Project I
- ECO 940/ECOR 0400 Applied Research Project II

ECO courses are taught at SFU’s Burnaby Campus and ECOR courses are taught at BCIT. Course descriptions can be found in Appendix F.
Figure 5. Program structure map for M.Sc. in Ecological Restoration

Students select either terrestrial or aquatic ecosystem restoration as an area of specialization, which determines whether they take ECOR 9210 or ECOR 9220 as part of the core. They then select two courses from a number of elective courses that can support the aquatic or terrestrial restoration clusters at SFU. A selection of relevant courses is given in Table 6. Course selection should focus on integration of the physical and ecological components of ecological restoration.

Table 6: Elective courses available at SFU

<table>
<thead>
<tr>
<th>Aquatic Cluster</th>
<th>Terrestrial Cluster</th>
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<tbody>
<tr>
<td>BISC 829 Conservation Ecology</td>
<td>BISC 829 Conservation Ecology</td>
</tr>
<tr>
<td>EASC 601 Advanced Groundwater Geochemistry</td>
<td>BISC 838 Population Ecology</td>
</tr>
<tr>
<td>GEOG 611 Hydrology</td>
<td>GEOG 617 Soil Science</td>
</tr>
<tr>
<td>GEOG 613 Fluvial Geomorphology</td>
<td>REM 611 Applied Population and Community Ecology</td>
</tr>
<tr>
<td>REM 625 Risk Assessment of Natural Resources</td>
<td>REM 625 Risk Assessment of Natural Resources</td>
</tr>
<tr>
<td>STAT 650 Quantitative Analysis in Resource Management and Field Biology</td>
<td>REM 610 Applied Environmental Toxicology &amp; Environmental Management of Contaminants</td>
</tr>
<tr>
<td></td>
<td>REM 670 Introduction to Forestry</td>
</tr>
<tr>
<td></td>
<td>STAT 650 Quantitative Analysis in Resource Management and Field Biology</td>
</tr>
</tbody>
</table>

In their applied research project, student supervision is facilitated through a collaborative model, with a small group of students organized into project ‘pods’, and each pod is led by a faculty supervisor. Each pod undertakes fieldwork, normally in collaboration with an industry or organizational (e.g. non-profit) partner. Within this relationship, students assess the needs of their research project sponsor, conduct
pre-restoration site assessment, develop a detailed restoration plan, and present the plan to their colleagues and project partners. By way of this collaborative process, students incorporate the best available information, integrated with and adapted to the specific project partner’s needs.

The curriculum is designed to provide students coming into the program from a diversity of environmental and ecological backgrounds with a solid foundation in advanced knowledge and skills, in both the biological and physical attributes of ecosystems and the advanced knowledge of applied approaches fundamental to achieving successful restoration of damaged ecosystems. In addition, the curriculum emphasizes sound project management principles and incorporates development of communication plans to promote respectful community engagement and address varying social perspectives and protocols.

The program is currently overseen by a ‘Graduate Program Committee’ composed of the following members:

1. BCIT’s School of Construction and Environment, Associate Dean
2. SFU’s Faculty of Environment, Associate Dean
3. Program Director
4. BCIT’s Program Champion
5. SFU’s Program Champion
6. Student Representative

The Graduate Program Committee has the following responsibilities:

1. Reviewing applications and advising prospective students on the details of programs and the admission process.
2. Ensuring courses within programs are reviewed regularly and maintained.
3. Implementing and enforcing the regulations, procedures, and policies related to graduate studies at BCIT and SFU.
4. Developing and providing direction and guidance to the Applied Research Committees.

The use of experiential learning is a major strength of the proposed program, with many courses offered in class and/or in the field. A case-based learning methodology is used throughout the program to provide students exposure to restoring ecosystems in other areas of the world. This method is student-centered and involves the exchange of ideas among participants. The instructor’s role is that of a facilitator, while students address problems collaboratively.

Faculty at BCIT and SFU, coupled with sessional instructors, are well suited for this type of delivery. Faculty and sessional instructors are experts in their respective fields and have extensive experience applying ecological and physical theories to natural systems, through research opportunities or restoration initiatives. They are able to draw on numerous local examples, case studies, and the scientific literature to emphasize the learning outcomes for each course, and the program goals overall.
Given that the SFU/BCIT program has required upper-level, institutional approvals on both sides (and is
governed by a Program Agreement), we anticipate little to no change in the actual structure of the
program as it is incorporated within a new School of Environmental Science. As mentioned above,
housing the program within the new School will, however, provide a more robust presence for the
program at SFU, facilitate administrative ownership, leverage program investment opportunities and
enhance student identity.

6. Organization, Governance and Space for the School of
Environmental Science

The School of Environmental Science will be led by a Director, appointed by the Dean with ratification of
the membership of the steering committees. Programming will be overseen by steering committees for
the undergraduate EVSC program and the professional MER graduate program that are already in place
and functioning productively.

The EVSC program is currently governed by a Terms of Reference (TOR) developed by the Dean’s Office
in September 2012 (Appendix G). A steering committee, struck in Fall 2012, oversees the program and is
advisory to the program Director. The committee operates on a consensus basis, formally voting only
when consensus cannot be met. The composition of the Steering Committee is laid out in the TOR and
includes members from the Departments of Archaeology, Biological Sciences, Earth Sciences,
Geography, Statistics and Actuarial Sciences as well as the School of Resource and Environmental
Management.

The MER program is also governed by a Steering Committee (officially, the MER Graduate Program
Committee), which adheres to a Program Agreement, organized between SFU and BCIT in 2015. This
committee similarly operates on a consensus basis. The program is led by a Director who chairs the
steering committee whose membership currently consists of the FENV Associate Dean, Graduate and
Research; Scott Harrison (REM); and two members from BCIT. The current Director is from BCIT and is
appointed for three years, but there is an arrangement in place to have the program directorship shared
between BCIT and SFU, commencing shortly.

The productive and collegial work of these committees will continue. The Director of the School of
Environmental Science can act as the EVSC steering committee chair in the beginning. Ultimately,
however, there is a need to appoint an Undergraduate Program Chair to lead the EVSC steering
committee, freeing the Director of those responsibilities so that he or she may focus more squarely on
guiding the development of the new School of Environmental Science.

In the meantime, both steering committees will be able to continue under the current structure until the
School develops a sufficiently strong base of faculty members who might fill undergraduate and
graduate Chair roles.
At present, there are no formal faculty or teaching appointments made directly to either the EVSC Undergraduate or Graduate MER programs. With the creation of a School, that structure would change. Should faculty members’ appointments shift to the new School, a Tenure and Promotions Committee would be struck by the Director, drawing from membership of the undergraduate and graduate steering committees.

A major problem with the current “program” structure for the undergraduate Environmental Science offerings has been that there is currently nowhere to formally appoint lecturers and faculty to hold positions to teach in that program. Appointment of lecturers and faculty exclusively to partner units is problematic because they will ultimately report to a disciplinary unit’s chair or director and be reviewed biannually by that unit’s Tenure and Promotions Committee (TPC), forming an allegiance to that unit. Favouring one unit over another can prove problematic for a program that is a collaboration between many units. The newly appointed limited-term lecturer in Environmental Science was appointed to Archaeology, the only unit in FENV that does not play a significant role in EVSC, specifically to avoid any potential conflict of interest. Moving this limited-term appointment to a School of Environmental Science and creating a place for future appointments to support the EVSC and MER programs is an obvious priority in the FENV.

With the creation of a School, there is an opportunity to appoint lecturers and research faculty. As a first step, the recently hired EVSC limited-term Lecturer’s appointment (100%) will immediately be moved to the new school from the Archaeology department, where she has been temporarily placed. Such an imminent move was clearly understood by the Chair of Archaeology as a possibility before the limited-term Lecturer was appointed to that department.

The cohort model designed by the EVSC steering committee and the new MER courses require appointments of tenured or tenure-track research faculty. It is particularly important to have faculty with research programs to teach at the upper division and graduate levels. There is currently no direct research capacity in either the EVSC or MER programs (as the MER is a non-thesis Masters program), so it is advisable for the foreseeable future to cross-appoint tenured or tenure-track faculty between disciplinary units and the new School of Environmental Science.

Movement of faculty from existing disciplinary units will be considered on a case by case basis. The FENV Dean supports 100% Lecturers for the new School, but is advising that generally, 50% appointments, cross-listed with departments, will be the preferred model for the first planning period of five years. It is unlikely that existing faculty members will wish to move their appointments to the new School of Environmental Science immediately, given that their existing research programs will continue to benefit from their identities within their own departments.

For budgetary reasons as well as to minimize risks overall, appointments and cross-appointments will be pursued only gradually and with careful consultation between the Director, the Dean, other Deans (where appropriate), collaborating departments and the School’s steering committees around curriculum needs, as well as programming and financial impact. While future, new hires will be considered by the Dean for appointment to the School, cross-appointments for tenure track positions
will be strongly favoured, thereby helping to strengthen both departmental and interdisciplinary teaching and research. Should cross-appointments be proposed between Faculties, approvals will be required not only amongst Chairs/Directors but also at the decanal level as well. Any faculty teaching buyouts across Faculties will be for an agreed portion of existing salary of the faculty member seeking cross-appointment to FENV.

Formal appointments to the School will require teaching courses specifically designed as interdisciplinary science courses to service the EVSC or MER programs, filling gaps between courses taught by disciplinary units. Simply rebranding existing courses from disciplinary units as EVSC or MER courses and moving research faculty positions to the new School of Environmental Science is not part of the current plan. Moreover, moving entire groups of faculty from existing units is not supported by the Dean, given that it risks undermining the discipline-based partner units’ ability to support courses required by the EVSC and MER programs and will ultimately weaken the EVSC and MER collaborative programs. Ideally, appointments to the new School of Environmental Science will be mutually beneficial, providing discipline-based expertise to a unit while contributing to the interdisciplinary science mission of the new School of Environmental Science.

To ensure such benefit, existing faculty hires who wish to pursue cross-appointments to the School will be in accordance with the collective agreement and will require consultation approval (in the following sequence) with:

1. The School Director, to ensure that the cross-appointment is in appropriate alignment with current curricular and program needs;
2. The current departmental Chair or Director;
3. The Dean of a collaborating Faculty, should the faculty member hold a position outside of FENV;
4. The Dean of FENV who will approve budgetary support for such a move;
5. The Vice-President, Academic or his designate.

Faculty Renewal Plans (FRP) for the School will initially focus on providing support for existing EVSC and MER courses and be developed in consultation with the EVSC and MER steering committees. The FRP will be communicated to collaborating department Chairs and relevant Deans if a perceived conflict of interest between the School and collaborating departments is deemed by the FENV Dean to be a realistic possibility. Where cross-appointments of tenure-track research faculty are sought, consultation with cognate department Chairs and relevant Deans will take place.

Should the School propose new hires that clearly show potential to impact resources of departments and schools within the Faculty of Environment, approval shall be sought from relevant Chairs/Directors. In the case of departments significantly affected within other Faculties, consultation and approval will be sought at the decanal level. Curriculum changes that may significantly and adversely impact resources of departments and schools in FENV and other faculties will be addressed at the decanal level, in consultation with the relevant chairs.
Finally, no new space is required for the creation of a School at the present time. As part of the external review process, the students expressed a desire for a clearer, physical identity for the current Undergraduate EVSC program. Consequently, space reorganization has already been undertaken by the Dean's Office. Advisory and administrative staff for both the undergraduate and graduate programs currently sit in the Dean's Office in TASC2. We have made accommodation for the Director of the Program, as well as the limited-term Lecturer and TAs to hold offices within the same location. In addition, the student lounge has been relocated from West Mall to TASC2, providing both an undergraduate and graduate student space. This has helped to form a central, legible location for the programs and greatly enhances the sense of ‘home’ that the EVSC and MER students desire. An approved renovation in TASC2 that is forthcoming will further enhance the visibility of the new School.

7. Budget and Administration

Formation of a School of Environmental Science will have no significant net budgetary consequences for the FENV and will be supported by internal transfers from existing units and the Dean's Office.

From a budgetary perspective, the Environment Science program currently hosts >650 students annually across multiple offerings of five EVSC labelled courses. Currently the FAM model yields approximately $270K per year. The new cohort program that started in Fall 2017 is expected to increase revenues to $400K. The Ecological Restoration Program has a very different complexion, given that it is a joint program between SFU and BCIT. The Program straddles the two institutions in design, with the curriculum divided equally across the two schools, as well as in terms of budgetary matters where revenue and expenses are treated as collective program resources and liabilities. At steady state, the program accommodates 50 students in two cohorts. These enrollment numbers will yield $495K in gross tuition against program expenses. Expenses for both SFU and BCIT are covered and remaining funds are shared equally by each institution.

The costs of delivering the EVSC and MER programs are given in Table 7 and will form the initial budget of the School of Environment Science. The EVSC program complement includes a Program Director (currently from Geography) and one limited term lecturer (currently appointed to Archaeology). The limited term lecturer's salary will be transferred from Archaeology to the new School.

The day-to-day administration of the EVSC and MER programs is currently handled by the FENV Manager, Academic and Administrative Services, who arranges course scheduling, hiring, instructor and TA support, grade submissions, student advising, enrollment management, website changes, calendar entries, event planning, open houses and on-campus recruitment for the Undergraduate EVSC program. This position will be transferred from the Dean's office staff to the new School of Environment – full time for the Manager, Academic and Administrative Services. This position and relevant portions of their salaries will be transferred to the new School.

The remainder of the budget consists of existing costs of temporary instruction and a faculty stipend for representing SFU on the MER program committee as well as a new operating budget for EVSC 305. The
staff, limited-term lecturer and director's offices are located in the Dean's office and will remain there for the foreseeable future.

Table 7: Proposed Budget for School of EVSC

<table>
<thead>
<tr>
<th>Description</th>
<th>Expense</th>
<th>Transfers/Fund Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal Secondment for School Director</td>
<td>$65,000</td>
<td>from Tenure Home</td>
</tr>
<tr>
<td>(50% EVSC / 50% Tenure Home)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited-term Lecturer</td>
<td>$85,000</td>
<td>from Archaeology</td>
</tr>
<tr>
<td>Program Manager</td>
<td>$59,000</td>
<td>from FENV Deans Office</td>
</tr>
<tr>
<td>Temporary Instruction</td>
<td>$140,000</td>
<td>current EVSC budget</td>
</tr>
<tr>
<td>Faculty Stipend MER Grad Program Committee</td>
<td>$6,000</td>
<td></td>
</tr>
<tr>
<td>Benefits</td>
<td>$57,208</td>
<td>as above</td>
</tr>
<tr>
<td>Operating</td>
<td>$15,000</td>
<td>new</td>
</tr>
<tr>
<td>TOTAL EXPENSES</td>
<td>$427,208</td>
<td></td>
</tr>
</tbody>
</table>

8. Collaborating Units: Impact and Support

Formation of a School of Environmental Science provides a strategy to increase awareness of environmental programming at SFU. This elevated stature will support the possibility of increasing the number of undergraduate majors by providing a more identifiable brand on campus to attract undergraduates from secondary schools for EVSC and graduate students for MER. The recent rapid growth of the EVSC and MER programs suggest there is considerable room for further growth.

This is ultimately good for all the units that participate in offering courses for EVSC and MER students, because their own enrollments will increase. Should such enrolment growth be perceived as causing any increased, unanticipated pressure on departments, Chairs should consult with Deans who will seek solutions that are mutually beneficial to the cognate units.

Letters of support, along with some comments from Biology and Geography are provided in Appendix H.
9. Conclusions

The Environmental Science program at SFU has gone through two external reviews in its 22-year history. The first, in 2006, recommended formation of a Department of Environmental Science. This proved impractical because environmental science is inherently interdisciplinary and there are faculty members with an environmental science focus across various departments at SFU. Formation of a department would have excluded and marginalized many of the environmental scientists on campus.

Deans of the Faculty of Environment, Faculty of Science, and Faculty of Health Sciences have begun to meet to discuss harmonizing life sciences programming on campus and those discussions will continue.

The latest external review recommended formation of a School that would serve as a hub for interdisciplinary teaching in environmental science, connecting the units that offer the courses that make up the Environmental Science program. This is a more inclusive strategy that draws on the strengths of the various partner units and reinforces their enrollments.

Formation of a School of Environmental Science is ultimately driven by efforts to improve the experience of undergraduate and graduate students at SFU. It will provide an identifiable, centralized home for EVSC undergraduate and MER graduate students. Students will receive interdisciplinary science training in a unit that has the culture of a science department. The new school will facilitate growth in the EVSC and MER programs by improving their marketability. This ultimately benefits students who become part of a large cohort, improving the social environment in which they learn. The appointment of lecturers and faculty dedicated to integrating disciplinary knowledge and catering to the specific needs of students interested in broad training in science encourages a supportive learning environment.

SFU was founded on the principle that it would do things differently than its larger counterparts across the country and, in doing so, advance unique and innovative programming. This already provides SFU with a competitive edge and reinforces its national reputation as a leader of the future. It is time to build on that legacy by forming a School of Environmental Science.
Appendix A: EVSC Student's Program Evaluation 2014/2015

Survey conducted by the SFU Environmental Science Student Union
Total number of participants: 37
Survey type: web survey

Q1. Why did you choose the environmental science program? Please answer in one sentence?

<table>
<thead>
<tr>
<th>Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>I love the environment and could be called a minor tree hugger. Thought it would be an interesting and fulfilling career in the environmental sector. I also wanted a bachelor of science, so this program seemed very applicable.</td>
</tr>
<tr>
<td>I chose environmental science because of my passion for the environment and the fact that my degree incorporates sciences as well as social science aspects.</td>
</tr>
<tr>
<td>I am interested in science but wanted a degree in something that has more implications for policy and law than perhaps an average general science degree.</td>
</tr>
<tr>
<td>The changes required for a sustainable future can be learned in this program.</td>
</tr>
<tr>
<td>I was interested in combining nature and science in my field of study.</td>
</tr>
<tr>
<td>Both science and environmentalism have always been interesting to me.</td>
</tr>
<tr>
<td>I would love to study weather and climate and impact people's lives!</td>
</tr>
<tr>
<td>I wanted to obtain the skills needed to be able to protect the environment.</td>
</tr>
<tr>
<td>Great development potential.</td>
</tr>
<tr>
<td>Literally an epiphany - I was walking home from school and suddenly realized I want to do what I can to let everyone in the future to experience nature, like I was able to every summer at my grandparent's cabin.</td>
</tr>
<tr>
<td>Passionate to contribute a positive change to the environment.</td>
</tr>
<tr>
<td>Environmental Science I believe allows students to gain a wide and variety of knowledge that is able to combat many issues the world faces at this time.</td>
</tr>
<tr>
<td>I chose this program so that I could be part of a positive change in the environment.</td>
</tr>
<tr>
<td>It is about the most valuable resource: water.</td>
</tr>
<tr>
<td>I chose the SFU Environmental Science because it provided a solid basis in scientific training while also leaving room to elective, more social courses that interested me.</td>
</tr>
<tr>
<td>The information we learn will be useful after graduation. In this field also there are also more job openings.</td>
</tr>
<tr>
<td>I am interested in conserving our natural environment.</td>
</tr>
<tr>
<td>I chose environmental science program because it mixes my love of knowledge with the outdoors.</td>
</tr>
<tr>
<td>Cross between Biology and Geography.</td>
</tr>
<tr>
<td>I like the environment and I felt that the program at SFU would be suitable for my career aspirations.</td>
</tr>
<tr>
<td>I enjoy the subject and want to work in that field.</td>
</tr>
<tr>
<td>It's the perfect fit for me.</td>
</tr>
<tr>
<td>Because this is the only program that connects science with social science and teaches about the environment.</td>
</tr>
</tbody>
</table>
I became interested after taking some zoology courses which made me want to learn more about the ecosystems as a whole and how they are governed and protected.

It combines my interest in physical sciences and social environmental issues

Because I was given information that this was the best program that would lead to my ability to register with APEG

I chose to take environmental science courses because they give more societal context to my other science courses.

More applicable than straight biology. More breadth in the course requirements than many other programs.

I am very interested in how animals are interconnected in the environment.

I understand the urgency of the climate and biodiversity crises and wanted to spend my university years studying in a relevant program

I am interested in learning more about the relationship between humans and nature and how to preserve the environment better. I am also fascinated by natural processes and want to learn more. I felt that this was the right pathway for me and would enable me to find a career that I would love having

Because I am interested in taking Science courses.

It's my personal interest.

I wanted to work in a field that can make the world a better place.

Required as per my degree.

I realized that I was very passionate about environmental issues and learning how to solve them.

Q2. What EVSC concentration are you registered in?

![Bar chart showing distribution of concentrations]

- Applied Biology
- Environmental Earth Systems
- Environmetrics
- Water Science
Q3. What year of study are you in?

Q4. How satisfied are you with your ability to register for EVSC courses?
Q5. How satisfied are you with your ability to register for ENV courses (i.e. ENV 319, 320, 321)?

Q6. How satisfied are you with your ability to register for required courses from other departments (i.e. GEOG, BISC, STAT, EASC, REM)?
Q7. Are you interested in taking more social science courses as part of your degree?

![Bar chart showing responses to Q7]

Q8. If you answered "Yes" to wanting more social science courses, What sort of social science courses do you think should be added to the EVSC program?

<table>
<thead>
<tr>
<th>Course Suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>I haven't really looked at specific classes, but I'm always open to learn new things that interest me. Environmental Human Behavior perhaps, I dunno.</td>
</tr>
<tr>
<td>A course that focuses on how to interact with other people in a professional setting that can be used in a potential work environment</td>
</tr>
<tr>
<td>First nations studies Environmental communications</td>
</tr>
<tr>
<td>More pertaining to environmental policy, or the social aspect of conservation of species.</td>
</tr>
<tr>
<td>More on policy and also integrating other programs.</td>
</tr>
<tr>
<td>REM</td>
</tr>
<tr>
<td>First Nations studies, political science, human geography</td>
</tr>
<tr>
<td>Human geography, more problem solving</td>
</tr>
<tr>
<td>I'm not sure</td>
</tr>
<tr>
<td>more communication and international studies courses</td>
</tr>
<tr>
<td>Courses that focus socioeconomic impacts of construction projects that effect the environment would be useful.</td>
</tr>
<tr>
<td>More courses that teach about community building strategies for environmental projects and about the psychology of environmentalism</td>
</tr>
<tr>
<td>I took an economics course and an organizational behavior course. They were very useful during co-op.</td>
</tr>
<tr>
<td>Participatory Research</td>
</tr>
<tr>
<td>Geography, DEVS, and SCD courses as upper year electives.</td>
</tr>
</tbody>
</table>
Q9. Are you affiliated with a research lab at the university?

Q10. Are you registered in the SFU the co-op program?
Q11. Do you think you gain the technical and background knowledge needed for a job from the courses listed in your stream?

![Bar chart showing response distribution for Q11.](chart1)

Q12. Does the course sequence of EVSC 100, 205, 399 and 499 promote a sense of community among the cohort of EVSC students?

![Bar chart showing response distribution for Q12.](chart2)
Q13. What is the level of difficulty for EVSC 205?

- Difficult: 0
- Easy: 5
- Manageable: 25

Q14. How useful do you find the courses EVSC 399 and 499 in their present* format? (*year 2013 or 2014)

- I took these courses before 2013: 7
- Not useful: 5
- Somewhat useful: 15
- Very useful: 3
Q15. Are there ways the program and director could promote a better sense of community among the EVSC students?

<table>
<thead>
<tr>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erm, for this whole semester I was at surrey and didn't have the time nor energy to go to the EVSC union on the mountain. I dunno, a retreat or something fun?! Events? Fun brings in people, people bring in community.</td>
</tr>
<tr>
<td>Maybe offer more environmental specific courses. More events such as pub nights etc.</td>
</tr>
<tr>
<td>It is a broad program with a large variety of classes that can be taken, which is awesome, but unfortunately it means you have different classmates every semester and rarely take multiple courses with the same group</td>
</tr>
<tr>
<td>By having more environmentally focused events available for students to take part in, and by providing an opportunity to meet with the director in a more relaxed setting at these events</td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td>I really don't feel like our program is a cohort based program because we start at different times in the year and take very different courses. Building community among students can be done through the student union or possibly meet and greets between the ENV office staff and the students in our program at least once a semester</td>
</tr>
<tr>
<td>once the EVSU has more members more social events that are open to all students taking an EVSC course or are an EVSC major.</td>
</tr>
<tr>
<td>Maybe having some events and get-togethers</td>
</tr>
<tr>
<td>The faculty meet and greet is good</td>
</tr>
<tr>
<td>Encouraging students to get involved with the EVSC student union.</td>
</tr>
<tr>
<td>A semesterly event hosted for students!</td>
</tr>
<tr>
<td>I'm not sure, I have only taken one of the classes so far</td>
</tr>
<tr>
<td>Hold more outdoor/hikings events in which EVSC students can attend, such as the Snowshoeing trip to Manning Park. Also help promote the Faulty team room as this would encourage peer interactions.</td>
</tr>
<tr>
<td>More social nights with the faculty and students.</td>
</tr>
<tr>
<td>More research assistant positions and events.</td>
</tr>
<tr>
<td>More events!</td>
</tr>
<tr>
<td>having other EVSC courses not only the 4 required ones and promoting more the student union</td>
</tr>
<tr>
<td>I once attended a Faculty of Environment event in the museum. I met a number of fellow environmental science students at that event. Perhaps more of that type of gathering</td>
</tr>
<tr>
<td>More EVSC courses. There are enough to really get to know anyone. We are spread so thin throughout so many different departments that I hardly recognize people. Plus it makes registration so hard (trying to course plan is impossible) that trying to pick courses with people you know is hard too</td>
</tr>
<tr>
<td>Co-op messes up the whole cohort system. I'll graduate with 5 co-op semesters and I'm taking classes with people who started 2 years after me. Most people I know have now graduated. The EVSC student union is very good. Needs more academic activities, less social stuff. Needs WAYY more participation.</td>
</tr>
<tr>
<td>Maybe an environmental science lounge/area</td>
</tr>
<tr>
<td>Not that I can think of. The student union is well promoted - joining it helps promote the sense of community even more.</td>
</tr>
</tbody>
</table>
Design courses that encourage community work and outreach.
Be more involved in the running of the student union. Move the common room to one of the TASC buildings so it's closer to REM labs and SSB.

Q16 Are you an international student?

Q17. How applicable is the EVSC degree to jobs in other countries?
Q18. Overall, how satisfied are you with your experience in the EVSC program?

![Bar chart showing satisfaction levels]

Q19. Do you have any additional comments?

- Really love EVSC so far, I'm looking forward to upper division courses.
- Love the program! However I feel more like a biology major than an environmental science major and rarely run into other environmental science majors in my classes. I feel as though I have not met that many people in my program...
- Pub nights are good for bonding.
- I am glad that there is now a Bachelor of Environment offered at SFU. Although it is too late in my academic career to switch over, if I were in a position where I could switch over, I would. Environmental Science is great due to its interdisciplinary characteristic - it would be great to either maintain it as is or expand on it.
- The EVSC department and REM department are always the last departments to put next semester on goSFU, making it difficult to plan ahead.
- Host GEOG 310 more frequently! And offer more 4th year physical geography courses.
- I think GIS courses should be required for all streams - it teaches a valuable skill that many companies regard as an asset.
- I'm not sure the increased sense of community as a cohort is worth requiring students to take EVSC 205, 399, and 499 in succeeding spring semesters. It makes course planning harder than it has to be.
- It would be nice to have more organized social events to meet new ppl.
- I would like more emails regarding Co-op opportunities and registration, please.
- Add more science courses.
- I don't feel a sense of community with my fellow students because we have always share classes with BIO CHEM MATH and so, it would be better if EVSC was offer only to EVSC students and if those EVSC courses were taught more than just once a semester. The required courses should be reevaluated in order to fit the profile that is been asked by many companies, when we apply to jobs.
I am on an old stream of applied bio, so perhaps things have changed. But in the sept 2011 program, it is unrealistic to suggest that applied bio grads would be able to take extra courses and be able to apply for RPBio status. It's not just the physiology requirements, it's the number of bio courses needed in total. The EVSC program does not set students up for RPBio, giving us a disadvantage in the largest field of employment in environmental sciences.

I had spoken with 3 different people prior to choosing SFU and enrolling in the EVSC earth systems program. 3 semesters in I discover information I had been given was incorrect and I had wasted my time in terms of APEG designation. NOT impressed.

AUGHHHH I spent 30 minutes writing many thoughtful comments here then my login session expired and they got deleted. The gist of it was: Co-op should be mandatory or more strongly encouraged. I did 4 semesters of co-op so far and it has made my last 2 years of coursework much easier and more valuable. There's no substitute to practicing doing the work we're learning how to do in university. EVSC/REM at SFU is sorta isolated, most of the rest of BC and Canada does not work like the west coast does. Some instructors are biased and spread a culture of hyper-environmentalist that does not translate well to the working world. EVSC 399 was good because we heard presentations from industry/NGOs/DFO, but we need WAYYYY more stuff like that in the program. I fear that many new grads who have not done co-op are going to be shocked and confused by what they see when they leave coastal BC academia.

It would be helpful for upper division courses to be offered more frequently. Especially as a co-op student, it can be very difficult to plan your course schedule without courses conflicting or just courses not being offered.

The worst thing about the degree is that a lot of the courses overlap! I know it's hard to coordinate among all the faculties and departments from which the EVSC requirements are drawn from, but it was very frustrating when courses overlapped and ultimately can't get taken during your BSc (this happened to me with EVSC 205 and STAT 403).
When students complete their Environmental Science degrees they will be able to demonstrate the following:

1. broad understanding of environmental science underpinned by a foundational knowledge of biological and physical sciences, mathematics and statistics
2. ability to critically evaluate scientific studies, interpret data, and synthesize information from multidisciplinary studies
3. effective oral, visual, and written communication, including scientific writing for scientific, government, industrial or general audiences
4. an understanding of social science perspectives on environmental issues, including i) environmental valuation and trade-off analysis, ii) key environmental policies, laws and institutions, and iii) environmental ethics.
5. discipline specific knowledge that focuses on
   a. Applied Biology:
      ways abiotic and biotic processes (both natural and anthropogenic) influence the dynamics of populations, the structure of communities and the function of ecosystems.
   b. Environmental Earth Systems:
      the atmosphere, biosphere, hydrosphere and geosphere, and how these interacting earth systems affect natural and human-modified environments.
   c. Environmetrics:
      statistical and quantitative knowledge as applied to environmental problems, design of monitoring programs for environmental data collection, and the theoretical justifications and implications of statistical decisions, with attention to law, ethics, and economy.
   d. Water Science:
      the fundamental processes affecting the cycling of water through Earth’s systems, water use and consequences of use, water quality, and the role of water in the functioning and dynamics of aquatic ecosystems.
6. proficiency in
   a. Applied Biology:
      sampling and experimental design, quantitative methods of data analysis and interpretation (species classification, estimation of abundance, diversity of one or more taxa, geospatial analysis, population modeling, and multivariate statistical methods).
   b. Environmental Earth Systems:
      quantitative analysis of spatial and temporal dynamics in one or more of Earth’s systems, or interactions among them, utilizing mathematical or
statistical modeling, Geographic Information Systems, remote sensing and field/lab analyses.

c. Environmetrics:
   statistical methods and model selection techniques within statistical software for the analysis of environmental data

d. Water Science:
   quantitative methods of data analysis and interpretation in one or more (or interactions among) aspects of the Earth’s water system, estimating uncertainty, measurement of water fluxes and use, and assessment of aquatic ecosystem health.
Environmental Science Program

Simon Fraser University Calendar | Summer 2018

Environmental Science Major

BACHELOR OF SCIENCE

This program provides a broad education with specialization in one of four areas of concentration: Applied Biology, Environmental Earth Systems, Environmetrics, and Water Science. Students choose one of these areas of concentration and complete the requirements as shown below.

Minimum Grades

The minimum cumulative grade point average (CGPA) for continuation and graduation is 2.00.

Program Requirements

Students complete 120 units, as specified below.

Students choose one of the following areas of emphasis, and complete all the required courses as listed. Additional upper division units will be required to total a minimum of 44 upper division units.

Visit the program overview for a suggested course sequence and for lists of course groupings.

Course Substitutions

Substitutions of program requirements, including courses deemed equivalent to these required courses, are not allowed without written permission from the program. Such courses taken without approval will not be applied to graduation requirements. Students should consult their academic advisor for details on obtaining permission for substitutions.

Applied Biology Area of Concentration

LOWER DIVISION REQUIREMENTS

Students complete all of

BISC 101 - General Biology (4)

BISC 102 - General Biology (4)

BISC 202 - Genetics (3)

BISC 204 - Introduction to Ecology (3)
CHEM 121 - General Chemistry and Laboratory I (4)
CHEM 122 - General Chemistry II (2)
CHEM 126 - General Chemistry Laboratory II (2)
CHEM 215 - Introduction to Analytical Chemistry (4)
EVSC 100 - Introduction to Environmental Science (3)
EVSC 201W - Environmental Science in Practice (4)
GEOG 111 - Earth Systems (3)
REM 100 - Global Change (3)
and one of
MATH 151 - Calculus I (3)
MATH 154 - Calculus I for the Biological Sciences (3)
and one of
MATH 152 - Calculus II (3)
MATH 155 - Calculus II for the Biological Sciences (3)
and one of
PHYS 101 - Physics for the Life Sciences I (3)
PHYS 120 - Mechanics and Modern Physics (3)
and one of
PHYS 102 - Physics for the Life Sciences II (3)
PHYS 121 - Optics, Electricity and Magnetism (3)
and one of
STAT 201 - Statistics for the Life Sciences (3)
STAT 270 - Introduction to Probability and Statistics (3)
UPPER DIVISION REQUIREMENTS
Students complete all of
BISC 316 - Vertebrate Biology (4)
BISC 337 - Plant Biology (4)
EVSC 300 - Seminar in Environmental Science (3)
EVSC 305 - Methods in Environmental Science (3)
EVSC 400 - Environmental Science Capstone (4)
GEOG 316 - Global Biogeochemical and Water Cycles (4)
REM 311 - Applied Ecology and Sustainable Environments (3)
REM 445 - Environmental Risk Assessment (3)
and one of
STAT 302 - Analysis of Experimental and Observational Data (3)
STAT 305 - Introduction to Biostatistical Methods for Health Sciences (3)
and two of
ENV 319 - Environmental Law (3)
ENV 320W - Ethics and the Environment (3)
GEOG 389W - Nature and Society (4)
REM 321 - Ecological Economics (4)
REM 356 - Institutional Arrangements for Sustainable Environmental Management (3)
and two from the following
BISC 300 - Evolution (3)
BISC 306 - Invertebrate Biology (4)
BISC 309 - Conservation Biology (3)
BISC 326 - Biology of Algae and Fungi (3)
BISC 366 - Plant Physiology (3)
BISC 407 - Population Dynamics (3)
BISC 414 - Limnology (3)
BISC 420 - Community Ecology (3)
REM 412 - Environmental Modeling (3)
REM 471 - Forest Ecosystem Management (3)
STAT 403 - Intermediate Sampling and Experimental Design (3)

Environmental Earth Systems Area of Concentration

LOWER DIVISION REQUIREMENTS

Students complete all of

BISC 101 - General Biology (4)
BISC 102 - General Biology (4)
CHEM 121 - General Chemistry and Laboratory I (4)
CHEM 122 - General Chemistry II (2)
EASC 101 - Dynamic Earth (3)
EVSC 100 - Introduction to Environmental Science (3)
EVSC 201W - Environmental Science in Practice (4)
GEOG 111 - Earth Systems (3)

and one of

GEOG 100 - Our World: Introducing Human Geography (3)
REM 100 - Global Change (3)

and two of

GEOG 213 - Introduction to Geomorphology (3)
GEOG 214 - Weather and Climate (3)
GEOG 215 - Biogeography (3)

and one of

GEOG 253 - Introduction to Remote Sensing (3)
GEOG 255 - Geographical Information Science I (3)
and one of

**MATH 151 - Calculus I (3)**

**MATH 154 - Calculus I for the Biological Sciences (3)**

and one of

**MATH 152 - Calculus II (3)**

**MATH 155 - Calculus II for the Biological Sciences (3)**

and one of

**PHYS 101 - Physics for the Life Sciences I (3)**

**PHYS 120 - Mechanics and Modern Physics (3)**

and one of

**PHYS 102 - Physics for the Life Sciences II (3)**

**PHYS 121 - Optics, Electricity and Magnetism (3)**

and one of

**STAT 201 - Statistics for the Life Sciences (3)**

**STAT 270 - Introduction to Probability and Statistics (3)**

**UPPER DIVISION REQUIREMENTS**

Students complete all of

**EVSC 300 - Seminar in Environmental Science (3)**

**EVSC 305 - Methods in Environmental Science (3)**

**EVSC 400 - Environmental Science Capstone (4)**

and two of

**ENV 319 - Environmental Law (3)**

**ENV 320W - Ethics and the Environment (3)**

**GEOG 389W - Nature and Society (4)**

**REM 321 - Ecological Economics (4)**
REM 356 - Institutional Arrangements for Sustainable Environmental Management (3)

and six of, with at least one from the 400 division

BISC 414 - Limnology (3)
EASC 209W - Environmental Geoscience (4) *
EASC 304 - Hydrogeology (3)
EASC 314 - Principles of Glaciology (3)
GEOG 310 - Physical Geography Field Course (4)
GEOG 311 - Hydrology (4)
GEOG 313 - River Geomorphology (4)
GEOG 314 - The Climate System (4)
GEOG 315 - World Ecosystems (4)
GEOG 316 - Global Biogeochemical and Water Cycles (4)
GEOG 317 - Soil Science (4)
GEOG 411 - Advanced Hydrology (4)
GEOG 412W - Glacial Processes and Environments (4)
GEOG 414 - Climate Change (4)
GEOG 417W - Advanced Soil Science (4)

and one of

BISC 309 - Conservation Biology (3)
BISC 420 - Community Ecology (3)
REM 311 - Applied Ecology and Sustainable Environments (3)
REM 445 - Environmental Risk Assessment (3)
REM 471 - Forest Ecosystem Management (3)

and one of

EASC 305 - Quantitative Methods for the Earth Sciences (3)
GEOG 351 - Multimedia Cartography (4)
GEOG 352 - Spatial Analysis (4)
GEOG 353 - Advanced Remote Sensing (4)
GEOG 355 - Geographical Information Science II (4)
GEOG 356 - 3D Geovisualization (4)
REM 412 - Environmental Modeling (3)
STAT 302 - Analysis of Experimental and Observational Data (3)

* Students who select this course may be required to complete additional upper division units to meet their degree requirements. Please see the Environmental Science Advisor.

Environmental Area of Concentration

LOWER DIVISION REQUIREMENTS

Students complete all of
BISC 101 - General Biology (4)
BISC 102 - General Biology (4)
CHEM 121 - General Chemistry and Laboratory I (4)
CHEM 122 - General Chemistry II (2)
EVSC 100 - Introduction to Environmental Science (3)
EVSC 201W - Environmental Science in Practice (4)
GEOG 111 - Earth Systems (3)
MATH 232 - Applied Linear Algebra (3)
MATH 251 - Calculus III (3)
REM 100 - Global Change (3)
STAT 270 - Introduction to Probability and Statistics (3)
STAT 285 - Intermediate Probability and Statistics (3)

and one of
MATH 151 - Calculus I (3)
MATH 154 - Calculus I for the Biological Sciences (3)

and one of

MATH 152 - Calculus II (3)

MATH 155 - Calculus II for the Biological Sciences (3)

and one of

PHYS 101 - Physics for the Life Sciences I (3)

PHYS 120 - Mechanics and Modern Physics (3)

and one of

PHYS 102 - Physics for the Life Sciences II (3)

PHYS 121 - Optics, Electricity and Magnetism (3)

UPPER DIVISION REQUIREMENTS

Students complete all of

EVSC 300 - Seminar in Environmental Science (3)

EVSC 305 - Methods in Environmental Science (3)

EVSC 400 - Environmental Science Capstone (4)

STAT 350 - Linear Models in Applied Statistics (3)

STAT 410 - Statistical Analysis of Sample Surveys (3)

STAT 430 - Statistical Design and Analysis of Experiments (3)

and two of

ENV 319 - Environmental Law (3)

ENV 320W - Ethics and the Environment (3)

GEOG 389W - Nature and Society (4)

REM 321 - Ecological Economics (4)

REM 356 - Institutional Arrangements for Sustainable Environmental Management (3)

and one of

EVSC School Proposal: EVSC Calendar Entry
STAT 341 - Introduction to Statistical Computing and Exploratory Data Analysis - R (2)

STAT 342 - Introduction to Statistical Computing and Exploratory Data Analysis - SAS (2)

and one of

STAT 445 - Applied Multivariate Analysis (3)

STAT 475 - Applied Discrete Data Analysis (3)

STAT 485 - Applied Time Series Analysis (3)

plus 12 upper division units from the Faculty of Environment or the Faculty of Science with approval from the Director.

Water Science Area of Concentration

LOWER DIVISION REQUIREMENTS

Students complete all of

BISC 101 - General Biology (4)

BISC 102 - General Biology (4)

CHEM 121 - General Chemistry and Laboratory I (4)

CHEM 122 - General Chemistry II (2)

CHEM 126 - General Chemistry Laboratory II (2)

EASC 101 - Dynamic Earth (3)

EVSC 100 - Introduction to Environmental Science (3)

EVSC 201W - Environmental Science in Practice (4)

GEOG 111 - Earth Systems (3)

GEOG 213 - Introduction to Geomorphology (3)

GEOG 214 - Weather and Climate (3)

and one of

BISC 204 - Introduction to Ecology (3)

GEOG 215 - Biogeography (3)

and one of
GEOG 253 - Introduction to Remote Sensing (3)

GEOG 255 - Geographical Information Science I (3)

and one of

MATH 151 - Calculus I (3)

MATH 154 - Calculus I for the Biological Sciences (3)

and one of

MATH 152 - Calculus II (3)

MATH 155 - Calculus II for the Biological Sciences (3)

and one of

PHYS 101 - Physics for the Life Sciences I (3)

PHYS 120 - Mechanics and Modern Physics (3)

and one of

PHYS 102 - Physics for the Life Sciences II (3)

PHYS 121 - Optics, Electricity and Magnetism (3)

and one of

STAT 201 - Statistics for the Life Sciences (3)

STAT 270 - Introduction to Probability and Statistics (3)

UPPER DIVISION REQUIREMENTS

Students complete all of

BISC 414 - Limnology (3)

EASC 304 - Hydrogeology (3)

EASC 315W - Geochemistry of Natural Waters (3)

EVSC 300 - Seminar in Environmental Science (3)

EVSC 305 - Methods in Environmental Science (3)

EVSC 400 - Environmental Science Capstone (4)
GEOG 311 - Hydrology (4)
GEOG 313 - River Geomorphology (4)
GEOG 316 - Global Biogeochemical and Water Cycles (4)

and two of

ENV 319 - Environmental Law (3)
ENV 320W - Ethics and the Environment (3)
GEOG 389W - Nature and Society (4)
REM 321 - Ecological Economics (4)
REM 356 - Institutional Arrangements for Sustainable Environmental Management (3)

and three of, with at least one from the 400 division

EASC 314 - Principles of Glaciology (3)
EASC 405 - Water, Environment, and Climate Change (3)
EASC 410 - Groundwater Contamination and Transport (3)
EASC 416 - Field and Lab Techniques in Hydrogeology (3)
GEOG 310 - Physical Geography Field Course (4)
GEOG 314 - The Climate System (4)
GEOG 317 - Soil Science (4)
GEOG 411 - Advanced Hydrology (4)
GEOG 412W - Glacial Processes and Environments (4)
GEOG 414 - Climate Change (4)
GEOG 417W - Advanced Soil Science (4)
REM 412 - Environmental Modeling (3)
REM 445 - Environmental Risk Assessment (3)
Environmental Science Honours

BACHELOR OF SCIENCE

This honours program provides a broad education with specialization in one of four areas of concentration: Applied Biology, Environmental Earth Systems, Environmetrics, and Water Science. Students choose one of these areas of concentration and complete the requirements as shown below.

Minimum Grades

The minimum cumulative grade point average (CGPA) for continuation and graduation is 3.00.

Program Requirements

This program requires 120 units including writing, quantitative and breadth requirements. At least 60 units must be in upper division courses. Exceptions must be approved by a faculty advisor. Other courses may be substituted subject to the approval of a faculty advisor.

University and Faculty of Environment regulations also apply.

Visit the program overview for a suggested course sequence and for lists of course groupings.

Course Substitutions

Substitutions of program requirements, including courses deemed equivalent to these required courses, are not allowed without written permission from the program. Such courses taken without approval will not be applied to graduation requirements. Students should consult their academic advisor for details on obtaining permission for substitutions.

Applied Biology Area Of Concentration

LOWER DIVISION REQUIREMENTS

Students complete all of

BISC 101 - General Biology (4)

BISC 102 - General Biology (4)

BISC 202 - Genetics (3)

BISC 204 - Introduction to Ecology (3)

CHEM 121 - General Chemistry and Laboratory I (4)

CHEM 122 - General Chemistry II (2)

CHEM 126 - General Chemistry Laboratory II (2)
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<td>Introduction to Analytical Chemistry</td>
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<td>Introduction to Environmental Science</td>
<td>(3)</td>
</tr>
<tr>
<td>EVSC 201W</td>
<td>Environmental Science in Practice</td>
<td>(4)</td>
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<td>GEOG 111</td>
<td>Earth Systems</td>
<td>(3)</td>
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<td>REM 100</td>
<td>Global Change</td>
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<td>Mechanics and Modern Physics</td>
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<tr>
<td>PHYS 121</td>
<td>Optics, Electricity and Magnetism</td>
<td>(3)</td>
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<tr>
<td>STAT 201</td>
<td>Statistics for the Life Sciences</td>
<td>(3)</td>
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<tr>
<td>STAT 270</td>
<td>Introduction to Probability and Statistics</td>
<td>(3)</td>
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<td>UPPER DIVISION REQUIREMENTS</td>
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<tr>
<td>BISC 316</td>
<td>Vertebrate Biology</td>
<td>(4)</td>
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<td>BISC 337</td>
<td>Plant Biology</td>
<td>(4)</td>
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<td>BISC 490</td>
<td>Research Design</td>
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</table>
BISC 491 - Research Technique (5)

BISC 492W - Research Reporting (5) or EVSC 490 - Environmental Science Thesis (4)

EVSC 300 - Seminar in Environmental Science (3)
EVSC 305 - Methods in Environmental Science (3)
EVSC 400 - Environmental Science Capstone (4)
GEOG 316 - Global Biogeochemical and Water Cycles (4)
REM 311 - Applied Ecology and Sustainable Environments (3)
REM 445 - Environmental Risk Assessment (3)

and one of

STAT 302 - Analysis of Experimental and Observational Data (3)
STAT 305 - Introduction to Biostatistical Methods for Health Sciences (3)

and two of

ENV 319 - Environmental Law (3)
ENV 320W - Ethics and the Environment (3)
GEOG 389W - Nature and Society (4)
REM 321 - Ecological Economics (4)
REM 356 - Institutional Arrangements for Sustainable Environmental Management (3)

and two from the following

BISC 300 - Evolution (3)
BISC 306 - Invertebrate Biology (4)
BISC 309 - Conservation Biology (3)
BISC 326 - Biology of Algae and Fungi (3)
BISC 366 - Plant Physiology (3)
BISC 407 - Population Dynamics (3)
BISC 414 - Limnology (3)
BISC 420 - Community Ecology (3)
REM 412 - Environmental Modeling (3)
REM 471 - Forest Ecosystem Management (3)
STAT 403 - Intermediate Sampling and Experimental Design (3)

Environmental Earth Systems Area Of Concentration

LOWER DIVISION REQUIREMENTS

Students complete all of

BISC 101 - General Biology (4)
BISC 102 - General Biology (4)
CHEM 121 - General Chemistry and Laboratory I (4)
CHEM 122 - General Chemistry II (2)
EASC 101 - Dynamic Earth (3)
EVSC 100 - Introduction to Environmental Science (3)
EVSC 201W - Environmental Science in Practice (4)
GEOG 111 - Earth Systems (3)

and one of

GEOG 100 - Our World: Introducing Human Geography (3)
REM 100 - Global Change (3)

and two of

GEOG 213 - Introduction to Geomorphology (3)
GEOG 214 - Weather and Climate (3)
GEOG 215 - Biogeography (3)

and one of

GEOG 253 - Introduction to Remote Sensing (3)
GEOG 255 - Geographical Information Science I (3)
and one of

MATH 151 - Calculus I (3)

MATH 154 - Calculus I for the Biological Sciences (3)

and one of

MATH 152 - Calculus II (3)

MATH 155 - Calculus II for the Biological Sciences (3)

and one of

PHYS 101 - Physics for the Life Sciences I (3)

PHYS 120 - Mechanics and Modern Physics (3)

and one of

PHYS 102 - Physics for the Life Sciences II (3)

PHYS 121 - Optics, Electricity and Magnetism (3)

and one of

STAT 201 - Statistics for the Life Sciences (3)

STAT 270 - Introduction to Probability and Statistics (3)

UPPER DIVISION REQUIREMENTS

Students complete all of

EVSC 300 - Seminar in Environmental Science (3)

EVSC 305 - Methods in Environmental Science (3)

EVSC 400 - Environmental Science Capstone (4)

EVSC 490 - Environmental Science Thesis (4) or GEOG 491 - Honours Essay (4)

and two of

ENV 319 - Environmental Law (3)

ENV 320W - Ethics and the Environment (3)

GEOG 389W - Nature and Society (4)
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<th>Credits</th>
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<td>REM 356</td>
<td>Institutional Arrangements for Sustainable Environmental Management</td>
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<td>Environmental Geoscience</td>
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<td>EASC 304</td>
<td>Hydrogeology</td>
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<td>EASC 314</td>
<td>Principles of Glaciology</td>
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<td>GEOG 310</td>
<td>Physical Geography Field Course</td>
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<td>GEOG 311</td>
<td>Hydrology</td>
<td>4</td>
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<td>GEOG 313</td>
<td>River Geomorphology</td>
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<td>GEOG 314</td>
<td>The Climate System</td>
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<td>GEOG 315</td>
<td>World Ecosystems</td>
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<tr>
<td>GEOG 316</td>
<td>Global Biogeochemical and Water Cycles</td>
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<td>GEOG 317</td>
<td>Soil Science</td>
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<td>GEOG 411</td>
<td>Advanced Hydrology</td>
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<td>GEOG 412W</td>
<td>Glacial Processes and Environments</td>
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<td>GEOG 414</td>
<td>Climate Change</td>
<td>4</td>
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<tr>
<td>GEOG 417W</td>
<td>Advanced Soil Science</td>
<td>4</td>
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<tr>
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<td>BISC 309</td>
<td>Conservation Biology</td>
<td>3</td>
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<td>BISC 420</td>
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<td>REM 311</td>
<td>Applied Ecology and Sustainable Environments</td>
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<td>REM 445</td>
<td>Environmental Risk Assessment</td>
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<td>REM 471</td>
<td>Forest Ecosystem Management</td>
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* EVSC School Proposal: EVSC Calendar Entry
EASC 305 - Quantitative Methods for the Earth Sciences (3)

GEOG 351 - Multimedia Cartography (4)

GEOG 352 - Spatial Analysis (4)

GEOG 353 - Advanced Remote Sensing (4)

GEOG 355 - Geographical Information Science II (4)

GEOG 356 - 3D Geovisualization (4)

REM 412 - Environmental Modeling (3)

STAT 302 - Analysis of Experimental and Observational Data (3)

* Students who select this course may be required to complete additional upper division units to meet their degree requirements. Please see the Environmental Science Advisor.

Environmetrics Area Of Concentration

LOWER DIVISION REQUIREMENTS

Students complete all of

BISC 101 - General Biology (4)

BISC 102 - General Biology (4)

CHEM 121 - General Chemistry and Laboratory I (4)

CHEM 122 - General Chemistry II (2)

EVSC 100 - Introduction to Environmental Science (3)

EVSC 201W - Environmental Science in Practice (4)

GEOG 111 - Earth Systems (3)

MATH 232 - Applied Linear Algebra (3)

MATH 251 - Calculus III (3)

REM 100 - Global Change (3)

STAT 270 - Introduction to Probability and Statistics (3)

STAT 285 - Intermediate Probability and Statistics (3)

and one of
MATH 151 - Calculus I (3)
MATH 154 - Calculus I for the Biological Sciences (3)

and one of

MATH 152 - Calculus II (3)
MATH 155 - Calculus II for the Biological Sciences (3)

and one of

PHYS 101 - Physics for the Life Sciences I (3)
PHYS 120 - Mechanics and Modern Physics (3)

and one of

PHYS 102 - Physics for the Life Sciences II (3)
PHYS 121 - Optics, Electricity and Magnetism (3)

UPPER DIVISION REQUIREMENTS

Students complete all of

EVSC 300 - Seminar in Environmental Science (3)
EVSC 305 - Methods in Environmental Science (3)
EVSC 400 - Environmental Science Capstone (4)
EVSC 490 - Environmental Science Thesis (4)
STAT 350 - Linear Models in Applied Statistics (3)
STAT 410 - Statistical Analysis of Sample Surveys (3)
STAT 430 - Statistical Design and Analysis of Experiments (3)

and two of

ENV 319 - Environmental Law (3)
ENV 320W - Ethics and the Environment (3)
GEOG 389W - Nature and Society (4)
REM 321 - Ecological Economics (4)
REM 356 - Institutional Arrangements for Sustainable Environmental Management (3)
and one of

STAT 341 - Introduction to Statistical Computing and Exploratory Data Analysis - R (2)
STAT 342 - Introduction to Statistical Computing and Exploratory Data Analysis - SAS (2)
and one of

STAT 445 - Applied Multivariate Analysis (3)
STAT 475 - Applied Discrete Data Analysis (3)
STAT 485 - Applied Time Series Analysis (3)

plus 12 upper division science based units with approval from the Director.

Water Science Area Of Concentration

LOWER DIVISION REQUIREMENTS

Students complete all of

BISC 101 - General Biology (4)
BISC 102 - General Biology (4)
CHEM 121 - General Chemistry and Laboratory I (4)
CHEM 122 - General Chemistry II (2)
CHEM 126 - General Chemistry Laboratory II (2)
FASC 101 - Dynamic Earth (3)
EVSC 100 - Introduction to Environmental Science (3)
EVSC 201W - Environmental Science in Practice (4)
GEOG 111 - Earth Systems (3)
GEOG 213 - Introduction to Geomorphology (3)
GEOG 214 - Weather and Climate (3)
and one of

BISC 204 - Introduction to Ecology (3)
GEOG 215 - Biogeography (3)

and one of

GEOG 253 - Introduction to Remote Sensing (3)

GEOG 255 - Geographical Information Science I (3)

and one of

MATH 151 - Calculus I (3)

MATH 154 - Calculus I for the Biological Sciences (3)

and one of

MATH 152 - Calculus II (3)

MATH 155 - Calculus II for the Biological Sciences (3)

and one of

PHYS 101 - Physics for the Life Sciences I (3)

PHYS 120 - Mechanics and Modern Physics (3)

and one of

PHYS 102 - Physics for the Life Sciences II (3)

PHYS 121 - Optics, Electricity and Magnetism (3)

and one of

STAT 201 - Statistics for the Life Sciences (3)

STAT 270 - Introduction to Probability and Statistics (3)

UPPER DIVISION REQUIREMENTS

Students complete all of

BISC 414 - Limnology (3)

EASC 304 - Hydrogeology (3)

EASC 315W - Geochemistry of Natural Waters (3)

EVSC 300 - Seminar in Environmental Science (3)
EVSC 305 - Methods in Environmental Science (3)
EVSC 400 - Environmental Science Capstone (4)
EVSC 490 - Environmental Science Thesis (4)
GEOG 311 - Hydrology (4)
GEOG 313 - River Geomorphology (4)
GEOG 316 - Global Biogeochemical and Water Cycles (4)
and two of
ENV 319 - Environmental Law (3)
ENV 320W - Ethics and the Environment (3)
GEOG 389W - Nature and Society (4)
REM 321 - Ecological Economics (4)
REM 356 - Institutional Arrangements for Sustainable Environmental Management (3)
and three of, with at least one from the 400 division
EASC 314 - Principles of Glaciology (3)
EASC 405 - Water, Environment, and Climate Change (3)
EASC 410 - Groundwater Contamination and Transport (3)
EASC 416 - Field and Lab Techniques in Hydrogeology (3)
GEOG 310 - Physical Geography Field Course (4)
GEOG 314 - The Climate System (4)
GEOG 317 - Soil Science (4)
GEOG 411 - Advanced Hydrology (4)
GEOG 412W - Glacial Processes and Environments (4)
GEOG 414 - Climate Change (4)
GEOG 417W - Advanced Soil Science (4)
REM 412 - Environmental Modeling (3)
Appendix D: EVSC Course Syllabi

Syllabus for EVSC 100 for Spring 2018
Syllabus for EVSC 201W for Fall 2017
Syllabus for EVSC 300 for Spring 2018
Syllabus for EVSC 305 for Spring 2018
**Course Description**

EVSC100 introduces students to environmental science: a highly interdisciplinary, collaborative field of research that integrates understanding of physical and biological processes to study both natural and anthropogenically-influenced environments. The importance of understanding Earth systems in assessing impacts of human activities is emphasized. Students will develop an appreciation of the science that underlies environmental problems, and fields that can be further studied in Environmental Science. They will also learn the importance of effective communication of complex environmental science topics.

Requirement Designation: Breadth-Science Units: 3

**Course Content**

EVSC100 emphasizes the importance of the scientific method to understanding complex environmental problems, how environmental science differs from environmental activism, and why environmental science has become a critically important field of study.

Students will learn about Earth systems (lithosphere, hydrosphere, atmosphere and biosphere) and cycles and flows of energy and matter (nutrients), which are the foundations for understanding environmental science. This underlying knowledge is used to examine the diversity of Earth’s ecosystems, their ecological structures and processes, how human activities are altering them, and how we can conserve them.

Throughout the term we consider many environmental problems beginning with humanity’s lack of environmental literacy, over-extraction of non-renewable resources, water pollution, stratospheric ozone depletion, biodiversity loss and landscape change, deforestation and overfishing, the impacts of agriculture and climate change.

**Course Learning Objectives**

At course completion, successful EVSC 100 students should be able to:

✓ describe key Earth systems, cycles, properties and processes
✓ identify human activities and attitudes that alter Earth systems, cycles, properties and processes
✓ describe the environmental problems that stem from these activities and attitudes
✓ explore solutions to environmental problems
✓ demonstrate basic data, scientific, and environmental literacy skills
✓ communicate environmental science knowledge in oral and written formats
✓ collaborate successfully with peers

**Instructor**

Marnie Branfireun, Lecturer
FACULTY OF ENVIRONMENT, SFU
Contact: marnie_branfireun@sfu.ca
Office Hours: Tuesdays, 1:00 - 2:00 p.m.
TASC2 8902 (Technology and Science Centre 2)

**Teaching Assistants**

Eric Cao (EC): ecao@sfu.ca
Office Hours: tba
Stefano Borgato (SB): sborgato@sfu.ca
Office Hours: tba
TASC2 8902.1 (Technology and Science Centre 2)

**Textbook** (required)

*Environmental Science for a Changing World, 1st Cdn Ed.*
Branfireun, Karr, Interlandi & Houtman, 2014
Available as paperback, looseleaf and online e-book.
Limited copies on 24 hour reserve at SFU libraries.

**Lectures** (Section: D300, class number: 12493)
Tuesdays, 2:30 - 4:20 p.m., SWH 10041

**Tutorial Sections** (SB=Stefano Borgato, EC = Eric Cao)
D301 (12495): Wed, 8:30 - 9:20 a.m., WMC 2533 (SB)
D302 (12497): Wed, 9:30 - 10:20 a.m., WMC 2533 (SB)
D303 (12499): Wed, 12:30 - 1:20 p.m., AQ 5025 (EC)
D304 (12501): Thu, 8:30 - 9:20 a.m., AQ 5028 (EC)
D305 (12503): Thu, 11:30 a.m. - 12:20 p.m., AQ 5014 (EC)
D306 (12505): Thu, 12:30 - 1:20 p.m., AQ 5020 (EC)

**Final Exam:** Tuesday 17 April 2018, 8:30 - 11:30 a.m.
Location: Check GoSFU later in term for exam location

**Evaluation**

Tutorials 20%
Midterm Exam(s) 40%
Final Exam 40%
Course grades are not routinely curved.

**Grading Scheme**

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<td>F</td>
<td>50-59</td>
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<td>N/DE</td>
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</table>

EVSC 100: Introduction to Environmental Science, Marnie Branfireun  PAGE 1 OF 4
Course Components

Lectures
Lectures present most course content and are based on chapters from the textbook, with supplementary content to enhance understanding, keep the course up to date and address current issues. Each lecture runs 110 minutes. Lecture slides are posted to Canvas in advance, and are a framework and do not include all examinable content. Taking additional notes during lecture is important for course success. Emphasize understanding and explanation in your notes, not just things to memorize. Occasionally lectures may be given by teaching assistants or invited speakers. The instructor may record lectures for review on Canvas if their schedule requires them to be away during the term. Students may record lecture audio only with permission of the instructor, and only where such accommodation is arranged via the Centre for Students with Disabilities.

If you miss a lecture, it is your responsibility to catch up on notes by consulting with classmates.

Tutorials (20%)
Tutorials support development of core academic skills in the context of environmental science. These skills include critical thinking, analysis, synthesis, collaboration, summarization, concise writing, literature research, report writing, communication and presentation skills, along with data, science and environmental literacy. Be prepared to think through problems, work in groups, and speak aloud. Tutorials usually require online research so bring a laptop. SFU libraries have a small number of laptops available on loan if you lack one. Tutorial instructions are posted on Canvas in advance for you to work on in class. Each tutorial is worth 2% of the course mark, and is graded for thoroughness, effort, accuracy, and clarity. Attendance is mandatory: you cannot submit exercises for missed tutorials.

You must attend the tutorial section you are registered to.

Examinations (80%)
Exams are not cumulative: the final exam will cover content from after the midterm exam(s) only. All exams are mixed format, and may include any combination of multiple choice, short answer, fill in the blank, figure labelling, long answer questions. Lectures (including films and guest lectures), textbook, tutorials, this syllabus, and exam guidelines (first page of each exam), are all examinable. Question banks may be provided to help you succeed on the exams. Avoid using previous question banks, websites, and notes from other courses to study for your exams; these resources may mislead you. Exams are carefully graded by a trained and calibrated TA team for understanding, not just 'keywords'. Some exams and exam grading may be automated. Graded midterm exams are a good guide to where you need to improve, so please review your midterm(s) before the final exam.

NOTE: While grammar is not graded directly in EVSC100, an ability to write grammatically coherent sentences is important for course success. Environmental science requires clarity in communication whether verbally, in writing, or even graphically (e.g., figure labelling); try to be as accurate and clear as possible.

Canvas
Lecture slides, tutorial instructions, exam question banks, the syllabus and course schedule, and readings and resource materials are posted to Canvas. Announcements are made regularly to let you know of any changes or other important course information. Canvas is also used to post grades, and to host discussion boards about the course. Your Instructor uses Canvas to communicate with you; please turn Canvas notifications on and read announcements. Use Canvas as a starting point when you have any general course-related questions. Most student questions are answered in the syllabus, in Canvas announcements, on Canvas discussion boards, or in lectures.

Study Strategy
It is hard to know what to study most in EVSC100 because environmental science has such breadth. This can be very daunting for students who have not taken any science for years. To succeed, study continuously over the term, read ahead, and make good notes that help you to understand content and remind you of what was emphasized in lecture. Allow enough time to work through sample questions. Group study outside of class is beneficial to struggling students. If you study with motivated peers you will find that you learn even more.

If you want help understanding course material, visit your Instructor or Teaching Assistant during office hours. We are here to help you! No appointment necessary!
Questions about EVSC100?

General course questions? check Canvas announcements, this syllabus and the course schedule first. e.g. "Is the final exam cumulative?", "Is there a tutorial this week?"

General questions not addressed on Canvas or in the syllabus? post your questions to a Canvas discussion board.

Questions about course content? come to Instructor or TA office hours for help (no appointment needed). Help with understanding course concepts, or exam preparation, is not available by email or Canvas message.

Questions about class and final exam schedules or locations? check GoSFU (the SFU Student Information System).

Questions that relate to your situation in particular? Email your instructor or TA e.g. to request accommodation for a missed tutorial or exam (see below), or ask a question about your own grades.

If your question is about your final grades email your TA.

If your question is about your course or exam grades, or to request 'accommodation' email your instructor.

Missed Tutorial? There is no need to notify the Instructor about missing a tutorial unless you are requesting accommodation, in which case... Email your instructor to request accommodation.

Missed Exam? Email your instructor to let them know your situation. If your situation warrants scheduling a make-up exam, then one will be set up for you, even if you do not immediately contact your Instructor.

Email etiquette...

- Email only for individual issues, such as accommodation requests, not for general course questions, which are addressed on Canvas, in the syllabus, or in lecture. Check there first.
- Always email from your official SFU email address. Other email addresses are treated as junk mail.
- In your email subject line, include the course number, section, term and year, and an indication of your query.
- Compose your email clearly and politely, so that we understand what you are requesting.
- Be patient: allow two business days (M-F) during business hours (9-5) (e.g. late Wed emails may wait until Monday).
- If your concern is urgent (both extremely serious and time-sensitive) then mark your email 'urgent'.
- If you have an emergency that we need to know about, call the Faculty of Environment office at (778) 782-8787.
- Missing the final exam is not an emergency - if you are going to miss, or have missed, the final exam, the only solution is to make arrangements with your Instructor, so email them directly and allow time for a reply.

Accommodation: Requests to make up for late or missed assignments or exams

Students in temporary extenuating circumstances may be 'accommodated' by your instructor via deferred ('make-up') exams, deadline extensions, or allowed absences. Requests for accommodation based on 'need' (e.g., program's g.p.a. requirements) will not be approved. Additional work to help boost grades is not offered.

Legitimate extenuating circumstances: conflicts with other SFU exams or mandatory course events, mandatory SFU academic or athletic team activities; academic conference presentations, major religious observances (e.g., holy days, not cultural festivals); physical or mental health challenges, accidents, serious injury, hospitalization, bereavement.

Not legitimate: cultural events; vacations; family events; volunteer or work activities; student club activities, forgetfulness; traffic; weather (unless SFU declares a weather emergency or closure), program grade requirements.

To request accommodation, email your instructor (not TA) with clear documentation attached as soon as possible. Clear documentation includes exam conflict as shown on GoSFU screenshot, an official form, or letter on official (e.g., SFU) letterhead, indicating date(s) effected, signed by a doctor /SFU team manager /counsellor, hospitalization record or similar (see www.sfu.ca/students/health/resources/faq/sick-notes). Any official SFU activity letter should be signed by an SFU employee. Image files (e.g. smartphone picture attachments) are adequate.

Accommodation is at the discretion of the Instructor; do not ask your TA. See Accommodation guide on Canvas.

'Exam Hardship'

As per SFU policy (see student services or Academic Calendar), if you have three or more final exams within a 24 hour period, you can be given a new exam date for the middle exam by that instructor/department/faculty. If you have two exams on the same day at more than one campus with insufficient travel time in between, your instructor/department/faculty can arrange for you to write both exams on one campus at their original dates and times. Having two exams on the same day is not accommodated. Final exam schedules are posted on GoSFU before term begins; check your exam schedule and notify your instructor/department of conflict at least one month before exams.
STUDENT RESOURCES AT SFU

Academic Advisors
Students who need to change sections or who want advice on their programs should speak to their own department/program's academic advisor. Students in ongoing distress who wish to seek accommodation for multiple courses can also speak with their academic advisor. The course instructor cannot view or change course/section registration.

www.sfu.ca/students/academicadvising

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www.sfu.ca/students/disabilityaccess

SFU Libraries
Get to know your library. SFU has an extensive collection of books, subscribes to thousands of scholarly journals (in print, and in digital format accessed via journal databases), maps and learning resources.

www.lib.sfu.ca/about/overview/services-you/undergrads

Student Learning Commons (SLC)
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www.sfu.ca/learning/learning-support

Embrace Diversity
Help make SFU campuses safe, welcoming and respectful spaces for everyone, irrespective of differences. Discriminatory, offensive, or disrespectful behaviour of any type is not tolerated in EVSC100.

Out on Campus - LGBTQ+ Centre: ooc.sfss.ca

SFU Women's Centre: wctr.sfss.ca

Environmental Science Student Union (EVSCSU)
For students taking EVSC courses to network and enjoy their time at SFU with peers of similar interest.

www.sfu.ca/evsc/evsc-student-union

Health and Counselling Services
Health and Counselling provides health care to students at SFU. Their health clinic (doctors and nurses), counselling, psychiatrist, chiropractor, physiotherapist, and health care team are there to support your health and well-being.

www.sfu.ca/students/health/

Sexual Assault Support
If you or someone you know has experienced sexual violence, options are immediately available at SFU to provide support and advice. The Active Bystander Network is an innovative, new program that is part of a campus-wide initiative to create a culture of zero-tolerance for sexual violence at Simon Fraser University.

www.sfu.ca/sexual-assault.html

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Each student is responsible for his or her conduct as it affects the University community. Academic dishonesty, in whatever form, is ultimately destructive of the values of the University. Furthermore, it is unfair and discouraging to the majority of students who pursue their studies honestly. Scholarly integrity is required of all members of the University. SFU's Academic Integrity website has information on what is meant by academic dishonesty, and is where you can find resources to help with your studies and the consequences of cheating.

www.sfu.ca/policies/gazette/student/s10-01

www.sfu.ca/students/academicintegrity/resources/academicintegrityguide

Where is Everything?
Campus maps: www.sfu.ca/fs/Campus-Maps
# EVSC100 Course Schedule Spring 2018 - Burnaby (D300)

<table>
<thead>
<tr>
<th>TERM W.</th>
<th>DATE</th>
<th>Lect. #</th>
<th>Lecture Topics &amp; Textbook Readings</th>
<th>Weekly Tutorial Topics &amp; Readings</th>
<th>Term Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tue Jan 2</td>
<td>1</td>
<td>Orientation Day - No Class</td>
<td>no tutorials week one</td>
<td></td>
</tr>
</tbody>
</table>
| 2       | Tue Jan 9 | 1      | Introduction to Environmental Science | 1. Data Literacy I: Numeracy  
Textbook Appendix 1: Basic Math Skills | Jan 9: last course +/- change GSFU |
|         |         |        | CH1: Environmental Literacy        |                                   |            |
| 3       | Tue Jan 16 | 2     | CH2: Science Literacy, Ozone Depletion | 2. Data Literacy II: Graphing Part A  
App. 2: Data Handling & Graphing Skills | Jan 16: last course drop day w/o WD |
|         |         |        | CH3: Information Literacy, Toxicology |                                   |            |
App. 2: Data Handling & Graphing Skills | Jan 23: last course add with permission |
|         |         |        | CH5: Ecological Economics & Consumption |                                   |            |
| 5       | Tue Jan 30 | 4     | CH6: Ecosystems & Nutrient Cycling | 4. Data Literacy IV: Basic Statistics  
App.3: Statistical Analysis | Feb 6: last course drop day (WD) |
|         |         |        | CH17: Solid Waste                  |                                   |            |
| 6       | Tue Feb 6 | 5      | CH7: Population Ecology | 5. Exam Skills: how to write effective  
written answers to science questions | Feb 6: last course drop day (WD) |
|         |         |        | CH8: Community Ecology             |                                   |            |
| 7       | Tue Feb 13 | 5      | Reading Week - No Classes         |                                   |            |
| 8       | Tue Feb 20 | 6      | CH9: Biodiversity                 | 6. Information Literacy I - the literature  
Chapter 3, SFU library databases |            |
|         |         |        | CH10: Evolution & Extinction       |                                   |            |
| 9       | Tue Feb 27 | 5      | Midterm Exam (in-class)           | no tutorials this week            |            |
| 10      | Tue Mar 6 | 7      | CH11: Forests                     | 7. Information Literacy II - G.I.S.  
Google Earth |            |
|         |         |        | CH12: Grasslands                   |                                   |            |
| 11      | Tue Mar 13 | 8     | CH13: Marine Ecosystems           | 8. Information Literacy III - Imagery  
NASA Earth Observatory |            |
|         |         |        | CH14: Fisheries & Aquaculture      |                                   |            |
| 12      | Tue Mar 20 | 9      | CH15: Freshwater Resources         | 9. Environmental Science Collaboration I  
- Research |            |
|         |         |        | CH16: Water Pollution              |                                   |            |
| 13      | Tue Mar 27 | 10     | CH18: Agriculture                  | no tutorials this week            |            |
|         |         |        | CHs19&20: Coal, Oil & Natural Gas  |                                   |            |
| 14      | Tue Apr 3 | 11     | CH22: Climate Change               | 10. Environmental Science Collaboration II  
- Presentation |            |
| 15      | Tue Apr 10 | 12     | (The Great Squeeze - optional)     | Last class                        |            |
| 16      | (Apr 16 - 22) | 12     | FINAL EXAM TUESDAY 17 APRIL 8:30 to 11:30 a.m.  
(for location see GoSFU later in term) | EXAMS |            |
| 17      | (Apr 23 - 27) | 12     | Schedule is subject to change - please watch Canvas for updates |            |            |

BranfireunM, Environmental Science Program, Faculty of Environment  January 2018
**Course Description**
A survey of environmental science in practice, with guest presentations by environmental scientists from contributing disciplines and workplaces, that familiarize students with different career paths and the kinds of communication tasks they require. EVSC201 students will develop breadth of knowledge, as you gain insight into a wide variety of environmental science fields, and depth of knowledge, as you pursue individual and group research on a topic relevant to your EVSC concentration (applied biology, environmental earth systems, environmetrics or water science). Students will also develop core communication skills that prepare them for a diverse environmental science job market that includes academia, consulting, government, industry, education, planning, resource management and community outreach. Coursework emphasizes interdisciplinary literature research, analysis and synthesis along with scientific writing and communication skills, and project collaboration that prepares EVSC students for collaborative research in upper division courses. This course is required for EVSC students.

**Prerequisite:** EVSC100  
**Requirement Designation:** Writing  
**Units:** 3

**Course Content**
This course will consist of one weekly two-hour lecture delivered by course instructor and a guest speaker, and one weekly two-hour tutorial where communication skills are introduced and practiced with the guidance of the instructor, teaching assistant and SFU staff from the Student Learning Commons at SFU. This course will use Canvas to manage assignments and post important course content.

**Course Learning Objectives**
At course completion, successful EVSC 201 students should be able to demonstrate:
- Broad understanding of environmental science practice across diverse workplaces
- Ability to critically evaluate environmental science literature using journal databases and online resources
- Ability to effectively summarize scholarly articles and other sources of information
- Ability to synthesize findings from multidisciplinary environmental science studies
- Effective written articulation of knowledge in a concise, scientific style
- Effective visual, oral, and written communication of knowledge for scientific, government, industrial and general audiences
- Ability to cite information sources properly and consistently
- Understanding and avoidance of plagiarism
- Ability to collaborate successfully with peers

**Instructor**
**Marnie Branfireun, Lecturer**  
**Faculty of Environment, SFU**  
**Contact:** marnie_branfireun@sfu.ca  
**Office Hours:** Tues & Thur, 11:30 a.m. - 12:20 p.m.  
**Technology and Science Centre 2, TASC2 8902**

**Teaching Assistant**
**Rodrigo Solis, Ph.D. Candidate, REM**  
rsolis@sfu.ca  
**Office Hour:** tba

**Reference Textbook** (strongly recommended)

**Lectures (D100):** Tues, 2:30 - 4:20 p.m., WMC 2202  
**Tutorials (D101):** Tue, 4:30 - 6:20 p.m., WMC 2202  
**Final Exam:** none  
GoSFU indicates an exam by default, but there is none.

**Evaluation**
**Participation (10%)**
Students should participate in discussions during lectures and tutorials, submit notes and question ideas generated each week, and contribute to peer assessments for full marks.

**Tutorial Exercises that Build a Literature Review (55%)**
A series of low-risk (5% each) ‘draft’ exercises (see schedule) that build skills and content that contribute to the two major course assignments. These are peer-assessed during tutorial.

**Individual Literature Review Assignment (15%)**
Research, analysis, and synthesis of an environmental science topic in an EVSC concentration area, written utilizing contents and skills developed in earlier tutorial exercises.

**Group Project (20%)**
A collaborative synthesis of individual literature reviews, grouped by EVSC stream area, in one of several formats: presentation, poster, factsheet, or report.

**Grading Scheme**
<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>A+</td>
<td>90+</td>
</tr>
<tr>
<td>A</td>
<td>85-89</td>
</tr>
<tr>
<td>A-</td>
<td>80-84</td>
</tr>
<tr>
<td>B+</td>
<td>77-79</td>
</tr>
<tr>
<td>B</td>
<td>73-76</td>
</tr>
<tr>
<td>B-</td>
<td>70-72</td>
</tr>
<tr>
<td>C+</td>
<td>67-69</td>
</tr>
<tr>
<td>C</td>
<td>63-66</td>
</tr>
<tr>
<td>C-</td>
<td>60-62</td>
</tr>
<tr>
<td>D</td>
<td>50-59</td>
</tr>
<tr>
<td>F</td>
<td>0-49</td>
</tr>
<tr>
<td>N/DE</td>
<td>Incomplete/Deferred Exam</td>
</tr>
</tbody>
</table>

**SIMON FRASER UNIVERSITY  ENCLODED THE WORLD**

MBranfireun, Faculty of Environment, Fall 2017, Page 1 of 3
QUESTIONS ABOUT EVSC201?

General course questions? ⇒ check Canvas announcements, this syllabus and the course schedule first.  
E.g. "Is there a tutorial this week?"

General questions not addressed on Canvas or in the syllabus? ⇒ post your questions to a Canvas discussion board.

Questions about assignments? ⇒ come to Instructor or TA office hours for help (no appointment needed).  
Help with assignments is not available by email or Canvas message.

Questions that relate to your situation in particular? ⇒ Email your instructor or TA  
E.g. to request accommodation for a missed tutorial or exam (see below), or ask a question about your own grades.

If your question is about your assignment grades ⇒ email your TA or instructor.  
If your question is about your course grade, or to request ‘accommodation’ ⇒ email your instructor.

Missed tutorial? ⇒ There is no need to notify the Instructor about missing a tutorial or exam unless you are requesting accommodation, in which case... Email your instructor or TA

Email etiquette...

• Email only for individual issues, such as accommodation requests, not for general course questions, which are addressed on Canvas, in the syllabus, or in lecture. Check there first.

• Always email from your official SFU email address. Other email addresses get treated as junk mail.

• In your email subject line, include the course number, section, term and year, and an indication of your query.
  • E.g. Email Subject: EVSC201 Fall 2017 - Assignment Accommodation Request

• Compose your email clearly and politely, so that we understand what you are requesting.

• Be patient: We usually respond within two business days (M-F) during business hours (9-5); if you email late in the day / week you may not hear back from us until the next day or two / week.

• If your concern is urgent (both extremely serious and time-sensitive) then mark your email 'urgent'.

• If you have an emergency that we need to know about, call the Faculty of Environment office at (778) 782-8787.

ACCOMMODATION: REQUESTS TO MAKE UP FOR LATE OR MISSED ASSIGNMENTS

Students in temporary extenuating circumstances may be 'accommodated' by your Instructor via assignment deadline extensions, submission without tutorial attendance, or other alteration of course requirements deemed appropriate by the Instructor. Requests for accommodation based on 'need' will not be approved; there must be a legitimate conflict or extenuating circumstance.

Legitimate extenuating circumstances: conflicts with other SFU exams or mandatory course events, mandatory SFU academic or athletic team activities; academic conference presentations, major religious observances (e.g., holy days, not cultural festivals); physical or mental health challenges, accidents, serious injury, hospitalization, bereavement.

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Official accommodation for ongoing challenges is arranged via the Centre for Students with Disabilities (see below).
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www.sfu.ca/policies/gazette/student/s10-01

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Campus maps: www.sfu.ca/ls/Campus-Maps
SEMINAR IN ENVIRONMENTAL SCIENCE

Modern Environmental Science deals with environmental problems where the fundamental problem may include a wide range of concerns that extend well beyond the scope of science. These concerns may be related to aboriginal rights and land claims, economics, resource development, fundamental and perceived human rights, human health or environmental protection. These issues are often conflated with scientific evidence in the media, by activists, by project development proponents, industry and others.

There is perhaps no better example of this than in the ‘debate’ over climate change. The scientific evidence is unambiguous and clear -- the climate is warming due to human activity. However, what to do about this environmental problem is not entirely clear and open to debate. While governments and individuals come to grips with what needs to be done, it has become commonplace to treat the scientific evidence of climate change in the debate about what to do about it. This is problematic because it gives the public the impression that facts obtained using scientific methods can be debated outside of science, which is false.

This course offers an opportunity provides Environmental Science students the opportunity to investigate an environmental science topic in depth, through lecture and bi-weekly guest speakers from diverse sectors (academia, government, industry and NGOs). The goal of the class is to examine a current environmental problem, to explore the science underlying it and find out what role science is playing in discussions about that problem.

Prerequisites
EVSC 201W. Students with credit for EVSC 399 or EVSC 499 may not take this course for further credit.

Required Text
None

Course Format
This course will consist of a series of short lectures/discussions led me the instructor, guest speaker seminars and presentations by students. There will be no class in the first week of classes.

Assessment
Participation: 20%
Proponent presentations 20%
Presentation summaries 15%
White paper 30%
White paper Presentation 15%
INSTRUCTOR
Dr. Sasmita K Das,
Sessional Instructor, Faculty of Environment,
Simon Fraser University,
Office: TASC2 8800
Contact: sasmita_das@sfu.ca

TEACHING ASSISTANT
Mike Curran
PhD candidate, Faculty of Environment,
Simon Fraser University
Contact: curran@sfu.ca

CLASS SCHEDULE
LECTURES: Thursday 3:30 p.m. - 4:20 p.m., SECBl011
TUTORIALS/LABS/FIELDSITE: Wednesday 9:30 a.m. -12:20 p.m., BLU9655
Thursday 9:30 a.m. - 12:20 p.m., WMC2223
FINAL EXAM: 20th April 2018, Friday, 12:00 p.m. -3:00 p.m., TBA

INTRODUCTION
This course introduces to basic methods of field work in Environmental Sciences which includes, sample collection, field observation, mapping and surveying, analytical techniques, instrumentation, data collection, interpretation and approaches to write and present research projects. The topics and exercises in this course are important to students interested in environmental science which encompasses various subjects like physical sciences, biological science, ecological sciences, natural resource management, sustainable development, etc to students who wish to understand various aspects of the environment surrounding them.

COURSE FORMAT
Lectures/field exercises will follow the course outline. There will be a few lectures to introduce the field/lab work. The exercises will introduce and illustrate the basics of field sampling, data collection, analysis and interpretation of soil, sediments and water samples in environmental sciences.
READINGS


-This textbook is available as a free e-text from the SFU library.


Northey, M., Knight, D.B. and Draper, D, (5th Edition). Making sense of Geography and Environmental Science-A students guide to research and writing

Further readings for each individual assignment, announcements, lecture outlines, as well as field and lab instructions will be posted on the course canvas website.

PREREQUISITES

EVSC 100 (or equivalent)
Students with credit for EVSC 205 or EVSC 491W may not take this course for further credit.

STUDENT RESOURCES AND COMMUNICATION

CONTACTING INSTRUCTOR AND TEACHING ASSISTANT: All questions pertaining to course material/field exercises, etc are encouraged to be asked at the end of class and further queries can be clarified by making an appointment to meet during office hours. All questions about missed classes, missed field exercises, and other practical concerns about the course should be directed to me by email. Emails will be responded within 2 days Please place the course number EVSC 305 in the subject line to help us prioritize your email. You may also post to Canvas discussion boards as they are made available.
If your concern is extremely urgent please contact the main FENV office at (778) 782-8787.

CANVAS: For the Course EVSC 305, partial outlines of lecture notes, tutorial instructions, submission forms, syllabus, course schedule, readings, resource material, handouts of the field and lab exercises, and field project instructions will be posted to Canvas. Announcements will be made regularly, and should be read in order to be timely informed about any changes or important course updates.

You will be able to access the Canvas course site from the first week of classes.
LECTURES

Lectures will help to introduce to the week’s lab/field exercises. Lecture notes will be posted to Canvas. If you miss a lecture, it is your responsibility to catch up on notes by consulting with classmates.

TUTORIALS IN FIELD OR ‘LAB’

Tutorials support development of field and lab skills in the context of environmental science. These skills include critical thinking, analytical skills, team work, literature survey, research skills, communication and presentation skills along with data, science and environmental literacy. There exercises will be graded for effort, accuracy, and thoroughness in implementation and submissions. All exercises are to be submitted on Canvas and in hard copy. We grade on the hard copy, and the digital submission allows us to keep an archive and track day and time submitted.

FIELD/LAB WORK

Working outdoors in rough conditions and poor weather carries risks and you will be required to sign a risk waiver in order to take EVSC305. We will go out in all weather except dangerous conditions. You will be asked to sign photo use permission so that we can share our experiences with the SFU community. It is your responsibility to take your own safety seriously. While we will have lots of fun, we all must ensure that we behave maturely, and watch out for ourselves and each other. Students who engage in risky behavior in the field will not be allowed to continue in the course. Every student must come to the field site prepared for the weather, and with appropriate clothing for the conditions (including hiking shoes/boots). All field work, even in urban settings, can be cold, damp, and unpleasant when you are unprepared.

If you have health concerns that we should know about (e.g. diabetes/low blood sugar, asthma, serious allergies), please let the instructor and your TA know before your first field session. Be careful and tidy in how you organize equipment and samples so that you do not lose them. Please ensure that the sites of field work along with the adjoining ecosystems are least disturbed during our work.

FIELD/LAB NOTEBOOK

All field and lab should be recorded in your field notebook. Each exercise requires describing site conditions, describing how to conduct the particular field method, and recording data collected. Neat, tidy field books will help fetching good grades. Maps, drawings, field visuals and graphs should be included in notes. Be innovative in making it as informative, resourceful and presentable.

Essential: Each student must have a waterproof “Rite in the Rain” side-spiral bound field notebook (4 5/8” x 7”), available online from Rite in the Rain or at many local retailers. You can use a pencil or all-weather pen to write in them.

EVALUATION

Assignment 20%
Quiz 10%
Project Presentation 10%
Field Notebook 10%
Final Exam 50%

ASSIGNMENTS (4)
1. Annotated Bibliography assignment
2. Statistics assignment
3. Term-paper project assignment
4. RS and GIS Assignment

QUIZ (3): Best two scores of the three quizzes will be considered for grading. Syllabus for each of the quiz would be course covered until the previous class.

PRESENTATION: A short presentation based on the term-paper project assignment at the end of the semester.

COURSE POLICIES

Policy for students representing SFU, BC or Canada (at academic or sports events): I fully support students involved with organizations and teams that travel during the semester; however, with this privilege comes additional responsibility. You are responsible for providing formal documentation identifying the organization you represent and potential schedule conflicts with this course.

Policy for academic dishonesty: As SFU students, you are expected to uphold the highest standards of academic conduct. Plagiarism or cheating on assignments/reports will be reported to SFU authorities and result in a grade of zero for that particular assignment/report in addition to any other appropriate measures according to SFU policy. All students should be aware of the contents of SFU’s policy on academic honesty and the consequences of its violation (see SFU policy on academic honesty and the SFU library tutorial on plagiarism for advice).
http://www.sfu.ca/policies/gazette/student.html
http://www.lib.sfu.ca/help/tutorials/plagiarism-tutorial
There will be lectures, field exercises (5), lab exercises (3), assignments (4), quizzes (3), a short project presentation and a final exam at the end of the semester.

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATE</th>
<th>LAB/LECTURE OR FIELD ACTIVITY</th>
<th>READINGS</th>
<th>ASSIGNMENT</th>
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<tbody>
<tr>
<td>1</td>
<td>Jan 3rd &amp; 4th</td>
<td>• Introduction to the course&lt;br&gt;• Lecture: Annotated bibliography assignment and scope of Environmental Science</td>
<td>• Watts and Halliwell, 1996&lt;br&gt;• Lertman, 1995&lt;br&gt;• Ch-2, Geography &amp; Environmental Sciences, Northey et al., 2012</td>
<td>• Assignment-1: Annotated Bibliography assignment</td>
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<td>2</td>
<td>Jan 10th &amp; 11th</td>
<td>• Field Exercise-1: Soil sampling-Surface samples&lt;br&gt;• Lecture: Soil classification &amp; Sampling</td>
<td>• Watts and Halliwell, 1996&lt;br&gt;• Ch-11, Geography &amp; Environmental Sciences, Northey et al., 2012</td>
<td>• Safety Conduct Form and Personal Data Sheet via email to TA</td>
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<td>3</td>
<td>Jan 17th &amp; 18th</td>
<td>• Lab exercise-1: Analysis of collected surface soil samples&lt;br&gt;• Lecture: Soil bulk property characterization</td>
<td>• Watts and Halliwell, 1996</td>
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<td>4</td>
<td>Jan 24th &amp; 25th</td>
<td>• Field Exercise-2: Soil sampling-Vertical core samples&lt;br&gt;• Lecture: Soil profiles of vertical core samples</td>
<td>• Watts and Halliwell, 1996</td>
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<td>5</td>
<td>Jan 31st &amp; Feb 1st</td>
<td>• Lab Exercise-2: Lab analysis of collected vertical core soil samples&lt;br&gt;• Lecture: Weathering and Soil formation</td>
<td>• Quiz-1</td>
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<td>6</td>
<td>Feb 7th &amp; 8th</td>
<td>• Guidelines on Statistics assignment&lt;br&gt;• Lecture: Introduction to Statistics</td>
<td>• Watts and Halliwell, 1996</td>
<td>• Assignment 2: Statistics</td>
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<td>7</td>
<td>Feb 14th &amp; 15th</td>
<td>NO CLASSES</td>
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<td>8</td>
<td>Feb 21st &amp; 22nd</td>
<td>• Field Exercise-3: Water Sampling&lt;br&gt;• Lecture: Introduction to</td>
<td>• Watts and Halliwell, 1996&lt;br&gt;• Streamkeepers Handbook</td>
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<td>Hydrology</td>
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<td>9</td>
<td>Feb 28th &amp; March 1st</td>
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<td>• Lab Exercise-3: Water Quality analysis</td>
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<td>• Lecture: Water quality parameters</td>
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<td>• Watts and Halliwell, 1996</td>
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<td>• Streamkeepers Handbook</td>
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<td>• Assignment 3: Term paper project assignment</td>
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<td>10</td>
<td>March 7th &amp; 8th</td>
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<td>• Field Exercise-4: Stream discharge measurements</td>
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<td>• Lecture: Stream Geomorphology</td>
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<td>• Quiz-2</td>
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<td>11</td>
<td>March 14th &amp; 15th</td>
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<td>• Field Exercise-5: Biodiversity: invertebrate count</td>
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<td></td>
<td>• Lecture: Benthic invertebrates as water quality indicators</td>
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<td>12</td>
<td>March 21st &amp; 22nd</td>
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<td>• Guidelines to RS and GIS assignment</td>
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<td>• Lecture: Introduction to RS and GIS</td>
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<td>• Assignment 4: RS and GIS</td>
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<td>13</td>
<td>March 28th &amp; 29th</td>
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<td>• Presentations</td>
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<td>• Quiz-3</td>
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<td>14</td>
<td>April 4th &amp; 5th</td>
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<td></td>
<td>• Presentations</td>
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- Reading will be updated regularly and suggested individually for each exercise.
Ecological Restoration Program

Simon Fraser University Calendar | Summer 2018

Ecological Restoration

MASTER OF SCIENCE

Simon Fraser University and the British Columbia Institute of Technology (BCIT) collaborate on the master of science (MSc) in ecological restoration, a full-time professional graduate program offering a combined emphasis on applied technical experience and advanced theoretical foundations of ecological restoration. This joint BCIT-SFU credential requires students to satisfactorily complete coursework at BCIT and SFU. For further information visit: http://www.sfu.ca/ecologicalrestoration/Admission.html.

Admission Requirements

The MSc in Ecological Restoration is administered by SFU and BCIT. Applicants must satisfy the University admission requirements as stated in Graduate General Regulations 1.3 in the SFU Calendar.

The student must hold a four year bachelor's degree in ecology, plant science, animal science, soil science, environmental science, resource science (land, water, fish and wildlife, forestry), physical geography, environmental engineering, or a related program from a recognized post-secondary institution.

In addition, students must have completed:

- One introductory course each in ecology and statistics;
- Two upper level courses; in biology, ecology (plant, fish, wildlife, restoration/reclamation, etc.), statistics, plants science, soil science, physical geography (hydrology, geomorphology, limnology, etc.), forest science, natural resource management, environmental science, or related courses.

See Graduate General Regulations for English language and reference requirements.

1.1 Program Requirements

This program consists of core courses, specialization courses, and an applied research project. A minimum of 18 units are completed at SFU. ECOR courses are based at BCIT.

Students complete a minimum of 36 units, including all of

ECOR 9100 - Concepts of Ecological Restoration and the Physical Environment (3)
ECOR 9110 - Planning and Monitoring for Ecological Restoration (3)
ECOR 9200 - Field Applications of Restoration Principles (3)
ECO 611 - Concepts of Ecological Restoration and the Biological Environment (3)
ECO 621 - Graduate Seminars in Research Methods (3)
ECO 622 - Project Management and Policy for Ecological Restoration (3)
ECO 641 - First Nations & Social Perspectives of Ecological Restoration (3)

and applied research project I and II

ECOR 9300 - Applied Research Project I (3)
ECOR 9400 - Applied Research Project II (3)

or

ECO 630 - Applied Research Project I (3)
ECO 640 - Applied Research Project II (3)

In the applied research project, students will conduct extensive fieldwork, normally in collaboration with industry partners and academic supervisors.

Students enrolled in ECOR 9300 and ECOR 9400 cannot enroll in ECO 630 or ECO 640 for further credit. Students enrolled in ECO 630 or ECO 640 cannot enroll in ECOR 9300 or ECOR 9400 for further credit.

To meet the 18 unit requirement, students are encouraged to access graduate courses offered by Geography, Biological Sciences, Earth Sciences, Resource and Environmental Management and the Bamfield Marine Station. Selection of courses should be done with advice from an ER faculty member and complement the area of specialization, either Terrestrial or Aquatic.

Course enrollment will be dependent on course availability and permission of the instructor.

1.2 Program Length

Students are expected to complete the program requirements in six terms.

1.3 Academic Requirements within the Graduate General Regulations

All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
Appendix F: MER Course Outlines

Ecological Restoration Courses

**ECO 611 - Concepts of Ecological Restoration and the Biological Environment (3)**

A review of general ecology, including theories relevant to the individual, the population, and the community, and their interaction and their relationship with the physical (abiotic) environment. Prerequisite: Acceptance into the M.Sc. Program.

**ECO 621 - Graduate Seminars in Research Methods (3)**

An examination into the general philosophical foundations of science, the nature of scientific disputes, and the relevance of these to ecology. Topics covered include the following fundamental concepts: science, the scientific method, reliable knowledge, poor science, hypothetical-deductive approach, hypothesis testing and experimental design. Prerequisite: ECOR 9100 - Concepts of ER & the Physical Environment; ECO 611 - Concepts of ER & the Biological Environment; ECOR 9110 - Planning & Monitoring for ER.

**ECO 622 - Project Management and Policy for Ecological Restoration (3)**

An examination of project management in ecological restoration with an emphasis on managing uncertainty, risk assessment and communications. Reviews the legal system that governs use and protection of natural resources and the environment in Canada. Prerequisite: ECOR 9100 - Concepts of ER and the Physical Environment; ECO 611 - Concepts of ER and the Biological Environment; ECOR 9110 - Planning and Monitoring for ER.

**ECO 641 - First Nations & Social Perspectives of Ecological Restoration (3)**

An exploration of human-nature relationship from multiple perspectives to the practice of ecological restoration. Special emphasis on First Nations. Covers knowledge of ecological restoration and how to compromise among diverse perspectives, protocols. Prerequisite: ECO 622 - Project Management & Policy for ER; ECOR 9110 - Planning and Monitoring for ER.

**ECOR 9100 - Concepts of Ecological Restoration and the Physical Environment**

This course focuses on scientific study of the physical environment, with an emphasis on its effects on living organisms and their restoration. We will examine concepts of rivers and their attributes; inland waters and limnology; geomorphology; and terrestrial processes. Through lecture and field experiences, students will become familiar with physical and chemical processes in water, especially those that have a direct effect on biological organisms. Field sessions outside of scheduled class time will be required.

**ECOR 9110 - Planning and Monitoring for Ecological Restoration**

Designed for students with no experience in ecological restoration, this course develops broad knowledge and skills needed to plan and implement restoration activities. The course begins by reviewing a step-by-step process applicable to a wide range of ecosystems for developing,
implementing, monitoring, and refining on-the-ground restoration projects. We will focus especially on designing defensible monitoring programs needed to assess restoration success, including appropriate use of statistical design (e.g., controls, sampling design) and qualitative information (e.g., photo monitoring). Students will identify and critically review a restoration plan in terms of this step-by-step process. A major component of this course entails students incrementally developing a restoration and monitoring plan for a degraded site in the Lower Mainland of British Columbia. Field sessions outside of scheduled class time will be required. Techniques to communicate effectively will be examined and integrated into the assignments.

**ECOR 9100 - Field Applications of Restoration Principles**

This course is specifically designed to provide students hands-on training and application of techniques used in restoring habitats and associated monitoring. Techniques will include vegetation sampling, water sampling (multiparameter meters, flow meters, turbidity meters, etc.), sampling for ground-water levels, fish and wildlife sampling, chainsaw safety, coarse woody debris, habitat structure, CABIN, and G.P.S. Course design will include modules that need to be completed before class, to enhance the hands-on training. The course will run as a two-week field course at the end of level 2 (spring).

**ECOR 9210 - Restoration of Terrestrial Ecosystems**

The Pacific Northwest is a global ecological “hotspot” because of its relatively healthy native ecosystems, a high degree of biodiversity, and the number and scope of restoration initiatives that have been undertaken there. This course gathers and presents the best examples of state-of-the-art restoration techniques and projects. Students will be profiling a chosen ecosystem (e.g., bunchgrass system, Garry Oak system, old-growth forests, riparian), and researching and presenting case studies of restoration projects conducted in each of the chosen systems. Students will conduct seminars on physical and ecological issues in a chosen case study about the restoration techniques used (whether they were successful or not), how the case study did/did not follow critical steps associated with a formal restoration plan, incidences of adaptive management, presence/absence of strong experimental designs, challenges and solutions, and uncertainties, etc. Through this course students will learn about appropriate restoration techniques to be used in different ecosystems, while critically reviewing relevant works and strengthening past approaches. Students will design a restoration proposal and plan for a specific degraded terrestrial ecosystem. Field sessions will complement lecture material.

**ECOR 9220 - Restoration of Aquatic Ecosystems**

This course will give an overview of limnology and focus on specific aspects of applied limnology and environmental engineering required to undertake ecological restoration of lakes, reservoirs, rivers and streams. The overview lectures discuss lake formation and basin morphometry, stratification and circulation, water chemistry (including nutrient and carbonate chemistry), BOD tests, and hypolimnetic oxygen depletion. Applied aspects of the course include experimentally determining re-aeration rates and sizing of hypolimnetic aeration/oxygenation and destratification systems, calculation of nutrient loading programs for streams, rivers, lakes and reservoir enrichment, calculation of heat budgets, use of nutrient-loading models to assess eutrophication risk, and use of Streeter-Phleps oxygen sag curves to
assess oxygen depletion in organically enriched rivers and streams. Students will participate in lectures, lab experiments, and group and individual study sessions to work through problem sets and to design a restoration proposal and plan for an aquatic system. Field sessions will complement lecture material.

**ECO 930/ECOR 9300 - Applied Research Project I**

The purpose of the Applied Research Project courses is to enable students to pursue a topic relevant to ecological restoration. In addition, students will develop certain skills that will be useful in their future employment in the various areas of ecological restoration. These skills range from general to specific. General skills include the ability to: 1) conceptualize and formulate a manageable restoration project or research question, 2) organize the required steps, 3) integrate and synthesize concepts and findings of other researchers, 4) collect and analyze data, 5) evaluate the strength of evidence or conclusions, 6) integrate all this information into a detailed, effective, and well-organized restoration plan, or similar deliverable, and 7) communicate effectively both in writing and orally. Students will also improve their abilities in specific skills such as pre- and post-restoration monitoring, interacting with and communicating complex approaches to clients and project partners, proposal writing, designing restoration plans, decision analysis, statistics, risk assessment, conflict resolution, strategic planning, and others.

In ECOR 9300 (Applied Research Project I) students select a specific site and develop a professional relationship with their chosen client. Students will conduct reconnaissance surveys of their target ecosystem and appropriate reference ecosystems to identify the primary issues and stressors associated with their target ecosystem. They will then develop a proposal detailing the general approach to developing a restoration plan, all the while interacting with their client to ensure the approach and deliverables meet the client’s needs.

**ECO 940/ECOR 9400 - Applied Research Project II**

The purpose of the Applied Research Project courses is to enable students to pursue a topic relevant to ecological restoration. In addition, students will develop certain skills that will be useful in their future employment in the various areas of ecological restoration. These skills range from general to specific. General skills include the ability to: 1) conceptualize and formulate a manageable restoration project or research question, 2) organize the required steps, 3) integrate and synthesize concepts and findings of other researchers, 4) collect and analyze data, 5) evaluate the strength of evidence or conclusions, 6) integrate all this information into a detailed, effective, and well-organized restoration plan, or similar deliverable, and 7) communicate effectively both in writing and orally. Students will also improve their abilities in specific skills such as pre- and post-restoration monitoring, interacting with and communicating complex approaches to clients and project partners, proposal writing, designing restoration plans, decision analysis, statistics, risk assessment, conflict resolution, strategic planning, and others.

ECOR 9400 is a continuation of ECOR 9300 (Applied Research Project I). Students will develop their proposal from ECOR 9300 into a detailed restoration plan (or similar deliverable) specific to the client’s needs. Students will design a restoration plan that is scientifically defensible by drawing on the best...
They will identify the uncertainties present with the specific site, and include an approach to minimize the risk associated with these uncertainties. When possible, students will detail a research design that will reduce these uncertainties, should the restoration plan be implemented. Students will orally defend their restoration plan.
Appendix G: Terms of Reference for the Environmental Science Steering Committee

Provided by John Peirce
Dean, Faculty of Environment
September 2012

Terms of Reference for the EVSC Program
The Environmental Science Program is an interdisciplinary program centred in the Faculty of Environment. Its governance should reflect this base and be designed to ensure interests are met for the Program, its students and the Faculty of Environment.

The EVSC Program is interdisciplinary. Hence by definition, there is some overlap with disciplines that are centred in several Departments and Programs at Simon Fraser University. However, the EVSC Program is distinct from these other units by its breadth of curriculum and pedagogical objectives, in particular, its interdisciplinary approach to teaching and learning. Governance of the EVSC Program should strive to maintain this distinction and seek ways to strengthen it. The EVSC will be an independent unit with decision making by committee. However, interests of both the EVSC and home Departments will be considered in decisions.

I – Membership
1. The Director of the Environmental Science Program is appointed by the Dean of Environment upon the advice of the Associate Dean of Environment for Undergraduate Studies, the Dean of Science, and other interested parties.
2. The Director is not limited to Faculty of Environment faculty.
3. The Chair of the Steering Committee will normally be the director.
4. The remaining eight faculty members of the Steering Committee will be appointed by the Dean of Environment upon the advice of the Director of the Program, the Associate Dean of Environment for Undergraduate Studies, the Dean of Science, and other interested parties, and with due regard to the mix of disciplinary perspectives needed to maintain and develop the program. The distribution of these members will be as follows:
   i) Two members of the Department of Geography.
   ii) Two members of the School of Resource and Environmental Management.
   iii) One member of the Department of Archaeology.
   iv) One member of the Department of Biological Sciences.
   v) One member of the Department of Earth Sciences.
   vi) One member of the Department of Statistics and Actuarial Sciences.
5. Where possible, one of the faculty Steering Committee members should be a Lecturer of Senior Lecturer.
6. One student in good standing to be named by the EVSC Student Society. They must be a major or honours student in the EVSC Program, and have completed 60 credit hours. Student participation will be excluded from matters involving other students where confidentiality issues may arise.
7. All members of the Steering Committee, including the Director, are voting members.
II – Terms of Office
1. The term of office of the Director will normally be three years, renewable up to a limit of ten years.
2. The terms of office for the remaining Steering Committee members will normally be three years, depending in part on the composition of the Undergraduate Studies Committees of each of the participating academic units.

III – Responsibilities of the Program Director
Directors are to bring their disciplinary expertise and professional experience to support the interests of the EVSC Program and its students. The Program shall be autonomous while respecting the legitimate interests of the participating units. Specific duties of the Director include the following:
1. To work with the support staff in the day-to-day running of the program.
2. To represent the program at meetings of the Dean of Environment’s Advisory Committee.
3. To consider and make recommendations to the Faculty of Environment Undergraduate Curriculum Committee (FENV-UCC) on all successfully approved EVSC Steering Committee recommendations and reports pertaining to the Environmental Science Program (see part V, section 8 for details pertaining to successfully approved motions).
4. In cooperation with the EVSC Steering Committee, to consult with Departments that have related programs to ensure those Departments are informed of changes to the EVSC Program and to ensure the EVSC Program is informed about changes to related programs.
5. With assistance from support staff and the EVSC Steering Committee, to identify, recruit, and appoint top-quality instructors and teaching assistants to teach the courses that fall under the Director’s purview.
6. To work closely with support staff in advising and consulting students, and in developing the co-op and other program-related employment opportunities, including strategies for professional development and preparation for further studies in graduate school.
7. To work with support staff in promoting the program to prospective students.
8. To foster existing EVSC courses and promote new ones, taking into consideration fiscal realities and possible overlap with outside courses.
9. Where appropriate, to teach courses in the program (especially key introductory and capstone courses).
10. To represent the program at provincial and national meetings of environmental science program directors and other important functions.
11. Chairs and Directors must address their concerns in the same stepwise manner following the same protocol set out in part IV, sections 8-10.
12. To enhance the program in other ways as appropriate.

IV – Responsibilities of the Steering Committee Members
Members are to bring their expertise to constructive discussions aimed at improving the quality and delivery of the program and hence to enhance the educational opportunities for the students. Their specific duties include the following:
1. To work in a collegial manner to update and upgrade the curriculum for the program.
2. In cooperation with the Director, to consult with Departments that have related programs to ensure those Departments are informed of changes to the EVSC Program and to ensure the EVSC Program is informed about changes to related programs.
3. To assist the Director and support staff in identifying and recruiting top-quality instructors and teaching assistants to teach the courses that are taught under the purview of the Director.
4. To assist the Director and support staff in advising and counselling students, developing co-op and other program-related employment opportunities, including strategies for professional development and preparation for further studies in graduate school.
5. Where appropriate, to teach courses in the program.
6. To be willing to serve as alternates to the Director at provincial and national meetings of environmental science program directors and other important functions.
7. To provide advice to the Director on course substitutions within streams of the program, in cases where availability of a required course for a particular student is for legitimate reason a problem.
8. Disputes of a programming or curriculum nature must first be addressed to the Curriculum Committee. The Curriculum Committee is advisory only. All other disputes must first be addressed to the Director.
9. Only if disputes cannot be resolved by neither the Curriculum Committee nor the Director should the Associate Dean and finally the Dean become involved.
10. The Dean’s decisions on all matters are final.
11. To assist the Director in other ways as appropriate.

V – Operation
1. There shall be meetings of the Steering Committee at least once per semester, and additionally as needed.
2. The time, place, and agenda of any meeting shall be set by the Chair.
3. The Chair shall be obliged to call a meeting within 10 days at the request of any Steering Committee member, such request having been made in writing with the business to be discussed stated and any necessary supporting documents supplied.
4. The quorum for a regular meeting shall consist of at least 75% of the voting membership of the Steering Committee.
5. In the case of the anticipated absence of a voting member at any Steering Committee meeting, it is the responsibility of the Chair of that member’s academic unit to ensure that an alternate attends the meeting.
6. The Steering Committee is at liberty to invite guests to attend and participate in meetings when the presence of such a guest serves a reasonable purpose. Such guests are not eligible to vote on Committee recommendations and reports.
7. The Curriculum Manager will act as a resource person providing assistance both internally to the Steering Committee and between the Steering Committee and the Curriculum Committee. Keeping fully updated and appraised of the actions and success of other Environmental Science programs is vital in this regard.
8. Recommendations and reports to the FENV-UCC shall be by majority decision of the Steering Committee members if they arise out of a regular business item on the agenda of a regular meeting. An effort to reach consensus shall be made before voting. The Chair shall prepare and deliver the majority report to the FENV-UCC at its next meeting. If
there is a dissenting minority, it may present its own report to the FENV-UCC at the same meeting. The reports should be concise and give the reasons for the views of the Committee.

9. Changes to the terms of reference for this Committee shall require efforts to reach a full consensus of the Committee members. If a consensus is not possible after all reasonable efforts have been made, approval of changes will require consent from at least 75% of the voting membership of this Committee, or can be made at the discretion of the Dean of the Faculty of Environment.
Appendix H: Supporting Letters

Attached supporting letters for the School of Environmental Science from:

- Dr. Brent Ward, Department Chair, Earth Sciences
- Dr. Mark Roseland, Director, Centre for Sustainable Development
- Dr. Tom Loughin, Department Chair, Statistics and Actuarial Sciences
- Dr. Elizabeth Elle, Department Chair, Biological Sciences
- Dr. David Burley, Department Chair, Archaeology
- Dr. Sean Cox, Director, Resource and Environmental Management
- Dr. Tracy Brennand, Chair, Geography
July 7th, 2017

Dr. Brent Ward  
Department Chair, Earth Sciences  
Simon Fraser University  
8888 University Drive  
Burnaby, BC V5A 1S6

Dear Brent,

I am writing to you regarding a proposal that the Faculty of Environment wishes to take forward to Senate, to convert the existing Environmental Science Program into a School of Environmental Science.

With approximately 300 program enrolments, interest in the undergraduate program is high. In addition, we need a home for our recently-approved Professional Masters in Ecological Restoration, offered jointly with BCIT, now approaching its third year. A School seems to be an optimal option as we move forward to better accommodate both undergraduate and graduate offerings.

More details are contained in the attached proposal. Because your department offers courses that are part of the program requirements and/or options, we would like to receive your approval in advance of proceeding to SCUP and Senate. In fact, this was the suggestion of our current Vice-President, Academic, and Provost, Dr. Peter Keller.

Please indicate below (yes or no) whether you are prepared to support this proposal. Let me know if you have any questions or concerns, of course. Also, feel free to add any relevant comments on a separate sheet, if necessary.

Kind regards,

Ingrid Leman Stefanovic,  
Dean

I am willing to support the Faculty of Environment's proposal to convert the Environmental Science undergraduate program into a School of Environmental Science.

Yes [ ] No [ ]

Signature: [ ]  Date: [ ]
July 7th, 2017

Dr. Mark Roseland  
Director of the Centre for Sustainable Development  
Simon Fraser University  
TASC2 8800  
8888 University Drive  
Burnaby, BC V5A 1S6

Dear Mark,

I am writing to you regarding a proposal that the Faculty of Environment wishes to take forward to Senate, to convert the existing Environmental Science Program into a School of Environmental Science.

With approximately 300 program enrolments, interest in the undergraduate program is high. In addition, we need a home for our recently-approved Professional Masters in Ecological Restoration, offered jointly with BCIT, now approaching its third year. A School seems to be an optimal option as we move forward to better accommodate both undergraduate and graduate offerings.

More details are contained in the attached proposal. Because you are a member of DAC, we would like to receive your approval in advance of proceeding to SCUP and Senate. In fact, this was the suggestion of our current Vice-President, Academic, and Provost, Dr. Peter Keller.

Please indicate below (yes or no) whether you are prepared to support this proposal. Let me know if you have any questions or concerns, of course. Also, feel free to add any relevant comments on a separate sheet, if necessary.

Kind regards,

Ingrid Leman Stefanovic,  
Dean

I am willing to support the Faculty of Environment's proposal to convert the Environmental Science undergraduate program into a School of Environmental Science.

Yes [X]  No

Signature  
Mark Roseland  
Date  
August 14, 2017
July 7th, 2017

Dr. Tom Loughlin  
Department Chair, Statistics and Actuarial Science  
Simon Fraser University  
8888 University Drive  
Burnaby, BC V5A 1S6  

Dear Tom,

I am writing to you regarding a proposal that the Faculty of Environment wishes to take forward to Senate, to convert the existing Environmental Science Program into a School of Environmental Science.

With approximately 300 program enrolments, interest in the undergraduate program is high. In addition, we need a home for our recently-approved Professional Masters in Ecological Restoration, offered jointly with BCIT, now approaching its third year. A School seems to be an optimal option as we move forward to better accommodate both undergraduate and graduate offerings.

More details are contained in the attached proposal. Because your department offers courses that are part of the program requirements and/or options, we would like to receive your approval in advance of proceeding to SCUP and Senate. In fact, this was the suggestion of our current Vice-President, Academic, and Provost, Dr. Peter Keller.

Please indicate below (yes or no) whether you are prepared to support this proposal. Let me know if you have any questions or concerns, of course. Also, feel free to add any relevant comments on a separate sheet, if necessary.

Kind regards,

/Ingrid Leman Stefanovic,  
Dean

I am willing to support the Faculty of Environment's proposal to convert the Environmental Science undergraduate program into a School of Environmental Science.

Yes [ ]  No [ ]

Signature ___________________________ Date 24 Jul 17
Thank you for soliciting comments from Biological Sciences as the Faculty of Environment considers how to move forward with improving the undergraduate major in Environmental Science and Master degree in Ecological Restoration.

I served on the Steering Committee of EVSC many years ago, and teach some of the courses that contribute to the program. In considering your proposal I consulted with my Associate Chair, David Green, who in addition to his within-department duties currently serves on the EVSC Steering Committee. You may know that David contributed greatly to earlier versions of the Educational Goals for the program.

Your document nicely captures the challenges EVSC has been dealing with for many years—the lack of a home, the difficulties with offering interdisciplinarity in an institution dominated by departmentalized disciplines, and even the challenge of overlap with the Ecology, Evolution, and Conservation Stream in Biological Sciences. The proposal to create a School to house EVSC and MER addresses some of these challenges (though not the latter one) and Biological Sciences is generally supportive of moving forward with it.

However, we encourage further curriculum revision of the Applied Biology stream to better differentiate it from our program. Students would benefit from a clearer identity of the Applied Biology stream, and EVSC has a great opportunity to add interdisciplinarity to the stream as a way to differentiate it from our science-focused one. The propagation of Life Sciences across campus (and resulting overlap with Biological Sciences) has been an ongoing challenge for my department. While it is exciting for life scientists to have more colleagues at SFU, it also leads to some tension around the mission and identity of Biological Sciences as a department and our decisions regarding faculty renewal—which can wind up affecting EVSC. Differentiating the programs would make a big difference for both BISC and EVSC.

Regarding faculty renewal, I hope there can be ongoing dialogue about appointments to the new School. You note that there may be opportunity for shared hires, and I am supportive. I would argue, though, that the challenge of hiring into departments isn’t that people “form allegiance” to units that hire them (pg. 20). Rather, faculty are hired to meet needs identified by particular units, making their fit to other units less than perfect. This issue will require
careful attention moving forward so that faculty renewal can be truly collaborative. The document also suggests some people may choose to move their appointment to the School, and I would say that without knowing more, this is of potential concern. I would hope that SFU will engage in a study of the structure of Life Science at our institution (including Applied Biology) and first determine our institutional priorities moving forward and then ways to support both disciplinary and interdisciplinary units without negative impacts.

The potential for faculty interest in changing appointments is one that is often approached with trepidation. You suggest movement is unlikely (pg. 21), in part because existing research programs "benefit from identities within their own departments". I disagree. This statement simply does not capture the reality that there is a large amount of interdisciplinarity already at SFU. I think researchers' identities can be very collaborative, depending on the individual, and it's not their department that determines this. Research programs of faculty in my unit certainly benefit from the space provided by their Faculty (through the VPA), but in many cases their closest research colleague is in a department or Faculty other than Biological Sciences (including FENV). There may indeed be interest in a reorganization of appointments to better align with how people identify themselves, including how they choose to interact across SFU. I think this could be exciting, if we have the stomach for it, but it must be done carefully and respectfully.

Again, I am supportive of this move and agree that creation of a new School will benefit EVSC and MER. I hope that we can continue to build a collaborative relationship moving forward, to ensure that content overlap is diminished, and that faculty renewal (or changes in appointment) proceeds in a way that is beneficial to SFU.
July 7th, 2017

Dr. Elizabeth Elle
Department Chair, Biological Sciences
Simon Fraser University
8888 University Drive
Burnaby, BC V5A 1S6

Dear Elizabeth,

I am writing to you regarding a proposal that the Faculty of Environment wishes to take forward to Senate, to convert the existing Environmental Science Program into a School of Environmental Science.

With approximately 300 program enrolments, interest in the undergraduate program is high. In addition, we need a home for our recently-approved Professional Masters in Ecological Restoration, offered jointly with BCIT, now approaching its third year. A School seems to be an optimal option as we move forward to better accommodate both undergraduate and graduate offerings.

More details are contained in the attached proposal. Because your department offers courses that are part of the program requirements and/or options, we would like to receive your approval in advance of proceeding to SCUP and Senate. In fact, this was the suggestion of our current Vice-President, Academic, and Provost, Dr. Peter Keller.

Please indicate below (yes or no) whether you are prepared to support this proposal. Let me know if you have any questions or concerns, of course. Also, feel free to add any relevant comments on a separate sheet, if necessary.

Kind regards,

Ingrid Leman Stefanovic,
Dean

I am willing to support the Faculty of Environment's proposal to convert the Environmental Science undergraduate program into a School of Environmental Science.

Yes __________ No ______________

Signature: ________________________________ Date: ____________

SIMON FRASER UNIVERSITY ENGAGING THE WORLD
July 7th, 2017

Dr. David Burley
Department Chair, Archaeology
Simon Fraser University
8888 University Drive
Burnaby, BC V5A 1S6

Dear David,

I am writing to you regarding a proposal that the Faculty of Environment wishes to take forward to Senate, to convert the existing Environmental Science Program into a School of Environmental Science.

With approximately 300 program enrolments, interest in the undergraduate program is high. In addition, we need a home for our recently-approved Professional Masters in Ecological Restoration, offered jointly with BCIT, now approaching its third year. A School seems to be an optimal option as we move forward to better accommodate both undergraduate and graduate offerings.

More details are contained in the attached proposal. Because your department offers courses that are part of the program requirements and/or options, we would like to receive your approval in advance of proceeding to SCUP and Senate. In fact, this was the suggestion of our current Vice-President, Academic, and Provost, Dr. Peter Keller.

Please indicate below (yes or no) whether you are prepared to support this proposal. Let me know if you have any questions or concerns, of course. Also, feel free to add any relevant comments on a separate sheet, if necessary.

Kind regards,

Ingrid Leman Stefanovic,
Dean

I am willing to support the Faculty of Environment’s proposal to convert the Environmental Science undergraduate program into a School of Environmental Science.

Yes [ ] No [ ]

Signature [ ] Date 18/7/17

SIMON FRASER UNIVERSITY ENGAGING THE WORLD
July 7th, 2017

Dr. Sean Cox
Director of Resource and Environmental Management
Simon Fraser University
8888 University Drive
Burnaby, BC V5A 1S6

Dear Sean,

I am writing to you regarding a proposal that the Faculty of Environment wishes to take forward to Senate, to convert the existing Environmental Science Program into a School of Environmental Science.

With approximately 300 program enrolments, interest in the undergraduate program is high. In addition, we need a home for our recently-approved Professional Masters in Ecological Restoration, offered jointly with BCIT, now approaching its third year. A School seems to be an optimal option as we move forward to better accommodate both undergraduate and graduate offerings.

More details are contained in the attached proposal. Because your department offers courses that are part of the program requirements and/or options, we would like to receive your approval in advance of proceeding to SCUP and Senate. In fact, this was the suggestion of our current Vice-President, Academic, and Provost, Dr. Peter Keller.

Please indicate below (yes or no) whether you are prepared to support this proposal. Let me know if you have any questions or concerns, of course. Also, feel free to add any relevant comments on a separate sheet, if necessary.

Kind regards,

/Signature

Ingrid Leman Stefanovic,
Dean

I am willing to support the Faculty of Environment's proposal to convert the Environmental Science undergraduate program into a School of Environmental Science.

Yes [ ] No [ ]
The Department of Geography is fully supportive of the Environmental Sciences Program and the Masters in Ecological Restoration Program. The Geography Department as a whole has considered the proposal for a new School carefully and its faculty realize it is not in the best interests of the Department to stand in the way of this proposal, given the weight of administrative support we have been told is behind it. Geography faculty, however, do not find the rationale for the creation of a new School fully compelling and anxieties remain around the creation of such a School. Departmental support for the proposal could be stronger if various concerns we have previously raised were better addressed. These are summarized below.

The main reasons given for creating a School of Environmental Science focus on: 1) the need for a physical home for these programs and students given their growth, 2) the wish to enhance cohort identity and community, 3) the need to balance interdisciplinary and disciplinary engagement, 4) the need for teaching and administrative capacity, and 5) marketability for enrolment and investment opportunities. Goals 1 and 2 have been largely addressed outside of School creation (as acknowledged in the proposal): the Dean has already reorganized FENV space to create a student lounge and centralize the Director’s, Lecturer’s, TAs and administrative staff offices; the Director and Steering Committee have already adjusted the EVSC program to include a sequence of cohort-building courses (though it is a waiting game to see the direction of disciplinary impacts). The Geography Department applauds these decisions because they are in the best interest of EVSC and MER students. Goal 3 is central to the TOR of the current programs’ steering/curriculum committees. Administrative staff (academic program management, budget, recruitment and retention) are currently in the FENV Dean’s Office and are to remain so with a new School, though, presumably, could be relocated or reallocated in future with limited budgetary or functional impact (Goal 4). Geography has thus far provided technical and equipment support for EVSC course instruction; the proposal is mute on continuation of this service and associated budget implications. The Department of Geography acknowledges the need for additional teaching capacity (Goal 4), particularly given the new EVSC cohort courses, some of which are likely to require multiple offerings per year. It is challenging to accept that creating a new School will be truly budget neutral. Some existing programs at SFU (e.g., Urban Studies) do have faculty appointed and cross appointed to them and appear to function well. Given these acknowledgements, Goal 5 is probably the most compelling, along with the stated perception by some members of the EVSC steering committee.
that they will feel interdisciplinary collaboration could be harmed by an alternative model of unit merger.

In response to the April 2016 draft of the EVSC School proposal, the Department of Geography raised several concerns (memo to the Dean and Director, 26 Sept 2016) chief amongst them anxieties around: 1) identity – the potential for faculty migration on the one hand, or exclusion and marginalization on the other; 2) governance – the role of disciplinary voices in interdisciplinary School governance as EVSC faculty grow in number; and 3) budget, for example, the impact of Faculty level FRP decisions given the need to populate the EVSC School with cross-appointments in the current fiscal environment. No response to this memo was received. The June 2017 draft of the proposal touches on these issues but does not erase them. Faculty relocation will be decided on a case-by-case basis. The current Dean is not supportive of group migrations of faculty, but there are no guarantees beyond the current Dean. On the other hand, the intended barriers to migration will enhance the perception of marginalization and exclusion of some Geography faculty who identify as Environmental Scientists. The proposal does not address a vision for a governance plan for an EVSC School as its faculty compliment grows. FRP concerns would be more muted if the FENV budget was more realistic.
MEMORANDUM

ATTENTION: Senate
FROM: Daniel Leznoff, Chair
Senate Committee on Undergraduate Studies
RE: Program Changes

DATE: June 8, 2018
PAGES: 1/2

For information:

Acting under delegated authority at its meeting of June 7, 2018 SCUS approved the following curriculum revisions effective Spring 2019.

a. Beedie School of Business (SCUS 18-41)

(i) Addition of BUS 414 to the Finance Concentration for the:
   - Major - Business Bachelor of Business Administration
   - Major – Mechatronic Systems Engineering and Business Double Degree Program Bachelor of Applied Science and Bachelor of Business Administration
   - Honours – Business Bachelor of Business Administration
   - Joint Major – Business and Economics Joint Major Bachelor of Arts or Bachelor of Business Administration
   - Joint Major – Interactive Arts and Technology and Business Bachelor of Arts or Bachelor of Business Administration
   - Joint Major – Interactive Arts and Technology and Business Bachelor of Science
   - Joint Honours – Business and Economics Bachelor of Arts or Bachelor of Business Administration programs

(ii) Language revision to the Business Career Passport program for the:
   - Major – Business Bachelor of Business Administration
   - Major – Mechatronic Systems Engineering and Business Double Degree Program Bachelor of Applied Science and Bachelor of Business Administration
   - Honours – Business Bachelor of Business Administration
   - Joint Major – Business and Communication Bachelor of Arts or Bachelor of Business Administration
   - Joint Major – Business and Economics Bachelor of Arts or Bachelor of Business Administration
   - Joint Major – Business and Geography Bachelor of Arts or Bachelor of Business Administration
   - Joint Major – Business and Psychology Bachelor of Arts or Bachelor of Business Administration
   - Joint Major – Information Systems in Business Administration and Computing Science Joint Major
   - Joint Major - Interactive Arts and Technology and Business Bachelor of Arts or Bachelor of Business Administration
• Joint Major – Sustainable Business Bachelor of Business Administration or Bachelor of Environment
• Joint Honours – Business and Economics Bachelor of Arts or Bachelor of Business Administration
• Business Foundation Program

b. Faculty of Education (SCUS 18-42)

(i) Change to the minor option list to include Social Justice in Education for the:
  • Bachelor of Education, Major
  • Bachelor of Education, Two Minors, Extended Minors
  • Bachelor of Education, Honours
  • Bachelor of Education, Second Degree
  • Bachelor of General Studies in Education, Double Minor programs

c. Faculty of Health Sciences (SCUS 18-43)

(i) Upper division requirement changes to the Philosophy and Health Sciences joint major to include a 400 level health sciences course
(ii) Upper division requirement changes to the Health Sciences Honours – Bachelor of Science -Life Sciences concentration

d. Faculty of Communication, Art and Technology (SCUS 18-45)

1. School for the Contemporary Arts

   (i) Title and description change for the Fine and Performing Arts Minor program
Calendar Entry Change
Beedie School of Business Undergraduate Program

Rationale for change:

This change incorporates BUS 414 Real Estate Finance (3) into the Finance Concentration. Please see rationale with the accompanying new course proposal for BUS 414.

Effective term and year:

Spring 2019

The following program(s) will be affected by these changes:

Major – Business Bachelor of Business Administration
Major – Mechatronic Systems Engineering and Business Double Degree Program Bachelor of Honours – Business Bachelor of Business Administration
Joint Major – Business and Economics Joint Major Bachelor of Arts or Bachelor of Business Administration
Joint Major – Interactive Arts and Technology and Business Bachelor of Arts or Bachelor of Business Administration
Joint Major – Interactive Arts and Technology and Business Bachelor of Science
Joint Honours – Business and Economics Bachelor of Arts or Bachelor of Business Administration

Calendar Change: “to” and “from” sections are not required. All deletions should be crossed out as follows: sample. All additions should be marked by a bold.

Finance
For this concentration, students complete all of

BUS 312 - Introduction to Finance (4)
BUS 315 - Investments (4)
BUS 316 - Derivative Securities (3)
and two of

BUS 410 - Financial Institutions (3)
BUS 413 - Corporate Finance (4)
BUS 414 – Real Estate Investments (3)
BUS 417 - Security Analysis (4)
BUS 418 - International Financial Management (3)
BUS 419 - Advanced Derivative Securities (3)
BUS 490 - Selected Topics in Business Administration (3) **
BUS 491 - Selected Topics in Business Administration (3) **
**When offered as a selected topics course in Finance.**
Calendar Entry Change
Business Career Passport – Beedie Undergraduate Programs

**Rationale for change:**

The Business Career Passport program has undergone a policy change commencing Fall 2017. The language in the SFU calendar needs to be changed to more clearly depict the current policy of the program.

**Effective term and year:**

Spring 2019

**The following program(s) will be affected by these changes:**

Major – Business Bachelor of Business Administration

**Calendar Change:** “to” and “from” sections are not required. All deletions should be crossed out as follows: **sample.** All additions should be marked by a **bold.**

**BACHELOR OF BUSINESS ADMINISTRATION**

Students admitted to the Beedie School of Business for the Fall 2011-2017 term onwards must complete the Business Foundation Program within their first term year.

During the first 60 units of the program, students will complete mainly non-business courses, which fall under three categories of courses. The first category consists of lower division requirements that are mainly foundation courses, which prepare students for more advanced upper division business courses. The second category consists of courses completed to meet university requirements in writing, quantitative and breadth areas. These first two categories should be completed during the first 60 units.

In the third category, students choose courses that are based on intellectual interest or to achieve academic goals. The last 60 units of the degree program consist of the core upper division business courses, at least one area of concentration, and lower and upper division electives.

Students are also required to complete the Business Career Passport **program**, which consists of six workshops **to prepare them for their careers.** that will prepare students to manage their career through their academic program and after graduation. The goal of the Business Career Passport is to help students make informed decisions about career paths, gain access to career opportunities and present themselves professionally to employers.

April 2016
Calendar Entry Change
Business Career Passport – Beedie Undergraduate Programs

Rationale for change:

The Business Career Passport program has undergone a policy change commencing Fall 2017. The language in the SFU calendar needs to be changed to more clearly depict the current policy of the program.

Effective term and year:
Spring 2019

The following program(s) will be affected by these changes:
Honours – Business Bachelor of Business Administration

Calendar Change: “to” and “from” sections are not required. All deletions should be crossed out as follows: sample. All additions should be marked by a bold.

BACHELOR OF BUSINESS ADMINISTRATION
Students admitted to the Beedie School of Business for the Fall 2017 term onwards must complete the Business Foundation Program within their first year.

Students will complete mainly non-business courses during the first 60 units of the program, completing three categories of courses. The first category consists of lower division requirements that are mainly foundation courses, which prepare students for more advanced upper division business courses. The second category consists of courses completed to meet university requirements in writing, quantitative and breadth. The first two categories should be completed during the first 60 units.

In the third category, students choose courses that are based on intellectual interest or to achieve academic goals. The last 60 units of the degree program consist of the core upper division business courses, at least one area of concentration, and lower and upper division electives.

Students are also required to complete the Business Career Passport program, which consists of six workshops to prepare them for their careers, that will prepare students to manage their career through their academic program and after graduation. The goal of the Business Career Passport is to help students make informed decisions about career paths, gain access to career opportunities and present themselves professionally to employers.

April 2016
Calendar Entry Change
Business Career Passport – Beedie Undergraduate Programs

Rationale for change:
The Business Career Passport program has undergone a policy change commencing Fall 2017. The language in the SFU calendar needs to be changed to more clearly depict the current policy of the program.

Effective term and year:
Spring 2019

The following program(s) will be affected by these changes:

- Major - Business Bachelor of Business Administration
- Major - Mechatronics Systems Engineering and Business Double Degree Program Bachelor of Applied Science and Bachelor or Business Administration
- Honours - Business Bachelor of Business Administration
- Joint Major - Business and Communication Bachelor of Arts or Bachelor of Business Administration
- Joint Major - Business and Economics Bachelor of Arts or Bachelor of Business Administration
- Joint Major - Business and Geography Bachelor of Arts or Bachelor of Business Administration
- Joint Major - Business and Psychology Bachelor of Arts or Bachelor of Business Administration
- Joint Major - Information Systems in Business Administration and Computing Science Joint Major
- Joint Major - Interactive Arts and Technology and Business Bachelor of Arts or Bachelor of Business Administration
- Joint Major - Sustainable Business Bachelor of Business Administration or Bachelor of Environment
- Joint Honours - Business and Economics Bachelor of Arts or Bachelor of Business Administration

Calendar Change: “to” and “from” sections are not required. All deletions should be crossed out as follows: sample. All additions should be marked by a bold.

Business Career Passport Requirements

Business Career Passport (BCP) is a mandatory program for Bachelor of Business Administration (BBA) students to kick-start their career.

April 2016
- Students admitted to the BBA program for the Fall 2017 term onwards are required to complete the program within 12 months of the start of their program.
- Students admitted to the BBA program from the Fall 2012 term to the Summer 2017 term are required to complete the program prior to graduation.

For more information, click here.

Students who are admitted to the Beedie School of Business beginning in the Fall 2012 term will complete the Business Career Passport.

Students who are admitted to the Beedie School of Business beginning in the Fall 2017 term will complete the Business Career Passport as part of the Business Foundation Program within 12 months of the start of their program.

During the BBA program, students register in and complete six mandatory Business Career Passport workshops. The workshops may be completed in any order.

Enrollment and participation in workshops must be recorded with the Career Management Centre. For more information about the workshops, or to register, visit the Beedie Community link on the Career Management Centre website.

April 2016
Calendar Entry Change
Beedie School of Business Undergraduate Program

Rationale for change:

The Business Career Passport program has undergone a policy change commencing Fall 2017. The language in the SFU calendar needs to be changed to more clearly depict the current policy of the program.

Effective term and year:
Spring 2019

The following program(s) will be affected by these changes:
Business Foundation Program

Calendar Change: “to” and “from” sections are not required. All deletions should be crossed out as follows: sample. All additions should be marked by a bold.

Business Foundation Program
Newly admitted students beginning their business studies at Simon Fraser University on the Surrey or Burnaby campus will complete the Business Foundation Program. The Business Foundation Program is an interdisciplinary first term year program where students will gain foundational skills and knowledge for success in their academic and experiential pursuits within the Beedie School of Business. An emphasis on applied business knowledge, communication and collaboration will be expressed through complementary weekly workshops, as well as second term career/professional development workshops via the Business Career Passport.

The Business Foundation Program contains two streams: the high school stream for newly admitted high school students (category 1) and the transfer stream for internal and external transfer students (category 2, 3, or 4). Each stream is designed to address the transition needs of the respective student group. Both streams must complete the Career Passport requirements.

Program Requirements
High School Stream (Category 1)

In their first term, students must complete

BUS 201 - Introduction to Business (3)
and are recommended to take two to four additional courses from the following

one of
ECON 103 - Principles of Microeconomics (4)
ECON 105 - Principles of Macroeconomics (4)
or one of

MATH 150 - Calculus I with Review (4)
MATH 154 - Calculus I for the Biological Sciences (3)
MATH 157 - Calculus I for the Social Sciences (3)
and/or one of

ENGL 111W - Literary Classics in English (3)
ENGL 112W - Literature Now (3)
ENGL 113W - Literature and Performance (3)
ENGL 114W - Language and Purpose (3)
ENGL 115W - Literature and Culture (3)
ENGL 199W - Introduction to University Writing (3)
PHIL 100W - Knowledge and Reality (3)
PHIL 105 - Critical Thinking (3)
PHIL 120W - Moral Problems (3)
WL 101W - Writing in World Literature (3)
WL 103W - Early World Literatures (3)
WL 104W - Modern World Literatures (3)

and/or elective course(s) that may be applied toward the non-BUS/non-BUEC requirement within the bachelor of business administration or toward the university's WQB requirements.

Transfer Stream (category 2, 3, or 4)

In their first term, students must complete

BUS 202 - Foundations for Collaborative Work Environments (3)
and are recommended to take two to four additional business courses and/or elective course(s) that may be applied toward the non-BUS/non-BUEC requirement within the bachelor of business administration or toward the university's WQB requirements.

Business Career Passport Requirements

Business Career Passport (BCP) is a mandatory program for Bachelor of Business Administration (BBA) students to kick-start their career.

- Students admitted to the BBA program for the Fall 2017 term onwards are required to complete the program within 12 months of the start of their program.
- Students admitted to the BBA program from the Fall 2012 term to the Summer 2017 term are required to complete the program prior to graduation.

April 2016
For more information, click here.

Students who are admitted to the Beedie School of Business beginning in the Fall 2017 term must complete the Business Career Passport within 12 months of the start of their program.

During the first year of the BBA program, students register in and complete six mandatory Business Career Passport workshops. The workshops may be completed in any order.

Enrollment and participation in workshops must be recorded with the Career Management Centre. For more information about the workshops, and to register, visit the Career Management Centre website.
Calendar Entry Change
Faculty of Education

Rationale for change: We developed a new minor “Social Justice in Education” which was approved (S.17-104) and is included in the Summer 2018 Calendar. This new minor should be included on the list of minor options for our students within our respective degree programs.

Effective term and year: ASAP

The following program(s) will be affected by these changes:

- Bachelor of Education, Major
- Bachelor of Education, Two Minors, Extended Minors
- Bachelor of Education, Honours
- Bachelor of Education, Second Degree
- Bachelor of General Studies in Education, Double Minor

Calendar Change: “to” and “from” sections are not required. All deletions should be crossed out as follows: sample. All additions should be marked by a bold.

Under minor options, please add:

Social Justice in Education
Calendar Entry Change
Joint Major: Health Sciences & Philosophy

Rationale for change: Health Sciences Philosophy joint major – Bachelor of Arts

Changes to the upper division requirements to include a 400 level health sciences course parallels the requirement for a 400-level Philosophy course, and is in keeping with providing a more in depth and culminating course opportunity for the joint majors.

Effective term and year: Fall 2018

The following program(s) will be affected by these changes:
Health Sciences Philosophy joint major – Bachelor of Arts (FASS)
Health Sciences Philosophy joint major – Bachelor of Arts (FHS)

Calendar Change: “to” and “from” sections are not required. All deletions should be crossed out as follows: sample. All additions should be marked by a bold.

Upper Division Health Sciences Requirements

Students complete a minimum of 20 21 upper division health sciences units, including all of
HSCI 305 - The Canadian Health System (3)
HSCI 319W - Applied Health Ethics (3)
HSCI 327 - Global Health Ethics (3)
HSCI 330 - Exploratory Strategies in Epidemiology (3)
HSCI 340 - Social Determinants of Health (3)
STAT 305 - Introduction to Biostatistical Methods for Health Sciences (3)

and three additional upper division health sciences units.

and at least one 400-level health sciences course.

February 2016
Calendar Entry Change
Name of Program or Name of Faculty

Rationale for change:
The students completing the honours program in BSc Life Sciences program in the Faculty of Health Sciences conduct research in the laboratories of FHS Faculty. This activity includes and exceeds much of the work and experience that majors are required to complete through one of the laboratory course offerings (HSCI 440, HSCI 441, HSCI 442). By allowing such honours students to obtain their laboratory research experience directly through the honours thesis work, it makes the honours option more attractive to our students.

Effective term and year: Spring 2019

The following program(s) will be affected by these changes:

Health Sciences Honours – Bachelor of Science – Life Sciences Concentration Upper Division Requirements

Calendar Change: “to” and “from” sections are not required. All deletions should be crossed out as follows: sample. All additions should be marked by a bold.

FROM:
and one of
HSCI 440 - Cell Pathophysiology Laboratory (4)
HSCI 441 - Virology Laboratory (4)
HSCI 442 - Immunology Laboratory (4)

TO:
and one of
HSCI 440 - Cell Pathophysiology Laboratory (4)
HSCI 441 - Virology Laboratory (4)
HSCI 442 - Immunology Laboratory (4)
HSCI 494 - Independent Laboratory Research (9)
Calendar Entry Change  
Name of Program or Name of Faculty  

School for the Contemporary Arts, Fine and Performing Arts Minor  

Rationale for change:  
It was an oversight to not change the title and description of the course, when all courses were changed from FPA (Fine and Performing Arts) to CA (Contemporary Arts) in 2017.  

Effective term and year: Spring 2019  

The following program(s) will be affected by these changes:  

Fine and Performing Arts Minor  

Calendar Change: “to” and “from” sections are not required. All deletions should be crossed out as follows: sample. All additions should be marked by a bold.  

Fine and Performing Contemporary Arts Minor  

The school also offers a fine and performing Contemporary Arts (FPA CA) minor which can be completed by CA students or those in any other Simon Fraser University major program. The program accommodates a range of fine and performing arts interests, but some exposure to both the practical and theoretical aspects of art is assured by the lower division studio course requirement and the upper division seminar in art and culture studies.  

Admission Requirements  

Program and course admission is contingent upon University admission. Contact Student Services for admission procedures, requirements and deadlines. Entry to all programs and to many courses is by audition, interview or application. Contact the school's office for information on procedures and deadlines.  

Although the University operates on a trimester system, most CA courses are planned in a two term (fall and spring) sequence. Consequently, students enter in the fall term (September) and are advised to contact the school in the preceding January for program entry and requirements information.  

Transfer Credit and Advanced Standing  

April 2016
Unassigned or general elective (type 2 and 3, respectively) transfer credit awarded for courses completed at other recognized post-secondary institutions will not automatically entitle students to advanced standing in the school's programs. Advanced standing is generally given on an individual basis as a result of an audition or interview.

About the School's Course Offerings

Students are encouraged to take advantage of interdisciplinary offerings within the school. As many programs depend on a continuing sequence of courses completed in order, students should plan carefully to gain the maximum benefit and efficiency from their study. Note that not all courses are offered every term and several are offered on a rotational basis, i.e. every third or fourth term. An advisor is available to help plan study programs.

Students are reminded that the school is an interdisciplinary fine and performing arts department, and are strongly advised to acquaint themselves with the many disciplinary courses that are available.

Special Topics Courses

The subject matter (and prerequisites) of special or selected topics courses vary by term.

Prior Approval Prerequisite

Where a prerequisite is or includes 'prior approval,' approval must be obtained before enrolling in the course. Contact the school for further information.

Program Requirements

Lower Division Requirements

Students complete a minimum of 12 CA units including one studio course.

Upper Division Requirements

Students complete a minimum of 15 CA units including at least three in upper division theory and history courses.
For information:

Acting under delegated authority at its meeting of June 7, 2018 SCUS approved the following curriculum revisions effective Spring 2019.

**a. Faculty of Arts and Social Sciences (SCUS 18-40a)**

1. **Language Training Institute**
   
   (i) Creation of new acronym PUNJ (Punjabi) (Fall 2019)
   
   (ii) New Course Proposals (Fall 2019):
       
       • PUNJ 100-3, Introduction to Punjabi I
       • PUNJ 101-3, Introduction to Punjabi II

**b. Beedie School of Business (SCUS 18-40b)**

(i) New Course Proposal: BUS 414-3, Real Estate Investments
MEMORANDUM

ATTENTION: Daniel Leznoff, Chair
Senate Committee on Undergraduate Studies

FROM: Catherine Murray, Chair
Faculty of Arts and Social Sciences
Curriculum Committee

RE: FASSCC- New Acronym ‘PUNJ’ (Punjabi)

DATE: 23 May 2018
PAGES: 1

MOTION:
That SCUS approve the creation of the new acronym ‘PUNJ’ (Punjabi), effective Fall 2019, to be used to designate courses offered within the Language Training Institute.

RATIONALE:
In order to distinguish language courses offered by the Language Training Institute (LTI), there is a need to create a new course prefix or acronym. This will allow students, faculty and administrative/advising staff to easily differentiate courses offered within the LTI and will show on student’s record so it is easily identified by the employer requesting language competency. This is consistent with the pending administrative move of the LTI to World Literature and FASS’ plan on offering Punjabi courses more regularly.
COURSE SUBJECT: PUNJ
NUMBER: 100

COURSE TITLE LONG — for Calendar/schedule, no more than 100 characters including spaces and punctuation
Introduction to Punjabi I

COURSE TITLE SHORT — for enrollment/transcript, no more than 30 characters including spaces and punctuation
Introduction to Punjabi I

CAMPUS where course will be normally taught: ☐ Burnaby ☑ Surrey ☐ Vancouver ☐ Great Northern Way ☐ Off campus

COURSE DESCRIPTION — 50 words max. Attach a course outline. Don’t include WQB or prerequisites info in this description box.

Punjabi is an introductory level course intended for students who have little or no previous knowledge of the Punjabi (Gurmukhi) script. Students will learn to read, write and converse at a basic level.

REPEAT FOR CREDIT: ☐ YES ☑ NO
Total completions allowed: ☐ 1 ☐ 2 ☐ 3 Within a term? ☐ YES ☐ NO

LIBRARY RESOURCES
NOTE: Senate has approved (S.93-11) that no new course should be approved by Senate until funding has been committed for necessary library materials. Each new course proposal must be accompanied by the email that serves as proof of assessment. For more information, please visit www.lib.sfu.ca/about/overview/collections/course-assessments.

RATIONALE FOR INTRODUCTION OF THIS COURSE
To introduce students to the Punjabi language and culture. Learning to converse, read and write Punjabi is a great skill for those intending to work in the public service sectors in the Lower Mainland. For students who are interested in learning about different cultures and communities, this course is a great introduction to the accomplishments made by the community in the Lower Mainland as well providing them with a glimpse of the struggles the early Punjabi pioneers endured. Punjabi is an important addition to the existing Modern Languages being offered by the Language Training Institute at SFU.
SCHEDULING AND ENROLLMENT INFORMATION

Effective term and year (e.g. FALL 2016) Fall 2019

Term in which course will typically be offered  □ Spring  □ Summer  ✔ Fall
Other (describe) ____________________________________________________________________________

Will this be a required or elective course in the curriculum?  □ Required  ✔ Elective

What is the probable enrollment when offered? Estimate: 25

UNITS

Indicate number of units: 3

Indicate no. of contact hours:  □ Lecture  □ Seminar  □ Tutorial  □ Lab  □ Other; explain below

OTHER
__________________________________________________________________________________________

FACULTY
Which of your present CFL faculty have the expertise to offer this course?

None
__________________________________________________________________________________________

WQB DESIGNATION
(attach approval from Curriculum Office)

None
__________________________________________________________________________________________

PREREQUISITE AND / OR COREQUISITE

Prerequisite: None
__________________________________________________________________________________________
EQUIVALENT COURSES [For more information on equivalency, see Equivalency Statements under Information about Specific Course components.]

1. SEQUENTIAL COURSE [is not hard coded in the student information management system (SIMS).]

Students who have taken (place relevant course(s) in the blank below (ex: STAT 100)) first may not then take this course for further credit.

n/a

2. ONE-WAY EQUIVALENCY [is not hard coded in SIMS.]

(Place relevant course(s) in the blank below (ex: STAT 100)) will be accepted in lieu of this course.

n/a

3. TWO-WAY EQUIVALENCY [is hard coded and enforced by SIMS.]

Students with credit for (place relevant course(s) in the blank below (ex: STAT 100)) may not take this course for further credit.

n/a

Does the partner academic unit agree that this is a two-way equivalency? □ YES □ NO

Please also have the partner academic unit submit a course change form to update the course equivalency for their course(s).

4. SPECIAL TOPICS PRECLUSION STATEMENT [is not hard coded in SIMS.]

Students with LANG 148 topic #4 ST-Intro to Punjabi I may not take this course for further credit.

FEES

Are there any proposed student fees associated with this course other than tuition fees? □ YES □ NO

COURSE - LEVEL EDUCATIONAL GOALS (OPTIONAL)
RESOURCES
List any outstanding resource issues to be addressed prior to implementation: space, laboratory equipment, etc.

None

OTHER IMPLICATIONS
Final exam required  ☑️ YES  ☐ NO
Criminal Record Check required  ☐ YES  ☑️ NO

OVERLAP CHECK
Checking for overlap is the responsibility of the Associate Dean.
Each new course proposal must have confirmation of an overlap check completed prior to submission to the Faculty Curriculum Committee.

Name of Originator
Robert Gordon
COURSE SUBJECT PUNJ  NUMBER 101

COURSE TITLE LONG — for Calendar/schedule, no more than 100 characters including spaces and punctuation

Introduction to Punjabi II

COURSE TITLE SHORT — for enrollment/transcript, no more than 30 characters including spaces and punctuation

Introduction to Punjabi II

CAMPUS where course will be normally taught:  Burnaby  Surrey  Vancouver  Great Northern Way  Off campus

COURSE DESCRIPTION — 50 words max. Attach a course outline. Don’t include WQB or prerequisites info in this description box.

Students who have a basic knowledge of Punjabi (Gurmukhi) script will learn to further develop their ability to speak, comprehend, read and write Punjabi while exploring the Punjabi culture.

REPEAT FOR CREDIT  YES  NO  Total completions allowed  Within a term?  YES  NO

LIBRARY RESOURCES

NOTE: Senate has approved (S.93-11) that no new course should be approved by Senate until funding has been committed for necessary library materials. Each new course proposal must be accompanied by the email that serves as proof of assessment. For more information, please visit www.lib.sfu.ca/about/overview/collections/course-assessments.

RATIONALE FOR INTRODUCTION OF THIS COURSE

In order for students to continue practicing and further developing their Punjabi skills, this second level introductory course is very important. This course also needs to be offered to meet the demand of students who may not be eligible to take the first level PUNJ 100 course due to competency levels. PUNJ 101 allows students to develop a stronger foundation with Punjabi written, reading and speaking skills. From a cultural perspective, this course provides students with a more in-depth focus on the Punjab region itself. This also includes discussing pressing environmental concerns and current issues that the youth of Punjab are facing. Through this course, our students are able to take a peek into Punjabi society and culture from their classroom via films, documentaries and various other media. They are also introduced to Punjabi literature which is a great experience for students who may be learning about other forms of literature or cultures in their other courses. The offering of this second level introductory course plays a crucial role in sparking an interest for students who may want to embark on further Punjabi-Canadian cultural, political, historical, and economic studies at a higher level.

JULY 2017
SCHEDULING AND ENROLLMENT INFORMATION

Effective term and year (e.g. FALL 2016) [Fall 2019]

Term in which course will typically be offered: [✓] Spring  [ ] Summer  [ ] Fall

Other (describe)

Will this be a required or elective course in the curriculum? [ ] Required  [✓] Elective

What is the probable enrollment when offered? Estimate: [25]

UNITS

Indicate number of units: [3]

Indicate no. of contact hours: [☐] Lecture  [☐] Seminar  [4] Tutorial  [☐] Lab  [☐] Other; explain below

OTHER

FACULTY

Which of your present CFL faculty have the expertise to offer this course?

None

WQB DESIGNATION

(attach approval from Curriculum Office)

None

PREREQUISITE AND / OR COREQUISITE

Prerequisite: PUNJ 100 or equivalent.
EQUIVALENT COURSES [For more information on equivalency, see Equivalency Statements under Information about Specific Course components.]

1. SEQUENTIAL COURSE [is not hard coded in the student information management system (SIMS).]

Students who have taken (place relevant course(s) in the blank below (ex: STAT 100)) first may not then take this course for further credit.

n/a

2. ONE-WAY EQUIVALENCY [is not hard coded in SIMS.]

(Place relevant course(s) in the blank below (ex: STAT 100)) will be accepted in lieu of this course.

n/a

3. TWO-WAY EQUIVALENCY [is hard coded and enforced by SIMS.]

Students with credit for (place relevant course(s) in the blank below (ex: STAT 100)) may not take this course for further credit.

n/a

Does the partner academic unit agree that this is a two-way equivalency?  □ YES □ NO

Please also have the partner academic unit submit a course change form to update the course equivalency for their course(s).

4. SPECIAL TOPICS PRECLUSION STATEMENT [is not hard coded in SIMS.]

Students with LANG 148 topic #6 ST-Intro to Punjabi II may not take this course for further credit.

FEES

Are there any proposed student fees associated with this course other than tuition fees?  □ YES  □ NO

COURSE - LEVEL EDUCATIONAL GOALS (OPTIONAL)
RESOURCES
List any outstanding resource issues to be addressed prior to implementation: space, laboratory equipment, etc:

None

OTHER IMPLICATIONS
Final exam required ☑ YES ☐ NO
Criminal Record Check required ☐ YES ☑ NO

OVERLAP CHECK
Checking for overlap is the responsibility of the Associate Dean.
Each new course proposal must have confirmation of an overlap check completed prior to submission to the Faculty Curriculum Committee.

Name of Originator

Robert Gordon

JULY 2017
COURSE SUBJECT  BUS  NUMBER  414

COURSE TITLE LONG — for Calendar/schedule, no more than 100 characters including spaces and punctuation
Real Estate Investments

COURSE TITLE SHORT — for enrollment/transcript, no more than 30 characters including spaces and punctuation
Real Estate Investments

CAMPUS where course will be normally taught:  ✔ Burnaby  □ Surrey  □ Vancouver  □ Great Northern Way  □ Off campus

COURSE DESCRIPTION — 50 words max. Attach a course outline. Don’t include WQB or prerequisites info in this description box.
This course provides a broad overview of the real estate field. We will investigate all aspects of real estate investment decisions, including property valuation and management, financing choices, and market cycles. The main goal of the course is to offer you a foundation for a career in the real estate industry.

REPEAT FOR CREDIT  □ YES  ✔ NO  Total completions allowed  □□□□  Within a term?  □ YES  ✔ NO

LIBRARY RESOURCES
NOTE: Senate has approved (S.93-11) that no new course should be approved by Senate until funding has been committed for necessary library materials. Each new course proposal must be accompanied by the email that serves as proof of assessment. For more information, please visit www.lib.sfu.ca/about/overview/collections/course-assessments.

RATIONALE FOR INTRODUCTION OF THIS COURSE
The student demand is very high. The few occasional times that real estate has been taught as a special topics course have resulted in fully-subscribed classes. This is understandable, as real estate represents a quarter of our local economy and offers excellent career opportunities. Offering a real estate course, and the potential related industry engagement, fits with our mission to engage our community and offer relevant education and research.
SCHEDULING AND ENROLLMENT INFORMATION

Effective term and year (e.g. FALL 2016) **Spring 2019**

Term in which course will typically be offered
- Spring
- Summer
- Fall
- Other (describe)

Will this be a required or elective course in the curriculum?
- Required
- Elective

What is the probable enrollment when offered? Estimate: **35**

UNITS

Indicate number of units: **3**

Indicate no. of contact hours:
- Lecture
- Seminar
- Tutorial
- Lab
- Other; explain below

OTHER

FACULTY

Which of your present CFL faculty have the expertise to offer this course?

Andrey Pavlov, George Blazenko, Alex Vedrashko

WQB DESIGNATION

(attach approval from Curriculum Office)

PREREQUISITE AND / OR COREQUISITE

**BUS 315, BUS 360W, 60 units**
EQUIVALENT COURSES [For more information on equivalency, see Equivalency Statements under Information about Specific Course components.]

1. SEQUENTIAL COURSE [is not hard coded in the student information management system (SIMS).]

Students who have taken (place relevant course(s) in the blank below (ex: STAT 100)) first may not then take this course for further credit.

2. ONE-WAY EQUIVALENCY [is not hard coded in SIMS.]

(Place relevant course(s) in the blank below (ex: STAT 100)) will be accepted in lieu of this course.

3. TWO-WAY EQUIVALENCY [is hard coded and enforced by SIMS.]

Students with credit for (place relevant course(s) in the blank below (ex: STAT 100)) may not take this course for further credit.

Does the partner academic unit agree that this is a two-way equivalency?  □ YES □ NO

Please also have the partner academic unit submit a course change form to update the course equivalency for their course(s).

4. SPECIAL TOPICS PRECLUSION STATEMENT [is not hard coded in SIMS.]

Students with credit for BUS 490, 491, 492, 493, 494, or 495 when offered as Real Estate Finance may not take this course for further credit.

FEES

Are there any proposed student fees associated with this course other than tuition fees?  □ YES  □ NO

COURSE - LEVEL EDUCATIONAL GOALS [OPTIONAL]

There are two primary goals of this class:
1) To expose you to the terms, issues, and topics in commercial real estate;
2) To give you the basic skills and intuition you need to begin to evaluate a variety of real estate investments.
RESOURCES
List any outstanding resource issues to be addressed prior to implementation: space, laboratory equipment, etc:
No

OTHER IMPLICATIONS
Final exam required □ YES ☑ NO
Criminal Record Check required □ YES ☑ NO

OVERLAP CHECK
Checking for overlap is the responsibility of the Associate Dean.
Each new course proposal must have confirmation of an overlap check completed prior to submission to the Faculty Curriculum Committee.

Name of Originator
Andrey Pavlov
MEMORANDUM

ATTENTION: Senate
FROM: Daniel Leznoff, Chair
Senate Committee on Undergraduate Studies
RE: Course Changes (SCUS 18-39)

DATE: June 8, 2018
PAGES: 1/1

For information:

Acting under delegated authority at its meeting of June 7, 2018 SCUS approved the following curriculum revisions effective Spring 2019.

a. Faculty of Applied Sciences (SCUS 18-39a)

1. School of Engineering Science
   (i) Deletion of ENSC 330, 440W and 305W

b. Faculty of Science (SCUS 18-39b)

1. Department of Chemistry
   (i) B-Sci designation for CHEM 399

2. Department of Physics
   (i) Unit change for PHYS 233

c. Faculty of Communication, Art and Technology (SCUS 18-39c)

1. School of Communication
   (i) Prerequisite change for CMNS 323W
   (ii) Prerequisite and equivalent statement change for CMNS 324, 332 and 349
   (iii) Prerequisite change for CMNS 431 and 444
   (iv) Prerequisite and equivalent statement change for CMNS 455W
   (v) Prerequisite change for CMNS 460
COURSE SUBJECT: ENSC  
NUMBER: 305W  
TITLE: Project Documentation and Group Dynamics

RATIONALE (must be included)

The last offering of ENSC 305W was Spring 2016. This course was part of the old engineering curriculum and has been replaced with ENSC 405W in the new curriculum. The new curriculum was effective in Fall 2013.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (enter in textbox)  
Spring 2019

PLEASE DO THE FOLLOWING:

1. Attach a program impact list along with your course deletion form. Contact the Senate and Academic Services Office (sfcas@sfu.ca) for a program impact list.
2. Once you have the program impact list, please review how deleting this course affects each program's requirements.
3. If more substantial changes are required to programs as a result of this deletion, please also submit a program modification form.
4. If no further changes other than deletion is required in program requirements, please list those programs in the box below:

There is no project impact list for this course

5. Lastly, please conduct a course impact analysis, which reviews the effect of a course number change and/or course deletion on course prerequisites. For instructions on how to do a course impact analysis, please visit our page and click on "deleting a course" and review Step 2. Course Impact Analysis.
COURSE SUBJECT: ENSC
NUMBER: 330
TITLE: Engineering Materials

RATIONALE (must be included):
The last offering of ENSC 330 was Spring 2015. This course was part of the old engineering curriculum. The new curriculum was effective in Fall 2013.

EFFECTIVE TERM AND YEAR FOR CHANGES:
Spring 2019

PLEASE DO THE FOLLOWING:

1. Attach a program impact list along with your course deletion form. Contact the Senate and Academic Services Office (sfucal@sfu.ca) for a program impact list.
2. Once you have the program impact list, please review how deleting this course affects each program's requirements.
3. If more substantial changes are required to programs as a result of this deletion, please also submit a program modification form.
4. If no further changes other than deletion is required in program requirements, please list those programs in the box below:

There is no program impact list for this course

5. Lastly, please conduct a course impact analysis, which reviews the effect of a course number change and/or course deletion on course prerequisites. For instructions on how to do a course impact analysis, please visit our page and click on “deleting a course” and review Step 2. Course Impact Analysis.
COURSE SUBJECT | ENSC  
NUMBER | 440W  
TITLE | Capstone Engineering Science Project

**RATIONALE** (must be included)

The last offering of ENSC 440W was Spring 2016. This course was part of the old engineering curriculum and has been replaced with ENSC 440 in the new curriculum. The new curriculum was effective Fall 2013.

**EFFECTIVE TERM AND YEAR FOR CHANGES**

Fall, Spring, Summer and year (enter in textbox) | Spring 2019

**PLEASE DO THE FOLLOWING:**

1. Attach a program impact list along with your course deletion form. Contact the Senate and Academic Services Office (sfual@sfu.ca) for a program impact list.
2. Once you have the program impact list, please review how deleting this course affects each program’s requirements.
3. If more substantial changes are required to programs as a result of this deletion, please also submit a program modification form.
4. If no further changes other than deletion is required in program requirements, please list those programs in the box below:

There is no program impact list for this course

5. Lastly, please conduct a course impact analysis, which reviews the effect of a course number change and/or course deletion on course prerequisites. For instructions on how to do a course impact analysis, please visit our [page](#) and click on “deleting a course” and review Step 2. Course Impact Analysis.
MEMORANDUM

ATTENTION: Carl Lowenberger, Associate Dean, Faculty of Science

FROM: Susan Rhodes, Director
University Curriculum & Institutional Liaison

RE: Chemistry Breadth designation approval

DATE: May 15, 2018
PAGES: 1

The University Curriculum Office has reviewed and approved B-Sci designation for the following proposed Chemistry course, effective Spring 2019 (1191):

CHEM 399-3 Special Topics in Chemistry and Society

Please forward this memo to your Faculty UCC and then on to SCUS and Senate for further approval.

cc: Daniel Leznoff, Undergraduate Program Chair, Chemistry
COURSE MODIFICATION FORM

COURSE SUBJECT  PHYS  NUMBER  233  TITLE  Physics Laboratory IV

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number  □  Units  □  Prerequisite  □
Title  □  Description  □  Equivalent  Statement  □

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the “Equivalency statements” section under Information about specific course components if changing equivalent statement(s).

Please change the number of units from 2 to 3.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Please change the number of units from 2 to 3.

Presently Physics Laboratory IV (PHYS 233) is a 2-unit course and involves 4 hr of laboratory time per week. Students focus on four experiments during the semester, spending three lab periods on each experiment where they iterate between experimental and analysis work, gradually improving their interpretation of the experiment and its experimental uncertainties. Students are expected to devote a significant amount of time outside the scheduled lab period preparing experimental documentation and performing data analysis. In parallel, students are learning background required for statistical analysis and use of standard software tools, such as Python or MATLAB, to perform that analysis.

We propose to add an extra hour of lecture, which will be scheduled in addition to laboratory time, where students can concentrate on the analysis component of the course. Students will learn about analysis techniques through a series of worksheets, will be assigned a series of problems in addition to the lab work, and will be tested at the end of the course on the analysis section. We hope that increasing the number of units will make the units earned more consistent with the workload associated with the course.
# COURSE MODIFICATION FORM

**COURSE SUBJECT**: CMNS  
**NUMBER**: 323W-4  
**TITLE**: Cultural Dimensions in Advertising (4)

## TYPE OF CHANGES
- Prerequisite

<table>
<thead>
<tr>
<th>Course number</th>
<th>Units</th>
<th>Prerequisite</th>
</tr>
</thead>
</table>

## WORDING/DESCRIPTION EDITS
Indicate deleted or changed text using strike-through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the “Equivalency statements” section under Information about specific course components if changing equivalent statement(s).

Prerequisite: 45 units including one of CMNS 220, 221, 223W, 226, 230, 235, or 253W, 240. Writing.

## EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

## RATIONALE (must be included)
Change of prerequisite to focus the CMNS 200-level courses leading to this 300-level CMNS course. Only CMNS 200-level W-courses are included, as they are the best ones to prepare our students for this 3rd year CMNS W-course. CMNS 253W now included to give our students one more option as a prerequisite.

November 2016
COURSE MODIFICATION FORM

COURSE SUBJECT  CMNS  NUMBER  324-4  TITLE  Media, Sports and Popular Culture (4)

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number  ☐  Units  ☐  Prerequisite  ☒  
Title  ☐  Description  ☐  Equivalent  ☒  Statement

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Prerequisite: Two 45 units and one of CMNS 210, 220, 221, 223 (or 223W, 235,); or 240. Cannot be taken for further credit if student has taken CMNS 386 under same title.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)
Spring 2019

RATIONALE (must be included)
Change of prerequisite to reduce the number of CMNS 200-level courses needed to take CMNS 324. Inclusion of "45 units" to ensure that students have sufficient general background to be prepared to complete CMNS 324 successfully. Deletion of equivalent statement that is too "old" to still be relevant.

November 2016
COURSE MODIFICATION FORM

COURSE SUBJECT: CMNS
NUMBER: 332-4
TITLE: Communication and Rhetoric(4)

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number □ Units □ Prerequisite ❑
Title □ Description □ Equivalent ❑ Statement

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the “Equivalency statements” section under Information about specific course components if changing equivalent statement(s).

Prerequisite: 60 45 units including one of CMNS 220, 221, or 223 (or 223W, or 235). Cannot repeat this course for further credit if taken as CMNS 206-3 in 2003-4.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Change of prerequisite to reduce the number of CMNS 200-level courses needed to take CMNS 332, and who have fewer total units completed. Deletion of “repeat statement” that is too “old” to still be relevant.

November 2016
COURSE MODIFICATION FORM

COURSE SUBJECT CMNS
NUMBER 349-4
TITLE Environment, Media and Communication (4)

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number
Units
Prerequisite ✓

Title
Description
Equivalent Statement

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using strike-through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the “Equivalency statements” section under Information about specific course components if changing equivalent statement(s).

Prerequisite: 60 45 units, including at least one upper division course in CMNS, DIAL, EVSC, GEOG or BISC. Students with credit for CMNS 388 (in Summer 2010, Spring 2011, or Summer 2012) may not take this course for further credit.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Change of prerequisite to allow greater access to students wanting to take this course, who have the course-related prerequisite, but with fewer total units. Removal of old “repeat statement” that is too old to be relevant any more.
COURSE SUBJECT | CMNS | NUMBER | 431-4 | TITLE | News Research and Analysis(4)

TYPE OF CHANGES. Please type ‘X’ for the appropriate revision(s):

Course number □ Units □ Prerequisite □
Title □ Description □ Equivalent Statement □

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

**Prerequisite:** Instructor's permission, normally granted on the basis of a CGPA of at least 3.0, and 60 units, including one of CMNS 235 or 331, and one of CMNS 201, 261 or 363.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)
Spring 2019

RATIONALE (must be included)

Change of prerequisite to allow greater access to CMNS students wanting to take this course who are in good standing, but with a lower than 3.0 CGPA. Also, CMNS 261 is no longer offered; and CMNS 363 is on temporary withdrawal; so we needed to amend that part of the prerequisite to include another CMNS research methods course.

November 2016
COURSE SUBJECT: CMNS
NUMBER: 444-4
TITLE: Political Economy of International Communication (4)

TYPE OF CHANGES. Please type ‘X’ for the appropriate revision(s):

- Course number
- Units
- Prerequisite: ☑
- Title
- Description
- Equivalent Statement

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the “Equivalency statements” section under Information about specific course components if changing equivalent statement(s).

Prerequisite: 75-60 units, including CMNS 240 or 247, and CMNS 346 or 348.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)
Spring 2019

RATIONALE (must be included)
Change of prerequisite to allow greater access to CMNS students wanting to take this course, who are in good standing, but with fewer units.

November 2016
COURSE SUBJECT | CMNS | NUMBER | 455W-4 | TITLE | Women and New Information Technologies (4)

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number □ Units □ Prerequisite □
Title □ Description □ Equivalent □ Statement

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Prerequisite: \(75 \text{ 60 units, including CMNS 253 (or 253W). Students with credit for CMNS 486 (in Spring 1998 or Spring 2000) may not take this course for further credit. Students with credit for CMNS 455 may not take this course for further credit. Writing.}

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Change of prerequisite to allow greater access to CMNS students wanting to take this course, who are in good standing, but with fewer units. Amendment of CMNS 200-level required as a prerequisite for this W-course - need CMNS 253W (not CMNS 253). Removal of old "repeat statement" that is too old to be useful any more.
### TYPE OF CHANGES
Please type 'X' for the appropriate revision(s):

<table>
<thead>
<tr>
<th>Course number</th>
<th>Units</th>
<th>Prerequisite</th>
<th>Title</th>
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### WORDING/DESCRIPTION EDITS
Indicate deleted or changed text using strike through, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the “Equivalency statements” section under Information about specific course components if changing equivalent statement(s).

### EFFECTIVE TERM AND YEAR FOR CHANGES

Prerequisite: 75 units, including either at least two of CMNS 332, 347, 425, 432, 437, 447; DIAL 390W, 391W, 392W. Students with credit for DIAL 460 may not take this course for further credit.

- Fall, Spring, Summer and year (please enter in textbox)
  - Spring 2019

### RATIONALE (must be included)

House-keeping/grammar change only. The word “either” is not needed. The 3 DIAL courses are all "W" courses, so we need to reflect that in this prerequisite.
MEMORANDUM

ATTENTION Senate

FROM Jeff Derksen,
Chair of Senate Graduate Studies
Committee (SGSC)

RE: Program Changes

DATE June 21, 2018

For information:
Acting under delegated authority at its meeting of June 5, 2018, SGSC approved the following program changes, effective Spring 2019:

Faculty of Arts and Social Sciences
Department of Linguistics
1) Calendar revision: Linguistics MA, PhD

Department of Sociology and Anthropology
2) Calendar revision: Anthropology MA, PhD
3) Calendar revision: Sociology MA, PhD

Faculty of Communication, Art and Technology
School of Communication
4) Program change: Communication MA, PhD

Faculty of Education
5) Program change: Curriculum and Instruction Graduate Certificate
6) Program change: Educational Leadership Graduate Certificate

Individualized Interdisciplinary Studies
7) Program change (new): MA, MASC, MSc, PhD Individualized Interdisciplinary Studies
MEMO
TO: Jeff Derksen, Dean, Graduate Studies

FROM: Lisa Shapiro, Associate Dean, FASS

RE: SGSC Submission

DATE: 28 May 2018

The following calendar changes have been approved by Lisa Shapiro, Associate Dean, FASS, under delegated authority and are forwarded to the Senate Graduate Studies Committee for approval. These curriculum items should be effective for Spring 2019. Please include them on the next SGSC agenda.

Linguistics
1) Linguistics MA, PhD

Sociology and Anthropology
1) Sociology MA, PhD
2) Anthropology MA, PhD
Attached please find calendar revisions for Linguistics MA and PhD programs. All the updates are editorial in nature and prompted by the Graduate and Postdoctoral Studies as part of the APR project.

Please approve these edits under delegated authority for the next SGSC meeting in June (with effective date in Spring 2019).

Thank you.

Chung-hye Han
Professor
Graduate Program Chair
Department of Linguistics
Please note:
To view the Spring 2018 Academic Calendar go to http://www.sfu.ca/students/calendar/2018/spring.html

Department of Linguistics
Simon Fraser University Calendar | Summer 2018

Linguistics

MASTER OF ARTS

Admission Requirements

Students must demonstrate adequate linguistics preparation. Those with little or no academic linguistics preparation may not obtain clear program admission or admission as a qualifying student. See Graduate General Regulations 1.3.5 Admission Under Special Arrangements and Graduate General Regulations 1.3.4. Admission to a Doctoral Program in the Graduate General Regulations.

Areas of Specialization

Phonetics, phonology, morphology, syntax, semantics, pragmatics, discourse analysis, sociolinguistics, computational linguistics, documentation and linguistic analysis of North American Indigenous Languages, historical and comparative linguistics, first and second language acquisition, neurolinguistics, psycholinguistics.

Time Limit

Although University regulations allow a six calendar year time limit (or 12 terms of full-time enrolment) for MA degree completion, (including the MA degree work), an MA student is normally expected to complete the degree in two years. See the graduate general regulations.

Program Requirements

Students complete at least 24 units of approved graduate course work, including all of

LING 800 - Phonology (4)
LING 801 - Syntax (4)
LING 851 - Research Techniques and Experimental Design (4)

and 12 additional units of graduate course work. Only one course may be a directed research course.

and, in the first year of program enrolment, both of

LING 890 - Graduate Seminar I (1)
NOTE: SFU students enrolled in the Accelerated Master’s program within the Department of Linguistics may apply a maximum of 10 graduate course units taken while completing the bachelor’s degree to the requirements of the master’s degree. For more information go to: https://www.sfu.ca/dean-gradstudies/future/academicprograms/AcceleratedMasters.html and http://www.sfu.ca/linguistics.html.

Thesis

All students complete an MA thesis based on original research, and will comply with University regulations concerning completing and defending the thesis.

Language Requirements

Candidates must show a high competence in at least one language other than English.

Academic Requirements within the Graduate General Regulations

All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
Linguistics
MASTER OF ARTS

Description of Program
The areas of specialization in this program are: phonetics, phonology, morphology, syntax, semantics, pragmatics, discourse analysis, sociolinguistics, computational linguistics, documentation and linguistic analysis of North American Indigenous Languages, historical and comparative linguistics, first and second language acquisition, neurolinguistics, psycholinguistics.

Admission Requirements
Applicants must satisfy the University admission requirements as stated in Graduate General Regulations 1.3 in the SFU Calendar. Students must also demonstrate adequate linguistics preparation. Those with little or no academic linguistics preparation may not obtain program admission or admission as a qualifying student.

Program Requirements
This program consists of course work and thesis for a minimum of 30 units. LING 890 and LING 891 should be completed in the first year of program enrolment.

Students must complete
LING 800 - Phonology (4)
LING 801 - Syntax (4)
LING 851 - Research Techniques and Experimental Design (4)
LING 890 - Graduate Seminar I (1)
LING 891 - Graduate Seminar II (1)

three graduate courses *

and a thesis
LING 898 - MA Thesis (6)

* must be approved by the supervisor. Only one directed research course allowed.

NOTE: SFU students enrolled in the Accelerated MA within the Department of Linguistics may apply a maximum of ten graduate course units, taken while completing the bachelor's degree, towards the upper division undergraduate electives of the bachelor's program and the requirements of the master's degree. These graduate courses must be passed with a grade of B (3.0) or better in order to be used towards the requirements of the master's degree. Students may apply for the Accelerated MA once they have completed 90 units with a 3.67 or greater CGPA. For more information go to: https://www.sfu.ca/dean-gradstudies/future/academicprograms/AcceleratedMasters.html and http://www.sfu.ca/linguistics.html

Program Length
Students are expected to complete the program requirements in six terms.

Academic Requirements within the Graduate General Regulations
All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
Please note:

To view the Spring 2018 Academic Calendar go to http://www.sfu.ca/students/calendar/2018/spring.html

Department of Linguistics | Faculty of Arts and Social Sciences
Simon Fraser University Calendar | Summer 2018

Linguistics

DOCTOR OF PHILOSOPHY

Admission Requirements

Students must demonstrate a substantial background in linguistics and research methodology. Direct doctor of philosophy (PhD) program admission without a master of arts (MA) in linguistics, or equivalent is normally not possible. Visit graduate general regulation 1.3 for more information.

Areas of Specialization

Phonetics, phonology, morphology, syntax, semantics, pragmatics, discourse analysis, sociolinguistics, computational linguistics, documentation and linguistic analysis of North American Indigenous Languages, historical and comparative linguistics, first and second language acquisition, neurolinguistics, psycholinguistics.

Time Limit

Although University regulations allow an eight calendar year time limit for the PhD, a PhD student is normally expected to complete the degree in four years after the MA. See the graduate general regulations.

Program Requirements

These requirements are beyond those of the MA requirements. Students may need to complete specified courses from the MA program requirements as a condition of admission to the PhD program.

Course Work

Students complete at least 20 units (five courses) that have been approved by the supervisory committee. Only one course may be a directed research course.

and, in the first year of program enrolment, both of

LING 890 - Graduate Seminar I (1)
Qualifying Papers

Students are expected to complete two qualifying papers during their second year in the program. At least one of the papers will be in an area outside of the student's main area of research, and unrelated to the thesis.

Students will typically enrol in the first qualifying paper course in the fall of their second year in the program, and in the second qualifying paper course during the following spring term. The paper is evaluated by a committee of at least two faculty members, one of them being the senior supervisor.

Thesis Proposal

Candidates submit a written thesis proposal to the supervisory committee which defines the intended original research and the relationship between it and existing scholarship. After submission, the student presents the proposal at a departmental colloquium no later than the end of the ninth residence term. The written proposal must be approved by the supervisory committee prior to the start of substantive research.

Thesis

All students must complete a PhD thesis based on original research and must comply with University regulations on completing and defending a thesis.

Language Requirements

Candidates must show high competence in two languages other than English, with some knowledge of the structure of at least one non-Indo-European language. The supervisory committee determines how to demonstrate this competence.

Academic Requirements within the Graduate General Regulations

All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
Linguistics
DOCTOR OF PHILOSOPHY

Description of Program
The areas of specialization in this program are: phonetics, phonology, morphology, syntax, semantics, pragmatics, discourse analysis, sociolinguistics, computational linguistics, documentation and linguistic analysis of North American Indigenous Languages, historical and comparative linguistics, first and second language acquisition, neurolinguistics, psycholinguistics.

Admission Requirements
Applicants must satisfy the University admission requirements as stated in Graduate General Regulations 1.3 in the SFU Calendar. Students must also demonstrate a substantial background in linguistics and research methodology. Direct doctor of philosophy (PhD) program admission without a master of arts (MA) in linguistics, or equivalent, is normally not possible.

Program Requirements
This program consists of course work, two qualifying papers, and a thesis for a minimum of 38 units.

Students must complete in the first year of enrollment
LING 890 - Graduate Seminar I (1)
LING 891 - Graduate Seminar II (1)

and five graduate courses*

and two qualifying papers
LING 894 – Qualifying Paper I (6)
LING 895 – Qualifying Paper II (6)

and a thesis
LING 899 - PhD Thesis (6)

*must be approved by the senior supervisor. Only one directed research course allowed.

Other Information
Qualifying Papers
Students are expected to complete two qualifying papers by the sixth term. At least one of the papers will be in an area outside of the student’s main area of research, and unrelated to the thesis. The paper is evaluated by a committee of at least two faculty members, one of them being the senior supervisor.

Thesis Proposal
Candidates submit a written thesis proposal to the supervisory committee which defines the intended original research and the relationship between it and existing scholarship. After submission, the student presents the proposal at a departmental colloquium no later than the end of the ninth residence term. The written proposal must be approved by the supervisory committee prior to the start of substantive research.
Program Length
Students are expected to complete the program requirements in 12 terms (four years).

Academic Requirements within the Graduate General Regulations
All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
MEMORANDUM

ATTENTION  Dr. Lisa Shapiro, Chair of FASSGSC

FROM  Dr. Pamela Stern, Graduate Program Chair, Department of Sociology & Anthropology

RE:  S&A Calendar Edits for APR Project

DATE  May 22, 2018

CC  SA Graduate Program Assistant

Dear Dr. Shapiro:

Attached please find four edits to the calendar entries for the Sociology & Anthropology MA and PhD programs. There are no major revisions, but are simply editorial updates prompted by the Dean of Graduate Studies office as part of the APR project.

Please approve these edits under delegated authority for the next SGSC meeting in June (with effective date in Spring 2019).

Thank you.

Sincerely,

Pamela Stern
Graduate Program Chair
Sociology & Anthropology
Please note:
To view the Spring 2018 Academic Calendar go to http://www.sfu.ca/students/calendar/2018/spring.html

Department of Sociology and Anthropology
Simon Fraser University Calendar | Summer 2018

Anthropology

MASTER OF ARTS

Admission Requirements

See graduate general regulation 1.3 for general requirements. In addition to these requirements, the department also requires a written statement about current interests and prospective research. How well the applicant’s proposed research coincides with the research and teaching interests of the faculty is an important admission consideration.

Admission applications are normally considered once each year at the end of January. The program commences in September. Contact the graduate program chair or the graduate program assistant for further information.

Graduate Seminar

All full-time graduate students must attend and actively participate in the graduate seminar during their program terms. In subsequent terms, attendance and enrolment is voluntary.

Language Requirement

Although French or a foreign language is desirable, there is no prescribed language requirement but, where a language other than English is necessary for field work or reading, proficiency is required.

Time Limits

Normally, the MA program is completed within six terms, or two full years of study. Required courses are normally completed within the first two terms of MA program enrolment.

Program Requirements

Students may be required to complete more than these courses at the discretion of the supervisory committees.

Students must complete a minimum of 30 units, including all of
SA 840 - Graduate Seminar (2)
SA 870 - Theories in Anthropology (5)
SA 875 - Ethnographic Methodology: Social/Cultural Anthropology (5)
SA 898 - MA Thesis (10)

and two of

SA 815 - Theories of Latin American Development (4)
SA 835 - Social and Political Change in Latin America (4)
SA 850 - Selected Topics in Social Theory (5)
SA 856 - Qualitative Sociological Research Methods (5)
SA 871 - Readings in Anthropology I (5) *
SA 872 - Readings in Anthropology II (5) *
SA 887 - Special Topics in Sociology/Anthropology (5)

* Students may also choose a graduate course or graduate directed readings course in another Simon Fraser University department, or from another university that is part of the Western Dean's Agreement. Supervisory committee and departmental graduate program committee approval is required.

Thesis

The thesis, completed by all students, will normally consist of no more than 75 pages, inclusive of bibliographies, appendices and tables. At the discretion of the supervisory committee, the maximum number of pages may be increased, normally only to facilitate the inclusion of large appendices and tables.

Academic Requirements within the Graduate General Regulations

All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
Anthropology

MASTER OF ARTS

Description of Program
Sociology & Anthropology is a joint department where students are offered a solid foundation in each discipline and are invited to engage in innovative interdisciplinary studies. Graduates are equipped with a comprehensive foundation in social theory, substantive courses in specific areas of research interest, and rigorous training in research methodologies, a particular strength of the Department of Sociology and Anthropology at SFU. Graduate students and their faculty supervisory committees work collaboratively to tailor programs to meet each student's unique goals.

Admission Requirements
Applicants must satisfy the University admission requirements as stated in Graduate General Regulations 1.3 in the SFU Calendar. How well the applicant's proposed research coincides with the research and teaching interests of the faculty is an important admission consideration.

Program Requirements
This program consists of courses and a thesis for a minimum of 30 units. Students may be required to complete more than these courses at the discretion of the supervisory committee.

Students must complete
SA 840 - Graduate Seminar (2)
SA 870 - Theories in Anthropology (5)
SA 875 - Ethnographic Methodology: Social/Cultural Anthropology (5)

and two of*
SA 815 - Theories of Latin American Development (4)
SA 835 - Social and Political Change in Latin America (4)
SA 850 - Selected Topics in Social Theory (5)
SA 856 - Qualitative Sociological Research Methods (5)
SA 871 - Readings in Anthropology I (5)
SA 872 - Readings in Anthropology II (5)
SA 887 - Special Topics in Sociology/Anthropology (5)

and a thesis
SA 898 - MA Thesis (10)

*Students may also choose a graduate course or graduate directed readings course in another Simon Fraser University department, or from another university that is part of the Western Dean's Agreement. Supervisory committee and departmental graduate program committee approval is required. If a student chooses a course that is less than four units, they will need to take an additional course in order to meet the minimum of 30 units.

Program Length
Students are expected to complete the program requirements in six terms. Required courses are normally completed within the first two terms of MA program.
Other Information

Thesis
The thesis will consist of no more than 75 pages, inclusive of bibliographies, appendices and tables. At the discretion of the supervisory committee, the maximum number of pages may be increased, normally only to facilitate the inclusion of large appendices and tables.

Academic Requirements within the Graduate General Regulations
All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
Please note:

To view the Spring 2018 Academic Calendar go to http://www.sfu.ca/students/calendar/2018/spring.html

Department of Sociology and Anthropology
Simon Fraser University Calendar | Summer 2018

Anthropology

DOCTOR OF PHILOSOPHY

Admission Requirements

See graduate general regulation 1.3 for general requirements. In addition to these requirements, the department also requires a written statement about current interests and prospective research. How well the applicant's proposed research coincides with the research and teaching interests of the faculty is an important admission consideration. PhD applicants must submit a work sample from earlier or ongoing graduate studies.

Admission applications are normally considered once each year at the end of January. The program commences in September. Contact the graduate program chair or the graduate program assistant for further information.

Graduate Seminar

All full-time graduate students must attend and actively participate in the graduate seminar during their first two program terms. In subsequent terms, attendance and enrolment is voluntary.

Language Requirement

Although French or a foreign language is desirable, there is no prescribed language requirement but, where a language other than English is necessary for field work or reading, proficiency is required.

Program Requirements

Students complete three courses, the PhD qualifying examinations (by registering in SA 897), and the PhD Thesis (SA 899).

Students may be required to complete more than these courses at the discretion of the supervisory committees.

Students complete a minimum of 26 units, including all of

SA 840 - Graduate Seminar (2)
SA 897 - PhD Qualifying Examinations (6)
SA 899 - PhD Thesis (10)

and two of

SA 815 - Theories of Latin American Development (4)
SA 835 - Social and Political Change in Latin America (4)
SA 850 - Selected Topics in Social Theory (5)
SA 856 - Qualitative Sociological Research Methods (5)
SA 870 - Theories in Anthropology (5)
SA 871 - Readings in Anthropology I (5) *
SA 872 - Readings in Anthropology II (5) *
SA 875 - Ethnographic Methodology: Social/Cultural Anthropology (5)
SA 887 - Special Topics in Sociology/Anthropology (5)

*Students may also choose a graduate course or graduate directed readings course in another Simon Fraser University department, or from another university that is part of the Western Dean's Agreement. Supervisory committee and departmental graduate program committee approval required.

Required courses, including qualifying examinations, and preparation and defence of the thesis prospectus, are normally completed within the first six terms of enrolment.

Course requirements are the same whether the student has completed an MA in this department, or completed a comparable MA program at another university.

Qualifying Exam

At the conclusion of SA 897, students must complete a written qualifying examination. After successfully completing the qualifying exam, and prior to commencing work on the thesis, students defend a written prospectus that the student has prepared. This oral defence is public.

Thesis

After the program requirements, qualifying exam and written prospectus defence is complete, the thesis is written and defended in an oral examination.

Academic Requirements within the Graduate General Regulations

All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
Anthropology

DOCTOR OF PHILOSOPHY

Description of Program
Sociology & Anthropology is a joint department where students are offered a solid foundation in each discipline and are invited to engage in innovative interdisciplinary studies. Graduates are equipped with a comprehensive foundation in social theory, substantive courses in specific areas of research interest, and rigorous training in research methodologies, a particular strength of the Department of Sociology and Anthropology at SFU. Graduate students and their faculty supervisory committees work collaboratively to tailor programs to meet each student's unique goals.

Admission Requirements
Applicants must satisfy the University admission requirements as stated in Graduate General Regulations 1.3 in the SFU Calendar. How well the applicant's proposed research coincides with the research and teaching interests of the faculty is an important admission consideration.

Program Requirements
This program consists of courses, qualifying examinations, and a thesis for a minimum of 26 units. Course requirements are the same whether the student has completed an MA in this department, or completed a comparable MA program at another university. Students may be required to complete more than these courses at the discretion of the supervisory committees.

Students must complete
SA 840 - Graduate Seminar (2)

and two of *
SA 815 - Theories of Latin American Development (4)
SA 835 - Social and Political Change in Latin America (4)
SA 850 - Selected Topics in Social Theory (5)
SA 856 - Qualitative Sociological Research Methods (5)
SA 870 - Theories in Anthropology (5)
SA 871 - Readings in Anthropology I (5)
SA 872 - Readings in Anthropology II (5)
SA 875 - Ethnographic Methodology: Social/Cultural Anthropology (5)
SA 887 - Special Topics in Sociology/Anthropology (5)

and qualifying examinations
SA 897 - PhD Qualifying Examinations (6)

and a thesis
SA 899 - PhD Thesis (10)

*Students may also choose a graduate course or graduate directed readings course in another Simon Fraser University academic unit, or from another university that is part of the Western Dean’s Agreement. Supervisory committee and departmental graduate program committee approval is required.
Program Length
Students are expected to complete the program requirements in 18 terms.

Other Information
Qualifying Exam
At the conclusion of SA 897, students must complete a written qualifying examination. After successfully completing the qualifying exam, and prior to commencing work on the thesis, students defend a written prospectus that the student has prepared. This oral defence is public. Qualifying exam normally must be completed by the sixth term.

Academic Requirements within the Graduate General Regulations
All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
Please note:

To view the Spring 2018 Academic Calendar go to http://www.sfu.ca/students/calendar/2018/spring.html

Department of Sociology and Anthropology
Simon Fraser University Calendar | Summer 2018

Sociology

MASTER OF ARTS

Admission Requirements

See graduate general regulation 1.3 for general requirements. In addition to these requirements, the department also requires a written statement about current interests and prospective research. How well the applicant's proposed research coincides with the research and teaching interests of the faculty is an important admission consideration.

Admission applications are normally considered once each year at the end of January. The program commences in September. Contact the graduate program chair or the graduate program assistant for further information.

Graduate Seminar

All full-time graduate students must attend and actively participate in the graduate seminar during their first program term. In subsequent terms, attendance and enrolment is voluntary.

Language Requirement

Although French or a foreign language is desirable, there is no prescribed language requirement but, where a language other than English is necessary for field work or reading, proficiency is required.

Time Limits

Normally, the MA program is completed within six terms, or two full years of study. Required courses are normally completed within the first two terms of MA program enrolment.

Program Requirements

Students may be required to complete more than these courses at the discretion of the supervisory committees.

Students complete a minimum of 30 units, including all of
SA 840 - Graduate Seminar (2)
SA 850 - Selected Topics in Social Theory (5)
SA 856 - Qualitative Sociological Research Methods (5)
SA 898 - MA Thesis (10)

and two of

SA 815 - Theories of Latin American Development (4)
SA 835 - Social and Political Change in Latin America (4)
SA 853 - Readings in Sociology I (5) *
SA 854 - Readings in Sociology II (5) *
SA 870 - Theories in Anthropology (5)
SA 875 - Ethnographic Methodology: Social/Cultural Anthropology (5)
SA 887 - Special Topics in Sociology/Anthropology (5)

* Students may also choose a graduate course or graduate directed readings course in another Simon Fraser University department, or from another university that is part of the Western Dean's Agreement. Supervisory committee and departmental graduate program committee approval is required.

Thesis

The thesis, completed by all students, will normally consist of no more than 75 pages, inclusive of bibliographies, appendices and tables. At the discretion of the supervisory committee, the maximum number of pages may be increased, normally only to facilitate the inclusion of large appendices and tables.

Academic Requirements within the Graduate General Regulations

All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
Sociology
MASTER OF ARTS

Description of Program
Sociology & Anthropology is a joint department where students are offered a solid foundation in each discipline and are invited to engage in innovative interdisciplinary studies. Graduates are equipped with a comprehensive foundation in social theory, substantive courses in specific areas of research interest, and rigorous training in research methodologies, a particular strength of the Department of Sociology and Anthropology at SFU. Graduate students and their faculty supervisory committees work collaboratively to tailor programs to meet each student’s unique goals.

Admission Requirements
Applicants must satisfy the University admission requirements as stated in Graduate General Regulations 1.3 in the SFU Calendar. How well the applicant’s proposed research coincides with the research and teaching interests of the faculty is an important admission consideration.

Program Requirements
This program consists of courses and a thesis for a minimum of 30 units. Students may be required to complete more than these courses at the discretion of the supervisory committee.

Students must complete
SA 840 - Graduate Seminar (2)
SA 850 - Selected Topics in Social Theory (5)
SA 856 - Qualitative Sociological Research Methods (5)

and two of*
SA 815 - Theories of Latin American Development (4)
SA 835 - Social and Political Change in Latin America (4)
SA 853 - Readings in Sociology I (5)
SA 854 - Readings in Sociology II (5)
SA 870 - Theories in Anthropology (5)
SA 875 - Ethnographic Methodology: Social/Cultural Anthropology (5)
SA 887 - Special Topics in Sociology/Anthropology (5)

and a thesis
SA 898 - MA Thesis (10)

*Students may also choose a graduate course or graduate directed readings course in another Simon Fraser University department, or from another university that is part of the Western Dean's Agreement. Supervisory committee and departmental graduate program committee approval is required. If a student chooses a course that is less than four units, they will need to take an additional course in order to meet the minimum of 30 units.
Program Length
Students are expected to complete the program requirements in six terms. Required courses are normally completed within the first two terms of MA program.

Other Information
Thesis
The thesis will consist of no more than 75 pages, inclusive of bibliographies, appendices and tables. At the discretion of the supervisory committee, the maximum number of pages may be increased, normally only to facilitate the inclusion of large appendices and tables.

Academic Requirements within the Graduate General Regulations
All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
Please note:

To view the Spring 2018 Academic Calendar go to http://www.sfu.ca/students/calendar/2018/spring.html

Department of Sociology and Anthropology
Simon Fraser University Calendar | Summer 2018

Sociology

DOCTOR OF PHILOSOPHY

Admission Requirements

See graduate general regulation 1.3 for general requirements. In addition to these requirements, the department also requires a written statement about current interests and prospective research. How well the applicant’s proposed research coincides with the research and teaching interests of the faculty is an important admission consideration. PhD applicants must submit a work sample from earlier or ongoing graduate studies.

Admission applications are normally considered once each year at the end of January. The program commences in September. Contact the graduate program chair or the graduate program assistant for further information.

Graduate Seminar

All full-time graduate students must attend and actively participate in the graduate seminar during their first program term. In subsequent terms, attendance and enrolment is voluntary.

Language Requirement

Although French or a foreign language is desirable, there is no prescribed language requirement but, where a language other than English is necessary for field work or reading, proficiency is required.

Program Requirements

Students complete three courses, the doctor of philosophy (PhD) qualifying examinations (by registering in SA 897), and the PhD Thesis (SA 899).

Students may be required to complete more than these courses at the discretion of the supervisory committees.

Students complete a minimum of 26 units, including all of

SA 840 - Graduate Seminar (2)
SA 897 - PhD Qualifying Examinations (6)
SA 899 - PhD Thesis (10)

and two of

SA 815 - Theories of Latin American Development (4)
SA 835 - Social and Political Change in Latin America (4)
SA 850 - Selected Topics in Social Theory (5)
SA 853 - Readings in Sociology I (5) *
SA 854 - Readings in Sociology II (5) *
SA 856 - Qualitative Sociological Research Methods (5)
SA 870 - Theories in Anthropology (5)
SA 875 - Ethnographic Methodology: Social/Cultural Anthropology (5)
SA 887 - Special Topics in Sociology/Anthropology (5)

*Students may also choose a graduate course or graduate directed readings course in another Simon Fraser University department, or from another university that is part of the Western Dean's Agreement. Supervisory committee and departmental graduate program committee approval is required.

Required courses, including qualifying examinations, and preparation and defence of the thesis prospectus, are normally completed within the first six terms of enrolment.

Course requirements are the same whether the student has completed an MA in this department, or completed a comparable MA program at another university.

Qualifying Exam

Required for the completion of SA 897, students must complete a written qualifying examination. After successfully completing the qualifying exam, and prior to commencing work on the thesis, students defend a written prospectus that the student has prepared. This oral defence is public.

Thesis

After the program requirements, qualifying exam and written prospectus defence is complete, the thesis is written and defended in an oral examination.

Academic Requirements within the Graduate General Regulations

All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
Description of Program
Sociology & Anthropology is a joint department where students are offered a solid foundation in each discipline and are invited to engage in innovative interdisciplinary studies. Graduates are equipped with a comprehensive foundation in social theory, substantive courses in specific areas of research interest, and rigorous training in research methodologies, a particular strength of the Department of Sociology and Anthropology at SFU. Graduate students and their faculty supervisory committees work collaboratively to tailor programs to meet each student's unique goals.

Admission Requirements
Applicants must satisfy the University admission requirements as stated in Graduate General Regulations 1.3 in the SFU Calendar. How well the applicant's proposed research coincides with the research and teaching interests of the faculty is an important admission consideration.

Program Requirements
This program consists of courses, qualifying examinations, and a thesis for a minimum of 26 units. Course requirements are the same whether the student has completed an MA in this department, or completed a comparable MA program at another university. Students may be required to complete more than these courses at the discretion of the supervisory committees.

Students must complete
SA 840 - Graduate Seminar (2)

and two of*
SA 815 - Theories of Latin American Development (4)
SA 835 - Social and Political Change in Latin America (4)
SA 850 - Selected Topics in Social Theory (5)
SA 853 - Readings in Sociology I (5)
SA 854 - Readings in Sociology II (5)
SA 856 - Qualitative Sociological Research Methods (5)
SA 870 - Theories in Anthropology (5)
SA 875 - Ethnographic Methodology: Social/Cultural Anthropology (5)
SA 887 - Special Topics in Sociology/Anthropology (5)

and qualifying examinations
SA 897 - PhD Qualifying Examinations (6)

and a thesis
SA 899 - PhD Thesis (10)

*Students may also choose a graduate course or graduate directed readings course in another Simon Fraser University academic unit, or from another university that is part of the Western Dean's Agreement. Supervisory committee and departmental graduate program committee approval is required.
Program Length
Students are expected to complete the program requirements in 18 terms

Other Information
Qualifying Exam
At the conclusion of SA 897, students must complete a written qualifying examination. After successfully completing the qualifying exam, and prior to commencing work on the thesis, students defend a written prospectus that the student has prepared. This oral defence is public. Qualifying exam normally must be completed by the sixth term.

Academic Requirements within the Graduate General Regulations
All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
At its meeting of 14 March 2018, the School of Communication’s Graduate Program Committee approved the following new course, course change and program changes which have been approved by the School of Communication which after receiving FGSC’s approval will then be forwarded to the Faculty Graduate Studies Committee for approval.

These curriculum items should be effective for Spring 2019. Please include it on the next FGSC agenda.

The changes are as follows:

**CMNS 893** - although a project option has always been offered, this will allow a clear distinction between projects examined like a thesis and those just examined by two readers (which as per the 2015 General Graduate Regulations require the student takes one more course than students whose thesis or project is examined by an external examiner).

**CMNS 896** - course change (change to the number of credits) to make all the students complete with close to the same number of units.

**CMNS MA** - To update and revise the calendar format as requested by the Dean of Graduate Studies’ Office: removal of the research areas and change to the number of units students who complete non thesis based programs to align with GGR 1.7.3.

**CMNS PhD** - To update and revise the calendar format as requested by the Dean of Graduate Studies’ Office: removal of the research areas.

Would you please place these items on the agenda of the next meeting of the FCAT Graduate Committee?

Thank you,

Kirsten McAllister
Chair, School of Communication
Graduate Program Committee
Please note:

To view the Spring 2018 Academic Calendar go to http://www.sfu.ca/students/calendar/2018/spring.html

School of Communication
Simon Fraser University Calendar | Summer 2018

Communication

MASTER OF ARTS

The School of Communication draws on a variety of perspectives, but it is most readily distinguished by the fact that it treats communication as a humanistic social science, with both theoretical and applied dimensions. Students explore communication theory and practice, and are encouraged to apply research and theory to issues and problems in contemporary societies and cultures.

Admission Requirements

Admission requires a bachelor's degree in communication (with at least a good second-class standing) or an equivalent degree in an interdisciplinary or humanities program, in one of the social sciences, or in socially oriented information systems, or biological sciences. However, qualified students will be accepted only if the communication graduate studies committee finds a suitable senior supervisor. Besides applications from communication students, the school encourages applications from those with experience in the humanities, social or biological sciences, and interdisciplinary studies.

All applications should be directed to the graduate studies committee and, in addition to general university requirements, will include the following.

- an online application along with the application fee
- all official post-secondary transcripts in sealed envelopes
- a three to five page succinct statement of interests and goals, including an account of relevant academic and personal background, and a curriculum vitae
- two samples of scholarly and/or other written work relevant to the applicant's objectives and any tapes, films, etc. the applicant considers relevant
- three references, at least two of whom should be familiar with the applicant's academic work, submitted online.

The application deadline is January 15. The committee announces decisions before the last week of April. Students enter the program in the fall term.

As a condition of program entry, students with undergraduate degrees in disciplines other than communication may be required to complete up to two additional courses to complete their MA. These conditions, if applicable, will be specified in the letter of offer, as determined by the admissions committee, on an individual basis.
Fields of Study and Research

Faculty resources support graduate studies in a range of areas of expertise that can be generally summarized by the following thematic clusters.

Media and culture: media analysis; media education; media and democracy; advocacy; cultural forms and genres; media production and design; memory and post-colonial studies.

Politics and political economy: media governance; cultural policy; intellectual property; media industries and markets; communication and social movements; media systems and institutions; knowledge systems.

Science, technology and society: history of communication technology; surveillance and citizenship; health informatics; philosophy of technology; technological innovation and social change; crisis and emergency communication; information society and economy.

Other themes of research and study cut across all of these thematic clusters, and are foundational to all research and training in the school, among them: globalization, policy, and identity studies. All clusters consider theory, history, and methodology.

Advising and Supervision

Each new student is assigned an interim advisor upon program admission. The student selects a senior supervisor and, in consultation with this faculty member, selects one or two other faculty members to serve on their supervisory committee by the beginning of the student’s third term. Although the graduate studies committee (GSC) will endeavor to provide interim advisors with expertise in the student’s stated area of research interest, there is no obligation to select the interim advisor as senior supervisor.

Students have the right to discuss their programs and status with the graduate program chair, to ask for a review of any recommendation or grade, and to appeal committee, supervisor or faculty decisions.

Program Requirements

Extended Essay, Project, or Thesis

The program may be completed through an extended essay, a project, or a thesis. Each is equivalent. Each requires the completion of the same number of courses, is research based and is subject to external examination. Students determine which option is suitable for their research in consultation with their senior supervisor and supervisory committee.

The thesis option represents a longer form of research and is normally between 80 to 100 pages, inclusive of all bibliographies and appendices.

The extended essays option requires completion of two essays of not more than 40 pages each, which may be on related fields, but which may not substantively duplicate papers presented in course work.

In the project option, a student may present an alternative format such as a website, video or audio documentary, on-line software development, or other technologically based formats. All projects also need to be documented in a written form, not to exceed 40 pages, and that will be determined in consultation with the senior supervisor. This documentation should include the rationale behind the project, a description of the research undertaken, as well as a description and evaluation of the project itself.

All thesis and essay options will be deposited in the University library. Project options may be deposited at the discretion of the graduate studies committee.

A supervisory committee will be approved by the graduate studies committee at the beginning of the third term.

Students have an annual formal review of their academic progress by the graduate studies committee, in accordance with graduate general regulation 1.8.1.
Course Groups

Graduate courses are divided into six groups.

**GROUP 1 SURVEYS OF HISTORY AND THEORY**
This course group contains survey courses that define and map the field and expose students to faculty interests and research programs.

CMNS 800 - Contemporary Approaches in Communication Studies (5)
CMNS 802 - History of Communication Theory (5)
CMNS 804 - Seminar in Advanced Communication Theory (5)

**GROUP 2 RESEARCH DESIGN AND METHODS**
This course group contains research methods and methodology courses that help with research projects.

CMNS 801 - Design and Methodology in Communication Research (5)

**GROUP 3 RESEARCH AREA COURSES**
This course group contains the school's various research area and selected topics courses.

CMNS 815 - Social Construction of Communication Technologies (5)
CMNS 830 - Media & Cultural Studies (5)
CMNS 840 - Political Economy of Communications (5)
CMNS 855 - Selected Topics in Communication Studies (5)
CMNS 856 - Graduate Seminar (5)
CMNS 857 - Selected Topics in Communication Studies (5)
CMNS 858 - Selected Topics in Communication Studies (5)
CMNS 859 - Acoustic Dimensions of Communications (5)

**GROUP 4 RESEARCH INTERNSHIP AND FIELDWORK**
This course group contains courses in which students complete field work, or work and study in a professional setting.

CMNS 881 - Research Internship (5)
CMNS 882 - Research Field Work (5)

**GROUP 5 DIRECTED READINGS AND STUDIES**
This course group contains courses in which students perform research and/or reading under faculty member supervision.

CMNS 850 - Directed Readings and Research (5)
CMNS 851 - Directed Studies (5)
CMNS 880 - Directed Readings and Research (5)

**GROUP 6 THESIS, PROJECT, OR EXTENDED ESSAYS**
This course group refers to the course designations for work on theses, projects, or extended essays.

CMNS 896 - MA Extended Essays (10)
CMNS 897 - MA Project (10)
CMNS 898 - MA Thesis (10)

Course Requirements
At least four graduate courses (normally completed before beginning a thesis, a project, or two extended essays) are required, which must include the following, unless otherwise stipulated as a condition for admission.

Students complete one course from **Group 1 Surveys of History and Theory** as follows.

- CMNS 800 - Contemporary Approaches in Communication Studies (5)
- CMNS 802 - History of Communication Theory (5)
- CMNS 804 - Seminar in Advanced Communication Theory (5)

As well students are required to complete one course from **Group 2 Research Design and Methods** as follows.

- CMNS 801 - Design and Methodology in Communication Research (5)

Students are also required to complete two additional courses, at least one of which is selected from within the school. No more than one course may be completed with the same instructor, except by permission of the graduate studies committee.

**Co-operative Education**

The co-operative education program combines professional work experience with academic studies. After the first two terms of the program, students may alternate work and academic terms. All work positions are in paid study related jobs and may lead to the communications project or extended essay in lieu of a master's thesis. Application for the co-op program is made through the school's co-op co-ordinator and the co-operative education office.

**Academic Requirements within the Graduate General Regulations**

All graduate students must satisfy the academic requirements that are specified in the *Graduate General Regulations*, as well as the specific requirements for the program in which they are enrolled.
Communication
MASTER OF ARTS

Description of Program
The School of Communication approaches the study of communication using theoretical and methodological frameworks that are informed by the Social Sciences and Humanities. In both the M.A. and Ph.D. programs graduate students design research projects that examine case studies, theoretical issues or practices using a Communication framework, analyzing the political, economic and cultural implications for society at local and global levels.

Admission Requirements
Applicants must satisfy the University admission requirements as stated in Graduate General Regulation 1.3 in the SFU Calendar. Admission requires a Bachelor's of Arts degree in Communication or an equivalent degree. Qualified applicants will be accepted only if the School of Communication's Graduate Program Committee (GPC) can identify faculty members from the School who have the capacity and required expertise to be senior supervisors for the applicants in question.

Program Requirements
This program consists of course work and the option to complete two extended essays, a project examined by two readers, a Project examined like a thesis or a thesis for a minimum of 30 units. No more than one course may be completed with the same instructor, except by permission of the graduate studies committee.

Students must complete
CMNS 801 - Design and Methodology in Communication Research (5)

and one of
CMNS 800 - Contemporary Approaches in Communication Studies (5)
CMNS 802 - History of Communication Theory (5)
CMNS 804 - Seminar in Advanced Communication Theory (5)

and one graduate course in CMNS

and one graduate 5 unit elective course

and one of two options

OPTION 1
and one of
CMNS 893 - MA project (6)
CMNS 896 - MA Extended Essays (6)

and an additional graduate 5 unit elective course

OR OPTION 2
and one of
CMNS 897 - MA Project (10)
CMNS 898 - MA Thesis (10)

Program Length
Students are expected to complete the program requirements in 6 terms.

Other Information
Advising and Supervision
Students are advised to read section 1.6 of the Graduate General Regulations and the School's guidelines for supervisory committees. Upon admission, students are assigned an interim advisor. Once the student's senior supervisor has been confirmed, in consultation with the supervisor, a minimum of one other faculty member is invited to join the student's supervisory committee by the beginning of the third term. Although the Graduate Program Committee aims to select interim advisors with expertise in the student's research area and the time and capacity to supervise, the student or interim advisor might decide another faculty member is better suited to be the senior supervisor.

Program Options
Each option is research-based. Students determine which option is suitable for their research in consultation with their senior supervisor and supervisory committee. The course work is normally completed before beginning the thesis, project, or two extended essays. The thesis option involves more extensive research and is normally between 80 to 100 pages, inclusive of the bibliographies and appendices.

The extended essays option requires completion of two essays of not more than 40 pages each, which may be on related fields, but which may not substantively duplicate papers presented in course work.

In the project option, a student may use an alternative format such as a video, soundscape production, or an on-line or community-based media project. All projects also need to be documented in a written form, not to exceed 40 pages, which will be determined in consultation with the senior supervisor.

Co-operative Education
The Co-operative Education Program combines professional work experience with academic studies. After the first two terms of the program, students may alternate work and academic terms. All work positions are full-time paid jobs and can extend the amount of time it takes to complete the program. The Co-op position may lead to the student's MA project or extended essays in lieu of a master's thesis. The student should consult with their senior supervisor before pursuing this option. Application for the Co-op program is made through the school's Co-op Coordinator and the Co-operative Education Office.

Academic Requirements within the Graduate General Regulations
All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
Please note:
To view the Spring 2018 Academic Calendar go to http://www.sfu.ca/students/calendar/2018/spring.html

School of Communication | Faculty of Communication, Art and Technology
Simon Fraser University Calendar | Summer 2018

Communication

DOCTOR OF PHILOSOPHY

The School of Communication draws on a variety of perspectives, but it is most readily distinguished by the fact that it treats communication as a humanistic social science, with both theoretical and applied dimensions. Students explore communication theory and practice, and are encouraged to apply research and theory to issues and problems in contemporary societies and cultures.

Admission Requirements

Admission requirements will normally include a master's degree or an exceptional record of undergraduate and/or graduate work in a relevant area of study. Enrollment is strictly limited.

For general university admission requirements, see Graduate General Regulations. In addition, applicants will provide

- an online application along with the application fee
- all official transcripts in sealed envelopes
- a two to three page succinct account of their past academic experience, which would include scholarly work, research accomplished or in progress, relevant teaching experience and degree of responsibility for course content
- samples of scholarly writing, research reports, or other material that is relevant to the applicant's research objectives
- three references (at least two of whom should be familiar with the applicant's academic work) submitted online.
- a brief outline of the applicant's research objectives, with representative bibliographical references and other source material, where applicable, including a statement of interest with an explanation or account of how they see their research objectives fitting in with the School of Communication and potential supervisors
- a curriculum vitae

The application deadline is January 15. The committee announces its decisions before the last week of April. Students enter in the fall term.

Fields of Study and Research

Faculty resources support graduate studies in a range of areas of expertise that can be generally summarized by the following thematic clusters.
Media and culture: media analysis; media education; media and democracy; advocacy; cultural forms and genres; media production and design; memory and post-colonial studies.

Politics and political economy: media governance; cultural policy; intellectual property; media industries and markets; communication and social movements; media systems and institutions; knowledge systems.

Science, technology and society: history of communication technology; surveillance and citizenship; health informatics; philosophy of technology; technological innovation and social change; crisis and emergency communication; information society and economy.

Other themes of research and study cut across all of these thematic clusters, and are foundational to all research and training in the school, among them: globalization, policy, and identity studies. All clusters consider theory, history, and methodology.

Advising and Supervision

Students are advised to read section 6 of the General Regulations and the school’s Guidelines for Supervisory Committees.

Upon admission, students are assigned an interim advisor. The student selects a senior supervisor and, in consultation with their senior supervisor, selects two or three other faculty members for a supervisory committee by the beginning of the third term. Although the graduate studies committee endeavors to select interim advisors with expertise in the student’s research area, there is no obligation to choose the interim advisor to be senior supervisor.

Students have the right to discuss their programs and status with the graduate program chair, to ask for a review of any recommendation or grade, and to appeal committee, supervisor or faculty decisions.

Program Requirements

Doctoral candidates complete course work, comprehensive exams, a dissertation proposal, and submit a dissertation which demonstrates an original contribution to the field of communication.

Course Groups

Graduate courses are divided into six groups.

**GROUP 1 SURVEYS OF HISTORY AND THEORY**

This course group contains survey courses that define and map the field and expose students to faculty interests and research programs.

CMNS 800 - Contemporary Approaches in Communication Studies (5)
CMNS 802 - History of Communication Theory (5)
CMNS 804 - Seminar in Advanced Communication Theory (5)

**GROUP 2 RESEARCH DESIGN AND METHODS**

This course group contains research methods and methodology courses that help with research projects.

CMNS 801 - Design and Methodology in Communication Research (5)

**GROUP 3 RESEARCH AREA COURSES**

This course group contains the school’s various research area and selected topics courses.

CMNS 815 - Social Construction of Communication Technologies (5)
CMNS 830 - Media & Cultural Studies (5)
CMNS 840 - Political Economy of Communications (5)
CMNS 855 - Selected Topics in Communication Studies (5)
CMNS 856 - Graduate Seminar (5)
CMNS 857 - Selected Topics in Communication Studies (5)
CMNS 858 - Selected Topics in Communication Studies (5)
CMNS 859 - Acoustic Dimensions of Communications (5)

**GROUP 4 RESEARCH INTERNSHIP AND FIELDWORK**

This course group contains courses, in which students complete field work, or work and study in a professional setting.

CMNS 881 - Research Internship (5)
CMNS 882 - Research Field Work (5)

**GROUP 5 DIRECTED READINGS AND STUDIES**

This course group contains courses, in which students perform research and/or reading under faculty member supervision.

CMNS 850 - Directed Readings and Research (5)
CMNS 851 - Directed Studies (5)
CMNS 880 - Directed Readings and Research (5)

**GROUP 6 COLLOQUIA AND THESES**

This course group refers to the course designations for work on dissertations in process, and for comprehensive examinations.

CMNS 895 - Comprehensive Examination (6)
CMNS 899 - PhD Thesis (6)

**Course Requirements**

Candidates normally satisfy the following requirements.

Students complete a minimum of nine graduate courses for those only with a bachelor’s degree, or five graduate courses for those with a master’s degree.

The graduate studies committee may require additional courses depending on the student’s background and dissertation project. These courses are normally completed before completing the comprehensive examinations, or beginning a dissertation.

Students complete two courses from **Group 1 Surveys of History and Theory** as follows.

CMNS 800 - Contemporary Approaches in Communication Studies (5)
CMNS 802 - History of Communication Theory (5)
CMNS 804 - Seminar in Advanced Communication Theory (5)

As well students are required to complete one course from **Group 2 Research Design and Methods** as follows.

CMNS 801 - Design and Methodology in Communication Research (5)

For those entering with a master’s degree, students complete a minimum of two additional five-unit courses, at least one of which is selected from within the school, and may include other courses from **Group 1 Surveys of History and Theory** and **Group 2 Research Design and Methods** (see above).

For those entering without a master’s degree, a minimum of six additional courses is required. A minimum of four of these must be completed from the school’s course offerings.
For all students, a maximum of two courses may be completed from **Group 4 Research Internship and Fieldwork** and **Group 5 Directed Readings and Studies**, but no more than two of **Group 4** or **Group 5** may be completed with the same instructor, except with graduate studies committee permission.

### Language Requirement

Students will be required by the communication graduate studies committee to demonstrate adequate command of any language that is essential to the completion of their dissertations.

### Comprehensive Examinations

In consultation with their supervisory committee, students must apply to complete the comprehensive examination, following completion of required course work, and normally no later than their sixth term. Upon passing, the student is admitted to full degree candidacy. The examinations may be retaken once.

To prepare for the comprehensive exams, students select and design two comprehensive fields which may be related to the dissertation topic itself or carve out an area of potential teaching competence. At least one examination shall survey a range of theoretical or methodological frameworks within the study of communication to meet a breadth requirement.

The student submits definition papers, including bibliographies, on each of the fields in preparation for both written and oral examinations.

### Dissertation Proposal

Students enroll in CMNS 899 in the term immediately following completion of the comprehensive exams, and will present a full dissertation proposal to their supervisory committee. Specific comprehensive examinations and dissertation proposal guidelines are available from the graduate program co-ordinator.

### Original Dissertation

PhD students complete a doctoral dissertation that demonstrates an ability to make an original contribution to the field of communication.

### Academic Requirements within the Graduate General Regulations

All graduate students must satisfy the academic requirements that are specified in the [Graduate General Regulations](#), as well as the specific requirements for the program in which they are enrolled.
Communication
DOCTOR OF PHILOSOPHY

Description of Program
The School of Communication approaches the study of communication using theoretical and methodological frameworks that are informed by the Social Sciences and Humanities. In both the M.A. and Ph.D. programs graduate students design research projects that examine case studies, theoretical issues or practices using a Communication framework, analyzing the political, economic and cultural implications for society at local and global levels.

Admission Requirements
Applicants must satisfy the University admission requirements as stated in Graduate General Regulation 1.3 in the SFU Calendar. Admission requirements will normally include a Master’s of Arts degree in Communication or an equivalent degree. Qualified applicants will be accepted only if the School of Communication’s Graduate Program Committee (GPC) can identify faculty members from the School who have the capacity and required expertise to be senior supervisors for the applicants in question.

Program Requirements
This program consists of course work, comprehensive exams, a thesis proposal, and a thesis for a minimum of 37 units. The Graduate Program Committee may require additional courses depending on the applicant’s background and thesis project. The courses are normally completed before completing the comprehensive exams.

Students must complete
CMNS 801 - Design and Methodology in Communication Research (5)

and two of
CMNS 800 - Contemporary Approaches in Communication Studies (5)
CMNS 802 - History of Communication Theory (5)
CMNS 804 - Seminar in Advanced Communication Theory (5)

and one graduate course in CMNS

and one graduate elective 5 unit course

and a comprehensive exam
CMNS 895 – Comprehensive Examination (6)

and a thesis
CMNS 899 – PhD Thesis (6)

Program Length
Students are expected to complete the program in 18 terms.

Other Information
Advising and Supervision
Students are advised to read section 1.6 of the Graduate General Regulations and the School’s guidelines for supervisory committees. Upon admission, students are assigned an interim advisor. Once the student’s senior supervisor has been confirmed, which is typically the interim, in consultation with the supervisor, a minimum of two other faculty members are invited to join the student’s supervisory committee by the beginning of the third term. Although the Graduate Studies Committee aims to select interim advisors with expertise in the student’s research area who have the time and capacity to supervise, the student or interim advisor might
decide another faculty member is better suited to be the senior supervisor.

Language Requirement
Students will be required by the Graduate Program Committee to demonstrate adequate command of any language that is essential to the completion of their thesis.

Course Work
Students have completed equivalent graduate courses should consult their senior supervisor to evaluate course substitutions or waivers.

No more than one course may be completed with the same instructor, except by permission of the graduate studies committee.

Academic Requirements within the Graduate General Regulations
All graduate students must satisfy the academic requirements that are specified in the Graduate General Regulations, as well as the specific requirements for the program in which they are enrolled.
ATTENTION: Senate Graduate Studies Committee

FROM: Peter Liljedahl, Acting Associate Dean, Graduate Studies in Education

RE: Program Changes

DATE: December 12, 2017

The following program changes have been approved by the Faculty of Education and are forwarded to the Senate Graduate Studies Committee for approval. These curriculum items should be effective for the Fall 2018 term. Please include on the next SGSC agenda.

Program Changes:
Curriculum and Instruction Graduate Certificate
Educational Leadership Graduate Certificate

Peter Liljedahl
Acting Associate Dean
Graduate Studies in Education
Calendar Entry Change for Curriculum and Instruction Graduate Certificate

Summary of change:
- Change from four to two the number of courses students complete from list
- Add EDUC 714 Special Topics course to list of courses students must complete two of
- Add requirement to complete two additional EDUC graduate courses
- Remove EDUC 714 Special Topics course as a required course
- Change program length from three terms to four terms

Rationale for change:
- Changing number of courses completed from list and adding EDUC 714 and additional EDUC graduate courses increases course selection options and provides C&I program specializations' greater flexibility to select thematic courses or design individualized programs.
- Proposed changes align the calendar entry with the July 2017 Memorandum of Agreement between the Faculty of Education and the Graduate Studies and Postdoctoral Fellows office wherein the required course EDUC 714 is to be at the discretion of the Associate Dean, Graduate Studies in Education.
- Certificate students are admitted to a specialization and enroll in courses alongside master's cohort programs of the same specialization. Master's cohort programs are scheduled one course per term. Changing the program length to four terms follows the current course scheduling.
- Courses applied towards the requirements of a completed certificate cannot be applied towards a master's program.

Effective term and year: Spring 2019.

Will this change impact current students? If yes, what is the plan for current students?
- This change is not expected to impact students currently in the program; however, students in the program will be advised of program change by letter.

FROM

Program Requirements
This program consists of courses for a minimum of 18 units.

Students must complete three of
EDUC 816 - Developing Educational Programs and Practices for Diverse Educational Settings (5)
EDUC 820 - Current Issues in Curriculum and Pedagogy (5)
EDUC 822 - Evaluation of Educational Programs (5)
EDUC 823 - Curriculum and Instruction in an Individual Teaching Speciality (5)
EDUC 830 - Implementation of Educational Programs (5)
EDUC 833 - Social and Moral Philosophy in Education (5)
EDUC 858 - Intercultural Perspectives and Practices in Francophone School Contexts (5)

TO

Program Requirements
This program consists of courses for a minimum of 18 units.

Students must complete two of
EDUC 714 - Special Topics (3)
EDUC 816 - Developing Educational Programs and Practices for Diverse Educational Settings (5)
EDUC 820 - Current Issues in Curriculum and Pedagogy (5)
EDUC 822 - Evaluation of Educational Programs (5)
EDUC 823 - Curriculum and Instruction in an Individual Teaching Speciality (5)
EDUC 830 - Implementation of Educational Programs (5)
EDUC 833 - Social and Moral Philosophy in Education (5)
EDUC 858 - Intercultural Perspectives and Practices in Francophone School Contexts (5)
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<th>and EDUC 714—Special Topics (3)</th>
<th>in Francophone School Contexts (5) and any two additional EDUC graduate courses</th>
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Course selection is determined by the Associate Dean, Graduate Studies in Education or their delegate.

Program Length

Students are expected to complete the program requirements within three terms.

Program Length

Students are expected to complete the program requirements within four terms.
### Calendar Entry Change for Educational Leadership Graduate Certificate

**Summary of change:**
- Change from four to two the number of courses students complete from list
- Add EDUC 714 Special Topics course to list of courses students must complete two of
- Add requirement to complete two additional EDUC graduate courses
- Remove EDUC 714 Special Topics course as a required course
- Change program length from three terms to four terms

**Rationale for change:**
- Changing number of courses completed from list and adding EDUC 714 and additional EDUC graduate courses increases course selection options and flexibility to design themed cohorts or individualized programs.
- Proposed changes align the calendar entry with the July 2017 Memorandum of Agreement between the Faculty of Education and the Graduate Studies and Postdoctoral Fellows office wherein the required course EDUC 714 is to be at the discretion of the Associate Dean, Graduate Studies in Education.
- Certificate students enroll in courses alongside students enrolled in Educational Leadership master’s cohort programs. Master’s cohort programs are scheduled 1 course per term. Changing the program length to 4 terms follows the current course scheduling.
- Courses applied towards the requirements of a completed certificate cannot be applied towards a master’s program

**Effective term and year:** Spring 2019.

**Will this change impact current students? If yes, what is the plan for current students?**
- This change is not expected to impact students currently in the program; however, students in the program will be advised of program change by letter.

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<td>This program consists of courses for a minimum of 18 units.</td>
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<td>Students must complete three of EDUC 813 - Organizational Theory and Analyses (5) EDUC 817 - Policy Processes (5) EDUC 818 - Leadership Studies (5) EDUC 822 - Evaluation of Educational Programs (5) EDUC 864 - Research Designs in Education (5)</td>
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<td>Students are expected to complete the program requirements within three-terms.</td>
<td>Students are expected to complete the program requirements within four terms.</td>
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MEMORANDUM

ATTENTION Jeff Derksen, Chair of Senate Graduate Studies Committee (SGSC)

DATE May 17, 2018

FROM Ed Park

Graduate Chair of Individualized Interdisciplinary Studies

RE: Program Change, Course Change INS 899

Individualized Interdisciplinary Studies is an approved program under GGR 1.3.5; however, the program requirements have never appeared in the calendar. The MA, MSc and PhD calendar entries are new and are to be added to the University calendar for clarity.

The following calendar entries and a course change have been approved by Ed Park, Graduate Program Chair of Individualized Interdisciplinary Studies, and are forwarded to the Senate Graduate Studies Committee for approval. These curriculum items should be effective for Spring 2019.

Please include these items on the next SGSC agenda:

- Course Change (units): INS 899
- New Calendar Entry: Individualized Interdisciplinary Studies MA
- New Calendar Entry: Individualized Interdisciplinary Studies MASc
- New Calendar Entry: Individualized Interdisciplinary Studies MSc
- New Calendar Entry: Individualized Interdisciplinary Studies PhD
Individualized Interdisciplinary Studies
Master of Arts

Description of Program
Individualized Interdisciplinary Studies Master of Arts program is for students who wish to pursue a graduate degree and their proposed course of studies is interdisciplinary in nature and cannot be pursued in any one existing program. The home department is normally the department of the proposed supervisor and will provide the applicant with a mailbox and access to other services and facilities normally available to students enrolled in graduate programs in that department. Students, together with their supervisors, will create a customized interdisciplinary program plan that reflects the individualized aspect of the program prior to admission.

Admission Requirements
Applicants must satisfy the University admission requirements as stated in Graduate General Regulation 1.3 in the SFU Calendar. Application information and additional admission requirements are available from the Individualized Interdisciplinary Studies website. Applicants must have a completed Bachelor’s degree in a related field to their intended home department.

Program Requirements
This program consists of elective course work and a thesis for a minimum of 36 units. Course work must be from at least two different SFU academic units

Students must complete two graduate on-campus courses

and four additional graduate courses

and a thesis
INS 898 – Master Thesis (18)

Program Length
Students are expected to complete the program within six terms.

Other Information

Supervision
Students are required to have their supervisory committee formed prior to applying into the program. The committee has to consist of at least two additional committee members besides the senior supervisor, one of which needs to be from a different department.

Graduate Progress Report
Students are required to complete the Graduate Progress Report annually and submit it by the indicated deadline in order to receive internal funding or awards.

Course Work
Students must follow their approved program plan from admission. Any substitutions to the plan need to be approved prior to the change. All Directed Readings (maximum of two) must be taken through INS.

Academic Requirements within the Graduate General Regulations
All graduate students must satisfy the academic requirements that are specified in the graduate general regulations, as well as the specific requirements for the program in which they are enrolled.
Individualized Interdisciplinary Studies
Master of Applied Science

Description of Program
Individualized Interdisciplinary Studies Master of Applied Science program is for students who wish to pursue a graduate degree and their proposed course of studies is interdisciplinary in nature and cannot be pursued in any one existing program. The home department is normally the department of the proposed supervisor and will provide the applicant with a mailbox and access to other services and facilities normally available to students enrolled in graduate programs in that department. Students, together with their supervisors, will create a customized interdisciplinary program plan that reflects the individualized aspect of the program prior to admission.

Admission Requirements
Applicants must satisfy the University admission requirements as stated in Graduate General Regulation 1.3 in the SFU Calendar. Application information and additional admission requirements are available from the Individualized Interdisciplinary Studies website. Applicants must have a completed Bachelor’s degree in a related field to their intended home department.

Program Requirements
This program consists of elective course work and a thesis for a minimum of 36 units. Course work must be from at least two different SFU academic units

Students must complete two graduate on-campus courses

and four additional graduate courses

and a thesis

INS 898 – Master Thesis (18)

Program Length
Students are expected to complete the program within six terms.

Other Information

Supervision
Students are required to have their supervisory committee formed prior to applying into the program. The committee has to consist of at least two additional committee members besides the senior supervisor, one of which needs to be from a different department.

Graduate Progress Report
Students are required to complete the Graduate Progress Report annually and submit it by the indicated deadline in order to receive internal funding or awards.

Course Work
Students must follow their approved program plan from admission. Any substitutions to the plan need to be approved prior to the change. All Directed Readings (maximum of two) must be taken through INS.

Academic Requirements within the Graduate General Regulations
All graduate students must satisfy the academic requirements that are specified in the graduate general regulations, as well as the specific requirements for the program in which they are enrolled.
Individualized Interdisciplinary Studies
Master of Science

Description of Program
Individualized Interdisciplinary Studies Master of Science program is for students who wish to pursue a graduate degree and their proposed course of studies is interdisciplinary in nature and cannot be pursued in any one existing program. The home department is normally the department of the proposed supervisor and will provide the applicant with a mailbox and access to other services and facilities normally available to students enrolled in graduate programs in that department. Students, together with their supervisors, will create a customized interdisciplinary program plan that reflects the individualized aspect of the program prior to admission.

Admission Requirements
Applicants must satisfy the University admission requirements as stated in Graduate General Regulation 1.3 in the SFU Calendar. Application information and additional admission requirements are available from the Individualized Interdisciplinary Studies website. Applicants must have a completed Bachelor’s degree in a related field to their intended home department.

Program Requirements
This program consists of elective course work and a thesis for a minimum of 36 units. Course work must be from at least two different SFU academic units.

Students must complete two graduate on-campus courses

and four additional graduate courses

and a thesis
INS 898 – Master Thesis (18)

Program Length
Students are expected to complete the program within six terms.

Other Information
Supervision
Students are required to have their supervisory committee formed prior to applying into the program. The committee has to consist of at least two additional committee members besides the senior supervisor, one of which needs to be from a different department.

Graduate Progress Report
Students are required to complete the Graduate Progress Report annually and submit it by the indicated deadline in order to receive internal funding or awards.

Course Work
Students must follow their approved program plan from admission. Any substitutions to the plan need to be approved prior to the change. All Directed Readings (maximum of two) must be taken through INS.

Academic Requirements within the Graduate General Regulations
All graduate students must satisfy the academic requirements that are specified in the graduate general regulations, as well as the specific requirements for the program in which they are enrolled.
**Description of Program**

Individualized Interdisciplinary Studies Doctor of Philosophy program is for students who wish to pursue a doctoral degree and their proposed course of studies is interdisciplinary in nature and cannot be pursued in any one existing program. The home department is normally the department of the proposed supervisor and will provide the applicant with a mailbox and access to other services and facilities normally available to students enrolled in graduate programs in that department. Students, together with their senior supervisors, will create a customized interdisciplinary program plan that reflects the individualized aspect of the program prior to admission.

**Admission Requirements**

Applicants must satisfy the University admission requirements as stated in Graduate General Regulation 1.3 in the SFU Calendar. Application information and additional admission requirements are available from the Individualized Interdisciplinary Studies website. Applicants should have a completed Master’s degree in a field related to their intended home department.

**Program Requirements**

This program consists of course work, a comprehensive examination and a thesis for a minimum of 30 units. 
Course work must be from at least two different SFU academic units.

Students must complete two graduate on-campus courses
and two additional graduate courses
and a comprehensive examination
INS 890 – Comprehensive Examination (0)
and a thesis
INS 899 – Doctoral Thesis (18)

**Program Length**

Students are expected to complete the program in 12 terms.

**Other Information**

**Supervision**

Students are required to have their supervisory committee formed prior to applying into the program. The committee has to consist of at least two additional committee members besides the senior supervisor, one of which needs to be from a different department.

**Graduate Progress Report**

Students are required to complete the Graduate Progress Report annually and submit it by the indicated deadline in order to receive internal funding or awards.

**Course Work**

Students must follow their approved program plan from admission. Any substitutions to the plan need to be approved prior to the change. All Directed Readings (maximum of two) must be taken through INS.

**Academic Requirements within the Graduate General Regulations**

All graduate students must satisfy the academic requirements that are specified in the graduate general regulations, as well as the specific requirements for the program in which they are enrolled.
MEMORANDUM

ATTENTION: Senate

FROM: Jeff Derksen,
Chair of Senate Graduate Studies
Committee (SGSC)

RE: New Course Proposals

DATE: June 21, 2018

For information:
Acting under delegated authority at the meeting of June 5, 2018, SGSC approved the following new courses, effective Spring 2019:

Faculty of Applied Sciences
School of Engineering Science
1) New course: ENSC 813 Deep Learning Systems in Engineering

Faculty of Communication, Art and Technology
School of Interactive Arts and Technology
2) New course: IAT 848 Mediated, Virtual and Augmented Reality

School of Communication
3) New course: CMNS 893 MA project
MEMORANDUM

Attention: Dr. Jeff Derksen
Dean, Graduate Studies

From: Dr. Mirza Faisal Beg
Faculty of Applied Science, Graduate Studies Committee

Date: April 19, 2018

Re: New ENSC Graduate Course Proposal – ENSC 813

Mirza Faisal Beg

The faculty of Applied Sciences Graduate Studies Committee would like to send the attached course proposal for ENSC 813 – Deep Learning Systems in Engineering for consideration by SGSC. These have been approved by FGSC by electronic vote.

I request you to please place these on the agenda for the next SGSC meeting.

Cc: Dr. Greg Mori, Director, School of Computing Science
Dr. Glenn Chapman, Director, School of Engineering Science
Dr. Farid Golnaraghi, Director, School of Mechatronic Systems Engineering

To the Faculty of Applied Sciences Graduate Studies Committee:

At its meeting of April 13, 2018, the School for Engineering Science approved the following new course:

- ENSC 813 – Deep Learning Systems in Engineering

Please place this proposal on the agenda of the next meeting of the Faculty Graduate Studies Curriculum Committee.

Sincerely,

Paul Ho, Ph.D., P.Eng.
Professor and Graduate Program Chair
School of Engineering Science
Simon Fraser University
e-mail: enscgpcc@sfu.ca
New Graduate Course Proposal

<table>
<thead>
<tr>
<th>Course Subject (eg. PSYC)</th>
<th>ENSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number (eg. 810)</td>
<td>813</td>
</tr>
<tr>
<td>Units (eg. 4)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Course title (max. 100 characters)**

Deep Learning Systems in Engineering

**Course title (for enrollment/transcript - max. 30 characters)**

Deep Learning Systems

**Course description for SFU Calendar**

Covers machine learning basics, generalization theory, training, validation and testing. Introduces artificial neural networks, feedforward networks, convolutional networks, and types of layers in deep models. Provides overview of hardware architectures for deep learning: architectural and memory calculations; regularization and optimization of deep learning models. Analyzes recurrent and discursive networks. Culminates in a major project focusing on engineering applications of deep learning in signal processing, communications, biomedical engineering, robotics, or other areas.

**Rationale for introduction of this course**

Many engineering systems are nowadays being designed and built around deep learning models. It is important for engineering students to understand the basics of deep learning, be able to implement and test deep learning models, and understand the challenges around their training and deployment. This course teaches deep learning "as a tool" to be used in various engineering streams.

**Term of initial offering**

Spring 2019

**Course delivery**

3hrs/week for 13 weeks

**Estimated enrollment per offering**

30

**Equivalent courses**

CMPT 880 - Special Topics in Computing Science: Deep Learning (topic ID 4447)

**Prerequisite and/or Corequisite**

MATH 251 or ENSC 280 or ENSC 380 or permission of instructor

**Criminal record check required?**

Yes

**Additional course fees?**

Yes

**Campus where course will be taught**

Burnaby

**Course Components**

Lecture

Seminar

Lab

Independent

Capstone

**Grading Basis**

Letter grades

Satisfactory/ Unsatisfactory

In Progress / Complete

**Repeat for credit?**

Yes

**Total repeats allowed?**


**Repeat within a term?**

Yes

**Required course?**

Yes

**Final exam required?**

Yes

**Capstone course?**

Yes

**Combined with a undergrad course?**

Yes

* See important definitions on the curriculum website.
RESOURCES

If additional resources are required to offer this course, provide information on the source(s) of those additional resources.

Faculty member(s) who will normally teach this course

Ivan Bajic, Jie Liang

Additional faculty members, space, and/or specialized equipment required in order to offer this course

None

CONTACT PERSON

Academic Unit / Program
Engineering Science

Name (typically, Graduate Program Chair)
Ivan Bajic

Email
ibajic@sfu.ca

ACADEMIC UNIT APPROVAL

A course outline must be included.

Non-departmentalized faculties need not sign

Graduate Program Committee

Dr Michael Adachi

Department Chair
Glenn Chapman

Signature

Date
April 18/18

FACULTY APPROVAL

The course form and outline must be sent by FGSC to the chairs of each FGSC (fgsc-list@sfu.ca) to check for an overlap in content

Overlap check done? YES

This approval indicates that all the necessary course content and overlap concerns have been resolved. The Faculty/Academic Unit commits to providing the necessary resources.

Faculty Graduate Studies Committee

Mirza Faisal Beg

Signature

Date
April 19, 2018

A library review will be conducted. If additional funds are necessary, DGS will contact the academic unit prior to SGSC.

SENATE GRADUATE STUDIES COMMITTEE APPROVAL

Signature

Date
June 21, 2018

ADMINISTRATIVE SECTION (for DGS office only)

Library Check: May 22, 18
Course Attribute:

Course Attribute Value:

Instruction Mode:

Attendance Type:

If different from regular units:

Academic Progress Units:

Financial Aid Progress Units:
ENSC 813 – Deep Learning Systems in Engineering
Course proposal

MOTIVATION

Many engineering systems are nowadays being designed and built around deep learning models. It is important for engineering students to understand the basics of deep learning, be able to implement and test deep learning models, and understand the challenges around their training and deployment. This course teaches deep learning "as a tool" to be used in various engineering systems.

OBJECTIVES

After completing this course, the students should:
• Understand key ideas behind deep learning
• Understand the terminology and be able to follow the literature in the field
• Be able to formulate a machine learning problem, implement and test a deep learning model for the problem in the relevant software (currently, the course examples and assignments are based on Tensorflow and Keras)

PROPOSED CALENDAR ENTRY

Machine learning basics, generalization theory, training, validation, and testing. Introduction to artificial neural networks, feedforward networks, convolutional networks, types of layers in deep models. Architectural and memory calculations. Regularization and optimization of deep learning models. Recurrent and recursive networks. Overview of hardware architectures for deep learning. The course culminates in a major project focusing on engineering applications of deep learning in signal processing, communications, biomedical engineering, robotics, or other areas.

PREREQUISITES

MATH 251, ENSC 280, ENSC 380; or permission of instructor.

TEXTBOOKS

COURSE TOPICS

<table>
<thead>
<tr>
<th>Topic</th>
<th>GBC Chapter</th>
<th>AML Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine learning basics</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>Generalization theory, training, and validation</td>
<td></td>
<td>1, 2, 4</td>
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<tr>
<td>Feedforward networks</td>
<td>6</td>
<td></td>
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<tr>
<td>Convolutional networks</td>
<td>9</td>
<td></td>
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<tr>
<td>Regularization in deep learning</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Optimization of deep learning models</td>
<td>8</td>
<td></td>
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<tr>
<td>Recurrent and recursive networks</td>
<td>10</td>
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</tr>
<tr>
<td>Hardware architectures for deep learning</td>
<td>(instructor-provided material)</td>
<td></td>
</tr>
<tr>
<td>Applications</td>
<td></td>
<td>11-12</td>
</tr>
</tbody>
</table>

COURSE PROJECT

Course projects are performed individually by each student. The students choose their project topics within the first four weeks of the semester, which leaves them nine weeks to work on it. In the past, Kaggle competitions (https://www.kaggle.com/) were a popular source of data for the projects. Towards the end of the course, each student makes a brief presentation to the class about their project, methodology, and results. Deliverables include project report, trained model, a few test samples, and a test script.

GRADING

25% Assignments
35% Midterm exam
40% Final project
On behalf of the Faculty of Communication, Art and Technology, I am forwarding for SGSC's consideration the following New Graduate Course Proposal for the school of Interactive Arts and Technology.

1) New Graduate Course Proposal for the school of Interactive Arts and Technology.

IAT 848 “Mediated, Virtual, and Augmented Reality”

While SIAT has been teaching undergraduate courses on XR for many years (e.g., IAT445, IAT343), many graduate courses included VR projects, this course addresses the student need for explicitly addressing VR/AR on a graduate level.

School of Interactive Art & Technology
New course: IAT 848 Mediated, Virtual, and Augmented Reality
Term of official offering: Spring 2019
Course Delivery: 2 hour seminar and 2 hour lab for 13 weeks
Prerequisite: IAT 806 and IAT 801 or 802 or 803 or 834 or permission of the instructor

The changes were reviewed and approved on May 7th, by the FCAT Graduate Studies committee.

Thank you for your attention to this matter.

Stuart Poyntz
Associate Dean, FCAT
Chair, FCAT Graduate Studies Committee
cc: Bernhard Riecke, Graduate Program Chair, School for the Contemporary Arts
MEMORANDUM

To: Faculty Graduate Studies Committee

From: Bernhard Riecke,
Chair, Graduate Program, School of Interactive Art & Technology

Date: April 13, 2018

Re: New graduate course proposal: IAT 848 Mediated, Virtual, and Augmented Reality

The following new course has been approved by the School of Interactive Arts & Technology and is forwarded to the Faculty Graduate Studies Committee for approval. This curriculum item should be effective for Spring 2019. Please include it on the next FGSC agenda.

While SIAT has been teaching undergraduate courses on XR for many years (e.g., IAT445, IAT343), many graduate courses included VR projects, this course addresses the student need for explicitly addressing VR/AR on a graduate level.

School of Interactive Art & Technology

New course: IAT 848 Mediated, Virtual, and Augmented Reality

Term of official offering: Spring 2019

Course Delivery: 2 hour seminar and 2 hour lab for 13 weeks

Prerequisite: IAT 806 and IAT 801 or 802 or 803 or 834 or permission of the instructor

Bernhard Riecke

SIAT Graduate Chair
# New Graduate Course Proposal

**Course Subject (eg. PSYC)** | IAT  
**Number (eg. 810)** | 848  
**Units (eg. 4)** | 3  

**Course title (max. 100 characters)**

**Mediated, Virtual, and Augmented Reality**

**Short title (for enrollment/transcript - max. 30 characters)**

MRA/R/AR

**Course description for SFU Calendar (course descriptions should be brief and should never begin with phrases such as “This course will...” or “The purpose of this course is...” If the grading basis is satisfactory/unsatisfactory include this in the description)**

See attached

**Rationale for introduction of this course**

While SIAT has been teaching undergraduate courses on XR for many years (e.g. IAT445, IAT343), and many graduate courses included VR projects, this course addresses the student need for explicitly addressing VR/AR on a graduate level.

**Term of initial offering (eg. Fall 2019)**

Spring 2019

**Course delivery (eg. 3 hrs/week for 13 weeks)**

2 h seminar & 2 h lab for 13 weeks

**Frequency of offerings/year**

once a year

**Estimated enrollment per offering**

12

**Equivalent courses (courses that replicates the content of this course to such an extent that students should not receive credit for both courses)**

N/A

**Prerequisite and/or Corequisite**

IAT 806 and one of IAT 801 or 802 or 803 or 834 or permission of the instructor

**Criminal record check required?**

- Yes
- No

If yes is selected, add this as prerequisite

**Additional course fees?**

- Yes
- No

**Campus where course will be taught**

- Burnaby
- Surrey
- Vancouver
- Great Northern Way
- Off campus

**Course Components**

- Lecture
- Seminar
- Lab
- Independent
- Capstone

**Grading Basis**

- Letter grades
- Satisfactory/ Unsatisfactory
- In Progress / Complete

**Repeat for credit?**

- Yes
- No

Total repeats allowed? 0

**Repeat within a term?**

- Yes
- No

**Required course?**

- Yes
- No

**Final exam required?**

- Yes
- No

**Capstone course?**

- Yes
- No

Combined with a undergrad course?

- Yes
- No

If yes, identify which undergraduate course and the additional course requirements for graduate students:

* See important definitions on the curriculum website.
RESOURCES
If additional resources are required to offer this course, provide information on the source(s) of those additional resources.

Faculty member(s) who will normally teach this course
Steve DiPaola, Diane Gromala, Kate Hennessey, Bernhard Riecke, Chris Shaw, Wolfgang Stuerzling

Additional faculty members, space, and/or specialized equipment required in order to offer this course
Access to the existing VR/AR/MR equipment that SIAT already acquired for teaching undergraduate VR/AR/MR courses

CONTACT PERSON

<table>
<thead>
<tr>
<th>Academic Unit / Program</th>
<th>Name (typically, Graduate Program Chair)</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIAT</td>
<td>Bernhard Riecke</td>
<td><a href="mailto:siat-grad-chair@sfu.ca">siat-grad-chair@sfu.ca</a></td>
</tr>
</tbody>
</table>

ACADEMIC UNIT APPROVAL
A course outline must be included.

Non-departmentalized faculties need not sign

<table>
<thead>
<tr>
<th>Graduate Program Committee</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bernhard Riecke</td>
<td></td>
<td>April 13, 2018</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Department Chair</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thecla Schiphorst</td>
<td></td>
<td>April 16 2018</td>
</tr>
</tbody>
</table>

FACULTY APPROVAL
The course form and outline must be sent by FGSC to the chairs of each FGSC (fgsc-list@sfu.ca) to check for an overlap in content

Overlap check done? [ ] YES

This approval indicates that all the necessary course content and overlap concerns have been resolved. The Faculty/Academic Unit commits to providing the necessary resources.

<table>
<thead>
<tr>
<th>Faculty Graduate Auditor Committee</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>May 14, 2018</td>
</tr>
</tbody>
</table>

A library review will be conducted. If additional funds are necessary, DGS will contact the academic unit prior to SGSC.

SENATE GRADUATE STUDIES COMMITTEE APPROVAL

<table>
<thead>
<tr>
<th>Senate Graduate Studies Committee</th>
<th>Signature</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Jeff Derksen</td>
<td></td>
<td>June 21 2018</td>
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</table>

ADMINISTRATIVE SECTION (for DGS office only)

Library Check: May 22, 2018
Course Attribute: 
Course Attribute Value: 
Instruction Mode: 
Attendance Type: 

If different from regular units: 
Academic Progress Units: 
Financial Aid Progress Units: 

Page 2 of 2 Revised December 2017
IAT 848 – Mediated, Virtual, and Augmented Reality

Course Description

Covers the emerging field of virtual, augmented, mediated, and mixed reality from human-centered, research, technical, and ethical perspectives. Discusses and analyzes design, development, usage, and evaluation of technologies that can be used to mediate human experience and interaction with virtual and real environments including Virtual, Augmented, and Mixed Realities (together known as XR). Investigates how these emerging technologies can affect and augment human perceptual, motor, cognitive and socio-emotional processes. Analyzes human-centered approaches to interaction with 3D real and virtual content, using visual, auditory, haptic, kinesthetic, physiological and neurophysiological modalities. Design guidelines and practices are covered throughout. Considers aesthetic, cultural and ethical implications of mediating reality.
Graduate Course Outline: IAT 848
“Mediated, Virtual, and Augmented Reality”

Calendar Description:
Covers the emerging field of virtual, augmented, mediated, and mixed reality from human-centered, research, technical, and ethical perspectives. Discusses and analyzes design, development, usage, and evaluation of technologies that can be used to mediate human experience and interaction with virtual and real environments including Virtual, Augmented, and Mixed Realities (together known as XR). Investigates how these emerging technologies can affect and augment human perceptual, motor, cognitive and socio-emotional processes. Analyzes human-centered approaches to interaction with 3D real and virtual content, using visual, auditory, haptic, kinesthetic, physiological and neurophysiological modalities. Design guidelines and practices are covered throughout. Considers aesthetic, cultural and ethical implications of mediating reality.

Instructor(s): Steve DiPaola, Diane Gromala, Kate Hennessey, Bernhard Riecke, Chris Shaw, Wolfgang Stuerzlinger, as well as potential guest lecturers and lectures for specific modules.

Campus: Surrey

Course-level educational goals and desired learning outcomes

After successfully completing the course, students should be able to do the following

- Critically engage with, reflect, discuss, and analyze interactive VR/MR/AR (abbreviated as XR) experiences using and applying relevant scholarly frameworks, theories, and concepts
- Explain, evaluate, discuss current challenges of XR on the technical, ethical, perceptual, and user experience level
- Prepare a XR research proposal and evaluate its feasibility, including a clear motivation and argument for the gap in literature and current state of the art and argument for its contribution
- Design and create a real-time immersive/XR experience that identifies the context of participants and stakeholders, and takes advantage of the potential of the technology. This includes being able to argue convincingly why it makes sense to use the chosen technology and its potential integration in larger systems.
- Being able to design, run, analyze and present user studies/evaluation/research of XR system/user experience/performance

Format
- 2h seminar & 2h lab

Requirements / prerequisite
- Basic programming skills, as documented through IAT806 or equivalent demonstration or documentation of basic programming competency, or instructor permission.
- Basic research methods skills, as documented through having taking a graduate research methods course (e.g., IAT 801, 802, 803, 834), or instructor permission.
Grading

- Assignments 50%
- Participation 10%
- Project(s) 40%

Teaching/learning activities include:

- Interactive lecturing and demonstrations, including flipped-classroom components (reading and video tutorials at home incentivized by assignments)
- Group discussions (in-class or online chat- and discussing forums)
- Regular reading, writing and/or revision/reviewing/feedback assignments
- Online and in-class tutorials on various topics ranging from conceptual to technical
- Group/individual research projects and presentations

Topics and Overview

As this field is rapidly evolving topics covered will evolve over time. Current topics include but are not limited to:

- Introduction into mediated, virtual and augmented realities:
  - Overview, Background and Motivation
  - Definitions
  - History and development
  - Different kinds of alternate realities
  - Presence, immersion, and reference frames
- Overview of technologies
  - Hardware, software, interfaces,
  - How to move through alternate realities
  - How to interact with alternate realities
- Designing for human capabilities:
  - Perceptual, cognitive, sensorial & physiological modalities
  - The human in multiple realities
- What can go wrong: Adverse side effects
  - From motion sickness to disorientation, strain, usability, and practical challenges
  - Design guidelines
- Closing the action-perception loop: Interaction and feedback
  - The human in the loop
  - Input, output, and what happens in between
  - Interaction paradigms
- How to design alternate realities and MRVR/AR content
  - Principles for designing for alternate realities
  - Determining context: e.g., training, learning, exploring, gaming, storytelling/narratives, socially interacting (synchronously & asynchronously), visualizing data & sensemaking
  - Iterative design and evaluation
    - Co-creating with Participants, Stakeholders, Communities
    - Intertwining technology, aesthetics (look & feel) & interaction
    - Assessing content & context: accounting for use scenarios in specific contexts; siting: access, sustainability/longitudinal use, fit with institutional, social contexts, needs & expectations; accounting for longitudinal use: upgrades, technical support; evolution of use
Current research topics and challenges as well as design guidelines and practices will be covered throughout the course and above topics.

Readings


Additional readings, video tutorials/presentation, lecture notes, and latest research papers will be provided through the course management system (Canvas) and will be updated on an ongoing basis as technology and research evolves.
MEMORANDUM

ATTENTION: Stuart Poyntz, Chair
Faculty of Communication, Art & Technology
Undergraduate Curriculum Committee

FROM: Kirsten McAllister, Chair
School of Communication
Graduate Program Committee

DATE: 7 May 2018

RE: Calendar changes re: a change to the MA program, a new course and a course change

At its meeting of 14 March 2018, the School of Communication’s Graduate Program Committee approved the following new course, course change and program changes which have been approved by the School of Communication which after receiving FGSC’s approval will then be forwarded to the Faculty Graduate Studies Committee for approval.

These curriculum items should be effective for Spring 2019. Please include it on the next FGSC agenda.

The changes are as follows:

CMNS 893 - although a project option has always been offered, this will allow a clear distinction between projects examined like a thesis and those just examined by two readers (which as per the 2015 General Graduate Regulations require the student takes one more course than students whose thesis or project is examined by an external examiner).

CMNS 895 - course change (change to the number of credits) to make all the students complete with close to the same number of units

CMNS MA - To update and revise the calendar format as requested by the Dean of Graduate Studies’ Office: removal of the research areas and change to the number of units students who complete non-thesis based programs to align with GGR 1.7.3.

CMNS PhD - To update and revise the calendar format as requested by the Dean of Graduate Studies’ Office: removal of the research areas.

Would you please place these items on the agenda of the next meeting of the FCAT Graduate Committee?

Thank you,

Kirsten McAllister
Chair, School of Communication
Graduate Program Committee
New Graduate Course Proposal

<table>
<thead>
<tr>
<th>Course Subject (eg. PSYC)</th>
<th>CMNS</th>
<th>Number (eg. 810)</th>
<th>893</th>
<th>Units (eg. 4)</th>
<th>6</th>
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</table>

**Course title (max. 100 characters)**

**MA project**

**Short title (for enrollment/transcript - max. 30 characters)**

**MA project**

**Course description for SFU Calendar** (course descriptions should be brief and should never begin with phrases such as "This course will...") or "The purpose of this course is..." If the grading basis is satisfactory/unsatisfactory include this in the description)

MA project examined by two readers

**Rationale for introduction of this course**

To permit students to complete an MA (Communication) capstone project examined by two readers per GGR 1.7.2.

**Term of initial offering**

Spring 2019

**Course delivery**

Course delivery (eg. 3 hrs/week for 13 weeks)

**capstone**

**Frequency of offerings/year**

3 per year

**Equivalent courses** (courses that replicates the content of this course to such an extent that students should not receive credit for both courses)

none

**Prerequisite and/or Corequisite**

CMNS 801 and one of CMNS 800, CMNS 802 or CMNS 804

**Criminal record check required?**

Yes

if yes is selected, add this as prerequisite

**Additional course fees?**

Yes ☒ No

**Campus where course will be taught**

☒ Burnaby ☐ Surrey ☐ Vancouver ☐ Great Northern Way ☐ Off campus

**Course Components**

☒ Lecture ☐ Seminar ☐ Lab ☐ Independent ☒ Capstone ☐

**Grading Basis**

☒ Letter grades ☐ Satisfactory/ Unsatisfactory ☒ In Progress / Complete

**Repeat for credit?**

☒ Yes ☐ No

Total repeats allowed? 3

**Repeat within a term?**

☒ Yes ☐ No

**Required course?**

☒ Yes ☒ No

Final exam required? ☑ Yes ☒ No

Capstone course? ☐ Yes ☒ No

**Combined with a undergrad course?**

☒ Yes ☒ No

If yes, identify which undergraduate course and the additional course requirements for graduate students:

* See important definitions on the curriculum website.
RESOURCES
If additional resources are required to offer this course, provide information on the source(s) of those additional resources.

Faculty member(s) who will normally teach this course

This course is supervised by the MA student's Senior Supervisor.

Additional faculty members, space, and/or specialized equipment required in order to offer this course

CONTACT PERSON

Academic Unit / Program: CMNS
Name (typically, Graduate Program Chair): Kirsten McAllister
Email: cmngrch@sfu.ca

ACADEMIC UNIT APPROVAL
A course outline must be included.

Non-departmentalized faculties need not sign

Graduate Program Committee
Kirsten McAllister

Department Chair
Peter Chow-White

FACULTY APPROVAL
The course form and outline must be sent by FGSC to the chair of each FGSC (fgsc-list@sfu.ca) to check for an overlap in content

Overlap check done? ✓ YES

This approval indicates that all the necessary course content and overlap concerns have been resolved. The Faculty/Academic Unit commits to providing the necessary resources.

Faculty Graduate Studies Committee
Stuart Poyntz

A library review will be conducted. If additional funds are necessary, SGSC will contact the academic unit prior to SGSC.

SENATE GRADUATE STUDIES COMMITTEE APPROVAL

Senate Graduate Studies Committee
Jeff Derksen

ADMINISTRATIVE SECTION (for DGS office only)

Library Check: Jun 2
Course Attribute: G6ACP
Course Attribute Value: PROJECT
Instruction Mode: 
Attendance Type:

If different from regular units:
Academic Progress Units: 
Financial Aid Progress Units: 

Page 3 of 2 Revised December 2017

SGSC60
MEMORANDUM

ATTENTION Senate

FROM Jeff Derksen,
Chair of Senate Graduate Studies Committee (SGSC)

RE: Course Changes

DATE June 21, 2018

For information:
Acting under delegated authority and at its meeting of June 5, 2018, SGSC approved the following course changes effective Spring 2019:

Beedie School of Business
1) Course change (equivalency): BUS 741 effective Fall 2018
2) Course change (unit change and equivalency): BUS 783
3) Course change (equivalency): BUS 643

Faculty of Communication, Art and Technology
School of Communication
4) Course change (unit change and prerequisite): CMNS 896

Faculty of Science
Department of Chemistry
5) Course change (title and description): CHEM 754

Department of Statistics and Actuarial Science
6) Course change (title and description): STAT 840

Individualized Interdisciplinary Studies
7) Course change (units): INS 899
Memo to SGSC

To: Senate Graduate Studies Committee
From: Andrew Gemino, Associate Dean, Graduate Programs
Re: Graduate Course Change – Equivalency
Date: June 12, 2018

The following curriculum revisions have been approved by the Beedie School of Business and are forwarded to the Senate Graduate Studies Committee for approval. These curriculum items should be effective for Fall 2018.

BUS 561: Course equivalency change

Due to administrative error, graduate course BUS 561: Special Topics: Business and Indigenous Peoples is not equivalent to BUS 741. Please remove this equivalency effective Fall 2018.

BUS 741: Course equivalency change

Due to administrative error, graduate course BUS 741: Business and Indigenous Peoples is not equivalent to BUS 561. Please remove this equivalency effective Fall 2018.

Thank you for your attention herein. Should you have any questions or concerns, please do not hesitate to contact me.

Dr. Andrew Gemino
Professor, Management Information Systems
Associate Dean, Graduate Programs, Beedie School of Business
## Graduate Course Change

Attach a separate document if more space is required.

<table>
<thead>
<tr>
<th>Course Subject/Number</th>
<th>Units</th>
<th>Effective Term and Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 741</td>
<td>2</td>
<td>FALL 2018</td>
</tr>
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</table>

**Course Title**: Business and Indigenous People

**Rationale for Change:**
Course is no longer equivalent to the special topics version

**Proposed Changes (Check all that apply)**
- [ ] Course number
- [ ] Units*
- [ ] Title
- [ ] Description
- [ ] Prerequisite
- [x] Other equivalency

Complete only the fields to be changed

<table>
<thead>
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<tbody>
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<td>Prerequisite</td>
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Students with credit for BUS 561: Special Topics (Business & Indigenous Peoples) may not take this course for further credit.

---

*Program requirements may need to be revised when course units are changed. Please review the calendar and submit any relevant program revisions resulting from this course change.*

Page 1 of 2 Revised May 2015
REMINDER: All course changes must be identified on a cover memo and confirmed as approved when submitted to FGSC and SGSC.

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**ADMINISTRATIVE SECTION (for DGS office only)**

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- Attendance Type: ________________
- Academic Progress Units: ________________
- Financial Aid Progress Units: ________________
Memo to SGSC

To: Senate Graduate Studies Committee
From: Andrew Gemino, Associate Dean, Graduate Programs
Re: Curriculum revisions to Management of Technology MBA
Date: April 10, 2018

The following curriculum revisions have been approved by the Beedie School of Business and are forwarded to the Senate Graduate Studies Committee for approval. These curriculum items should be effective Spring 2019.

Please include them on the next SGSC agenda.

- MOT Program Change: Removal of Applied Project
- Course Change: BUS 783 Unit Increase
- Revised MOT-MBA calendar entry to reflect program change and unit increase

Thank you for your attention herein. Should you have any questions or concerns, please do not hesitate to contact me.

Dr. Andrew Gemino
Professor, Management Information Systems
Associate Dean, Graduate Programs, Beedie School of Business
SGSC Rationale Memo: Removal of MOT MBA Applied Project

To: Senate Graduate Studies Committee  
From: Kamal Masri, Academic Director, Management of Technology MBA  
Re: Removal of MOT Applied Project  
Date: April 10, 2018

Historically, MOT students have been given the option of completing an Applied Project (6-unit BUS 780) or the Capstone Simulation plus two additional 2-unit courses in their final term. Over the past three years, very few students have utilized the Applied Project option.

2014: 6 students  
2015: 3 students  
2016: 5 students

Offering the Applied Project as an alternative limits flexibility of course offerings in the final term of the MOT. Due to low interest in BUS 780, and considering scheduling constraints of the proposed 4-unit BUS 783 (Entrepreneurship), discontinuing the Applied Project as an MOT program requirement option is proposed. The Capstone Simulation (BUS 782) is still a requirement.

BUS 780 will be removed from the MOT academic calendar entry, but still remain an active course. The use of BUS 780 to fulfill the MOT program requirement of 54 units is at the discretion of the academic director, and would be processed as a course exception on a case-by-case.

Regards,

Dr. Kamal Masri  
Senior Lecturer, Management Information Systems  
Academic Director, Management of Technology MBA
Graduate Course Change

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<tr>
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<td>2</td>
<td>Spring 2019</td>
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Course Title: Entrepreneurship

Rationale for Change:
To allow for more complete coverage of topic content, in-depth learning, & project development. To strengthen the commitment to B3's vision of developing innovative leaders. In other Beedie MBA programs, Entrepreneurship is a full-course instead of a half-course.

Proposed Changes (Check all that apply)

- [ ] Course number
- [ ] Units*
- [ ] Title
- [ ] Description
- [ ] Prerequisite
- [x] Other

Equivalent Course: BUS 643 (DV6)
Equivalent Course: None (DV8)

*Program requirements may need to be revised when course units are changed. Please review the calendar and submit any relevant program revisions resulting from this course change.
REMINDER: All course changes must be identified on a cover memo and confirmed as approved when submitted to FGSC and SGSC.

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<td>Jeff Derksen</td>
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- Course Attribute Value: _____________
- Instruction Mode: _____________
- Attendance Type: _____________
- If different from regular units:
  - Academic Progress Units: _____________
  - Financial Aid Progress Units: _____________
BUS 783: ENTREPRENEURSHIP

Instructor:
Classroom:
Email:

Semester:
LMS: canvas.sfu.ca

COURSE DESCRIPTION

Business 783 is designed for students interested in entrepreneurship, whether in a startup or a new line of business within an existing firm or organization. The focus of the course is learning how to create, test, validate and pitch the idea for a new venture; where and how to get it staffed and funded, and how to scale up.

We will cover the generation of ideas; testing, validating and recalibrating your assumptions with real customers; planning, building and scaling a new initiative or venture; types of securities; the investor pitch; sources of funding and the terms under which they may be received. We shall delve into why 80% of all new ventures fail and how to improve your chances of success.

We will cover the leading entrepreneurship and innovation literature, supplemented by the direct experience of the instructor and guests. The course will run in the seminar style – students are expected to have completed the readings and bring discussion notes to the class; participation is expected and carries a significant proportion of the overall grade.

OBJECTIVES

This course is based largely on the Lean Startup framework designed by Steve Blank. Each class will cover key elements in the framework. By the end of the course you should be equipped with a sufficient understanding of the Lean Startup to apply it appropriately in real life, and if you do your chances of success as an innovator will be significantly improved.

COURSE EXPECTATIONS

The semester commences on XXX and is completed on XXX. During this time you can expect at least 10 hours of out-of-class work weekly. These out-of-class activities will include, participating in online activities, preparing readings and cases, answering practice questions, doing library research and reviewing sources, conducting interviews, and project planning.

This course may be scheduled in a compressed format where classes are held in intensive session, but expectations of consistent preparation and participation remain for the length of the semester.

BOOK AND MATERIALS

3. Selected readings and videos
Assessment summary

At least a week before the first class, students are required to organize into groups of five (one group may have six). Each group needs to enter the course with an idea for a new product or service and during the course you will be required to speak to real prospective customers to validate your hypotheses. Choose a name for your group.

Note: The instructor maintains a log of all student contributions in each class which forms the basis of your final participation mark.

<table>
<thead>
<tr>
<th>Individual</th>
<th>Business Model Canvas Case</th>
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<tr>
<td></td>
<td>Writing a Term Sheet</td>
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</tr>
<tr>
<td></td>
<td>Building a Capitalization Table</td>
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<tr>
<td></td>
<td>Class participation</td>
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<tr>
<td>Group</td>
<td>BMC and VPC #1</td>
<td>10%</td>
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<td></td>
<td>BMC and VPC #2</td>
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<td>BMC and VPC #3</td>
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<td>Venture Pitch</td>
<td>15%</td>
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<td>Total</td>
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Assignment 1: Business Model Canvas for a New Venture

When: in second session

You will have read about the business model canvas prior to the second session. In that session the instructor will describe a startup situation and each student will then be required to complete a business model canvas and prescribe a set of next steps, with the instructor on hand to answer questions. The objective is to familiarize the student with the use of the BMC.

Assignment 2: Business Model Canvas & Value Proposition Canvas 1 (Group)  
Due: in fourth session

Your group has come up with an idea for a simple new product or service. It should not be something that already exists, but it can be a substantially new variant of an existing product or service. For this assignment one member of your group will send me the following via an email entitled ‘Bus 783: (group name) Canvas #1’: (1) a cover slide with your group’s name and the names of its members; (2) a single slide describing the product or service concept; (3) two slides that show complete Business Model Canvas and Value Proposition Canvas containing your initial hypotheses. Note: for BMC templates see http://www.businessmodelgeneration.com/canvas/bmc and for VPC templates see http://www.businessmodelgeneration.com/canvas/vpc

Assignment 3: Writing a Term Sheet (individual)  
Due: in sixth session

Following a presentation on term sheets, students will build a cap table for a company described by the instructor.
Assignment 4: Business Model Canvas & Value Proposition Canvas 2 (Group)  
Due: in sixth session

You should by now have completed two rounds of customer discovery and found out whether potential minor or major pivots are required. Each group will present (1) an introductory slide describing the process so far, (2) three sequential BMCs showing how the hypotheses changed from day 1, after the first round of customer discovery and after the second round, (3) Current VPC and (4) slide with open issues/next steps.

Assignment 5: Building a Capitalization Table (individual)  
Due: in eighth session

In class assignment: following a discussion on cap table structure, students will build a cap table for a company described by the instructor.

Assignment 6: BMC & VPC Final Presentation (group)  
Due: In ninth session

Prior to the final presentation you will need to talk to a minimum of ten real prospective customers to test the hypotheses in your BMC at least twice: your initial hypotheses will likely prove incorrect and need to be re-stated and re-tested, and a full pivot may be in order. Your group presentation will include the following: (1) the initial product or service concept and the initial BMC & VPC Canvas hypotheses from assignment #2; (2) how you tested your initial VPC hypotheses and how they changed (show second VPC); (3) how you tested your second VPC and a third VPC that contains the resulting hypotheses; (4) revised BMC that aligns with your third VPC; (5) what an MVP should look like and next steps for the venture. IF you conclude that after two rounds of customer tests your concept simply doesn’t have a market you can explain why instead of describing an MVP.

Assignment 7: Investor Pitch (group)  
Due: In eleventh session

In class assignment: following a discussion on cap table structure, students will build a cap table for a company described by the instructor.

Class Schedule

The classes are planned as follows:

Session 1: So you want to start something new!
You have the urge to start a new venture - inside your current company or to start a new one. In this session we’ll get to know each other and cover a framework for approaching the idea for a new product, service or venture.

After brief student introductions I will introduce myself and provide overview of my entrepreneurial journey with lessons learned along the way. Look me up on LinkedIn.

We will then hold group discussions on generating the idea for the new venture you will develop in the course.

Session 2: The Lean Startup Model
The class will start with an interactive discussion of the readings on the Lean Startup: Why a startup is not a smaller version of a big company; an introduction to Customer Development and the Business Model Canvas.

Assignment 1 (in class): each student will complete a business model canvas for the new venture case presented.
Session 3: Customer Development, The Pivot, Building a Founding Team

Comprehensive overview and interactive discussion of Customer Development; setting up a series of hypotheses tests. The toughest question of all: to pivot or proceed. Founders love their visions and investors want action, but a pivot is honourable (and can save the business) when the market tells you you’re wrong. The positioning statement. We will conclude with a discussion of how to build a founding team for your new venture.

Session 4: First BMC & VPC Presentations

Group presentations of assignment #2: initial product or service idea and Business Model Canvases.

Session 5: Sources of Funding, Valuations & Term Sheets

What are the funding options for each stage of the enterprise? The rounds, types of security and the rights of each. Venture valuation methodologies. Term sheets – what are they and what’s in them.

Assignment #3 (take home): Writing a term sheet.

Session 6: Second BMC & VPC Presentations

Group presentations of assignment #3.

Session 7: Intrapreneurship

For those students who are working in an established business, launching a new initiative inside your organization may be the most immediate situation in which you will apply lessons learned in this course.

Session 8: Intrapreneurship in Action (guest speaker); Capitalization Tables

Guest speaker: Divesh Sisodraker, President and Chief Product Officer, Vision Critical

Divesh leads product management, product marketing and user experience across Vision Critical to drive product innovation and deliver best-in-class customer experiences. With 17 years of software executive leadership experience, he most recently served as the executive vice president and chief product officer for ScribbleLive, a leading content marketing platform. Prior to that, he was CEO and Chairman of coincidenceLabs, a software consultancy, and held executive roles at Taleo Corporation and Pivotal Corporation. Divish was also part of the executive leadership team at Vanedge Capital, a leading local venture capital firm, for two years. He holds a degree in finance from Simon Fraser University.

Part 2: Introduction to the Cap Table. In class assignment #4: Building a Cap Table based on a real-life case study.

Session 9: Final BMC and MVP Presentations

After three rounds of customer discovery and potential minor or major pivots, each group will present your final business model and value proposition canvases, your minimum viable product and recommended next steps.

Session 10: Scaling the business; Exits and disasters

Scaling the business. Discussion of readings. Forms of exits. the good, bad and ugly. The pitch deck.

Session 11: Venture Pitches

The grand finale! It’s time for group presentations where you put it all together and pitch your idea. Conclusions and wrap up.
Reading Schedule

The following readings should be completed before the session:

**Session 2**


**Session 3**

Recruiting a founding team: [http://www.techrepublic.com/article/startup-hiring-how-to-build-your-a-team/](http://www.techrepublic.com/article/startup-hiring-how-to-build-your-a-team/)
Instructor’s materials will be posted in Canvas.

**Session 4**

None.

**Session 5**

Instructor’s materials will be posted in Canvas.
What’s in a term sheet: The world’s most irritating not-quite-contract:

**Session 6**

None.

**Session 7**

Video: Creating new products in an existing enterprise: New product creation at Amazon; in particular focus on video segment from 2mins:13secs-25:00mins
Video: Creating a completely new line of business: Data V at Bsquare Corporation
[https://www.youtube.com/watch?v=rVkGMKykOg&index=1&list=PLC6EMtQnrsyIo0lYw9VQPPgF5ZphYN3z](https://www.youtube.com/watch?v=rVkGMKykOg&index=1&list=PLC6EMtQnrsyIo0lYw9VQPPgF5ZphYN3z)

**Session 8**

Captable basics at [https://captable.io](https://captable.io)

**Session 9**

None.

**Session 10**

Instructor’s materials will be posted in Canvas.
Graduate Course Change

Attach a separate document if more space is required.

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Course Title: Entrepreneurship

Rationale for Change:
Currently, BUS 643 (EMBA Entrepreneurship) and BUS 783 (MOT Entrepreneurship) are listed as equivalencies. With BUS 783 moving from 2 units to 4 units, and BUS 643 remaining as 2 units, these courses should no longer stand as equivalent.

Proposed Changes (Check all that apply)

- [ ] Course number
- [ ] Units*
- [ ] Title
- [ ] Description
- [ ] Prerequisite
- [x] Other

Other

Equivalency: BUS 783

### Proposed Changes

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Page 1 of 2 Revised May 2015
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**SENATE GRADUATE STUDIES COMMITTEE APPROVAL**

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<thead>
<tr>
<th>Senate Graduate Studies Committee (SGSC)</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeff Derksen</td>
<td></td>
<td>June 21, 2018</td>
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**ADMINISTRATIVE SECTION (for DGS office only)**

<table>
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<th>Course Attribute</th>
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If different from regular units:

- Academic Progress Units: __________
- Financial Aid Progress Units: __________
MEMORANDUM

ATTENTION  
Stuart Poyntz, Chair  
Faculty of Communication, Art & Technology  
Undergraduate Curriculum Committee

FROM  
Kirsten McAllister, Chair  
School of Communication  
Graduate Program Committee

DATE  
7 May 2018

RE  
Calendar changes re: a change to the MA program, a new course and a course change

At its meeting of 14 March 2018, the School of Communication’s Graduate Program Committee approved the following new course, course change and program changes which have been approved by the School of Communication which after receiving FGSC’s approval will then be forwarded to the Faculty Graduate Studies Committee for approval.

These curriculum items should be effective for Spring 2019. Please include it on the next FGSC agenda.

The changes are as follows:

CMNS 893 — although a project option has always been offered, this will allow a clear distinction between projects examined like a thesis and those just examined by two readers (which as per the 2015 General Graduate Regulations require the student takes one more course than students whose thesis or project is examined by an external examiner).

CMNS 896 — course change (change to the number of credits) to make all the students complete with close to the same number of units

CMNS MA——To update and revise the calendar format as requested by the Dean of Graduate Studies’ Office: removal of the research areas and change to the number of units students who complete non thesis-based programs to align with GGR 1.7.3.

CMNS PhD——To update and revise the calendar format as requested by the Dean of Graduate Studies’ Office: removal of the research areas.

Would you please place these items on the agenda of the next meeting of the FCAT Graduate Committee?

Thank you,

Kirsten McAllister  
Chair, School of Communication  
Graduate Program Committee
# Graduate Course Change

<table>
<thead>
<tr>
<th>Course Subject/Number</th>
<th>Units</th>
<th>Effective Term and Year</th>
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<tbody>
<tr>
<td>CMNS 896</td>
<td></td>
<td>Spring 2019</td>
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</table>

**Course Title**: MA Extended Essays

**Rationale for Change:**
To ensure consistency in credits assigned to MA capstones within the School of Communication.

**Proposed Changes** (Check all that apply)
- [ ] Course number
- [x] Units
- [ ] Title
- [ ] Description
- [x] Prerequisite
- [ ] Other

Complete only the fields to be changed

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<td>Course Short Title</td>
<td>Course Short Title (max 30 characters)</td>
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<tr>
<td>Description</td>
<td>Description</td>
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<tr>
<td>Prerequisite</td>
<td>Prerequisite</td>
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<tr>
<td>CMNS 801 and one of CMNS 800, 802, or 804.</td>
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</tr>
<tr>
<td>Other</td>
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</table>

*Program requirements may need to be revised when course units are changed. Please review the calendar and submit any relevant program revisions resulting from this course change.*
REMINDER: All course changes must be identified on a cover memo and confirmed as approved when submitted to FGSC and SGSC.

CONTACT PERSON

<table>
<thead>
<tr>
<th>Department / School / Program</th>
<th>Contact name</th>
<th>Contact email</th>
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<tr>
<td>CMNS</td>
<td>Kirsten McAllister</td>
<td><a href="mailto:cmngrchr@sfu.ca">cmngrchr@sfu.ca</a></td>
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DEPARTMENTAL APPROVAL

<table>
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<th>Department Graduate Program Committee</th>
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<tbody>
<tr>
<td>Kirsten McAllister</td>
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<td>May 31, 2018</td>
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<table>
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<th>Signature</th>
<th>Date</th>
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<tbody>
<tr>
<td>Peter Chow-White</td>
<td></td>
<td>June 4, 2018</td>
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FACULTY APPROVAL

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SENATE GRADUATE STUDIES COMMITTEE APPROVAL

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If different from regular units:

Academic Progress Units: 
Financial Aid Progress Units: 

Page 2 of 2 Revised May 2015

SGSC62
MEMO
Faculty of Science

ATTENTION Jeff Derksen, Dean, Graduate Studies

FROM Peter Ruben, Associate Dean, Research and Graduate Studies, Faculty of Science

RE Minor Course and Calendar Changes, Department of Chemistry

DATE May 15, 2018

TIME 10:41 AM

The attached includes minor course and calendar changes, including a course title change and a course deletion, for the graduate program in the Department of Chemistry.

These changes are approved by me on behalf the Faculty of Science Graduate Studies Committee. Please add them to the agenda for the next SGSC meeting.

P. Ruben
MEMORANDUM

ATTENTION Faculty of Science Graduate Studies Committee
FROM Michael Eikerling
RE: Graduate Course Change

DATE April 26, 2018
PAGES 1/1

The following graduate course change has been approved by the Department of Chemistry and is forwarded to the Faculty of Science Graduate Studies Committee for approval. Please include this course change on the next SCGS agenda.

Department of Chemistry

Graduate Course Change: CHEM 754, GUEM 833

Enclose

Dr. Michael Eikerling
Graduate Chair
Department of Chemistry
### Graduate Course Change

Attach a separate document if more space is required.

<table>
<thead>
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<th>Units</th>
<th>Effective Term and Year</th>
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<tr>
<td>CHEM-754</td>
<td>3</td>
<td>Spring 2018</td>
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**Course Title**

Carbohydrate Chemistry

**Rationale for Change:**
The science of sugars and their biological importance is undergoing a renaissance and covers many different science disciplines

**Proposed Changes** (Check all that apply)

- [ ] Course number
- [ ] Units*
- [x] Title
- [x] Description
- [ ] Prerequisite
- [ ] Other

Complete only the fields to be changed

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<td>Units</td>
<td>Units*</td>
</tr>
<tr>
<td>Course Title</td>
<td>Course Title (max 100 characters)</td>
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<tr>
<td>Carbohydrate Chemistry</td>
<td>Advanced Glycoscience</td>
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<tr>
<td>Course Short Title</td>
<td>Course Short Title (max 30 characters)</td>
</tr>
<tr>
<td>Carbohydrate Chemistry</td>
<td>Advanced Glycoscience</td>
</tr>
<tr>
<td>Description</td>
<td>Description</td>
</tr>
<tr>
<td>A detailed treatment of structure and reactions of monosaccharides, the use of carbohydrates as chiral templates in organic synthesis, advances in glycoside synthesis, the occurrence, chemistry, and conformational analysis of complex carbohydrates and their role in biological systems.</td>
<td>A modern treatment of the structures and the biological generation of these critical oligomers. Sub-topics include: the development of carbohydrate-based chemical biology probes, advances in glycoside synthesis, the complex interactions of carbohydrates and the corresponding biological receptors.</td>
</tr>
<tr>
<td>Prerequisite</td>
<td>Prerequisite</td>
</tr>
<tr>
<td>Other</td>
<td>Other</td>
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*Program requirements may need to be revised when course units are changed. Please review the calendar and submit any relevant program revisions resulting from this course change.*

Page 1 of 2 Revised May 2015
REMINDER: All course changes must be identified on a cover memo and confirmed as approved when submitted to FGSC and SGSC.

CONTACT PERSON

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<tr>
<td>Chemistry</td>
<td>Nathalie Fournier</td>
<td><a href="mailto:chemgdin@sfu.ca">chemgdin@sfu.ca</a></td>
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DEPARTMENTAL APPROVAL

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<td>Michael Eikerling</td>
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<table>
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<th>Signature</th>
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<td>Dipankar Sen</td>
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FACULTY APPROVAL

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SENATE GRADUATE STUDIES COMMITTEE APPROVAL

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ADMINISTRATIVE SECTION (for DOS office only)

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If different from regular units:

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<th>Academic Progress Units</th>
<th>Financial Aid Progress Units</th>
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<td></td>
</tr>
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Page 2 of 2 Revised May 2015
ATTENTION Jeff Derksen, Dean, Graduate Studies

FROM Peter Ruben, Associate Dean, Research and Graduate Studies, Faculty of Science

RE Minor Course Change, Department of Statistics and Actuarial Science

DATE May 15, 2018

TIME 10:54 AM

The attached includes minor course change, including a course title change and description, for the graduate program in the Department of Statistics and Actuarial Science.

These changes are approved by me on behalf the Faculty of Science Graduate Studies Committee. Please add them to the agenda for the next SGSC meeting.

P. Ruben
May 12, 2018

To: Peter Ruben
Faculty of Science Graduate Studies Committee
cc: Tom Loughin

Re: Course changes (STAT 840)

I enclose a course change proposal form for STAT840 – Statistical Genetics, an elective course in our core Statistics graduate program. The changes involve updating the course description to reflect the expanded expertise represented in our department over the last 10 years. The department has discussed and approved these proposed changes.

The proposals are to be presented to the Faculty of Science Graduate Curriculum Committee for consideration of adoption.

Jinko Graham
Graduate Chair, Stats/ActSci
Graduate Course Change

Attach a separate document if more space is required.

<table>
<thead>
<tr>
<th>Course Subject/Number</th>
<th>STAT 840</th>
<th>Units</th>
<th>4</th>
<th>Effective Term and Year</th>
<th>Spring 2019</th>
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</thead>
<tbody>
<tr>
<td>Course Title</td>
<td>Statistical Genetics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Rationale for Change:
Update topics to better align with the expertise of faculty in the department.

Proposed Changes (Check all that apply)

<table>
<thead>
<tr>
<th>□ Course number</th>
<th>□ Units*</th>
<th>✔ Title</th>
<th>✔ Description</th>
<th>□ Prerequisite</th>
<th>□ Other</th>
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Complete only the fields to be changed

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<td>Course Subject/Number</td>
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<tr>
<td>Units</td>
<td>Units*</td>
</tr>
<tr>
<td>Course Title</td>
<td>Course Title (max 100 characters)</td>
</tr>
<tr>
<td>Statistical Genetics</td>
<td>Statistical Genetics and Genomics</td>
</tr>
<tr>
<td>Course Short Title</td>
<td>Stat Genetics</td>
</tr>
<tr>
<td>Statistical Genetics</td>
<td>Stat Genetics</td>
</tr>
<tr>
<td>Description</td>
<td>Description</td>
</tr>
<tr>
<td>An introduction to the models and methods of Statistical Genetics. A basis for further statistical studies, whether in quantitative genetics, human and medical genetics, population and evolutionary genetics, or computational molecular genetics, is established. Specific topics can include statistical models for Mendelian genetic traits, population genetics: Hardy-Weinberg equilibrium, allelic variation, population subdivision, coancestry coefficients, the coalescent, pedigree relationships and gene identity, meiosis and recombination detection and an introduction to linkage analysis.</td>
<td>A mixed lecture and seminar-based course to introduce Statistics graduate students to statistical models and methods in Genetics and Genomics. Topics may include applications of statistical learning in: Quantitative Genetics, Population and Evolutionary Genetics, Computational Molecular Genetics, Human Genomics and Genetic Epidemiology.</td>
</tr>
<tr>
<td>Prerequisite</td>
<td>Prerequisite</td>
</tr>
<tr>
<td>Other</td>
<td>Other</td>
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* Program requirements may need to be revised when course units are changed. Please review the calendar and submit any relevant program revisions resulting from this course change.

Page 1 of 2 Revised May 2015
REMINDER: All course changes must be identified on a cover memo and confirmed as approved when submitted to FGSC and SGSC.

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<tr>
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<th>Contact email</th>
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<tr>
<td>Statistics and Actuarial Science</td>
<td>Jinko Graham</td>
<td><a href="mailto:jgraham@sfu.ca">jgraham@sfu.ca</a></td>
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DEPARTMENTAL APPROVAL

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<tr>
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<td>May 24, 2018</td>
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<tr>
<td>Department Chair</td>
<td>Signature</td>
<td>Date</td>
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<tr>
<td>Tom Loughin</td>
<td></td>
<td>24 May 18</td>
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FACULTY APPROVAL

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<td>Peter Ruben</td>
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SENATE GRADUATE STUDIES COMMITTEE APPROVAL

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ADMINISTRATIVE SECTION (for DGSC office only)

- Course Attribute
- Course Attribute Value
- Instruction Mode
- Attendance Type

If different from regular units:
- Academic Progress Units
- Financial Aid Progress Units
MEMORANDUM

ATTENTION: Jeff Derksen,
Chair of Senate Graduate Studies
Committee (SGSC)

FROM: Ed Park
Graduate Chair of Individualized Interdisciplinary Studies

RE: Program Change, Course Change INS 899

DATE: May 17, 2018

Individualized Interdisciplinary Studies is an approved program under GGR 1.3.5; however, the program requirements have never appeared in the calendar. The MA, MSc and PhD calendar entries are new and are to be added to the University calendar for clarity.

The following calendar entries and a course change have been approved by Ed Park, Graduate Program Chair of Individualized Interdisciplinary Studies, and are forwarded to the Senate Graduate Studies Committee for approval. These curriculum items should be effective for Spring 2019.

Please include these items on the next SGSC agenda:

- Course Change (units): INS 899
- New Calendar Entry: Individualized Interdisciplinary Studies MA
- New Calendar Entry: Individualized Interdisciplinary Studies MSc
- New Calendar Entry: Individualized Interdisciplinary Studies PhD
Graduate Course Change

Attach a separate document if more space is required.

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<th>Effective Term and Year</th>
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<tr>
<td>INS 899</td>
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<td>1191</td>
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Course Title: PhD Thesis

Rationale for Change:
To match the number of units assigned to a Master's Thesis.

Proposed Changes [Check all that apply]
- [ ] Course number
- [ ] Units*
- [ ] Title
- [ ] Description
- [ ] Prerequisite
- [ ] Other

Complete only the fields to be changed

<table>
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<td>Course Short Title (max 30 characters)</td>
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<td>FROM Description</td>
<td>Description</td>
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<tr>
<td>FROM Prerequisite</td>
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* Program requirements may need to be revised when course units are changed. Please review the calendar and submit any relevant program revisions resulting from this course change.

Page 1 of 2 Revised May 2015
REMINDER: All course changes must be identified on a cover memo and confirmed as approved when submitted to FGSC and SGSC.

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<tr>
<th>Department / School / Program</th>
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<tr>
<td>Individualized Interdisciplinary Stud.</td>
<td>Ed Park</td>
<td><a href="mailto:ed_park@sfu.ca">ed_park@sfu.ca</a></td>
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<tr>
<td>Dr. Ed. Park</td>
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<td>June 21, 2018</td>
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ADMINISTRATIVE SECTION (for DGS office only)

Course Attribute: 
Course Attribute Value: 
Instruction Mode: 
Attendance Type: 

If different from regular units:
Academic Progress Units: 60
Financial Aid Progress Units: 

Page 2 of 2 Revised May 2015
This is a summary of the nominations received and outstanding vacancies for Senate committees.

All nominations must be received by the Senate Office from the Nominating Committee in time to be included in the documentation sent out for the next Senate meeting. Senators will be informed that further nominations may be made by individual members of Senate. Any such nominations must reach the Committee Secretary the Friday before the meeting of Senate, and no further nominations will be accepted after this time. The Committee Secretary will provide members of Senate at the Senate meeting with such further nominations as may have been received. Oral nominations during the meeting of Senate will not then be allowed.

If only one nomination is received for a position, the position will be elected by acclamation. If more than one nomination is received for a position, online voting will be held during the week following the Senate meeting on Monday, July 9, 2018. An email will be sent to all Senators with information about the candidates and a link to the online voting system. Voting will be permitted for 48 hours and election results will be released within three days of the end of voting.

<table>
<thead>
<tr>
<th>COMMITTEE</th>
<th>POSITION</th>
<th>TERM (from June 1, 2018)</th>
<th>NOMINATIONS RECEIVED (after June Senate elections)</th>
<th>CANDIDATES ELECTED (from June Senate meeting)</th>
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<tbody>
<tr>
<td>CC</td>
<td>Student Member</td>
<td>1 year</td>
<td></td>
<td>Jennica Palecek</td>
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<tr>
<td>DQAC</td>
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<td>1 year</td>
<td>Xilonen Hanson Pastran</td>
<td>Sumrit Singh Buttar</td>
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<td></td>
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<tr>
<td>ESC</td>
<td>Senator</td>
<td>2 years</td>
<td></td>
<td>Peter Tingling</td>
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<td></td>
<td>Senator</td>
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<td></td>
<td>Student Senator</td>
<td>2 years</td>
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<td>Srishti Bhalla</td>
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<td>1 year</td>
<td>Aliya Khan, Simran Sanghera, Camelia Tavakoli</td>
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<td>Vikramaditya Chandhok</td>
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<td>Julian Christians</td>
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<td>Faculty Senator (Health</td>
<td>2 years</td>
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<td>3 years</td>
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<td>Glenn Chapman</td>
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<td>Tracey Brennand</td>
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<td>Sumrit Singh Buttar</td>
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<td>Harman Batish</td>
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<td>Vikramaditya Chandhok, Jackson Freedman, Mehekjot Kaur, Susan Luu, Simran Sanghera</td>
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<td>Aliya Khan</td>
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<td>3 years</td>
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<tr>
<td><strong>Vice Chair of Senate</strong></td>
<td>Senator</td>
<td>1 year</td>
<td>Peter Tingling</td>
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</tbody>
</table>

*SCIA Faculty members: In the event that the Faculty Member is unable to attend, the Faculty Dean is authorized to appoint an alternate replacement.*

- **CC** Calendar Committee
- **DQAC** Diverse Qualifications Adjudication Committee
- **ESC** Electoral Standing Committee
- **LPAC** Library Penalties Appeal Committee
- **REB** Research Ethics Board
- **SAB** Senate Appeals Board
- **SCAR** Senate Committee on Agenda and Rules
- **SCCS** Senate Committee on Continuing Studies
- **SCEMP** Senate Committee on Enrolment Management and Planning
- **SCIA** Senate Committee on International Activities
- **SCODA** Senate Committee on Disciplinary Appeals
- **SCUH** Senate Committee on University Honours
- **SCUP** Senate Committee on University Priorities
- **SCUS** Senate Committee on Undergraduate Studies
- **SCUTL** Senate Committee on University Teaching and Learning
- **SGAAC** Senate Graduate Awards Adjudication Committee
- **SGSC** Senate Graduate Studies Committee
- **SLC** Senate Library Committee
- **SNC** Senate Nominating Committee
- **SPCSAB** Senate Policy Committee on Scholarships, Awards & Bursaries
- **SUAC** Senate Undergraduate Awards Adjudication Committee