SIMON FRASER UNIVERSITY

MEMORANDUM

To: Senate

From: Roger Blackman
           Senate Committee on Undergraduate Studies

Subject: Curriculum Revisions
           Faculty of Arts
           (SCUS Reference 04-1, 04-2)

Date: February 12, 2004

Action undertaken by the Senate Committee on Undergraduate Studies at the February 10, 2004 meeting gives rise to the following motions:

MOTION 1
    Department of French

    "that Senate approve and recommend approval to the Board of Governors as set forth in S.04 -21 , the new Joint Program with the Department of Political Science - French Language Cohort Program in Public Administration and Community Services, effective Fall Semester 2004."

MOTION 2
*   Department of Geography (with the School of Computing Science)

    "that Senate approve and recommend approval to the Board of Governors as set forth in S.04 -21 , the new BSc in Geographic Information Science Program in the Faculty of Applied Sciences, effective Fall Semester 2004."

* contingent upon approval by SCUP at its meeting on February 25, 2004

FOR INFORMATION

Acting under delegated authority, at the February 10, 2004 meeting, SCUS approved curriculum revisions in the following departments:

a) School of Criminology
   Change to the application procedure for students admitted to the School of Criminology Major, Minor, and Honours Programs

b) Department of French
   i.   New Course: FREN 452-3 – Topics in French Cultures
   ii. Calendar revisions to reflect the new course

Any Senator wishing to consult the full report of curriculum revisions should contact Bobbie Grant, Senate Assistant at 291-3168 or email bgrant@sfu.ca

SIMON FRASER UNIVERSITY
Office of the Dean, Faculty of Arts
MEMORANDUM

To: Roger Blackman
Chair, S.C.U.S.

From: Mary Ann Gillies
F.A.C.C.
Studies Committee

Subject: New Program Initiative
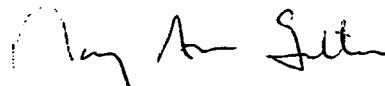Departments of Political
Science and French

Date: 3 February, 2004

The Faculty of Arts Curriculum Committee approved the attached proposal for a French Language Cohort Program in Public Administration and Community Services in French which will enable students the opportunity to complete a Bacholor of Arts Degree with a Major in Political Science and an Extended Minor in French; or a Major in French with an Extended Minor in Political Science.

The Committee also approved the new course proposal: FREN 452-3 Topics in French Cultures, submitted by the Department of French, and corresponding change to its Extended Minor Program in French.

Would you please place these items on the agenda of the next meeting of SCUS?

Thank you.

Mary Ann Gillies, Chair
Faculty of Arts Graduate
Studies Committee

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cc: Sarah Dench

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<u>New Program Proposal</u>
FRENCH LANGUAGE COHORT PROGRAM
IN
PUBLIC ADMINISTRATION AND COMMUNITY SERVICES

This proposal for a French Language Cohort Program in Public Administration and Community Services is one part of a larger federally funded initiative that will make SFU the leader in French language education in British Columbia.

BACKGROUND

The proposal is one outcome of a report on the expansion of French language offerings at SFU, authored two years ago by Jean Watters and sponsored by the Fédération des francophones de la Colombie-Britannique [FFCB]. That report recommended that SFU establish an Office of Francophone and Francophile Affairs, expand its offering in French education, and develop an undergraduate program in which French is the primary language of instruction. Implementation of the plan has always been contingent on securing substantial federal resources, matching Provincial monies already committed to French language education. In May 2003, a preliminary academic plan was incorporated within an overall request to both governments to fund these developments for an initial five year period. The University has now received the funding requested for the initial planning year, and is awaiting final ministerial sign-off on the full amount requested. These funds are available to the university for French language programming only. With full funding for all direct costs of the program now in place, it is timely to bring forward for approval the undergraduate program proposed by the Faculty of Arts. It is anticipated that if the program is approved, it can begin as early as September, 2004.

ACADEMIC RATIONALE

Even as the population of school-age children in British Columbia is declining, enrolments in French Immersion and conseil scolaire programs are climbing. BC now has almost 35,000 K-12 students whose primary language of instruction is French. The provincial post-secondary system is being challenged to meet the academic aspirations of this important minority. The Fédération des francophones de la

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Colombie-Britannique recently surveyed immersion and Francophone students in Grades 10-12, and showed that fully 84% intend to pursue post-secondary education (Corbeil, 2000). Yet B.C. currently offers no bachelor degree programs in which French is the language of instruction.

(May 2003 business plan, <u>A Call to Action</u>)

The challenge has been to develop an effective and sustainable response to this need. Although French Immersion students have shown a clear interest in continuing to develop their linguistic skills in French as they proceed through university, they have also indicated that a program exclusively in French is not their preference. Moreover, their numbers are not large enough that offering them a wide range of course in French across a number of departments would be efficient. SFU has some francophone faculty, but not so many that a coherent course of study outside the French Department could be built on their efforts.

The solution proposed here is a cohort program, analogous to the existing Integrated Studies Programs, in which a group of students will move together through a sequence of courses designed and scheduled especially for them. The majority of course offerings in the program would be concentrated in two departments, French and Political Science. This approach enables the application of new resources in a focused way to create a structured and coherent program. It has the advantage of providing a rich learning environment for a group of students with particular learning objectives in common. It is reasonable to expect that on the whole the program will attract excellent students. A distinctive program responding to their needs will advance SFU's commitment to high quality undergraduate education. Serving them well will also advance SFU's reputation with important constituencies.

The FFCB survey discovered that the most widely shared career interest among prospective students is public administration, with a significant correlative interest in community involvement. The proposed program responds directly to that interest, while recognizing that there is also a strong secondary interest in preparing for a teaching career. The program is designed in such a way that the interests of students wishing to pursue graduate work can be served through completing a regular major in either Political Science or French. Provision is also made for students preparing for

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SFU's Professional Development Program in Education. The cohort design will enable highly supportive language instruction as these students learn to perform academically in French at a university level.

The program design attempts to achieve an appropriate balance among various objectives. There are enough courses in French that students can gain full proficiency in its academic use, but the expressed interest in mixed language education is respected. There are numerous cohort-specific courses through which students can strongly identify with the program, but cohort students will also have a significant number of classes with the wider student population. The program necessarily controls a significant proportion of the credit hours required for a degree, but elements of flexibility have been built in throughout. Perhaps most importantly, the common language interest has been taken as an opportunity to develop a special and enriched learning environment, which will include a semester at a francophone university, special academic support and advice, and a common room within the francophone environment of the French Department.

The course requirements in the proposed program consist almost entirely of already existing SFU courses; only one new course proposal is included with the program. Clearly, there is much work to be done in adapting course materials for delivery in French and designing special versions of selected topics courses. Fortunately, there is adequate provision in the program specific funding to cover the necessary new teaching resources, course preparation and library materials. The program can be expected to evolve considerably over the first few years. The funding will permit the program to go ahead for a relatively small group initially as it finds its feet and becomes more widely known.

DETAILED PROGRAM DESCRIPTION

This program is designed primarily for French immersion and Francophone students entering SFU who wish to develop their facility in French during their university studies. A substantial proportion of the instruction within this program will be in the French language, both in the Departments of French and Political Science, and in specially offered courses in other departments. The program is designed as a cohort program, in which students move

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together through courses that are scheduled especially for them. Students who complete the full cohort program in Public Administration and Community Service will earn a major in Political Science and an extended minor in French.

Students in the program will improve their French language skills while preparing for roles in public administration and community services for which proficiency in French is an advantage. They will be well prepared for graduate study in political science or public administration. A significant feature of the program is that it provides the opportunity to undertake a substantial proportion of degree studies within a cohort setting – working together with a small group of students in the same program in courses specifically designed and offered for the program. In addition, the cohort program will include one semester at a Francophone university. Students can expect to enter a Francophone and Francophile community designed to support their French language proficiency and educational advancement and offering numerous academic enrichment opportunities.

As an alternative to completing the full program, students participating in the cohort for the first three years may choose instead to complete a major in French and an extended minor in Political Science. Through elective study these students may also complete the social studies requirements for the Professional Development Program in the Faculty of Education. This option is recommended for students who intend to teach at the primary or secondary level.

PROGRAM ADMISSION

The program is available to all students who have been admitted to SFU under regular admission procedures and who have adequate competency in French, as determined through the French language placement tests. Because the program is a cohort program in which students will move together through a significant proportion of their undergraduate studies, students entering SFU with substantial amounts of university transfer credit may need to take more than the normal 120 hours of degree credit in order to complete this program. The cohort program will begin in the Fall semester only. It is most suitable for those entering directly from secondary school who plan to undertake fulltime study over a four year period.

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Prospective students who are interested in enrolling in this program should contact xxx in the xxx at the time they seek admission to SFU.

THE PROGRAM

Students who complete the program will have fulfilled all the requirements for a major in Political Science and an extended minor in French. The Political Science requirements will be met in large part through special sections of regular courses, offered in French exclusively for cohort students. Some portion of the required credit in Political Science will be obtained through regular courses taught in English and some through transfer from a French language university.

The Department of French will also offer some special sections for the cohort in order to support students' facility in the academic use of French. The remainder of the required credit will be obtained through courses regularly offered in the department or through transfer.

In addition to courses in these two departments, a small number of courses in other departments will be designated as required for the program. These courses will generally be taught in French and will directly support the program goals. Designated courses from other departments may vary over time. The total number of required program-specific credits will not exceed 100, of which at least 80 will be available through courses taught in French.

The alternative program, through which students will complete a major in French and an extended minor in Political Science, permits students to participate in the cohort program though the first three years. In the fourth year, students will complete the remaining course required for the French major instead of advanced, cohort specific Political Science courses.

PROGRAM REQUIREMENTS

The following outline of program requirements lists courses that students can expect to be scheduled for the cohort program. Some variation in this list and in the language of instruction of some courses may occur. Courses below are designated either as "cohort specific" (cs) or "regular" (r). All cohort specific courses or

sections will be taught in French and will normally be open only to cohort students. Regular courses will be taught in English, except for those in the Department of French, which will be taught in French. Regular courses are open to all qualified students.

<u>Department of Political Science:</u>

Lower division - 6 specified courses, earning 18 credit hours.
POL 100-3 Introduction to Politics and Government (cs)
POL 201-3 Research Methods in Political Science (r)
POL 210-3 Introduction to Political Philosophy (cs)
POL 221-3 Introduction to Canadian Government (cs)
POL 223-3 Canadian Political Economy (r)
POL 251-3 Introduction to Canadian Public Administration (cs)

Upper division - 8 courses, earning 32 credit hours, to include:
Four regular courses:
Four upper division POL courses, which must include one course in the field of Canadian Government and Politics, and one in the filed of Public Policy/Administration and Local Government (POL 351-4, The Public Policy Process, is recommended). Normally, two of these courses (equivalent to at least 8 credit hours) will be selected from transferable political science courses offered at the institution hosting the Francophone semester.

Plus four cohort specific courses:
POL 329-4 Selected Topics in Canadian Government and Politics: The French fact
> This course will examine the political and social consequences of bilingualism in Canada. How does the linguistic duality of Canada influence political decision-making and policy development? What rights and opportunities exist for linguistic minorities, both for Anglophones inside Quebec and for Francophones outside Quebec? How can the constitutional order of Canada regarding language rights be expected to evolve?

POL 359-4 Selected Topics in Governance: Methods in Community Consultation
> This course will introduce processes and approaches required to engage communities in policy development. It will review quantitative and qualitative methods for needs assessment; introduce fundamentals of stakeholder analysis

and the examination of community/government/business relations; and provide practical instruction in facilitation skills, dispute resolution and developing community leadership.

POL 459-4 Selected Topics in Governance: Planning Community-based Projects

This course will introduce applied skills required for effective planning and implementation of projects that are based in specific communities or that would benefit from community input. It will introduce fundamentals of project management and apply these to practical situations involving community participation. This course may be taught in conjunction with POL 497.

POL 497-4 Directed Practice in Political Science

In this course students will apply their knowledge of public administration and community development in a practical setting. This course may be taught in conjunction with POL 459.

Department of French:

Lower division:
FREN 212-3 French for Immersion Program Students (cs)*
FREN 221-3 French Writing I (cs)
FREN 222-3 French Writing II (cs)
FREN 225-3 Topics in French Language (cs)
FREN 230-3 Introduction to French-Canadian Literature (r)
FREN 270-3 Introduction to French Linguistics (r)

* Students receiving advanced placement above the level of this course may receive permission to waive or challenge it.

Upper division:
FREN 301-3 Advanced French Composition (r)

Plus one of:
FREN 425-3 Topics in the Varieties of French
FREN 452-3 Topics in French Cultures [NEW COURSE]

Plus 9 hours of upper division French courses. Normally, 6 of these credits will be obtained through courses at the Francophone host university.

Students desiring to acquire further linguistic competence and familiarity with Francophone culture should consider participating in one of the regular French Department field schools during a summer semester (FREN 320-3, 321-3, 322-3).

Other departments

The courses listed below are those that typically will be designated as required to complete the full cohort program in Public Administration and Community Services. Other appropriate courses may occasionally be substituted for these.

Department of History

HIST 101-3 Canada to Confederation (r)
HIST 102-3 Canada Since Confederation (cs)
HIST 204-3 The Social History of Canada (cs)

Centre for Canadian Studies

CNS 210-3 Foundations of Canadian Culture (cs)

Department of Humanities

HUM 321-4 The Humanities and Critical Thinking (cs)

Electives: The courses listed above constitute 99 hours of credit, 81 of which will be obtained through courses taught in French. The remaining 21 hours required for the degree may be elected from regularly taught courses. Students intending to enter further study or a career in public administration are advised to include ECON 103, ECON 105 and STAT 203 among their electives. Students should also be aware of general university requirements in planning their electives. Assistance in planning electives to meet additional program requirements is available from the program advisor.

Sample Schedule

The scheduling of core courses may vary over time, depending on the availability of instructors and other scheduling constraints. The principles that will guide course scheduling are as follows:

1. 3 or 4 core courses will be scheduled each fall and spring.
2. courses in French offered each semester will be planned and scheduled in tandem to support each other – for the first 3 semesters no more than 3 courses in French will be offered in any semester.
3. courses in French will be consistent and progressive – aiming toward full proficiency in academic, work and community settings.

A typical schedule over the four year program might look as follows:

Semester 1 (Fall)
HIST 101-3 Canada to Confederation (in English)
POL 100-3 Introduction to Politics and Government (in French)
FREN 221-3 French Writing I (in French, customized to support POL 100)
FREN 212-3 French for Immersion Program Students (in French, customized for cohort)
Elective

Semester 2 (Spring)
HIST 102-3 Canada Since Confederation (in French)
FREN 222-3 French Writing II (in French, customized to support HIST 102)
POL 210-3 Introduction to Political Philosophy (in French)
POL 223-3 Canadian Political Economy (in English)
Elective

Semester 3 (Fall)
POL 201-3 Research Methods in Political Science (in English)
POL 251-3 Introduction to Canadian Public Administration (in French)
FREN 225-3 Topics in French Language (in French, customized to support POL 251)
FREN 230-3 Introduction to French-Canadian Literature (in French)
Elective

Semester 4 (Spring)
POL 221-3 Introduction to Canadian Government (in French)
FREN 301-3 Advanced French Composition (in French)
HIST 204-3 The Social History of Canada (in French)

CNS 210-3 Foundations of Canadian Culture (in French)
Elective

Semester 5 (Fall)
This semester of the program will be held at a Francophone host
university. Students will be expected to complete two political
science courses acceptable for upper division credit, and two
courses acceptable for upper division French Department credit.
(All in French).

Semester 6 (Spring)
POL 351-4 The Public Policy Process (in English)
FREN 270-3 Introduction to French Linguistics (in French)
FREN 304-3 Advanced French Grammar (in French
HUM 321-4 The Humanities and Critical Thinking (in French)

Semester 7 (Fall)
POL 329-4 Selected Topics in Canadian Government and Politics: The
French Fact (in French)
POL 359-4 Selected Topics in Governance: Methods in Community
Consultation (in French)
FREN 452-3 Topics in French Cultures: Espaces Culturels de la
Francophonie en Colombie-Britannique (in French)
POL 300/400 level course (in English)

Semester 8 (Spring)
POL 459-4 Selected Topics in Governance: Planning Community-
based Projects (in French)
POL 497-4 Directed Practice in Political Science (in French)
electives, as necessary

Alternative Program: Students who prefer to focus on studies in
French and those who are interested in teaching careers may wish
to undertake an alternative program leading to a major in French
and an extended minor in Political Science. Students could make
this choice at any time, but normally would not complete the fourth
year of the cohort program. Instead, students would complete the
following courses in their final year:
FREN 360-4 Intermediate French Literature
FREN 370-4 Introduction to French Linguistics II
Four 400-level French courses (which could include the cohort
offering of FREN 425 or 452)
electives, as necessary

NOTE: Specific French course requirements may vary, depending on courses taken at the Francophone university or as previous electives

Students who are taking this alternative program and who in addition wish to complete the social studies requirements to teach social studies at the secondary level will need to complete an additional 18 credit hours of history and geography courses (see Faculty of Education requirements). Students with this objective are advised to choose electives judiciously from the beginning of their program.

PROPOSED CALENDAR ENTRY

This program is designed primarily for French immersion and Francophone students entering SFU who wish to develop their facility in French during their university studies. A substantial proportion of the instruction within this program will be in the French language, both in the Departments of French and Political Science, and in specially offered courses in other departments. The program is designed as a cohort program, in which students move together through courses that are scheduled especially for them. Students who complete the full cohort program in Public Administration and Community Service will earn a major in Political Science and an extended minor in French.

Students in the program will improve their French language skills while preparing for roles in public administration and community services for which proficiency in French is an advantage. They will be well prepared for graduate study in political science or public administration. A significant feature of the program is that it provides the opportunity to undertake a substantial proportion of degree studies within a cohort setting – working together with a small group of students in the same program in courses specifically designed and offered for the program. In addition, the cohort program will include one semester at a Francophone university. Students can expect to enter a Francophone and Francophile community designed to support their French language proficiency and educational advancement and offering numerous academic enrichment opportunities.

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As an alternative to completing the full program, students participating in the cohort for the first three years may choose instead to complete a major in French and an extended minor in Political Science. Through elective study these students may also complete the social studies requirements for the Professional Development Program in the Faculty of Education. This option is recommended for students who intend to teach at the primary or secondary level.

PROGRAM ADMISSION

The program is available to all students who have been admitted to SFU under regular admission procedures and who have adequate competency in French, as determined through the French language placement tests. Because the program is a cohort program in which students will move together through a significant proportion of their undergraduate studies, students entering SFU with substantial amounts of university transfer credit may need to take more than the normal 120 hours of degree credit in order to complete this program. The cohort program will begin in the Fall semester only. It is most suitable for those entering directly from secondary school who plan to undertake fulltime study over a four year period.

Prospective students should contact xxx in the xxx at the time they seek admission to SFU.

THE COHORT PROGRAM

In a cohort program students enroll in a specified set of courses each semester, courses that are planned and scheduled specifically for the group. In this program the cohort-specific courses and course sections will be offered in French. Students in the cohort will also take some required courses in English in regular course sections and some elective courses. Within the general program requirements (below), the Program Steering Committee will each year publish a list of designated courses for the program, including the language of instruction and the planned schedule of offerings.

REQUIREMENTS

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Requirements for the full cohort program, earning a major in Political Science and an extended minor in French:

Lower Division:
18 credit hours of political science in designated courses, to include four course sections taught in French;
18 credit hours of French in designated courses, including four cohort-specific course sections;

Upper Division:
32 credit hours of political science courses, including four cohort-specific course sections taught in French;
15 credit hours of French courses.

In addition to the requirements within these two departments, up to 17 credit hours in other departments may be required in either lower or upper division courses. Such additionally designated courses will usually be taught in French, and will be in subjects directly related to the program. The additional courses required will be designated at the beginning of each entering cohort. Overall, cohort students may expect at least 80 credit hours of instruction in French.

Requirements for the alternate program, earning a major in French and an extended minor in Political Science:

Lower Division:
Same as above

Upper Division:
16 credit hours in political science courses
32 credit hours in French courses, including all requirements for the French major

Students choosing the alternate program may complete the first three years of the full cohort program, including all designated courses in other departments.

DESIGNATED COURSES

The following courses will typically be designated as part of the cohort program. The specific courses designated, and the language

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of instruction, may vary from this list from time to time. Courses below are designated either as "cohort specific" (cs) or "regular" (r). All cohort specific courses or sections will be taught in French and will normally be open only to cohort students. Regular courses will be taught in English, except for those in the Department of French, which will be taught in French.

Department of Political Science:

Lower division
POL 100-3 Introduction to Politics and Government (cs)
POL 201-3 Research Methods in Political Science (r)
POL 210-3 Introduction to Political Philosophy (cs)
POL 221-3 Introduction to Canadian Government (cs)
POL 223-3 Canadian Political Economy (r)
POL 251-3 Introduction to Canadian Public Administration (cs)

Upper division
Four upper division POL courses, which must include one course in the field of Canadian Government and Politics, and one in the filed of Public Policy/Administration and Local Government (POL 351-4, The Public Policy Process, is recommended). Normally, two of these courses (equivalent to at least 8 credit hours) will be selected from transferable political science courses offered at the institution hosting the Francophone semester.

Four cohort specific courses:
POL 329-4 Selected Topics in Canadian Government and Politics: The French Fact
>   This course will examine the political and social
>   consequences of bilingualism in Canada.

POL 359-4 Selected Topics in Governance: Methods in Community Consultation
>   This course will introduce processes and approaches
>   required to engage communities in policy development.

POL 459-4 Selected Topics in Governance: Planning Community-based Projects
>   This course will introduce applied skills required for effective
>   planning and implementation of community-based projects.
>   This course may be taught in conjunction with POL 497.

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POL 497-4 Directed Practice in Political Science
  In this course students will apply their knowledge of public administration and community development in a practical setting. This course may be taught in conjunction with POL 459.

Department of French:

Lower division:
FREN 212-3 French for Immersion Program Students (cs)*
FREN 221-3 French Writing I (cs)
FREN 222-3 French Writing II (cs)
FREN 225-3 Topics in French Language (cs)
FREN 230-3 Introduction to French-Canadian Literature (r)
FREN 270-3 Introduction to French Linguistics (r)

  * Students receiving advanced placement above the level of this course may receive permission to waive or challenge it.

Upper division:
FREN 301-3 Advanced French Composition (r)

Plus one of:
FREN 425-3 Topics in the Varieties of French (r)
FREN 452-3 Topics in French Culture [NEW COURSE] (r)

Plus 9 hours of upper division French courses. Normally, 6 of these credits will be obtained through courses at the Francophone host university.

Students desiring to acquire further linguistic competence and familiarity with Francophone culture should consider participating in one of the regular French Department field schools during a summer semester (FREN 320-3, 321-3, 322-3).

Other departments

Department of History

HIST 101-3 Canada to Confederation (r)
HIST 102-3 Canada Since Confederation (cs)
HIST 204-3 The Social History of Canada (cs)

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Centre for Canadian Studies

CNS 210-3 Foundations of Canadian Culture (cs)

Department of Humanities

HUM 321-4 The Humanities and Critical Thinking (cs)

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17.

DEPARTMENT OF FRENCH
Calendar Revision

FROM :

Upper Division Requirements (p. 163 in 2003/2004 Calendar)

Extended Minor

Students must complete
FREN 301-3 Advanced Composition I
and one of
FREN 360-4 Intermediate French Literature
FREN 370-4 Introduction to French Linguistics II

A further nine credit hours of French, to be chosen from among the remaining courses at the 300 and 400 division, must be completed.

TO:

Extended Minor

Students must complete
FREN 301-3 Advanced French Composition
and one of
FREN 360-4 Intermediate French Literature
FREN 370-4 Introduction to French Linguistics II

A further nine credit hours of French, to be chosen from among the remaining courses at the 300 and 400 division, must be completed.

For the French Language Cohort Program in Public Administration and Community Services ONLY :
Students must complete
FREN 301-3 Advanced French Composition
and one of
Fren 425-3 Topics in the Varieties of French
Fren 452-3 Topics in French Cultures

A further nine credit hours of French, to be chosen from among the remaining courses at the 300 and 400 division, must be completed. (Fren 360-4 and/or Fren 370-4 may be taken in partial fulfillment of this requirement.)

SIMON FRASER UNIVERSITY
Office of the Dean, Faculty of Arts
MEMORANDUM

To: Sarah Dench
Secretary, S.C.U.S.
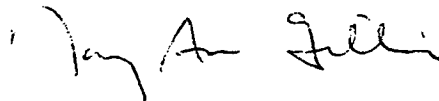
From: Mary Ann Gillies
Chair, F.A.C.C.

Subject: <u>New Joint Program
School of Computing Science
and Department of Geography</u>

Date: 21 January, 2004

The Faculty of Arts Curriculum Committee, at its meeting of January 15, 2004, approved the attached new Geographic Information Science Program proposal submitted by the School of Computing Science and the Department of Geography.

The Department of Geography has approved this proposal based upon the assurance, from the senior administration, that DTO funding will be received to implement this new initiative.

Mary Ann Gillies, Chair
Faculty of Arts
Curriculum Committee

:dgg
encl.

From: Rob Cameron <cameron@cs.sfu.ca>
To: Sarah Dench <sjdench@sfu.ca>
Subject: Re: GIS program memo
Date: Tue, 17 Feb 2004 16:03:39 -0800

Hi, Sarah.

FAS UCC did consider the GIS program at its meeting
of Friday, November 14 and gave approval in principle
subject to adequate resources being made available.

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Robert D. Cameron, Ph.D.
Professor of Computing Science
Associate Dean of Applied Sciences
Simon Fraser University

SIMON FRASER UNIVERSITY
Department of Geography
MEMORANDUM

To: Dr. Mary Ann Gillies, Chair
Faculty of Arts Curriculum
Committee
Dr. Rob Cameron, Chair
Faculty of Applied Sciences
Curriculum Committee

From: M. Schmidt, Chair
UGSC, Geography

Subject: New Program Proposal
2004/2005 Calendar

Date: 8 December 2003

The attached GIScience major/honors BSc in Applied Sciences was approved in principle by the Department of Geography at its meeting of 27 November 2003. The intent of the "in principle" approval is to indicate the Department's approval of the academic content and curriculum of the new program. However, Geography's participation in the program is contingent on satisfactory budget assurances from the university administration on the flow of DTO funding to the Department. Please bring this new program proposal to the Faculty of Arts and Faculty of Applied Sciences Curriculum Committees for approval.

RJClay, for M G Schmidt

M. G. Schmidt, Chair
Undergraduate Studies Committee

/hj

Enc:

Proposed Calendar Entry - Faculty of Arts, Department of Geography

Geographic Information Science Program

The program is offered jointly by the School of Computing Science and the Department of Geography. Students may pursue major or honors options leading to the BSc or BSc (Honors) degrees under the Faculty of Applied Sciences. See for requirements.

New Program Proposal - Geographic Information Science

B. Bhattacharya, R. Cameron, A. Clapp, Q. Gu, J. Regan, M. Schmidt, N. Schuurman

Revision D - November 25, 2003

I. Introduction

A B.Sc. degree program in *Geographic Information Science* (major or honors) is proposed as a joint program of the Department of Geography and the School of Computing Science, to be administered under the Faculty of Applied Sciences. This program is proposed to be funded under the provincial "Double the Opportunity" (DTO) initiative.

I.1. What is GIScience?

While Geographic Information Systems are a collection of practices, hardware and software used to analyze spatial data, GIScience deals with the theoretical and intellectual issues that surround the use of GISystem technologies. GIScience is, in the simplest sense, the theory that underlies GISystems. It took several decades, however, for this alternate GIS identity to emerge. By the beginning of the 1990s, a sense prevailed among many academic researchers that GIS had forged new intellectual territory. There are unique characteristics of geographical data, and problems associated with its analysis, that differentiate GIS from other information systems. These properties include: the need to develop conceptual models of space; the sphericity of spatial data; problems with spatial data capture; spatial data uncertainty and error propagation; as well as algorithms and spatial data visualization and display. Questions about the underlying assumptions written into the code that comprises GISystems are the basis of GIScience. The emergence of *Geographic Information Science* as the preferred term for the scientific discipline underlying GISystem technologies and applications is now widely recognized and promoted by major university and institutional consoritia in both North America (UCGIS) and Europe (AGILE).

GIScience is a field that requires solid foundations in both computing science and geography. While GIScience graduates will be exceptionally well qualified to contribute to a rapidly growing industry, the aim of the GIScience major is not to provide a vocational degree, but a liberal education in the computational analysis of geographical phenomena. Students will explore the merits of different methods for digital representation of spatial entities on the earth's surface. They will learn how to model data effectively; how to visualize those models using computer graphics; and how to program in object environments. They will also investigate philosophical issues pertinent to GIScience, including the ontology, epistemology and ethical implications of spatial data representations.

The information science component of this degree is complemented by studies in geography. Majors are required to take courses in one or more subject areas in human or physical geography. Several domains of modern human and physical geography have been transformed by GISystems: resource management, for

example, depends on GISystems to analyze and map resource inventories and environmental values, while modelling atmospheric processes like global warming requires strong foundations in climatology and computational theory. Other fields in Geography that are of particular interest to the GIScientist include hydrology and sub-surface modelling, location analysis, immigrant settlement patterns, epidemiology, urban growth, and the economic geography of telecommunications.

I.2. Contributions to Canada

The development of a GIScience major at SFU will benefit the province and the nation through the training of future employees with the skills needed to compete in the $20 billion international Geomatics market. Ensuring that Canada can share information with other nations is a key component of our ability to participate in the industry. This is essential not only to Canada's competitiveness on the world market, but also to providing equality of access to geospatial information within Canada.

The Government of Canada has shown its commitment to the field by establishing a Canadian Geospatial Data Infrastructure and a funding agency (GEOIDE: Geomatics for Informed Decisions) to fund its ongoing development. The data infrastructure is expected to benefit Canada in at least six areas: jobs and economic growth; international competitiveness; rural and remote community access; public and private sector partnerships; new models of governance and collaborations on a national project. Canadians will benefit in many ways through the increased capacity to use geospatial data. These benefits include the routing of emergency services by the quickest routes, tracking criminal activity, locating businesses in the best areas and integrating information to improve public transportation and facilities management.

I.3. Employment Prospects

According to Industry Canada, Geomatics (which includes GISystems) is one of the five components of the rapidly growing information technology sector. The GISyestems industry is growing at double-digit rates and is expected to continue to grow in the future. The industry has proven resistant to boom-bust cycles in technology because both private firms and public sector agencies need to manage geographic information, and that need has continued to grow even as the dot-com bubble has deflated.

The employment prospects are bright for students with training in GIScience. Both private companies and public sector employers have growing needs for workers who can help them take advantage of their investments in spatial data infrastructure and management. Firms and agencies dealing with natural resources, energy production and distribution, transportation and waste management now require GIS training for many career paths. Other fields in which GIScience plays a large and growing role include public health, police services, and planning at all levels of government. More generally, any organization with spatially extensive resources and operations needs GIScience expertise to manage the proliferating spatial data that document and model the environments in which they work.

II. Proposed Calendar Description

The following calendar entry is proposed for inclusion under the *Faculty of Applied Sciences* section of the calendar.

Geographic Information Science Program

The School of Computing Science and the Department of Geography cooperate in offering the program in Geographic Information Science. Students may pursue major or honours options leading to the BSc or BSc (Honours) degrees under the Faculty of Applied Sciences.

The program is administered by a coordinating committee consisting of two members each from computing science and geography. The committee chair serves as program director and alternates between computing science and geography every two years. Curriculum changes proposed by the committee require the support of both computing science and geography.

Admission and Continuation

Entry into geographic information science programs is possible via

- direct admission from high school
- direct transfer from a recognized post-secondary institution, or
- internal transfer from within Simon Fraser University.

Admission is competitive. A separate admission average for each entry route is established each semester, depending on the number of spaces available and subject to the approval of the Dean of Applied Sciences.

Requirements for direct admission (either high school or post-secondary) follow the corresponding requirements for admission into computing science using the same admission averages and calculations.

SFU students applying for internal transfer into the geographic information science program are assessed based on grade point average over the courses listed under lower division requirements below. Only courses taken at SFU are used in the average. If one or more courses have been duplicated (repeated), the grades from all course attempts will be used equally in calculating the average. Application may be made at any time after at least 18 SFU credits of this coursework have been completed and all 100-level requirements have been satisfied.

Students must maintain a CGPA of 2.5 to remain in the program.

Co-operative Education

Co-op is strongly encouraged. Students taking the major in Geographic Information Science will be in great demand while they are still in the program. The current number of co-op postings for students exceeds the supply by a large margin. Co-op employers are actively seeking students with a broad range of GIS skills, especially those with a solid foundation in programming, database management, and statistics, in addition to substantive knowledge in geography and resource management.

Major Program

Lower Division Requirements

Students must complete all of
CMPT 120-3 Introduction to Computing Science and Programming I
CMPT 125-3 Introduction to Computing Science and Programming II
CMPT 225-3 Data Structures and Programming
GEOG 100-3 Human Geography I
GEOG 111-3 Physical Geography
GEOG 250-3 Cartography I
GEOG 253-3 Aerial Photographic Interpretation
GEOG 255-3 Geographical Information Science I
MACM 101-3 Discrete Mathematics I
MACM 201-3 Discrete Mathematics II
MATH 151-3 Calculus I
MATH 152-3 Calculus II
MATH 232-3 Linear Algebra

and one of
GEOG 213-3 Geomorphology I
GEOG 214-3 Climatology I
GEOG 215-3 Biogeography
GEOG 221-3 Economic Geography
GEOG 241-3 Social Geography
GEOG 261-3 Introduction to Urban Geography

and one of
GEOG 251-3 Quantitative Geography
STAT 270-3 Introduction to Probability and Statistics

(Total: 45 credits)

Upper Division Requirements

Students must complete all of
CMPT 307-3 Data Structures and Algorithms
CMPT 354-3 Database Systems I
CMPT 361-3 Introduction to Computer Graphics

and one of
CMPT 300-3 Operating Systems I
CMPT 363-3 User Interface Design
CMPT 371-3 Data Communications and Networking
CMPT 384-3 Symbolic Computing

and two of
CMPT 406-3 Computational Geometry
CMPT 412-3 Computational Vision
CMPT 454-3 Database Systems II
CMPT 461-3 Advanced Computer Graphics
CMPT 470-3 Web-based Information Systems

and three of
GEOG 351-4 Cartography and Visualization
GEOG 352-4 Spatial Analysis
GEOG 353-4 Remote Sensing
GEOG 355-4 Geographical Information Science II

and two of
GEOG 451-4 Spatial Modelling
GEOG 453-4 Remote Sensing of Environment
GEOG 455-4 Theoretical and Applied GIS

and four additional upper division credits in physical or human geography (students should consult with the program advisor in choosing these credits);

and three additional upper division credits of CMPT or MACM coursework.

(Total: 45 credits)

Honors Program

Lower Division Requirements

Students must complete all of
CMPT 120-3 Introduction to Computing Science and Programming I
CMPT 125-3 Introduction to Computing Science and Programming II
CMPT 150-3 Introduction to Computer Design
CMPT 225-3 Data Structures and Programming
CMPT 275-4 Software Engineering I
GEOG 100-3 Human Geography I
GEOG 111-3 Physical Geography
GEOG 250-3 Cartography I
GEOG 253-3 Aerial Photographic Interpretation
GEOG 255-3 Geographical Information Science I
MACM 101-3 Discrete Mathematics I
MACM 201-3 Discrete Mathematics II
MATH 151-3 Calculus I
MATH 152-3 Calculus II
MATH 232-3 Linear Algebra

and one of
GEOG 213-3 Geomorphology I
GEOG 214-3 Climatology I
GEOG 215-3 Biogeography
and one of
GEOG 221-3 Economic Geography
GEOG 241-3 Social Geography
GEOG 261-3 Introduction to Urban Geography

and one of
GEOG 251-3 Quantitative Geography
STAT 270-3 Introduction to Probability and Statistics

(Total: 55 credits)

Upper Division Requirements

Students must complete all of
CMPT 300-3 Operating Systems I
CMPT 307-3 Data Structures and Algorithms
CMPT 354-3 Database Systems I
CMPT 361-3 Introduction to Computer Graphics
CMPT 406-3 Computational Geometry
CMPT 454-3 Database Systems II
MACM 316-3 Numerical Analysis I

and three of
CMPT 363-3 User Interface Design
CMPT 371-3 Data Communications and Networking
CMPT 384-3 Symbolic Computing
CMPT 412-3 Computational Vision
CMPT 461-3 Advanced Computer Graphics
CMPT 470-3 Web-based Information Systems

and three of
GEOG 351-4 Cartography and Visualization
GEOG 352-4 Spatial Analysis
GEOG 353-4 Remote Sensing
GEOG 355-4 Geographical Information Science II

and four additional upper division credits in physical or human geography (students should consult with the program advisor in choosing these credits);

and two of
GEOG 451-4 Spatial Modelling
GEOG 453-4 Remote Sensing of Environment
GEOG 455-4 Theoretical and Applied GIS

and
GEOG 491-4 Honours Essay

(Total: 58 credits)

Admission, continuation and graduation are contingent upon maintaining 3.00 or better on all relevant grade point averages (CGPA, UDGPA, CMPT GPA, CMPT UDGPA, GEOG GPA, GEOG UDGPA).

III. Sample Student Schedule

●he following sample schedule provides one possible example of an 8-semester program of courses satisfying the requirements of the GIS program. Electives are assumed to carry 3 credits.

Term 1. 12 credits

CMPT 120-3 Introduction to Computing Science and Programming I
GEOG 111-3 Physical Geography
MATH 151-3 Calculus I
elective

Term 2. 12 credits

CMPT 125-3 Introduction to Computing Science and Programming II
MATH 152-3 Calculus II
GEOG 255-3 Geographical Information Science I
elective

Term 3. 15 credits

CMPT 225-3 Data Structures and Programming
GEOG 250-3 Cartography I
●EOG 100-3 Human Geography
●ACM 101-3 Discrete Mathematics I
elective

Term 4. 15 credits

CMPT 307-3 Data Structures and Algorithms
GEOG 253-3 Aerial Photographic Interpretation
GEOG 251-3 / STAT 270-3
MACM 201-3 Discrete Mathematics II
elective

Term 5. 16 credits

CMPT 354-3 Database Systems I
one of GEOG 21x/2x1-3
one of GEOG 351/2/3/5-4
MATH 232-3 Linear Algebra
elective

Term 6. 17 credits

●MPT 361-3 Introduction to Computer Graphics
one of CMPT 300/363/371/384-3

one of GEOG 351/2/3/5-4
one of GEOG 351/2/3/5-4
elective

Term 7. 17 credits

one of CMPT 406/412/454/461/470-3
one of GEOG 451/3/5-4
one upper-division course in human or physical geography
elective
elective

Term 8. 16 credits

one of CMPT 406/412/454/461/470-3
one of GEOG 451/3/5-4
one additional upper division CMPT or MACM course
elective
elective

IV. Enrolment Projections and Budget Model

An enrolment of 15 FTE students per year is planned for this program, building to a steady state enrolment of 60 FTE students after four years.

Under the DTO funding model (60% of DTO funding plus tuition made available to academic units), approximately $9500 per FTE student is expected to be made available to academic units in support of this program. Based on requirements for course delivery and administration, a distribution of 40% of this funding to each of Computing Science and Geography is proposed for instructional delivery, with an additional 3% provided to the Faculty of Applied Sciences for program administration. Based on this breakdown the following table provides a proposed budget distribution to academic units, culminating in the steady-state annual budget in 2007-8.

Year	CMPT	GEOG	Applied Sciences
2004-5	$57000	$57000	$4275
2005-6	$114000	$114000	$8550
2006-7	$171000	$171000	$12825
2007-8	$228000	$228000	$17100