

S.87-65

SIMON FRASER UNIVERSITY

MEMORANDUM

To: Senate

From: J.W.G. Ivany
Chair, SCAP

Subject: Faculty of Science
Department of Physics
Reference SCUS 87-18; 87-35;
Reference SCAP 87-33; 87-34

Date: November 19, 1987

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

Motion: that Senate approve and recommend approval to the Board of Governors as set out in S.87-65

New course	PHYS 390-3	Introduction to Astronomy and Astrophysics
Deletion of	PHYS 212-1 Dynamics	Engineering Problems in

FOR INFORMATION

Acting under delegated authority, SCUS approved a change of vector to PHYS 130-2 and PHYS 131-2 as set out in S.87-65.

NEW COURSE PROPOSAL FORM1. Calendar InformationDepartment: PhysicsAbbreviation Code: PHYS Course Number: 390 Credit Hours: 3 Vector: 3-1-0Title of Course: Introduction to Astronomy and Astrophysics

Calendar Description of Course:

Observational astronomy, solar system, stars and stellar evolution, galaxics, and the universe. Short introduction to relativity. Observing sessions when appropriate.

Nature of Course

Prerequisites (or special instructions):

PHYS 102 or 121

What course (courses), if any, is being dropped from the calendar if this course is approved: None, but PHYS 197-3, Periphysical Topics II, which has in the past been offered with the subtitle "Introductory Astronomy" and offered less frequently than annually, will no longer be offered under that subtitle.

2. Scheduling

How frequently will the course be offered? no more than annually, according to demand.

Semester in which the course will first be offered? 84-3

Which of your present faculty would be available to make the proposed offering possible? Leigh Hunt Palmer

3. Objectives of the Course

This course is intended to satisfy a need felt by students in Science programs for an introduction to astronomy. Formerly these students were limited to a less sophisticated course intended primarily for students in Arts programs, among whom the demand for such a course seems to be very small. This course will provide an attractive upper level elective for science students.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty

Staff

Library \$1,000 for basic current references would be desirable.

Audio Visual \$500 for slide sets would be desirable.

Space } There is a suitable observing site on the Ring Road. Piers
Equipment } (4" pipes) for Physics Department telescopes would be desirable
used. Department already owns four 200-mm telescopes suitable
for use in this course.

5. ApprovalDate: Sept 24/87 OCT 08 1987J. B. Swain
Department Chairman[Signature]
Dean[Signature]
Chairman, SCUS

INTRODUCTION TO ASTRONOMY AND ASTROPHYSICS

I would like to propose to the Physics Department that an introductory course in astronomy and astrophysics be added to our upper level offerings. My arguments in favor of doing this are presented below. They include propriety, competence, and necessity. Development of this proposal has taken place over five years and I present below only the most important arguments of which I have thought.

Astronomy and astrophysics are very active areas of contemporary scientific research. A large fraction of governmental involvement and funding in pure research goes to research in these fields. Almost every important university has major commitments to research and academic programs in astronomy. Even industrial research has made some major contributions to astronomical knowledge, one of the most recent of which was recognized with a Nobel Prize for Physics. That astrophysical research has been an important frontier of physics was recognized again this year with the award of a Nobel Prize to W. Fowler and S. Chandrasekhar.

Public awareness of and interest in astronomy is and has for years been very high. If a telescope is set up (even in the daytime!) in a park or other public place it immediately becomes the centre of a crowd of interested, questioning people. A surprisingly large number of them exhibit awareness and knowledge of matters astronomical and even astrophysical ("Does a black hole really...?")! The press and television devote much attention to the frequent dramatic discoveries which are made in these areas. Our students, quite understandably, would like to be able to learn something of astronomy and astrophysics as a part of their formal education in Science.

Science students who pursue a career in teaching will be required to include much astronomy in their teaching because it is core curricular material in B.C. It would be unfortunate if SFU did not provide opportunity (which is available at the other two provincial universities and many colleges) for its students to study astronomy as part of their preparation.

SFU now has in its Physics Department a faculty member with experience in astronomy and astronomy teaching. This resource should now be made available to our students in a format appropriate to the demand. The students who request astronomy courses are usually prepared in both Physics and Mathematics well beyond the level of the course which is presently offered, PHYS 198-3, which has no university prerequisites. A course with introductory physics prerequisites (and, en passant, mathematical prerequisites) appropriate to the 300 level would serve the needs and abilities of these students much better than PHYS 198-3. Four previous offerings of PHYS 198-3 have been completed by more than 70 students. I expect this course to attract more students than 198-3.

Given that need for the course has been herein established, I ask the Physics Department to commit resources to it by adopting Physics 390-3, Introduction to Astronomy and Astrophysics, a course proposal for which is attached.

Leigh Hunt Palmer
12 December 1983

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This is textbook, but it will be augmented by material on observation from "All about telescopes" and "The observer's handbook", principally regarding coordinate systems, astrophotographic methods, and ephemerides.

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SIMON FRASER UNIVERSITY

MEMORANDUM

Dr. Pablo Dobud
Administrative Assistant
to the Dean of Science

Subject: CURRICULUM CHANGES - PHYSICS

J. C. Irwin, Chairman
From: Department of Physics
Date: January 6, 1987

At a departmental meeting on December 15, 1986 the following motions were passed:

- (1) That the vectors for PHYS 130-2 and PHYS 131-2 be changed from (0-0-3) to (0-0-4).

The PHYS 131 General Physics Laboratory B course has been taught for a number of years as a laboratory where the students carry out an experiment for about 3 hours and they are allowed one additional hour in the laboratory to write-up their results and submit their lab. notebook for marking. Since practically all the students use the full four hours to complete the experiment and the write-up, it is felt that the vector (0-0-4) more correctly represents a student's lab. commitment than does the current (0-0-3) vector. The same statement can be applied to the PHYS 130 General Physics Laboratory A.

FOR
INFORMATION

- (2) That PHYS 212-1 be deleted from the calendar.

PHYS 212-1. Engineering Problems in Dynamics is a course that is taken (along with PHYS 211-3 Mechanics) by students intending to transfer into Engineering at U.B.C. Recent enrolments do not justify retaining this course and students have the option to take Math 263-4 Engineering Mechanics II instead of the PHYS 211 - PHYS 212 sequence.

FOR
APPROVAL



J. C. IRWIN