S.74-73

SIMON FRASER UNIVERSITY

(Formerly S.74-51)

MEMORANDUM

To SENATE

From SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Subject NEW COURSE PROPOSAL - CHEM 420-3 - CLINICAL CHEMISTRY

Date MAY 17, 1974

MOTION 1: "That Senate approve, as set forth in S.74-73, the new course proposal for CHEM 420-3 - Clinical Chemistry - to be offered once and to be further evaluated before subsequent offering."

MOTION 2: "That Senate waive the normal two semester time lag requirement in order that CHEM 420-3 may be first offered in the Fall semester 74-3."

Note: At its meeting of May 6, 1974, Senate passed the following motion:

"That Paper S.74-51 be referred to the Kinesiology Department for comment."

SIMON FRASER UNIVERSITY

S.74-73

MEMORANDUM

To: Dr. Bell Chairman, Chemistry Department	From: Dr. E. W. Banister Chairman, Kinesiology Department
Subject: Proposed Chem 420-Clinical Chemistry	Date: May 16, 1974.

Thank you for your memo of May 7, 1974 received in this office May 10th, 1974 with regard to the above course.

Dr. Davison met with Dr. Rockerbee and Ochschlager to discuss the course and the extent of its overlap or possible integration with Kinesiology courses.

The general desirability of offering this kind of course on campus is I think unquestioned, representing a way in which the university can engineer unique liasion with, and academic opportunities for professionals in the general health care field (such as the Association of Clinical Chemists), which do not duplicate existing programs in other B.C. universities.

It is my opinion that in light of the discussion of Dr. Davison with Drs. Rockerbee and Ochschlager that the supervision of content and teaching of material within this course and the general long-term aim of developing a coherent program in clinical chemistry would be better served through an interdisciplinary approach with representation from biochemists, Kinesiologists and chemists rather than from a narrow base of jurisiction entirely within chemistry.

Let me illustrate the issue from a couple of items from the overwhelming range of topics presented for consideration in the course itself (Clinical Chem. 420).

Item 5 Respiratory function and biochemical acid-base balance.

This topic for full understanding implies a thorough knowledge of respiratory mechanics together with complex inter-relationship of the cardio-respiratory systems as they relate to both volatile and non-volatile acid transport and elimination in the body. It may be possible to become familiar with the functional anatomy and interrelationships of these systems incidentally during the course of the chemical considerations, but I doubt it, especially as the pre-requisites for the course include no human physiology course.

Items 22 and 23 Diagnostic enzymology
Cardiac enzyme disturbances and their diagnostic implications

Discussion of diagnostic or clinical implications of enzymes and isoenzymes implies an ability to recognize the significance of the appearance of these enzymes in abnormal proportions in the serum regarding the cellular structures from whence they must have "leaked". There seem to be no requirement, before

Cont'd...

taking the course (pre-requisites) for any fine structural, cardio-vascular or muscle mechanics as they pertain to heart structure and function.

There are definite points of overlap with Kines. 330 (human energy metabolism) Kines. 405 (Human Physiology I), Kines. 406 (Human Physiol. II), Kines 326 (Gross Anatomy), Kines. 336 (Microscopic anatomy) and certain courses within the proposed program of M.Sc. Rehabilitation Science, i.e. Kines. 455 (Lab Diagnostic Techniques) and 851 (Histopathology). To the extent that points of overlap represent reinforcement of material taught in both courses this is not undersirable. To the extent that certain items essential to full understanding of material taught in one course are assumed to be known or chosen to be omitted, this compromizes the learning situation.

My remarks are directed mainly at the long-term consideration of further offerings of this course or associated courses into a program of clinical chemistry and my department has no objections to flying this course as a barometer of interest; we would however have decided reservations about the continued development of a program except on an interdisciplinary basis within or without the Faculty of Science.

Sincerely yours,

Dr. E. W. Banister
Professor and Chairman

EWB/gw

cc: Dr. R. Brown
Dr. S. Aronoff
Dr. K. Strand
Dr. A. Oehlschlager
Mr. H. Evans

SIMON FRASER UNIVERSITY

MEMORANDUM

To: Dr. E. Banister
Chairman, Kinesiology Dept

From: T.N. Bell, Chairman
Department of Chemistry

Subject: Proposed Chem 420, Clinical Chemistry

Date: May 17, 1974

Thank you for your memo of May 16th on the above subject.

The operative concern at this moment is whether a single chemistry course, Chem 420 - Clinical Chemistry, should be approved by Senate, and in this regard I believe the last paragraph of your memo applies. That is, the Kinesiology Department has no objections to our trying this course as a barometer of interest.

We are currently attempting to assess whether a program in Clinical Chemistry would be a useful thing to pursue, and what might constitute the contents of a useful program.

These considerations are at present in the very early stages, and I well recognize that there may be requirements for such a program which lie in other areas of the university, just as a chemistry program requires physics and mathematics.

Please rest assurred there will be ample opportunity for discussions with the Kinesiologists at the various stages of the program development, should the department pursue further the development of clinical chemistry.

T. N. Bell

cc: H. Evans
S. Aronoff

SIMON FRASER UNIVERSITY

MEMORANDUM

To H. Evans, Registrar

From T.N. Bell, Chairman
Chemistry Department

Subject

Date May 17, 1974

Please find attached a copy of a memo to Dr. E. Banister from myself. I believe the question implied by the Senate in its referral of the proposed course, Chem 420, to the Kinesiology Department, has now been answered.

I will be most grateful if you can ensure that the course proposal emanating from chemistry is brought before Senate at its next meeting.

T. N. Bell

TNB/md

S.74-51

SIMON FRASER UNIVERSITY

MEMORANDUM

To SENATE	From Senate Committee on Undergraduate Studies
Subject New Course Proposal - Faculty of Science.	Date April 19, 1974

The Senate Committee on Undergraduate Studies has examined the attached new course proposal for Chemistry 420-3: Clinical Chemistry and recommends its approval to Senate. Should this approval be forthcoming, the Committee further recommends that the normal two semester time lag be waived in order that this course may be first offered during the Fall semester, 1974.

It should be noted that the offering of this course represents movement into a new area for the Chemistry Department. However, it is not anticipated, at this time, that this course should form the basis for a new program, but rather a means of testing the acceptability of such a course and the viability of the introduction of this area in the Department's curriculum. Thus, in keeping with the first entry under Section 2 of the course proposal form, the Senate Committee on Undergraduate Studies recommends that the course be offered once and evaluated before any subsequent offering.

I. Mugridge

:ams

att.

SCUS 74-16

SIMON FRASER UNIVERSITY

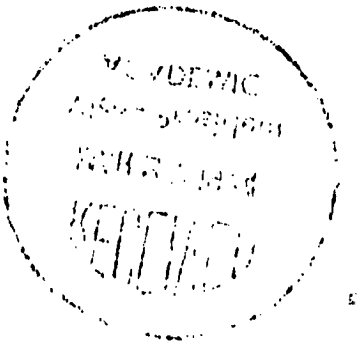
MEMORANDUM

To: Senate Committee on Undergraduate Studies	From: S. Aronoff, Dean of Science
Subject: NEW COURSE PROPOSAL - CHEM 420-3 "Clinical Chemistry"	Date: March 26, 1974

The Faculty of Science approved the attached new course proposal, CHEM 420-3, "Clinical Chemistry", at its meeting of March 19, 1974. It is recommended that this course be approved for an initial offering in 74-3.

lw

Enclosures
cc: Chairman, Dept. of Chemistry



F-1-S

SIMON FRASER UNIVERSITY

MEMORANDUM

To S. Aronoff,
Dean of Science

From T.N. Bell, Chairman,
Department of Chemistry

Subject

Date 17th December 1973

Please find attached course proposal, Clinical Chemistry, which was approved by the Department at a meeting held on Friday, 7th December 1973.

It is intended that the course be offered in the fall semester 1974 with no further commitment at this time. Thus I would be grateful if you would deal with this proposal in the immediate future in order that if approved through the various committees, Senate approval can be obtained for a fall 1974 course mounting.

The Department is at this time carefully considering curriculum development with a view to extending its present offerings to areas not encompassed in the present programs of B.Sc. chemistry, biochemistry, chemical physics. We anticipate that by extending our offerings in the chemistry majors program we can provide options with some applied bias which would be not only of benefit to our own internal students, but potentially to off-campus persons.

The feedback which should result from this particular course will be of immense benefit to us in helping guide the right kind of future development which the Department wishes to undertake. Hence the requirement for mounting this course as soon as possible.

In order to teach this course we would have to use external expertise, and thus require an appointment of a sessional lecturer for this purpose. The man we would consider for this purpose is Dr. R.A. Rockerbie of the Lions Gate Hospital. I request that you seek the necessary funding as a parallel action to considerations for this course proposal.

T.N. Bell

TNB:rdh

Encl.

RECEIVED
Dec. 18/73
hand-delivered by T. Bell

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information — Department: Chemistry

Abbreviation Code: Chem Course Number: 420 Credit Hours: 3 Vector: 3-1-0

Title of Course: Clinical Chemistry

Calendar Description of Course: An introduction to the biochemical processes in the organs, tissues and fluids of the human body and the effect of disease on these processes. Biochemical methods and laboratory diagnoses as applied to the study of disease.

Nature of Course Lecture/Tutorial

Prerequisites (or special instructions):
Chem 252-3, Chem 421-3 or permission of Department

What course (courses), if any, is being dropped from the calendar if this course is approved: None - Course is an elective

2. Scheduling

How frequently will the course be offered? To be offered once and then evaluated.

Semester in which the course will first be offered? 1974-3

Which of your present faculty would be available to make the proposed offering possible? None

3. Objectives of the Course The present core curriculum and choice of electives do not adequately prepare the B.Sc. graduate in chemistry to be of practical value in the clinical laboratory as it now operates within the hospital, public health, or industrial environment. This course will provide the student with exposure and some basic knowledge of the health-care field and will expand his field of competency generally. Course outline attached.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty Appointment of sessional lecturer

Staff -

Library -

Audio Visual -

Space -

Equipment -

5. Approval

Date: 14 Dec 73 March 26, 1974

Department Chairman	Dean	Chairman, SCUS

SCUS 73-34b:- (When completing this form, for instructions see Memorandum SCUS 73-34a. Attach course outline).

Course Outline

The following list of topics are relevant to Clinical Chemistry. A coherent set from these topics will be presented in this course.

1. Course introduction, review of development of clinical chemistry.
2. Differentiation of health and disease, pathological processes, concept of normal physiological ranges.
3. Quality assurance systems, reference materials, error analysis.
4. Specimen collection, handling and storage, deproteinization.
5. Respiratory function and biochemical acid-base balance.
6. Disorders and assessment of acid-base equilibria.
7. Fluid and electrolyte regulation, osmolality.
8. Renal anatomy, biochemistry of urine formation.
9. Assessment of renal function.
10. Anatomic considerations of the liver, bilirubin metabolism.
11. Liver function tests and their role as dignostics.
12. Electrophoretic assessment of protein disturbances.
13. The immunoglobulins: classes, structure and function.
14. Immune mechanisms and deficiency states.
15. Amino acids, inborn errors of metabolism.
16. Biochemical disorders of carbohydrate metabolism.
17. Lipids: methods of transport, interrelationship with carbohydrate metabolism.
18. Lipoprotein patterns in disease, cholesterol, triglycerides.
19. Pathophysiology of the thyroid gland: laboratory findings in disease.
20. Steroid hormones, biochemical interrelationships of the pituitary and adrenal glands.
21. Laboratory assessment of the pituitary-adrenal axis.
22. Diagnostic enzymology.
23. Cardiac enzyme disturbances and their diagnostic implications.

24. Pancreatic secretions and malfunction in disease.
25. Biochemistry of the gastro-intestinal system and assessment.
26. Malabsorption.
27. Principles of pharmacology, classes of drug action.
28. Clinical toxicology, drugs of abuse.
29. Toxicological analyses.
30. Drug interaction in biochemical testing.
31. Automated analyses, discrete sampling and flow systems.
32. Laboratory data processing, and patterns of work-flow.
33. Field trip to clinical laboratory.
34. Methodology development and criteria for selection.
35. Clinical chemistry in industrial and occupational health.

Library Resources Recommended for Clinical Chem 420-3

Journals and Periodicals

Appears to be adequate, although one leading journal, i.e. Clinica Chimica Acta, is not on the shelves. This journal is very costly (about $125./annum) and is being discontinued by many libraries. The journal is desirable but when weighed against the cost is probably not justifiable.

Books

The following should be acquired by the library:

1. Tietz, N.W., Fundamentals of Clinical Chemistry, 1970 W.B. Saunders.
2. Henry, R.J., Clinical Chemistry, Principles and Technics, Harper and Rowe, 1964.
3. Harper, H.A., Review of Physiological Chemistry, 14th ed., Lange Medical Publishers, 1973.
4. H. Varley, Practical Clinical Biochemistry, Interscience Books Inc., 4th ed., 1967.

Recommended Text

Baron, D.N., A Short Textbook of Chemical Pathology, English Universities Press Ltd., 247 p., 1973, 3rd ed.

* For use as text in proposed course.