FOR INFORMATION

SIMON FRASER UNIVERSITY

MEMORANDUM

TO: Senate   **FROM:**   J.W.G. Ivany,
                                                                                  Chair, SCAP

SUBJECT: Faculty of Science   **DATE:**   Nov.19, 1987
            Reference: SCUS 87-32, 87-36, 87-37
                       SCAP 87-27, 87-31, 87-32

Acting under delegated authority, SCUS approved the following changes as set out in S.87-60

1)   Minor curriculum revisions and calendar editorial changes for the Management and Systems Science Program

2)   Vector changes to a number of courses in Mathematics, Statistics and Physics

3)   Minor curriculum changes to the Mathematical Physics Program

Management and Systems Science Program Calendar Revisions

The following changes to the MSSC program are proposed.

Revision A

Current:

Admission to and continuation in the program is subject to the obtaining and maintenance of a cumulative GPA of at least 2.5 or the equivalent. Students interested in this program are strongly recommended to contact the advisor as soon as possible regarding scheduling of this program.

Proposed:

The Management and Systems Science Program cooperates with the School of Computing Science with regard to admission into the Program. Students must formally apply in order to be admitted into the Program. Acceptance will be based on overall academic performance as measured by the cumulative grade point average (CGPA). The CGPA is calculated based on all work completed at SFU as described in the general regulations section of this calendar.

A student may apply for acceptance into the Management and Systems Science Program upon completion of all lower level requirements. Applications must be submitted by the fifth day of classes for admission consideration in that semester. Transfer and second-degree students who have credit for all the lower level requirements may apply for special admission consideration based on transcripts from other post-secondary institutions.

In order to remain in the Program, a student must maintain a CGPA of at least 2.5. Students interested in this Program are strongly recommended to contact the Program adviser or co-ordinator as soon as possible regarding admission and scheduling.

Rationale:

This does not require Senate (or any other) approval because the Computing Science admission procedure has already been approved by Senate.

Revision B

Current:

For the major in Management and Systems Science students must have credit for a minimum of 34 upper division credit hours from the following; however this major is recognized for use only toward this full B.Sc. degree program. For the B.Sc. degree in Management and Systems Science, all of the following upper division courses are required.

Proposed:

For the B.Sc. degree in Management and Systems Science, all of the upper division courses listed below are required.
Students must have credit for a minimun of 34 upper division hours such that at least 9 hours are taken from each of the grouping under Business Administration (excluding ECON 301-5), Computing Science, and Mathematics and Statistics. The credit hours taken beyond the 34 can be applied for other major or minor programs.

Rationale:

The MSSC Steering Committee unanimously passed the motion that follows in reference to the first paragraph under Upper Division Requirements on p.125 of the current calendar.

Motion 1: In choosing the 34 upper division credit hours, at least 9 must be chosen from each of the groupings under Business Administration (excluding Econ. 301), Computing Science, and Mathematics and Statistics.

The present wording of this paragraph is the work of former Registrar Harry Evans. He pointed out that the current requirements involve 46 or 48 upper level credits for a B.Sc. degree and not allowing a mechanism for students to use some of them towards a minor or second major would be punitive. He then made a distinction between a major and a program by suggesting that we have a major requirement as distinct from a program requirement. We (the program originators) agreed and set the major requirement at 34 credits so that the remaining credits could be applied towards a minor or double major.

However, the flexibility has been abused. By judiciously choosing the courses to add up to 34 or more credits, students are able to obtain "diluted" minors in either Business, Computing or Mathematics. For example, by using all the Business and Mathematics courses, taking Econ. 301 instead of Bus. 207 and using MSSC 480 and 481, a student needs only one Computing Science course to reach 34 or more upper level credits. The student is then able to apply the remaining four upper level Computing Science courses towards a minor. This means a student can get a minor in Computing Science by taking only one upper level course beyond those already required. Since an MSSC degree is already making a certain statement about what a student has done in Computing Science, being able to have a minor with only one additional upper level course seems vastly disproportionate.

Passage of the recommended motion would remove the problem. Undergraduate Studies Committees in all three departments were consulted and they agreed with the change.

Revision C

The following motions were passed unanimously by the Management and Systems Science Steering Committee.

<u>Motion 2</u>. Students are required to take CMPT 275-3 instead of being required to take one of CMPT 275-3 <u>or</u> CMPT 290-3.

<u>Motion 3</u>. CMPT 301-3 and CMPT 371-3 are to be dropped from the program.

<u>Motion 4</u>. CMPT 307-3 is to be added as a program requirement.

<u>Motion 5</u>. Honors students will be required to take MATH 443-3 <u>or</u> MATH 445-3 instead of being required to take MATH 443-3,

<u>Rationale:</u>

The Management and Systems Science Program is highly structured in that 93-95 credits are specified by specific courses. In recognition of this, the Steering Committee tries to avoid introducing requirements that would increase this number. The net change of the above motions will decrease the total by 3 (pending changes in Business and Statistics which may reinstate these 3 credits).

Since the MSSC program has now been in existence for six years, the Steering Committee recently took a look at the course requirements. There was input from Business, Computing Science, Economics, Mathematics and Statistics, and students in the program. The motions are interrelated. Consider Motion 3 first. For several years, Computing Science members of the Steering Committee have suggested that CMPT 371-3 does not really fit into the program. Simultaneously, CMPT 307-3 was recently introduced by the School of Computing Science and this course deals precisely with the kinds of topics of interest to the MSSC program (algorithms and data structures). Therefore, it was decided to add CMPT 307-3 to the program and delete CMPT 371-3 from the program. This explains motion 4. Since CMPT 290-3 was included in the program for the sole reason that it is a prerequisite for CMPT 371, it is no longer required and this explains motion 2.

For years students have complained about or observed (some have not complained) a great deal of overlap between CMPT 301-3 and BUS 337-3 and 428-3. After consultation with members of both Business and Computing Science, it was decided that CMPT 301-3 should be dropped from the program. The principal reason is that the two Business courses are really an integral whole and some kind of compromise such as allowing a student to take CMPT 301-3 and BUS 428-3 would lead to unworkable situations at times. The suggested solution is cleaner and is academically sensible.

Motion 5 results from the fact that Math 443-3 is offered only once every two years and, in many ways, Math 445-3 is a better course for students in the program. Both courses deal with topics in discrete mathematics and it is felt that offering an alternative is the correct action to take.

SIMON FRASER UNIVERSITY
MEMORANDUM

To: R. Heath, Secretary
     to Senate

From: P. Dobud, Administrative
             Assistant to the Dean of
             Science

Subject: Calendar Changes:
                 Mathematics Program and Physics
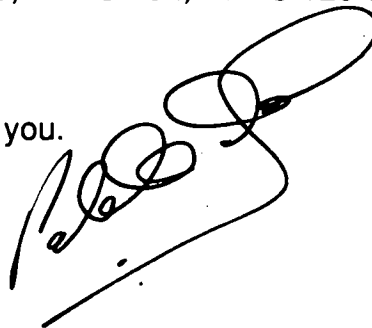   Program

Date: October 8, 1987

The Faculty of Science, at its meeting held on Monday October 5, 1987 approved the following vector changes . I would appreciate it very much if you would place these motions in the agenda of the next SCUS meeting for consideration and approval.

Recommendation from the Faculty of Science Undergraduate Curriculum Committee :

That the vector for courses in the Faculty of Science involving unscheduled workshops, assistance centres, or other arrangement that is different from the scheduled tutorial or experimental laboratory be designated for a three lecture- hour course as (3-0-1†) with an appropriate footnote by the department.

This motion applies to the following courses: MATH 100-3, MATH 101-3, MATH 102-3, MATH 110-3, MATH 151-3, MATH 152-3, MATH 154-3, MATH 157-3, MATH 158-3, MATH 190-4, MATH 302-3, PHYS 100-3, PHYS 101-3, PHYS 102, PHYS 120-3 and PHYS 121-3.

Thank you.

cc: Dr. A. Freedman, Chairman, Department of Mathematics and Statistics
     Dr. C. Irwin, Chairman, Department of Physics

SIMON FRASER UNIVERSITY

MEMORANDUM

	Date:	October 13, 1987
To: R. Heath, Secretary to Senate	From:	Allen R. Freedman, Chmn Dept. of Math and Stats

Subject: Vector Changes.   P. Dobud's memo of Oct.8.

1. It is understood that the recommended vector for Math 190-4 is (4-0-1†).

2. MATH 101, 102 and 302 are being changed to the STAT designation. These newly named courses would carry the vector (3-0-1†).

Allen R. Freedman

cc: P. Dobud
     M. Fankboner

Registrar's Note:

This paper clarifies information provided in the October 8 memo. That memorandum implies that MATH 190-4 was being changed to 3:0:1† and does not recognize the additional proposals where MATH 101, 102 and 302 are being changed to STAT.

SIMON FRASER UNIVERSITY
MEMORANDUM

To: R. Heath, Secretary
    to Senate

From: P. Dobud, Administrative Assistant to the Dean of Science

Subject: Calendar Changes: Mathematical Physics

Date: October 6, 1987

The Faculty of Science, at its meeting held on Monday October 5, 1987 has approved the following calendar changes for the MATHEMATICAL PHYSICS PROGRAM. I would appreciate it very much if you would place these motions in the agenda of the next SCUS meeting for consideration and approval.

MATHEMATICAL PHYSICS. (Paper FSC 87-9)

To approve the following changes in part of the Mathematical Physics program requirement as follows ;

From:

UPPER DIVISION REQUIRED COURSES
(Total: 66 to 68 semester hours)
All of:

MATH	310-3	Introduction to Ordinary Differential Equations
	313-3	Differential Geometry
	320-3	Advanced Calculus of One Variable
	322-3	Complex Variables
	361-3	Mechanics of Deformable Media
	418-3	Partial Differential Equations

Two of:

MATH	362-3	Fluid Mechanics I
	416-3	Numerical Analysis II — requires MACM 316-3
	462-3	Fluid Mechanics II
	466-4	Tensor Analysis
	467-3	Vibrations
	468-4	Continuum Mechanics
	470-4	Variational Calculus
	471-4	Special Relativity

Three of:

a)	MACM	316-3	Numerical Analysis I
	MATH	387-3	Introduction to Stochastic Processes — requires MATH 272-3 (or 371)
		415-3	Ordinary Differential Equations — MATH 314-3 recommended
		419-3	Linear Analysis — MATH 314-3 and 320 recommended
		424-3	Applications of Complex Analysis
b)	MATH	425-3	Introduction to Metric Spaces
		426-3	Introduction to Lebesgue Theory
		438-3	Linear Algebra
		439-3	Introduction to Algebraic Systems
		444-3	Topology — requires MATH 425-3 or 421

with at least one course from each of groups a) and b).

To:

Upper Division required courses:
(Total 66 to 70 semester hours)
All of:

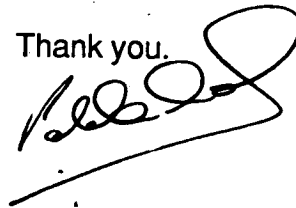|		
MATH	310-3	Introduction to Ordinary Differential Equations.
	313-3	Differential Geometry
	320-3	Advanced Calculus of One Variable.
	322-3	Complex Variables.
	361-3	Mechanics of Deformable Media.
	418-3	Partial Differential Equations.

Five of :

MACM	316-3	Numerical Analysis I.
STAT	387-3	Introduction to Stochastic Processes- requires STAT 270-3
MATH	362-3	Fluid Mechanics I.
	415-3	Ordinary Differential Equations- MATH 314-3 recommended.
	416-3	Numerical Analysis II- requires MACM 316-3.
	419-3	Linear Analysis- MATH 314-3 and 320 recommended.
	424-3	Applications of Complex Analysis.
	425-3	Introduction to Metric Spaces.

FOR INFORMATION 3

426-3	Introduction to Lebesgue Theory.
438-3	Linear Algebra.
439-3	Introduction to Algebraic Systems.
444-3	Topology- requires MATH 425-3.
462-3	Fluid Mechanics II.
466-4	Tensor Analysis.
467-3	Vibrations.
468-4	Continuum Mechanics.
470-4	Variational Calculus.
471-4	Special Relativity.

with **at least three courses** , from the 400 level:

Thank you.

cc: E. Pechlaner, Chairman, Mathematical Physics Committee.

SIMON FRASER UNIVERSITY
MEMORANDUM

To.............P. Dobud, for the.................

..............Faculty of Science UGCC...........

Subject..........CURRICULUM CHANGE..................

From........L.E. Ballentine, Chairman.........

........Mathematical Physics UGCC..........

Date.........18 March 1987.....................

The Mathematical Physics Curriculum Committee (members presently on campus: L.E. Ballentine, M. Plischke, C.Y. Shen) has approved the change in program requirements which is described on the attached sheet.

Rationale: Although it would appear that the students have considerable freedom of choice in selecting courses to meet the requirements of the program, in fact the limitations of scheduling and frequency of offerings often reduces the number of available choices to one or even to zero. On several occasions in the past couple of years, I have been called upon to authorize a variation from the strict calendar requirements so that a student could complete his program without waiting an extra semester or more to pick up the last required course. In such cases I have authorized a substitute course from the same level and Department.

The effect of the proposed change is to permit a freer choice from the same set of courses, without altering quality or quantity of the requirements.

Leslie E. Ballentine

LEB/dy

Attach.