

SIMON FRASER UNIVERSITY

OFFICE OF THE VICE-PRESIDENT, ACADEMIC

MEMORANDUM

To: Senate

From: D. Gagan, Chair *Dand Gagan*
Senate Committee on Academic Planning

Subject: Faculty of Science -
Curriculum revisions

Date: November 12, 1997

Action undertaken by the Senate Committee on Undergraduate Studies and the Senate Committee on Academic Planning gives rise to the following motion:

Motion:

"that Senate approve and recommend to the Board of Governors as set forth in S.97 - 90 , the following curriculum revisions for the Faculty of Science:

Proposed Applied Physics Honours Program

For Information:

Acting under delegated authority of Senate, SCUS approved revisions as set forth in S.97 - 90

- a) Department of Chemistry
- b) Applied Physics Program
- c) Biochemistry Program
- d) Department of Biological Sciences
- e) Actuarial Certificate Program
- f) Department of Mathematics and Statistics
- g) Environmental Science Program
- h) Department of Biological Sciences
- i) Earth Sciences Program
- j) Department of Physics
- k) Physical Geography Program

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

SIMON FRASER UNIVERSITY MEMORANDUM

From: Simon Watkins
To: R. Ydenberg
Subject: Proposed upgrade of Applied Physics Majors Program
Date: September 24, 1997

At a recent physics departmental meeting the following proposal to provide an Applied Physics Honours Program in addition to the Applied Physics Majors program was approved. The proposal will generate no new courses and has the same lower level course requirements as the existing major program while increasing the upper levels course requirements significantly. Two clearly defined streams in materials science and electronics are offered for the students, with the possibility of customizing a third stream in consultation with a faculty advisor. It is the feeling of the department and the curriculum committee that such a program would make physics graduates more attractive for jobs in the technology sector. Since most graduates end up working in so-called applied physics areas, it seems appropriate to tailor a specific program to their needs.

Some minor changes to the lower level course requirements of the major program have been incorporated into this proposal, which are mostly the result of recent computer science course changes. In addition, some arithmetic errors regarding credit totals were corrected. Finally, we have put in a note explicitly stating the faculty of science requirement for 44 hours of upper division credit for the major.



Simon Watkins

Proposed Honours Program in Applied Physics
Simon Fraser University
April 29, 1997

The Honours Applied Physics program offers a solid background in physics combined with an extensive introduction to the applied aspects of physics necessary for students planning careers in high technology industries. In addition, students have the option of various specialized upper level courses. Students should enroll in the Co-op Program to acquire valuable industrial experience. An average grade of B or higher is required to graduate in the honours program.

Notes:

Phys 432-5, "Undergraduate Honors Thesis", based on an industrially-motivated project is strongly recommended.

An additional second year computing course such as Cmpt 212-3, "Object oriented applications design in C++" is recommended.

Lower Division - Same as Applied Physics Major (55 semester hours)

Upper Division Core Program

Math 310-3: Introduction to Ordinary Differential Equations

Macm 316-3: Numerical Analysis I

Phys 395-3: Computational Physics

Phys 324-3: Electromagnetics

Phys 326-3: Electronics and Instrumentation

Phys 331-3: Electronics Laboratory

Phys 332-3: Intermediate Laboratory

Phys 355-3: Optics

Phys 365-3: Semiconductor Device Physics

Phys 384-3: Methods of Theoretical Physics I

Phys 385-3: Quantum Physics

Phys 430-5: Digital Electronics and Interfacing

Phys 431-4: Advanced Physics Laboratory I (42 semester hours)

Upper Division Stream I : Semiconductors/Optics/Communications

Phys 455-3: Applied Optics

Phys 465-3: Solid State Physics

EITHER Encs 426-4: High Frequency Electronics

OR Encs 453-4: Semiconductor Device Engineering

OR Encs 495-4: Introduction to Microelectronic Fabrication¹ (10 semester hours)

Upper Division Stream II : Materials

Ensc 330-4: Engineering Materials

Phys 465-3: Solid State Physics

EITHER Ensc 495-4: Introduction to Microelectronic Fabrication

OR Chem 411-3: Crystal Structure Analysis

OR Chem 465-3: Electrochemistry (10-11 semester hours)

Upper Division Stream III : Consult faculty advisor

Non-science electives: -Students must complete a minimum of 9 semester hours outside the Faculty of Science (excluding EDUC 401 to 407), including six hours from the Faculty of Arts.

In addition to the above specified courses the student must select sufficient unspecified courses in any division to complete a minimum of 132 semester hours total credit, of which a total of 60 must be in upper levels courses in the field of study.

Notes:

¹ The normal prerequisite for this course, ENSC 222-5 can be replaced by Phys 326-3 and Phys 331-3 for this program.

FOR INFORMATION

(SCUS Reference: SCUS 97 - 52)
(SCAP Reference: SCAP 97 - 53 a)

a) Department of Chemistry

Acting under delegated authority, SCUS approved curriculum revisions as follows:

New courses:

CHEM 111-4	Introductory Chemistry and Laboratory
CHEM 110-3	Introductory Chemistry
CHEM 121-4	General Chemistry and Laboratory I
CHEM 120-3	General Chemistry I
CHEM 122-2	General Chemistry II
CHEM 281-4	Organic Chemistry I
CHEM 282-2	Organic Chemistry II
CHEM 286-2	Organic Chemistry Laboratory II
CHEM 230-3	Inorganic Chemistry
CHEM 236-2	Inorganic Chemistry Laboratory
CHEM 260-4	Atoms, Molecules, Spectroscopy
CHEM 360-3	Chemical Kinetics and Thermodynamics

Course deletions:

CHEM 101-3	Introductory Chemistry
CHEM 106-2	Introductory Chemistry Laboratory
CHEM 102-3	General Chemistry I
CHEM 115-2	General Chemistry Laboratory I
CHEM 103-3	General Chemistry II
CHEM 150-3	Organic Chemistry I
CHEM 155-2	Organic Chemistry Laboratory I
CHEM 250-3	Organic Chemistry II
CHEM 255-2	Organic Chemistry Laboratory II
CHEM 232-3	The Chemistry of Nontransition Elements
CHEM 261-3	Physical Chemistry I

Change of number: CHEM 118-2 to 126-2

Restrict registration in CHEM 336-2, 361-3, 367-2

Change in requirements for Chemistry Major Program

Change in requirements for Chemistry Honors Program

Change in requirements for Chemical Physics Program

Change of prerequisites: CHEM 215, 331, 333, 371, 372, 450, 465 and
469

FOR INFORMATION

(SCUS Reference: SCUS 97 - 52)
(SCAP Reference: SCAP 97 - 53 b)

b) Applied Physics Major Program

Acting under delegated authority, SCUS approved curriculum revisions as follows:

Change of requirements reflecting recent Computing Science and Chemistry course changes.

FOR INFORMATION

(SCUS Reference: SCUS 97 - 52)

(SCAP Reference: SCAP 97 - 53 c)

c) Biochemistry Program

Acting under delegated authority, SCUS approved curriculum revisions as follows:

Changes to program requirements

Change of prerequisite: BICH 221-3, 222-3, 311-2, 312-2, 321-3, 322-3
403-3, 412-4, 413-2, 420-3,

Change of description and prerequisite: BICH 490-3, 491-5, 492-10,
493-15

FOR INFORMATION

(SCUS Reference: SCUS 97 - 52)
(SCAP Reference: SCAP 97 - 53 d)

d) Department of Biological Sciences

Changes to curriculum for Biology Major Program, Lower Division Core Program and Environmental Toxicology Program as a consequence of proposed chemistry curriculum changes.

FOR INFORMATION

(SCUS Reference: SCUS 97 - 52)

(SCAP Reference: SCAP 97 - 53 e)

e) Actuarial Certificate Program

Change in prerequisite: ACMA 335-3

Change in course number: ACMA 325-3 to 425-3; 345-3 to 445-3;
355-3 to 455-3; 365-3 to 465-3

FOR INFORMATION

(SCUS Reference: SCUS 97 - 52)

(SCAP Reference: SCAP 97 - 53 f)

f) Department of Mathematics and Statistics

Change of title: MATH 445

Change of description: STAT 101

FOR INFORMATION

(SCUS Reference: SCUS 97 - 52)

(SCAP Reference: SCAP 97 - 53 b)

g) Environmental Science Program

Change of computing requirements

FOR INFORMATION

(SCUS Reference: SCUS 97 - 52)

(SCAP Reference: SCAP 97 - 53 h)

h) Department of Biological Sciences

Change of description: BISC 337

FOR INFORMATION

(SCUS Reference: SCUS 97 - 52)
(SCAP Reference: SCAP 97 - 53 i)

i) Earth Sciences Program

Change of Upper Division Requirements for Major Program
Change of number and prerequisite: EASC 305-3 to 407-3;
407-3 to 305-3
Change of prerequisite: EASC 302, 306, 403

FOR INFORMATION

(SCUS Reference: SCUS 97 - 52)
(SCAP Reference: SCAP 97 - 53 j)

j) Department of Physics

Change of upper levels options for Honours Physics Program
Change of prerequisites: PHYS 413

FOR INFORMATION

(SCUS Reference: SCUS 97 - 52)
(SCAP Reference: SCAP 97 - 53 k)

k) Physical Geography Program

Change in upper division requirements for Minor Program
Change in requirements for B.Sc. Honours Program