Wednesday, January 19, 1977.

The Fifth regular meeting of the Senate of The University of British Columbia for the Session 1976-77 was held on Wednesday, January 19, 1977 at 8.00 p.m. in the Board and Senate Room, Administration Building.

Present: President D. T. Kenny (Chairman), Dean J. H. M. Andrews, Mrs. M. F. Angus, Dr. C. S. Belshaw, Ms. J. P. Blandford, Dr. C. B. Bourne, Mr. W. L. Broddy, Dr. T. H. Brown, Rev. P. C. Burns, Mr. D. Byl, Mr. W. Chow, Dr. R. M. Clark, Dr. J. D. Dennison, Dr. P. J. Dooling, Dr. B. A. Dunell, Mr. R. J. Ensom, Miss L. R. Erdman, Dr. C. V. Finnegan, Dean E. M. Fulton, Mr. G. S. Funt, Dean J. A. F. Gardner, Mr. G. Gedak, Dr. R. F. Gray, Acting Dean S. W. Hamilton, Dr. R. H. Hill, Dr. J. M. Houston, Miss S. E. Hoyles, Dr. W. M. Keenlyside, Dr. R. F. Kelly, Dr. L. Kraintz, Mr. J. Kulich, Mrs. W. T. Lane, Mr. J. B. LeHuquet, Dean S. W. Leung, Dr. P. A. Lusztig, Mrs. H. McCrae, Dr. D. J. MacDougall, Dr. C. A. McDowell, Dr. M. F. McGregor, Dr. J. H. McNeill, Mr. J. F. McWilliams, Mr. G. R. Moore, Dr. B. N. Moyls, Mr. R. F. Osborne, Dr. P. H. Pearse, Mrs. M. L. Peters, Dr. M. E. Prang, Dr. J. F. Richards, Dean B. E. Riedel, Dr. V. C. Runeckles, Dr. S. O. Russell, Vice-President M. Shaw, Dr. J. K. Stager, Mr. B. Stuart-Stubbs, Dr. P. Suedfeld, Mr. J. A. C. Swainson, Mr. G. A. Thom, Dean G. M. Volkoff, Miss C. L. V. Warren, Mr. R. S. Whyte, Dean R. M. Will.

Observers: Dr. J. M. Kennedy, Mr. P. Thompson, Ms. J. Walker, Dr. W. A. Webber, Dr. D. LL. Williams.

Messages of regret for their inability to attend were received from Chancellor D. F. Miller, Dean D. V. Bates, Dr. K. T. Brearley, Mr. R. J. Carter, Dr. D. H. Copp, Ms. B. G. Errington, Mrs. F. Field, Dean W. D. Finn, Dean W. D. Kitts, Dean P. A. Larkin, Dean K. M. Lysyk, Rev. J. P. Martin, Dr. H. Mitchell, Dr. R. F. Sharp, Mr. A. F. Sheppard, Dr. M. J. A. Smith, Dr. M. Uprichard.

Minutes of the previous meeting

Dr. Stager)
Dr. McGregor)

That the minutes of the Fourth regular meeting of Senate for the Session 1976-77, having been circulated be taken as read and adopted.

Carried

Business arising from the Minutes

Tuition fees

Notice of motion had been given at the previous meeting.

Ms. Blandford)
Mr. Broddy)

That Senate urge the Board of Governors to consider the following recommendations on the subject of tuition fees: -

1) That there be no increase for students who have been residents of B. C. for one year or more.

2) That there be an increase for all Canadian students who do not ordinarily reside in B. C. but who are residents of other Provinces for more than one year.

3) That a further increase be levied for all students who have not resided in any part of Canada for the past year.

During the following discussion opinions were expressed that it would be undesirable to discriminate against students from out of province and from other countries.

The motion was put and lost.

Motion from the Student Representative Assembly

The motion had been tabled at the previous meeting due to the lateness of the hour.

Mr. Broddy)
Mr. Swainson)

That the S.R.A. requests that Senate adopt a policy guaranteeing that limited class time be available for students to address classes on matters of student interest.

The mover and seconder of the motion agreed to a suggestion that the wording of the motion be changed to read as follows: -

Business arising from the Minutes

Motion from the Student Representative Assembly (continued)

"That Senate look with favour upon a policy that, at the discretion of each faculty member, students be allowed to address classes for a limited time on matters of student interest."

In amendment:

Mr. Byl)
Mrs. Peters) *That the word "discretion" be changed to read "discretion of the instructor to fix a more appropriate time".*

Lost

Some members of Senate felt that since there was an existing practice whereby students were allowed to address classes at the discretion of the instructor the motion was unnecessary.

The motion was put and lost.

Committee on Prizes, Scholarships and Bursaries

Dean Volkoff)
Mr. Osborne) *That the new awards listed in Appendix 'A' be accepted subject to the approval of the Board of Governors, and that letters of thanks be sent to the donors.*

Carried

Reports of Committees of Senate

Academic Building Needs

Dr. Kennedy presented the report. It was stated in the report that the President had been asked by the Universities Council in September 1976 to prepare a list of projects for the next five years. The committee was requested

Reports of Committees of Senate

Academic Building Needs (continued)

to review the question in time for the January 1977 meeting of Senate from two points of view: -

1. Consideration of the list presented in the March 1974 report of the committee in the light of developments since that time.

2. Inclusion of the needs of the Health Sciences that were not part of the 1974 report, including Rehabilitation Medicine, Nursing, Basic Science departments in Medicine, and Clinical departments. Only shortages for current enrolments were to be considered; blending these with the needs of an expanded class should be assumed to follow when expansion of the Medical School proceeds.

The committee's conclusions, ranked in order of priority, are shown below:

Rank	Department or Faculty	Present Holdings	Shortage as assessed by the Committee
		(in Net Assignable Sq. Ft.)	
1	Home Economics	10,000 NASF	15,000 NASF
2	Rehabilitation Medicine	7,000	6,000
3	Psychology	28,000	28,000
4	Chemistry	110,000	52,000
5	Food Science	7,000	16,000
6	Animal Science	87,000	16,000
7	Nursing	19,000	9,000
8	Education	122,000	70,000
9	Soil Science	12,000	11,000
10	Plant Science	38,000	(8,000 (25,000
11	Forestry	31,000	12,000
12	Architecture	16,000	10,000
13	Biochemistry	19,000	6,000
14	Clinical Depts. in Medicine	98,000	35,000
15	Poultry Science	53,000	4,000
16	Physiology	18,000	7,000
17	Music	20,000	9,000

Reports of Committee of Senate

Academic Building Needs (continued)

Remarks concerning each item in the priority list, by number:

1. Recommended action is new construction of about 25,000 NASF, releasing present holdings.

2. Acquisition of about 13,000 NASF of space suitably related to other Health Sciences construction is recommended, releasing present holdings.

3. Recommended action is new construction of about 56,000 NASF as an integrated facility, releasing space in five other buildings.

4. A new wing or building is needed to relieve shortages in all types of space.

5. The shortage includes 6,000 NASF required for a pilot food plant.

6. This space should be associated with present holdings in the MacMillan Building.

7. Recommended action is the consolidation of activities now in 9 buildings in suitable space near other Health Sciences.

8. Recommended action is to build an addition to the Scarfe Building to accommodate an enlarged Curriculum Laboratory and other needs, including some replacement of space in huts.

9. This space should be associated with present holdings in the MacMillan Building.

10. 8,000 NASF - for teaching and research space
25,000 NASF - for replacement of greenhouses

11. Space close to present holdings in the MacMillan Building is required.

12. The School has proposed a major redesign of the Armouries to accommodate the needs of several departments by providing about 55,000 gross square feet of space.

13. This space should be provided by extension of present building, and should be coordinated with possible Medical School expansion.

14. This shortage has been assessed by using the Ontario "Z formula".

15. This space should be associated with present holdings in the MacMillan Building.

Reports of Committees of Senate

Academic Building Needs

Remarks concerning each item in the priority list, by number: (continued)

16. This space should be provided by extension of present building, and should be coordinated with possible Medical School expansion.

17. The main need is for practice rooms and for office/studios to be shared by part-time instructors.

The committee agreed that its ranking of the proposals would be based on the academic needs of the departments concerned, but recognized that a schedule of construction might call for some deviation from the order of academic priorities.

The report contained the following comments concerning the proposed projects: -

Home Economics. The needs of this School were rated second in a list of 16 proposed in 1974. Home Economics has less than half the space needed for effective operation, most of it in a hastily-planned building erected after a fire in 1948, and the remainder some distance away.

Rehabilitation Medicine. This Department is miserably housed in huts that supply about half the space it deserves. Proximity to other Health Sciences departments is important, but the needs of the Department might be satisfied in renovated rather than new buildings.

Psychology. The needs of this Department, ranked third in 1974, have increased since then through additional student enrolment and additional faculty appointments. There is a severe shortage of research space for a modern curriculum. Dispersal of activities among several buildings is a serious disadvantage. There is an obvious case for consolidating the activities of the Department in a single building.

Chemistry. This Department has the largest shortage of any single University department for its numbers of students, faculty, and other research support staff. Many of its activities are concentrated in the oldest permanent building on campus, and no construction has taken place to absorb the pressures of increased enrolment in the late 1960's.

The Faculty of Science has reiterated its proposal for construction of a Molecular Sciences Building that would provide some opportunities for interdisciplinary research in Chemistry and Physics.

Reports of Committees of Senate

Academic Building Needs (continued)

Food Science, Animal Science. The Faculty of Agricultural Sciences has substantial shortages within the MacMillan Building. The teaching of undergraduate courses has been adversely affected by the lack of enough laboratory space for present enrolments. The Department of Food Science is acquiring 3,000 NASF of laboratory space vacated by Civil Engineering in Ponderosa Block B, but this is located so far from the remainder of the department that the move must be regarded as a temporary expedient only.

Nursing. The School of Nursing suffers both from a substantial shortage and from wide dispersal of its holdings in nine different buildings. Its academic program has undergone considerable change over the past few years, and now appears to be stabilizing.

Education. The needs of the Faculty of Education were placed first by the Committee in 1974. But the Committee, while continuing to recognize the needs of the Faculty of Education as urgent, has reservations about the plans of the Faculty in their present form.

The Planning Coordinating Committee for the Faculty of Education has gone beyond the scope of new construction authorized in 1974 (60,000 NASF including Curriculum Laboratory and replacement of 20,000 NASF now held in huts) to plan a unification of the whole Faculty by adding 135,000 NASF of newly-constructed space to the Scarfe Building to satisfy projected needs to 1985. While this Committee appreciates the desire of Education to aim for ideal conditions, the urgency of construction on this scale does not match that of other departments in the University. Also, the plans proposed by the Faculty call for vacating "temporary" buildings recently erected specifically for its needs, and for demolition of existing usable buildings to clear a site.

The Committee is also concerned with the effect on U.B.C.'s space needs of simultaneous development of teacher training in more than one university in the Province in the face of an uncertain demand for teachers.

Soil Science, Plant Science. Though awarded a lower priority than some other departments in Agricultural Sciences, both Departments have substantial shortages of teaching and research space, and both have needs for special space. The deplorable state of greenhouses at U.B.C. has been drawn to the attention of this Committee as to its predecessors; replacement or upgrading is clearly overdue.

Forestry. The Faculty of Forestry is short of space in the MacMillan Building, and has been resorting to costly remodelling in recent years as the nature of its needs has changed. An increasing demand for graduates is expected in British Columbia, but enrolment is being held back because of inadequate facilities.

Reports of Committees of Senate

Academic Building Needs (continued)

Architecture. The shortage of space for the School of Architecture has increased significantly since the Committee reported in 1974. Dispersal in several buildings is a problem for this School, as for other occupants of the Lasserre Building.

Biochemistry, Physiology. The needs of these Departments, ranked 13th and 16th by the Committee, are similar. Both have become overcrowded in the decade since their present facilities were built, and now have substantial shortages.

Clinical Departments in Medicine. The needs of the Clinical Departments have been assessed using a modification of the "Z-formula" developed in Ontario for planning clinical facilities. The estimated shorage of 35,000 NASF is based on the present enrolment in the Faculty of Medicine.

Poultry Science. In addition to the recorded shortage, a main need of this Department is the replacement of its dilapidated animal units.

Music. The Department of Music has an acute shortage of instructional space for students specializing in performance. The main need is for practice rooms, which must be soundproof or nearly so, and for teaching studios to be used by performing musicians from Vancouver who come to the campus to give lessons.

Dr. Russell)
Mr. Moore)

That the report of the Committee on Academic Buildings Needs be forwarded to the President and to the Board of Governors for their consideration and decision and that the full transcript of the debate within Senate also be forwarded to the President and to the Board of Governors for their consideration and action.

During the discussion of the report it was pointed out that Faculties and Departments represented by the members of the committee had all received priority from the committee itself. A suggestion was made that the Nominating Committee should look into the question of whether people holding administrative positions should be included in the membership.

Reports of Committees of Senate

Academic Building Needs (continued)

Dean Andrews expressed concern that the proposals of the Faculty of Education, which had been first on the list of priorities in the 1974 report, had dropped to eighth place. He stated that since the 1974 report had been submitted to the Board of Governors the Faculty of Education had been allocated funds for the planning of the project and a significant sum of money had already been spent. As such planning had a limited useful life span the action proposed by the committee would probably result in the abandonment of the project.

In amendment:

Dean Andrews)
Mr. Osborne)

That the following words be added to the motion:- "... and further, that Senate express the view that any ongoing project upon which considerable expenditure has already been made not be delayed to the point of obsolescence of planning unless the case for doing so is considered by the Board to be strong."

Carried

The motion, as amended, was put and carried.

Admissions Committee - entrance examinations

Dr. Finnegan presented the report. In November 1975 Senate passed a resolution requesting the Admissions Committee to examine the desirability and feasibility of University entrance examinations. It was stated in the report that the committee had examined a wide body of evidence relating to the question and was persuaded that the available data supported the following observations: -

Reports of Committees of Senate

Admissions Committee - entrance examinations (continued)

"I. Entrance examinations as predictors of subsequent post-secondary academic achievement.

Several studies indicate that over-all secondary school percentile rank is the best single predictor of future academic success. Gradepoint average in secondary school appears to be at least as good as entrance examinations as a predictor of academic success. Those responsible for a recent study in Ontario concluded that no one secondary school predictor was better than any other, though previously other studies had indicated improved predictions could be made using an index composed of all three items, i. e. standing, gradepoint average and entrance examination scores.

Certainly the University of British Columbia experience supports the conclusion that secondary school gradepoint average does predict success at this University for, since 1970 these averages have produced a coefficient of correlation of 0.55-0.60 with success in the Faculty of Science and 0.47-0.50 with academic success in the Faculty of Arts. Both of these ranges of values are somewhat higher than the correlation values normally ascribed to entrance examination results (0.30-0.40).

The data available for the Winter Session 1975/76 at this University indicates that approximately 18% of the students entering First Year failed to receive any credit in their degree programs. Students whose secondary school gradepoint average was less than 2.6 failed about 30% of the time, those with gradepoint averages between 2.6 and 2.8 failed about 20% of the time, while the population of students with gradepoint averages above 2.8 had a failure rate less than 10%. Thus throughout the Province of British Columbia a secondary school gradepoint average of 2.8 or better could have been taken as a good predictor of academic success in First Year at this University for the 1976/77 Winter Session.

The Senate Admissions Committee concludes that entrance examinations would provide no better prediction of academic success at this University than other more readily available and economical indicators.

II. Entrance examinations as indicators of expected curriculum standards (level of achievement).

Much concern has been expressed by individuals to members of this Committee regarding an apparent decline in secondary school curriculum standards, particularly in certain fundamental disciplines, as English and Mathematics. It has been suggested that entrance examinations would alert the secondary school teaching community to the demands of this University in such fundamental disciplines.

Reports of Committees of Senate

Admissions Committee - entrance examinations

"II. (continued)

It has become abundantly clear to the Senate Admissions Committee that efforts to influence curriculum in specific subjects are best accomplished by direct consultation among the interested parties, such as is now taking place in this Province. Indeed, the Department of Education, with the assistance of concerned people from the secondary schools and the post-secondary institutions, recently has developed a Placement Examination in English designed to provide information on the level of individual accomplishment in that disicipline, and to aid in predicting subsequent problems or success for an individual student at the post-secondary level. This examination will be administered for the first time in 1977 and the Admissions Committee suggests that this University await the results of the initial year's trial runs to ascertain the feasibility of such an approach.

It would seem to the Senate Admissions Committee to be unwise for this University to expend the very large financial, intellectual and physical resources required to develop an unambiguous entrance examination in any discipline simply to inform the public of desired standards since developments already underway in this Province may accomplish the same end."

Dr. Finnegan)
Dr. Gray)

That entrance examinations at The University of British Columbia are not desirable at this time.

Dr. Belshaw stated that he was not convinced by the arguments put forth in the report that no kind of entrance examination would be acceptable to the University although he agreed that the University itself should not administer entrance examinations at this time.

In amendment:

Dr. Belshaw)
Mrs. Angus)

That entrance examinations administered by The University of British Columbia are not desirable at this time.

Carried

The motion, as amended, was put and carried.

Reports of Committees of Senate (continued)

Curriculum Committee (See Appendix 'B')

Dr. Runeckles presented the report. The committee recommended approval of all items submitted subject to the following: -

(i) that the title of Microbiology 519 be changed to read: "Public Health Medical Microbiology"

(ii) that the title of CRWR 503 be changed to read: "The Writing of Children's Literature - Advanced"

(iii) that the description of Commerce 529 be changed to read: "Comprehensive coverage of the field of organizational analysis; the contributions of the major thinkers in this field, both current and classical. A framework for understanding and analyzing organizations. Reading, discussion and project work; business and non-business studies will be analyzed during the course."

(iv) that approval of proposed new courses and course changes recommended by the Department of Geophysics and Astronomy be withheld pending further consultation with the department.

It was noted that Oceanography 310 was not for credit in the Faculty of Applied Science, that the committee was not ready to report on the proposals of the Department of Fine Arts, and that the committee now recommended approval of the change in description of Biochemistry 402 proposed by the Faculty of Medicine and the Faculty of Science and previously withheld (P.6637 and 6679).

Dr. Runeckles)
Dr. McGregor) *That the proposals submitted by the Faculties of Agricultural Sciences, Applied Science, the School of Architecture, the Faculties of Commerce and Business Administration, Education, Forestry, Graduate Studies, Pharmaceutical Sciences, the School of Physical Education and Recreation, and the Faculties of Medicine and Science be approved with the changes noted and the exception of specific items withheld.*

Carried

Reports of Committees of Senate (continued)

Committee on Continuing Education

Annual Report of the Centre for Continuing Education 1975-76

Dr. MacDougall presented the report, which had been circulated for information. He stated that the Senate committee had considered the report and had been very impressed with the record of achievement. He also stated that the past year had been a difficult one for the Centre for two reasons. Firstly, the Director, Dr. Hardwick had been appointed Deputy Minister of Education, and secondly the creation of the Winegard Commission and the Farris Committee had raised uncertainties about some of the programs. Despite those difficulties the Centre had expanded its total programs, and in particular it had expanded the programs it offered outside the metropolitan areas.

Dr. MacDougall drew Senate's attention to the activities that the Centre had been involved in outside the metropolitan areas. In terms of professional programs, the Centre had been responsible for some 70 programs with about 1900 registrants; 34 general non-credit programs with about 1500 registrants; 28 credit programs in Education with about 400 registrants, and in terms of the independent study program there were approximately 800 students involved in the correspondence programs, the vast majority of which were students from outside the lower mainland. Activities conducted by other Faculties independently of the Centre had not been included.

In reply to a query Dr. MacDougall stated that the committee would be pleased to receive reports from the various Faculties so that Senate

Reports of Committees of Senate

Committee on Continuing Education

Annual Report of the Centre for Continuing Education (continued)

could have a total picture of the Continuing Education activities of the University.

The Chairman paid tribute to the excellent work of the Acting Director, Mr. Jindra Kulich, and his staff.

Noon-hour Lectures

Information on the number of lectures being given during the noon-hour period on Thursdays had been circulated. Dr. Dennison appealed to the Deans of the Faculties to ensure that the Senate regulation that classes not be held on Thursdays between 12.30 p.m. and 2.30 p.m. be enforced.

Other Business

Teaching Assistants

Mr. Funt gave notice of the following motion: -

"That Senate establish an ad hoc committee to investigate the present practice of giving teaching assistants the full responsibility for the teaching of certain courses or section of courses."

Bookstore Policy Committee and Committee on the Implementation of the Universities Act

Dr. Belshaw raised queries concerning the status of the Ad hoc Committee on Bookstore Policy and the Ad hoc Committee on the Implementation of the Universities Act. Mr. Moore stated that the Bookstore Policy Committee had met once and that a second meeting had been arranged. Referring to the

Other Business

Bookstore Policy Committee and Committee on the Implementation of the Universities Act (continued)

Committee on the Implementation of the Universities Act, the Registrar stated that he hoped to call a meeting of that committee within the next month.

Committee on Standards in English

The following statement had been circulated at the meeting for the information of Senate: -

"In November Education Minister Patrick McGeer announced a plan to undertake a province-wide test to determine the competence in English composition among grade twelve students. This English Placement Test would be administered in 1977 and 1978. Post-secondary institutions in British Columbia have been invited to participate in the project. They may use the results of the test for placement or streaming purposes only. The results of the English Placement Test must not be used as a basis to determine admission.

There is to be a research component to this project. The Educational Research Institute of British Columbia has been hired by the Ministry to develop and administer the whole project and to produce an analysis of the results.

On 17 November 1976 Vice-President Shaw responded, on behalf of this University, to the Provincial initiative. He indicated our willingness to participate in the English Placement Test. This decision was consistent

Other Business

Committee on Standards in English (continued)

"with the Senate approval of 12 November 1975 to conduct an English Diagnostic Test in the schools during the spring. (This decision had not been implemented since funds were not available.) Vice-President Shaw also named Professor Robert Jordan and Father Paul Burns to represent the University of British Columbia on a Policy Board set up by the Ministry of Education to oversee the project."

Report of the Tributes Committee

Dr. Stager presented the report of the Tributes Committee. Members of the gallery were asked to leave.

Honorary Degrees

Dr. Stager informed Senate that the following persons had accepted invitations to receive honorary degrees at the 1977 Congregation:-

Gobind Khorana
Grace McInnes
Gertrude Laing
Arthur Fouks
Ian McTaggart Cowan
George Woodcock

The meeting adjourned at 10.30 p.m.

The next regular meeting of Senate will be held on Wednesday, February 16, 1977, in the chambers of the Student Representative Assembly, Room 206, Student Union Building.

Secretary

Confirmed,

Chairman

APPENDIX 'A'

New Awards Recommended to Senate

The Constance Nicholson Lea Memorial Prize in Creative Writing and Journalism - A prize in the amount of $50 has been established by Ruth Lea Taylor in memory of her grandmother, Constance Nicholson Lea, who was until her death at the age of 94, an avid journalist and writer. The award will be made on the recommendation of the Department of Creative Writing, to a female student in the fields of Creative Writing and Journalism.

The Cornelius Leonard Mitchell Scholarship - A scholarship in the amount of approximately $300 has been made available through the Vancouver Foundation as a result of a bequest from the estate of Alice T. D. Mitchell. The scholarship will be awarded on the recommendation of the Faculty of Medicine to a student pursuing a course in Neuroscience.

The E. Bruce Tregunna Scholarship in Plant Physiology - This scholarship, in memory of the late Dr. E. Bruce Tregunna, a member of the Department of Botany at The University of British Columbia from 1964 until his sudden death on September 13, 1975, has been made available by his friends, colleagues, and former students. The award is in recognition of one of Canada's outstanding young plant physiologists, who was held in high esteem both nationally and internationally. His honesty and integrity were combined with the rare qualities of leadership and a friendly rapport that commanded the devotion and admiration of all who knew and worked with him. The award will be made annually to a graduating student who has achieved an outstanding performance in Botany 330. The award will be made on the recommendation of the Department of Botany.

APPENDIX 'B'

Course and Curriculum Proposals

A = new courses or substantial changes
B = minor changes

FACULTY OF AGRICULTURAL SCIENCES

Agricultural Economics

B Change — Agricultural Economics 258 - change in hours

Agricultural Mechanics

A New course — Agricultural Mechanics 306 (1½) Aquacultural Operations

Food Science

A Change — Food Science 416 - change in hours

Plant Science

A Program change — Landscape Horticulture Program - Major and honours program leading to the degree of B.Sc. (Agr.) in Landscape Horticulture have been developed for students interested in this branch of landscape architecture, with the following requirements: First and Second Years - unchanged; Third Year - unchanged except for elective (1½ or 4½); Fourth Year - unchanged except for electives (3 or 6)

A New courses — Plant Science 433 (1½) Crop Protection I
434 (1½) Crop Protection II

A Change — Plant Science 435 - change in units from (1 or 1½) to (1½) also change in hours

A Deletion — Plant Science 436

B Changes in notes describing recommended and elective courses:

Agronomy option	Addition of Plant Science 434
Rangeland Resources Option	Addition of Plant Science 434, Agricultural Economics 374, and Forestry 442 (as an alternate to Geography 370)
Horticulture Option	Addition of Plant Science 433
Crop Protection Option	Deletion of Plant Science 436 and addition of Plant Science 433 and 434

APPENDIX 'B'

FACULTY OF AGRICULTURAL SCIENCES

Plant Science (continued)

B Changes — Plant Science 258 and 407 - change in hours, title and description

Soil Science

A Change in program requirements in Second Year:

Agricultural Sciences 201 (3); Chemistry 230, 205 or 208 (3); Physics 110 (115, 120 or 145) or English 100 (3); Microbiology, Geology, Soil Science, Mathematics or Physics (6).

(The program must include Microbiology 200 (3) or Soil Science 311 (1½) and Geology 105 (3) or Geology 150 (1½)

B Change — Soil Science 315 - change in hours

FACULTY OF APPLIED SCIENCE

Bio-Resource Engineering

B Changes — BioE. 460 (3) Soil and Water Engineering split into two courses, now reads:
BioE. 461 (1½) Drainage Engineering
BioE. 462 (1½) Irrigation Engineering

A Deletion — BioE. 460

B Change of schedule — The scheduling of BioE. 499 (3) Thesis to be changed to (0-2-0; 0-4-0) from (0-3-0; 0-3-0) to better reflect the proportion of time spent by students in each semester on their research projects.

BioE. 490 (1½) Agricultural Waste Utilization (2-2*-2*; 0-0-0) to be given in the first term instead of second term as the material covered in the course is required in the fall by students planning on working in the waste management area for their fourth year thesis.

Chemical Engineering

A New course — Ch.E. 357 (1) Interfacial Phenomena

APPENDIX 'B'

FACULTY OF APPLIED SCIENCE

Chemical Engineering (continued)

B Change — Ch.E. 356 (1) Control of Process Variables - add an alternate week problems period (2-0-2*; 0-0-0) to formalize the present arrangement and assist the students to master the new concepts and mathematical skills more quickly.

Civil Engineering

A Deletion — Diploma Course in Surveying

Electrical Engineering

A Replacement of Option System by a core-plus-elective System

In the third and fourth year Electrical Engineering curricula, replace the option system (Options I and II) by a core-plus-elective system. There is no longer any significant difference between the two options in terms of engineering course content.

B For the Third Year Electrical Engineering Curriculum, the core courses remain unchanged. Options I and II to be replaced by the following:

A Technical Elective consisting of either						
EE 367 Instrumentation and Measurements	1	3*	-	0	3*	0
or the pair of courses						
MATH 314 Real Variables	3	-	-	-	-	-
MATH 362 Linear Algebra	-	-	-	3	-	-

A For the Fourth Year Electrical Curriculum, the present list of courses in terms of options to be replaced by the following list of core courses plus electives:

APP SC 450 Professional Engineering Practice	1	-	-	-	-	-
EE 473 Systems Lab	-	6	-	-	6	-
EE 498 Engineering Reports	-	-	-	-	-	-
+ Two free electives						
# Three compatible electives						
A Technical Elective consisting of either						
ME 471 Power Generation Systems	3	-	1	3	-	1
or						
MATH 400 Applied Analysis II	3	-	-	3	-	-
or the pair of courses						
PHYS 353 Introduction to Atomic Physics	3	-	-	-	-	-
PHYS 475 Introduction to Statistical Mechanics	-	-	-	3	-	-

APPENDIX 'B'

FACULTY OF APPLIED SCIENCE (continued)

Geological Engineering

B Change — GEOL 452 split into three courses:
GEOL 452 (1) Geotechnical Engineering Practice
GEOL 462 (1½) Environmental and Hydrologic Aspects of Geotechnical Engineering
GEOL 472 (1) Applied Structural Geology in Geotechnical Engineering

Mechanical Engineering

A New courses — ME 440 (3) Stability and Design Arrangements for Ships
441 (3) Ship Hydromechanics

B Changes — ME 378 - change in title, description and scheduling
384 - change in scheduling
473 - change in description
474 - change in scheduling
479 - change in title and description
482 - change in title and description
498 - change in description

Metallurgical Engineering

A New course — MET 492 (1) Powder Metallurgy

B Changes — MET 370 and 374 - change in description

Mathematics

B Rearrangement of Course Material

A rearrangement of the material in the mathematics courses given to first and second year engineering students is proposed, with no change in contact hours or units, as follows:

Present Courses First Year	Proposed Courses First Year
MATH 151 Linear Algebra 3-0-0; 0-0-0	MATH 151 Linear Algebra 3-0-0; 0-0-0
MATH 156 Vector Calculus 0-0-0; 3-0-0	MATH 165 Diff. Eq. I 0-0-0; 3-0-0
MATH 155 Calculus 3-0-0; 3-0-0	MATH 150 Calculus of Several Variables 3-0-0; 3-0-0

APPENDIX 'B'

FACULTY OF APPLIED SCIENCE

Mathematics

B Rearrangement of Course Material (continued)

Present Courses Second Year	Proposed Courses Second Year
MATH 255 Diff. Eq. I 3-0-0; 0-0-0	MATH 260 Series and Approximation Methods 3-0-0; 0-0-0
MATH 256 Diff. Eq. II 0-0-0; 3-0-0	MATH 256 Diff. Eq. II 0-0-0; 3-0-0

The new MATH 150 would consist of material now taught in the first term of the present MATH 155 and 156. The same instructor would then give both parts.

The new MATH 165 would be a first course in differential equations - 1st order, linear systems and some Laplace transforms. This material would follow best after Linear Algebra (MATH 151).

The new MATH 260 will deal mainly with numerical and approximation methods.

SCHOOL OF ARCHITECTURE

B Change Architecture 407 - change in description

FACULTY OF COMMERCE AND BUSINESS ADMINISTRATION

A New course 396 ($1\frac{1}{2}$) New Enterprise Development

B Change 363 - change in title and description

A Change in description:

PROGRAM REQUIREMENTS: Third Year, Marketing Option, Commerce 322, 331, 362, 363, 365; 9 units of electives. (The revised Commerce 363 will become a required course.)

A Change in description: Licentiate in Accounting

First Year Econ. 100 (3 units) - Principles of Economics; Com. 191 ($1\frac{1}{2}$ units) - Business Application of Computers; Com. 221 (2 units) - Organizational Behaviour; Com. 261 (2 units) - Fundamentals of Marketing; Com. 271 (2 units) - Business Finance; Com. 318 (3 units) - Quantitative Methods I; Com. 331 (3 units) - Commercial Law; Com. 350 (3 units) - Accounting Information Systems.

APPENDIX 'B'

FACULTY OF COMMERCE AND BUSINESS ADMINISTRATION

A Change in description: Licentiate in Accounting (continued)

Second Year Com. 353 (3 units) - Financial Accounting Intermediate; Com. 354 (1½ units) - Cost Accounting Systems, Part A; Com. 356 (3 units) - Management Information Systems; Com. 358 (1½ units) - Cost Accounting Systems, Part B; Com. 418 (1½ units) - Quantitative Methods II; Com. 453 (3 units) - Financial Accounting, Advanced; Com. 492 (3 units) - Policy Analysis; 3 units of electives chosen from: Com. 355, Com. 357, Com. 450, Com. 451, Com. 452, Com. 454, or Com. 455.

(Commerce 191 is an essential prerequisite to Commerce 356 which is required in the second year. Changes Commerce 453 from 1½ units to 3 units; eliminates Commerce 191 from the list of electives; and adds Commerce 357 and Commerce 452 to the list of electives in second year.)

These changes will mean the Licentiate Program will conform to the Accounting Option of the B.Com. program.

FACULTY OF EDUCATION

A Changes

Business Education (Commerce) Concentration - New calendar entry, unit requirement reduced from 18 to 16½ units.

First and Second Years: Education 175, Commerce 151, 190, Economics 100. Recommended: Education 174.

Senior Years: Commerce 252, 375, Education 376, 377. Recommended: Commerce 331, Education 410, 411.

Business Education (Data Processing) Concentration - New calendar entry, unit requirement reduced from 18-19½ to 15 units.

First and Second Years: Education 175, Commerce 151, 190, 191.

Note: Students are advised that some Commerce elective courses require Mathematics 130 or Mathematics 100 and 101. Recommended: Education 174.

Senior Years: Commerce 356, 375, Education 376, 377. Recommended: Commerce 252, Education 410, 411.

Business Education (Distributive Education) Concentration - New calendar entry, unit requirement reduced from 17-18½ units to 15½ units.

APPENDIX 'B'

FACULTY OF EDUCATION

A Changes

Business Education (Distributive Education) Concentration (continued)

First and Second Years: Education 175, Commerce 151, 190, Economics 100. Recommended: Education 174, Geography 100.

Senior Years: Commerce 261, 362 or 363 or 364, 375, Education 378. Recommended: Commerce 331, Education 410, 411.

Business Education (Secretarial) Concentration - New calendar entry, unit requirement reduced from 16½ to 15 units.

First and Second Years: Education 174, 1975, Commerce 151, 190.

Senior Years: Commerce 375, Education 374, 376, 377. Recommended: Economics 309, Commerce 331, Education 410, 411.

Business Education Major - Change in program requirements.

First and Second Years: Education 175, Commerce 151, 190, 191 or approved elective, Economics 100, Geography 100.

Note: Students are advised that some Commerce elective courses require Mathematics 130 or Mathematics 100 or 101. Recommended: Education 174.

Senior Years: Commerce 252 or approved elective, 331, 375, Senior Commerce Elective (1½), and one of: Education 174 and 374; or Commerce 356 and Education 376 and 377; or Commerce 261 and Commerce 362 or 363 or 364, and Education 378. Recommended: Senior Commerce Elective (1½-3), Education 410, 411.

A New Program

Teacher Preparation Program in Secondary School Guidance and Counselling

Admission Requirements:

1. An acceptable bachelor's degree with a minimum of nine (9) senior units in psychology and/or sociology.

2. A minimum of 3 - 5 years relevant work experience.

3. A master's degree in counselling psychology (or within 3 units of completion of a master's degree).

APPENDIX 'B'

FACULTY OF EDUCATION

A New Program

Teacher Preparation Program in Secondary School Guidance and Counselling (continued)

Program:	Units
Education 301 (1½), 302 (1½)	3
One of Education 400, 430, 470	3
Education 508 (or 404) relating to the major	3
Electives chosen in consultation with the Department of Counselling Psychology	6
Education 499	0
	15

FACULTY OF FORESTRY

A	New courses	Forestry 328 (1½)	Introduction to Range Management
		428 (1½)	Ecology and Management of North American Range Plant Communities
		429 (1½)	Rangeland Systems
A	Deletion	Forestry 426	
B	Change	Forestry 405 - change in description	

FACULTY OF GRADUATE STUDIES

Bio-Resource Engineering

A	New course	BIEN 540 (1½)	Design of Aquacultural Systems

Botany

B	Change	Botany 504 - change in title

Chemistry

B	Change	Chemistry 503 - change in units

Civil Engineering

A	New courses	CIVL 557 (1)	Toxic and Hazardous Waste Treatment Disposal
		CIVL 575 (1)	Geotechnical Ocean Engineering

APPENDIX 'B'

FACULTY OF GRADUATE STUDIES (continued)

Commerce

A New course — Commerce 529 (1½) Advanced Organizational Analysis

B Changes — Commerce 551 and 590 - change in units

Commerce 564 - change in number, description and units, split into two courses, now:
Commerce 564 (1½) Consumer Behaviour Seminar
Commerce 565 (1½) Seminar in Market Analysis

Creative Writing

A New course — CRWR 503 (3) The Writing of Children's Literature - Advanced

Economics

B Changes — Economics 545 - split into two courses, now:
Economics 546 (1½) Monetary Theory and Policy I
Economics 547 (1½) Monetary Theory and Policy II

Economics 570 - split into two courses, now:
Economics 571 (1½) Economic Analysis and Natural Resources I
Economics 572 (1½) Economic Analysis and Natural Resources II

A Deletions — Economics 545 and 570

Education

A New course — Education 554 (1½/3) Administration and Educational Policy Development

B Changes — Education 522 and 589 - change in unit value

Electrical Engineering

A New courses — ELEC 580 (1) Fabrication Technology of Semiconductor Devices
ELEC 581 (1) Optical Solid State Devices

APPENDIX 'B'

FACULTY OF GRADUATE STUDIES

Electrical Engineering (continued)

B	Changes	E.E. 587 - change in number, description and units, split into two courses, now: E.E. 576 (1) Semiconductor Theory for Device Applications E.E. 577 (1) Solid State Electronic Devices E.E. 583 - change in unit value (now (2))
A	Deletions	E.E. 587 and 579
B	Changes	E.E. 594 - change in number, description and units, split into two courses, now: E.E. 594 (1) Digital Systems Software I E.E. 595 (1) Digital Systems Software II

Fine Arts

B	Change	Fine Arts 599 - change in unit value (now (3))

(N.B. - proposal re Fine Arts 581 (12) Studio V not yet approved by Senate Curriculum Committee)

Geological Sciences

B	Change	524 - change in number and unit value, now: 523 (2) Advanced Geochemistry
A	Deletion	511

Geophysics and Astronomy

B	Changes	Astronomy 503, 504, 505 - change in number and description (formerly 561, 515 and 563 respectively) Geophysics 511 - change in description

(N.B. - approval of proposed new courses, Astronomy 530-538 and Geophysics 520-528, and the deletion of Geophysics 521 and Astronomy 520 has been withheld pending further consultation with the Department.)

Interdisciplinary

A	New course numbers	Interdisciplinary 549 (3/6) Master's Thesis 649 Ph.D. Thesis

APPENDIX 'B'

FACULTY OF GRADUATE STUDIES (continued)

Mechanical Engineering

B	Change	M.E. 580 - change in description

Medical Genetics

A	New course	548 (3) Directed Studies

Metallurgy

A	New course	MET. 598 Seminar
B	Change	MET. 573 - change in number, description and title, now: MET. 571 (1) Solidification
A	Deletions	MET. 555 and 573

Microbiology

B	Change in number	Microbiology 519 (3) Public Health Medical Microbiology (formerly 719)

Music

A	New courses	Music 502 (1½/3) History of Music Theory 530 (1½/3) Seminar in Twentieth-Century Music 532 (1½/3) Advanced Studies in Music History and Musicology
B	Changes	Music 500, 520, 529 - change in unit value from (4) to (1½-3) Music 504, 521, 522, 523, 524, 525, 526, 527, 531 - change in unit value from (3) to (1½-3)

Nursing

B	Change	Nursing 599 - delete prerequisite Nursing 591

Oceanography

A	New course	Oceanography 310 (3) Man and the Oceans
B	Changes	Oceanography 503 - addition of prerequisites to description

APPENDIX 'B'

FACULTY OF GRADUATE STUDIES

Oceanography

B Changes (continued)

Oceanography 506 - course to be given first term in even calendar years

Oceanography 507 - course to be given second term in odd calendar years

Pharmaceutical Sciences

B Change — Pharmacy 540 - change in unit value from (1) to (1-3)

Plant Science

A New courses — Plant Science 503 (1½) Rangeland Ecology
(To be cross-listed under Forestry 526)

Plant Science 505 (1½) Topics in Range Management
(To be cross-listed under Forestry 528)

B Changes — Plant Science 531 and 534 - add to description:
Offered in 1978-79 and alternate years.

Slavonic Studies

B Change — Russian 530 - split into two courses, now:
Russian 529 (1½) Old Russian Literature
Russian 530 (1½) Eighteenth Century Russian Literature

Zoology

B Change — 502 - change in description and unit value from (1-3) to (3)

FACULTY OF PHARMACEUTICAL SCIENCES

B Changes — Pharmacy 445 - change in unit value from (1) to (1½)

Change in wording of calendar statement under Promotion Requirements, now reads: -

Promotion Requirements - "To be promoted, a student in the Faculty of Pharmaceutical Sciences must:

(a) Pass all of the required courses of the program year in which the student is registered.

APPENDIX 'B'

FACULTY OF PHARMACEUTICAL SCIENCES

B Changes

Promotion Requirements (continued)

"(b) Obtain a minimum average of 60% in the required courses of the program year in which the student is registered.

Required courses with the exception of English 301 are used for this computation, thus elective courses are excluded. Failure in elective courses requires that the course be repeated, or an approved alternative course be taken.

Students who have entered the Faculty at the second year level will take any required courses of the first year in which they are deficient, as required courses of the second year."

Delete section (2)

Renumber remaining sections

SCHOOL OF PHYSICAL EDUCATION AND RECREATION

B Change

Change in wording of calendar statement under B.R.E. Program: -

1. Delete line 4 under THIRD or FOURTH YEAR, COLUMN 2 (remove Recreation or Physical Education Theory ... ($1\frac{1}{2}$)

2. Increase ELECTIVES from 12 units to $13\frac{1}{2}$

3. Revise Note 3 to read as follows: "Students may elect $19\frac{1}{2}$ units of course work in consultation with and subject to the approval of the Faculty advisor. Three of these units must be taken in each of the first two years from other Departments or faculties. The remaining $13\frac{1}{2}$ units must include $1\frac{1}{2}$ units of Phys. Ed. or Recreation Theory and may include an additional 3 units of Phys. Ed. or Recreation (Theory or Activity). Electives from outside the School of Phys. Ed. and Recreation must be selected to provide for some learning continuity in a particular area, preferably related to courses taken in the first and second years."