

SIMON FRASER UNIVERSITY
Office of the Vice-President, Academic

MEMORANDUM

TO: John Waterhouse
Vice-President, Academic

FROM: Dennis Krebs, Chair
University Curricula Cttee

RE: Report for June 3/02 Senate Meeting

DATE: May 16, 2002

We on the ad hoc Senate Committee to Review and Develop the Undergraduate Curricula have, after some 16 months of discussion, drafted six recommendations, which we believe could significantly enhance the general education of our undergraduate students. A draft of our recommendations is attached.* A copy of our earlier discussion paper is also available.** We request that this be put on the agenda of the Senate meeting scheduled for Monday, June 3/02. We welcome comments and suggestions, which can be sent to univ-curric@sfu.ca or to any member of the Committee. We intend to make appropriate revisions in our recommendations and submit our final report to SCUP for approval in principle on July 17th.

Attach. (2)

*This is also on the web at
www.reg.sfu.ca/Senate/SenateComms/AdHocComms/crdue_penultreport.pdf
The report is in .pdf format and can be easily read or printed using Adobe Acrobat Reader.

**The full version of the Discussion Paper published by the Committee in January 2002 is available on the web at
www.reg.sfu.ca/Senate/Comms/AdHocComms/discussion.html
The website also contains a printable version (in .pdf format) of the Abridged Discussion Paper which appeared in the January 24, 2002 edition of SFU News. The website contains links to send feedback to the Committee or to read the comments of others.

DK:lf



Note: These materials are also available upon request from Senate Secretariat (604 291-3168 or bgrant@sfu.ca)

PENULTIMATE REPORT OF THE AD HOC CURRICULUM COMMITTEE

May 7, 2002

I. OVERVIEW

In this report, the Ad Hoc Senate Committee to Review and Develop the Undergraduate Curricula offers for discussion a set of recommendations aimed at improving the quality of undergraduate education at Simon Fraser University (SFU). The Committee recommends that all SFU undergraduate students be required to take courses specially designed to cultivate writing abilities, quantitative abilities, and breadth. Included in the recommendations are requirements intended to ensure that students entering SFU are adequately prepared to do university-level course-work and, if remediation is necessary, that students obtain it before entering SFU or early in their programs. If these recommendations are accepted, they will form a framework for the development of many of the exciting initiatives described in the Committee's Discussion Paper (see <http://www.reg.sfu.ca/Senate/Comms/AdHocComms/discussion.html>).

If the SFU Senate accepts these recommendations in principle, Task Forces will have to be created (a) to oversee the development of courses necessary to enable students to meet the requirements, (b) to submit recommendations for changes in University requirements to the appropriate bodies for formal approval, and (c) to create policies for transfer and articulation. This will require resources. We envision this process taking at least three years.

II. BACKGROUND

The Ad Hoc Senate Committee to Review and Develop the Undergraduate Curricula was created in the Spring semester of 2001 and charged with proposing "a set of principles or guidelines for the undergraduate curricula" and "strategies for enhancing opportunities for broad cross-disciplinary learning and ensuring that SFU graduates have the academic preparation for future success."

The original members of the Curriculum Committee were: Kieran Egan (Education), Maureen Fizzell (Business Administration), Dennis Krebs (Psychology), Tina Loo (History), Joseph Peters (Computing Science), Sue Roppel (Academic Relations), Geoffrey Rosen (student representative) and Michael Wortis (Physics). In 2002, Laurie Summers (Academic Relations) replaced Sue Roppel and Amy Wong (student representative) replaced Geoffrey Rosen. Elizabeth Nadeau, Laura Farrelly, and Paul Yeung supplied administrative and research support for the Committee. Jack Bates created the web site.

We began by gathering and discussing information relevant to the evaluation and development of undergraduate curricula. We did not examine the curricula of particular SFU programs except as they seemed relevant to university-wide issues. In January, 2002, we published a discussion paper summarizing the information we believed relevant to the enhancement of undergraduate curricula at SFU (see web site above). In the discussion paper, we outlined the purposes of undergraduate education, described and evaluated strategies used by SFU and other universities to achieve these purposes, and suggested some ways in which we might improve our undergraduate curricula. Following publication of the discussion paper, we received feedback from many members of the SFU community.

In this report, we offer six recommendations that we believe will lay the foundation for significant improvements in the general, or liberal, education of SFU undergraduate students. After receiving feedback from the SFU community and from Senate, we intend to make appropriate revisions in our recommendations. Then, as prescribed by our Terms of Reference, we will submit a final report to the Senate Committee on University Priorities (SCUP). Following approval in principle by SCUP and subject to favorable reception of the final report by Senate, the Vice President, Academic will be responsible for coordinating the implementation of the recommendations, subject to the usual approval processes. We offer guidelines for implementation in Appendix 1.

III. FOCUS OF RECOMMENDATIONS

Among the many ways of improving undergraduate curricula, we focused on those designed to enhance writing abilities, quantitative abilities, and breadth. This focus reflects a view of what Simon Fraser graduates should carry into life beyond university; specifically, of the intellectual qualities that all SFU undergraduates should share; of the skills and experiences that best prepare students for a successful and fulfilling future; and of the intellectual and educational values that SFU should foster.

As educated people, all university graduates should be able to express themselves effectively in speech and writing. Those who are not able to express themselves well will not be able to communicate ideas to others, nor will they be able to define, develop, and understand ideas themselves. Thus, they will be at a disadvantage in university classrooms and in the world beyond them. At SFU, students must be able to communicate effectively in English.

All SFU graduates should be competent in the language and techniques of formal quantitative expression, reasoning, and analysis. Educated people should be able to understand and critically evaluate quantitatively-based arguments; they also should have the ability to formulate and to advance such arguments themselves.

Universities should offer undergraduate students a broad education, as well as training them in a particular academic specialty. Regardless of their specialty, all SFU graduates should be exposed to and be familiar with the content and modes of inquiry of the sciences and applied sciences, the social sciences, and the humanities.

There is good evidence that writing abilities, quantitative abilities and a broad liberal education are among the qualities most valued by employers (see our web site for references). Past SFU committees consistently have recommended that initiatives be developed to foster them (see our web site for a compendium of the recommendations made by previous committees).

Past committees also have made recommendations pertaining to the accessibility of the undergraduate curriculum, the efficiency of the undergraduate curriculum, the quality of undergraduate teaching, and our responsibility to provide good guidance and mentoring to undergraduate students (see our web site). Many of the people with whom we consulted made suggestions about ways to improve these aspects of undergraduate education. Although these issues are important, we did not focus on them in this report because we believe they are best addressed within the framework of the requirements we recommend.

In the end, the quality of education we provide finds its expression in the educational experiences of individual students. Implementing general education requirements is only the first step toward enhancing our undergraduate curricula. Within the framework of such requirements, mechanisms must be created to inform students of the educational opportunities available to them and to enable them to gain access to the opportunities. The success of the revisions to our undergraduate curriculum recommended in this report will depend to a great extent on the quality of writing-intensive, quantitative-intensive, and breadth courses we designate and develop and the quality of instruction in the courses. We cannot expect students to be attracted to SFU because they will be required to fulfill general education requirements. Students will be attracted to SFU because an SFU degree certifies a high quality education.

IV. RECOMMENDATIONS

RECOMMENDATION 1: WRITING REQUIREMENT

To improve the writing abilities of students who graduate from SFU, we recommend that SFU adopt the following requirement:

To earn a Bachelor's degree from Simon Fraser University, all students must obtain a grade of C- or higher in a minimum of 6 credit hours of specifically designated university-level writing-intensive (W) instruction. A minimum of 3 W credit hours must be taken at Simon Fraser University within the first 30 credit hours of a student's undergraduate program at Simon Fraser University. Students transferring to Simon Fraser University may transfer a maximum of 3 W credit hours. Students earning a second Bachelor's degree must complete a minimum of 3 W credit hours at Simon Fraser University.

Before registering for a W course at Simon Fraser University, students must obtain either a final grade of 80% or higher in BC English 12 or its equivalent, or a score of 75% or higher on all sections of the Language Placement Index (LPI) or an equivalent language placement test specifically mandated by Simon Fraser University.

Definitions and Elaborations

By W courses, we mean specifically designated courses in which:

- Students write multiple drafts and receive feedback on each draft;
- Writing is associated with critical thinking and with problem-posing and problem solving through assignments that require arguments;
- Samples of writing are available for analysis involving recognition of typical structures, modes of reasoning, use of evidence and technical language, and modes of audience address.

Wendy Strachan and Steven Davis have described the development and assessment of a model writing-intensive course for Philosophy 100 in "Learning to Write in Philosophy: Developing a Writing Intensive Course".

The LPI is offered frequently and costs \$40 (within BC) and \$80 (other countries) to take. It is a two and a half-hour examination. Part I assesses students' abilities to identify errors in sentence structure. Part II assesses students' abilities to identify errors in English usage. Part III assesses the ability to evaluate or summarize paragraphs. Part IV requires students' to write a 300-400 word essay.

Commentary

- Because SFU grants Bachelor's degrees, SFU should accept responsibility for ensuring that the students to whom it grants degrees have the training it certifies.
- A mechanism for selecting, developing and approving W courses will have to be created.
- Students in some fields should be able to satisfy the writing requirement by taking the courses required in their majors.
- Some programs may want to require more than 6 units of writing-intensive instruction.
- C- is considered a satisfactory grade at SFU. The University or individual programs may want to set a higher standard.
- Students should take W courses within their first 30 credit hours at SFU because the ability to comprehend English and express oneself in English are foundational abilities, necessary for success in other courses.
- Students should be required to obtain a good score on a language placement test before taking a W course because high school level writing abilities are prerequisite to university level writing-intensive courses. Knowing that they will be required to take a W course at SFU should increase

the motivation of students applying to SFU to ensure that they acquire the prerequisite writing abilities.

- With respect to ESL, SFU's current requirements are, "an applicant whose primary language is not English, or whose previous education has been conducted in another language, must demonstrate a command of English sufficient to meet the demands of classroom instruction, written assignments and participation in tutorials and discussions (p. 29, 2001/2002 Calendar)."
- UBC's and UVic's writing requirements are summarized in Appendix 2.

RECOMMENDATION 2: QUANTITATIVE REQUIREMENT

To improve the quantitative abilities of students who graduate from SFU, we recommend that SFU adopt the following requirement:

To earn a Bachelor's degree from Simon Fraser University, all students must obtain a grade of C- or higher in a minimum of 6 credit hours of specifically designated university-level quantitative-intensive (Q) instruction. A minimum of 3 Q credit hours must be taken at Simon Fraser University within the first 30 credit hours of a student's undergraduate program at Simon Fraser University. Students transferring to Simon Fraser University may transfer a maximum of 3 Q credit hours. Students earning a second Bachelor's degree must complete a minimum of 3 W credit hours at Simon Fraser University.

Before registering for a Q course at Simon Fraser University, students must obtain a final grade of 75% or higher in BC Principles of Mathematics 12 or its equivalent, or a final grade of C- or higher in Simon Fraser University MATH 100 or 110 or equivalent, or a score of 75% or higher on an Simon Fraser University -approved mathematics placement test.

Definitions and Elaborations

By Q courses, we mean specifically designated courses characterized by:

- significant use of quantitative or formal logical concepts,
- significant exposure to quantitative/statistical reasoning and analysis,
- significant experience with formal, logical, mathematical structures and techniques,
- an opportunity for students to develop hands-on experience with specific examples.

Commentary

- Because SFU grants Bachelor's degrees, SFU should accept responsibility for ensuring that the students to whom it grants degrees have the training it certifies.
- A mechanism for selecting, developing and approving Q courses will have to be created.
- Students in some fields should be able to satisfy the quantitative requirement by taking the courses required in their majors.
- Some programs may want to require more than 6 units of quantitative-intensive instruction.
- C- is considered a satisfactory grade at SFU. The University or individual programs may want to set a higher standard.
- Students should take Q courses within their first 30 credit hours at SFU because the ability to understand and apply quantitative theory and skills are foundational abilities, necessary for success in other courses.
- We set the minimum grade for Mathematics 12 at 75% because this is the minimum grade set by the Mathematics Department for entry into its calculus courses.
- An appropriate mathematics placement test will be selected or developed in consultation with SFU's departments of Mathematics and Statistics and Actuarial Science. One possibility is to revise SFU's current Mathematics Assessment Test. The placement test should be based on mastery of Principles of Mathematics 11 plus some additional topics such as exponentials, logarithms, and the elements of probability.
- SFU MATH 100 and 110 may not be counted as Q courses.
- The quantitative requirements of SFU, UBC, and UVic are compared in Appendix 3.

RECOMMENDATION 3: BREADTH REQUIREMENT

To ensure that all students granted SFU Bachelor's degrees are exposed to the ideas, paradigms, modes of thought, and forms of inquiry of a range of disciplines, we recommend that SFU adopt the following requirement:

To earn a Bachelor's degree from Simon Fraser University, all students must obtain a grade of C- or higher in a minimum of 24 credit hours in courses outside their major program areas, as determined by their home Departments or Schools. A minimum of 18 of these credit hours must be in "designated" breadth courses (B). A minimum of 6 credits of designated breadth courses must deal predominantly with the subject matter of the Humanities (B-Hum); a minimum of 6 must deal predominantly with the subject matter of the Sciences and Applied Sciences (B-Sci), and a minimum of 6 must deal predominantly with the subject matter of the Social Sciences (B-Soc Sci). Programs may exempt their students from the "designated" breadth courses in their areas (Humanities, Science and Applied Sciences, or Social Sciences), while maintaining the overall total of 24 credit hours in courses outside students' major programs.

Definitions and Elaborations

- By "designated" breadth courses, we mean courses specially designed to introduce students to the ideas, paradigms, modes of thought and forms of inquiry of areas of study different from those covered by their major programs. Within this context, many types of courses may qualify as a "designated" breadth course, including, (a) "great books", "great ideas", and "masterpieces" courses (it was suggested that "great equations" might be added to the list) (b) topical or focus courses for non-majors (e.g., "First Nations Writers", "The History of Conflict in the Middle East", (c) area introductions appropriate for non-majors (e.g., "Physics for Poets", "History of Philosophy", (d) courses emphasizing an understanding of other cultures, and (e) thematically-focused interdisciplinary courses (e.g., courses dealing with issues such as war, globalization, morality, the purposes of education, the nature of the human mind, and science and human cultures). In our discussion paper, we offer examples of each kind of course from SFU and from other universities.
- According to this recommendation, some programs may require 6 designated B credit hours in each of the three areas, for a minimum total of 18 designated B credit hours; other programs may keep the requirement for a minimum of 18 hours of designated B credit but allow all courses to be outside the area of the major program; still others may require only 12 designated B credit hours divided between the two areas outside the area of the major program.
- Although most designated B courses should fit comfortably into one of the three breadth categories (Hum, Sci, Soc Sci), there may be some designated B courses for which a double listing is appropriate. In such cases, a student could count the course in one area or the other but not in both.
- Although we would expect most of the designated B courses to be offered by departments in related Faculties (e.g., most B-Sci courses would be offered by departments in the Faculties of Science and Applied Sciences; most B-Soc Sci courses would be offered by departments in the social sciences), departments would not be constrained from offering designated B course outside their areas. For example, the Department of Psychology might offer a B-Sci course on the brain.
- Beyond the required designated B courses specified above, students may take any courses (B or non-B) approved by their home program to complete their required 24 "outside" credit hours.
- Certain courses, though nominally outside the area of a student's major program, may not be appropriate for breadth. For example, a course in statistics in the Psychology Department would

not be an appropriate breadth course for a student majoring in Statistics or Actuarial Science. Such exceptions will have to be identified by advisors in each student's major program.

- Designated breadth courses that are also classified as writing-intensive or quantitative-intensive may be counted as meeting both requirements.
- Upper-level breadth courses may require lower-level breadth courses as prerequisites.

Commentary

The three-category classification

Universities employ a wide array of categories for defining breadth. Virtually all classifications distinguish among the three categories we selected. Examples are the classification system that SFU employs for admission from high school, the classification employed for an Associate of Arts degree, the major groups in SFU's Certificate of Liberal Arts, the categories guiding distribution requirements at UBC and UVic, and the categories employed by universities such as Harvard, Yale, and Duke. Many classifications make additional distinctions. As an example, in the classification employed in SFU's Certificate of Liberal Arts program, distinctions are made in the Humanities between analysis of contemporary issues, literature, fine and performing arts, culture and civilization, and period and place. Foundations of Social Science is distinguished from Social and Behavioral Analysis, and Natural Science is distinguished from The Impact of Science and Technology. Although SFU or some units within SFU may choose to make additional distinctions, we believe the three category system is the best place to begin.

Implications for Departmental Breadth Requirements

University-wide breadth requirements may enable some departments to simplify the breadth requirements in their major and honors programs. However, the purpose of the recommended breadth requirement is to ensure that all students granted Bachelor's degrees from SFU obtain a broad liberal education.

Clusters of courses and course sequences

There may be educational advantages to students in taking breadth courses in coherent clusters and sequences. We should be able to develop clusters and sequences of breadth courses at SFU organized around common themes, some of which could be taken by students in cohorts. As an example, we might offer a sequence of courses from Biology, Archaeology, Anthropology, and Psychology dealing with human evolution. Or, more ambitiously, we might offer more Undergraduate Semesters like the one developed by Mark Winston around the theme, "Nature, Environment, and Society", and/or options such as UBC's Arts 1 and Science 1, and/or distinctive semesters or comprehensive programs like the ones described at the end of our discussion paper, and/or course-credit experiences associated with field placements, exchange programs, and field schools. We would expect such opportunities to be attractive to students applying to SFU.

Interdisciplinary Studies

One of the distinguishing features of SFU is its emphasis on interdisciplinary studies. Many SFU courses and programs are interdisciplinary in nature. Previous committees have recommended the expansion of interdisciplinary opportunities (see the Abridged Compendium in our discussion paper). When appropriate, breadth courses could be clustered or sequenced in ways that encourage students to integrate concepts from different disciplines.

Topical Approaches to Breadth

We might allow students to fulfill the breadth requirement by selecting a general topic early in their programs that they explore and elaborate over the time of their degree. As examples, a Physics major might study the crusades; a History student might study the geology of the solar system; a Performing Arts

student might study hunter-gatherer societies. Courses on such topics could be offered by a variety of departments. Such topics could be recorded in portfolios. Assistance in choosing such topics, locating and scheduling appropriate courses, and establishing criteria for assessment would need to be developed. A set of templates or models might be provided to incoming students, guiding but not inhibiting unduly their construction of a portfolio. This would have implications for resources devoted to student advising.

RECOMMENDATION 4: GPA CALCULATIONS

Students are often inhibited from taking “breadth” courses by fear of lowering their GPAs.

We recommend that two GPAs be calculated and exhibited on students’ transcripts: the overall cumulative GPA (as is now done), plus a separate partial GPA for courses within each student’s major program, as determined by that program.

Commentary

If programs decided to base decisions about scholarships and other rewards on students’ GPAs within their programs, it might encourage students to increase the breadth of their educational experience.

RECOMMENDATION 5: COURSE DEVELOPMENT

As elaborated in Appendix 1, we recommend that Simon Fraser University allocate sufficient and appropriate resources to identify and to develop the courses necessary to implement our recommendations. Such resources would include but not be limited to incentives for faculty to refine, to develop, and to offer foundational and breadth courses, support and recognition for committee/task force duties, and appropriate opportunities for faculty professional development.

RECOMMENDATION 6: COURSE AVAILABILITY, ACCESSIBILITY, AND TIMELY COMPLETION

We recommend the formation of a task force to investigate course availability, timely completion of degrees, and efficient use of available resources.

Commentary

While course availability, timely completion, and related issues are beyond the mandate of this committee, the committee believes that it has a responsibility to draw attention to these problems. The committee received feedback from many members of the SFU community about problems of this type, and the feasibility and implementation of some of our other recommendations will be impacted by them.

Issues that a task force might investigate include:

- the impact of course availability on completion times
- inefficient use of resources during the summer semester
- the impact of the trimester system on course scheduling
- the use of typical course sequences to guide students, and scheduling of these sequences to enable the majority of students to graduate in a timely manner
- the impact of flexibility within programs on course availability and timely completion
- the use of Distance Education courses
- consideration of alternative teaching methodologies, such as on-line options
- the viability of programs with tiny enrolments

Previous committees that have examined the SFU undergraduate curricula, including PACUP (1984), SCIMO (1993), PCUP (1996), and CPP (1996) have made numerous recommendations concerning the accessibility and efficiency of the curricula, including most of the issues listed above (see web site).

V. GUIDELINES FOR IMPLEMENTATION

During the committee's discussions, a number of issues and concerns arose pertaining to the implementation of recommendations such as those we are making. The guidelines outlined below are intended to draw attention to issues that, if not addressed, might hamper the implementation of our recommendations.

Allocation of Resources

The availability of adequate resources to implement our recommendations will be critical both to their acceptance by the university community and to their success in meeting their educational goals. Faculty will be understandably resistant to the changes we are recommending if the changes are seen as robbing scarce funding from already under-funded programs. Some of our recommendations would be relatively inexpensive to implement (e.g., the modified GPA calculations and the designation of existing courses as W, Q, or B); others would require significant new resources (e.g., the development of new W and B courses). We have not regarded it as part of our mandate to explore budget issues in detail. Nevertheless, we believe that a balanced approach to implementation is necessary. It will be critical to implement these proposals in a graduated manner, as adequate resources for each part become available.

The Formation of Committees or Task Forces

Committees or Task Forces will have to be created to identify, develop, and label writing-intensive, quantitative-intensive, and breadth courses, to specify the particulars of calendar entries, (such calendar entries would, of course, have to be approved by Senate), to ensure that the SFU community is apprised of the changes, and to evaluate and assess the elements of the curriculum that are developed and implemented. We envision the implementation process being guided by a 3 year plan in which courses are designed, assessed, refined, and offered as prototypes. See Appendix 1 for some of the issues that we believe implementation committees should consider.

Academic Advising

The need to provide students with clear advice and guidance in completing their degree requirements cannot be underestimated, particularly during periods of change. The provision of adequate academic advising and information through a variety of media—i.e., face to face sessions, orientation meetings and other presentations, written materials, web-based information and peer counseling—are necessary to ensure that students complete their programs in a timely manner and that the University has the resources in place to meet the challenge.

Communication with other Educational Institutions

Members of the University community, other post secondary institutions and high schools will have to be informed about changes in requirements. Transfer credit will have to be determined.

Remedial services

Currently, SFU offers remedial assistance in writing to ESL students through the English Bridge Program and remedial assistance in mathematics through several mathematics courses. Continuing Studies might decide to develop remedial courses in English and Mathematics. As a principle, we believe all remedial services should be offered on a cost-recovery basis.

Appendix 1

Suggestions for Implementation

1. Communication and Consultation

If our recommendations are accepted, the university community should be encouraged to become involved in making the changes necessary to implement them. Regular information updates and events to involve members of the community in the process will be needed. Communication and consultation mechanisms could include: (a) discussion forums via e-mail, (b) open face-to-face sessions, (c) surveys, (d) newsletters, (e) updates published in SFU News, and (f) brown bag presentations.

2. Development of Courses and Implementation of Recommendations

To anticipate and to address potential problems with the development of foundational and breadth courses and the implementation of our recommendations, we suggest that task forces consider undertaking the following:

- Evaluate existing Language Placement and Mathematics Placement tests and if necessary provide assistance for the development of new assessment tools;
- Undertake an evaluation of similar curriculum models at other post-secondary institutions to adapt best practices and to avoid pitfalls;
- In consultation with Faculties, Schools, Departments and Programs, develop criteria for the identification and development of W, Q, and B courses, considering successful formats developed and in use at SFU and other post-secondary institutions;
- Meet with Departments/Programs to discuss criteria for W, Q, and B courses and to offer assistance in identifying, certifying and labeling existing SFU courses in accordance with the criteria;
- Undertake an estimate of the number of new W, Q, and B courses that will be needed and the cost of developing and offering them. A draft of a proposal for the development of writing-intensive courses, with projected costs, developed by Wendy Strachan, Steven Davis and Dennis Krebs is available from krebs@sfu.ca.

3. Formation of Curriculum Groups

Faculty, TAs and staff involved in the implementation of the recommendations might meet in groups to share their experiences and to develop procedures for spreading the word.

4. Selection of Experts and Advocates of the Curriculum Recommendations

To expedite the implementation of the recommendations, a core group of “early adopters” and advocates could be identified within the university community. This will provide the curriculum initiative with an identity as well as an impetus to move forward and to succeed. Advocates will need time and resources to dedicate themselves to the curriculum change process. Involvement in the curriculum change and implementation process should be seen as a career opportunity and should not constrain career progression.

5. Role of Special University Units and Staff

We would expect groups such as the Learning and Instructional Development Centre, the Centre for Writing-Intensive Learning, the English Bridge Program, the Mathematics Department, the Department of Statistics and Actuarial Science, and Academic Advisors to be involved in the implementation process.

6. Resources and Training

Faculty and TAs involved in the development of new courses, especially W courses, may require resources and training. Some suggestions are (a) workshops, (b) seminars, (c) summer institutes, i.e., on writing, (d) time and assistance with pre-course planning in the semester before courses are offered, followed by ongoing refresher or advanced sessions, (e) ongoing mentoring and in-course consultation during the first semester of offering, (f) peer training/mentoring, and (g) help desks.

7. Recognition and Reward

The efforts of those who contribute to the curriculum change process should be recognized appropriately. Recognition and reward might include: (a) administrative support, (b) teaching reductions, (c) professional allowances/opportunities, and/or (d) credit towards merit increments in salary.

8. Assessment and Evaluation

Assessment and evaluation of the courses and programs implemented as a result of our recommendations is an essential component of the change process. Such assessments should be part of a continuing cycle of review, quality control and improvement.

9. Transfer and Articulation

High schools and post-secondary institutions will need to be apprised of targeted changes in SFU curricula that have implications for admission and transfer. Courses will have to be articulated.

10. Funding

In order to help defray some of the costs of the recommendations, additional sources of funding should be sought, including grants and fund-raising initiatives.

Appendix 2

UBC and UVic Writing Requirements

1. English Language Admission Standard

UBC: "all applicants, regardless of country of origin or of citizenship status will be required to demonstrate competence in the English language prior to admission. Competence is expected in all four of the following skills: listening, reading, speaking, and writing. (p. 26)"

"applicants may demonstrate English language competence by one of the following"

1. 4 years of full-time education in English
2. A grade of 70% or better on the provincial examination portion of BC English 12 or equivalent
3. 4 years of full-time instruction in a school in which the level of English proficiency is equivalent to that in BC Grade 12.
4. A specified grade on an English language proficiency test (e.g., TOEFL)
5. Six credits of post-secondary 1st year English for which UBC gives transfer credit
6. Graduation from a recognized degree program in which English is the primary language in a country where English is the principle language.

UVIC: "The University requires that applicants whose first language is not English submit proof of English proficiency." (p. 16)

Options similar to UBC's 1, 4, 6, (above) plus:

- a grade of 86% or higher on English 12 or its equivalent from other provinces
- successful completion of the UVIC Admission Preparation Course

2. English requirement

UBC is currently considering a proposal to implement the requirement that all students take two writing-intensive courses.

Current UBC requirements are: "All programs require at least three credits of first-year English; most require six credits."

UVIC: "All undergraduate students...must complete 1.5 units of first-year English" (p. 18). Students who meet the following criteria may be exempted:

1. a score of 86% or higher on BC or Ontario Provincial English examination
2. a mark on the Uvic English Placement Essay indicating the student has the skills taught in English 115.
3. a score of Level 6 on the LPI
4. a score of 3 or higher on the Advanced Placement Exam in English
5. 1.5 or more units of transfer credit for university level English courses
6. admission on a letter of permission

Uvic time to complete First year English Requirement

"Students who fail to complete the requirement before completing 30 units of credit must meet the requirement in the next session they attend. Students who fail to do so will not be permitted to register (p. 19)."

3. Placement Exam

UBC:

"Before enrolling in any first-year English course, Arts One, the Arts Foundations Program, or Science One, students must complete the LPI and achieve a minimum score of level 5 (30/40) on the essay section of the examination."

Students who fail to obtain a level 5 score on the essay section of the LPI are not permitted to register for 1st year English courses.

UBC offers the following exemptions from their LPI requirement:

1. final grade of 80% in BC English 12 or BC English Literature 12
2. grade of A (80%) in Grade 12 English (senior year) in a Canadian secondary school outside of BC...
3. a grade of 4 or better in the Advance Placement course in literature and composition and a grade of 5 or better in the higher level International Baccalaureate course in English Literature
4. passing UBC's English Composition Test prior to Sept. 1992
5. six credits of first year English or equivalent, acceptable for transfer to UBC

UVic:

Students applying to Uvic must write Uvic's English Placement Essay or take the LPI. Scores on these tests determine which English courses students may take. Students who score low must take non-credit remedial English courses. Students are allowed four attempts at remedial English courses, after which they are required to withdraw.

Appendix 3:

SFU, UBC and UVic Mathematics Requirements

All SFU departments and Schools except the School of Communication and programs in the Faculties of Arts and Education require BC MATH 12 or equivalent for admission. BC MATH 12 or equivalent is a prerequisite for required courses in several departments in the Faculty of Arts.

MATH 12 or equivalent is required in all Faculties at UBC except the Faculties of Arts, Music, and Nursing. Some departments within the Faculty of Arts require courses with MATH 12 or equivalent as a prerequisite. For example, Economics requires 6 credits of first year calculus.

MATH 12 or equivalent is either required or "optimum and recommended" for all programs at UVic except English, History, Elementary Education, Physical Education, and Fine Arts: Writing.

At all three universities, the Faculty of Business and virtually all departments in the Sciences, Applied Sciences, and Social Sciences require students to take quantitative courses. The Faculty of Education and departments in the humanities (English, History, Fine Arts) tend not to require quantitative courses.