

SIMON FRASER UNIVERSITY

S.75-71

MEMORANDUM

To..... SENATE

From..... SENATE COMMITTEE ON UNDERGRADUATE
STUDIES

Subject..... NEW COURSE PROPOSALS - CHEM 003-3
AND CHEM 004-3

Date..... APRIL 7, 1975

MOTION: "That Senate approve, and recommend approval to
the Board of Governors, the new course proposals,
as set forth in S.75-71, for

Ced → CHEM 003-3 - Chemistry, Technology and Society
CHEM 004-3 - Pollution, Energy and Resources."

If the above motion is approved,

MOTION: "That the normal two semester time lag requirement
be waived in order that CHEM 003-3 may be first
offered in the Fall semester 1975."

(Secretary's Note: When CHEM 003 and CHEM 004 are offered, CHEM 001
and CHEM 002 will be discontinued.)

SIMON FRASER UNIVERSITY

MEMORANDUM

To SENATE

From SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Subject NEW COURSE PROPOSALS - CHEM 003-3 AND
CHEM 004-3

Date 7th April, 1975

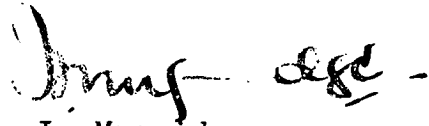
At its meeting of 25th March, the Senate Committee on Undergraduate Studies discussed the attached proposals for Chemistry 003-3: Chemistry, Technology and Society and Chemistry 004-3: Pollution, Energy and Resources. These proposals are now forwarded to Senate for its consideration, with the Committee's recommendation that they be approved.

In the course of discussion on these proposals, the Chairman of the Faculty of Science Curriculum Committee noted that they represented an expansion of material previously presented in Chemistry 001-2: Chemistry and Problems of Contemporary Civilization. He noted that this course had been successfully presented, primarily to non-Science students, over a long period and that the Chemistry Department and Faculty of Science, convinced of the value of and need for such courses, wished to continue and expand its offerings in this area. This view was supported particularly by the representatives of the Faculty of Education who urged that consideration be given to scheduling the courses in Summer Sessions so that they may be available to secondary and elementary school teachers on campus for that period.

Further discussion followed concerning the proposed teaching methods for these courses. This centred around two questions, the attached memorandum from a member of the Science Faculty and the apparent absence of the involvement of faculty members outside the Chemistry Department and the Faculty of Science. On the first question, the representatives of the Science Faculty noted that the view expressed in the memorandum to the Committee was that of a very small minority within the Science Faculty and that, in view of the experience of the Chemistry Department and those faculty members involved in these courses in offering Chemistry 001, the majority of the Science Faculty had been persuaded that such objections were not valid and that the faculty members concerned had sufficient expertise and experience to teach these courses. On the second question, it was noted that the purpose of the proposals before the Committee was to rearrange material already in the curriculum and to broaden the scope of that material. It was also made clear that it was the intention of the Chemistry Department to investigate thoroughly the possibilities of involvement of faculty members from other departments and faculties so that these courses may be taught at the most effective level possible.

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It should also be noted that the Committee recommend that the normal two-semester time lag requirement be waived in the case of Chemistry 003 so that it may first be offered in the Fall semester, 1975.

A handwritten signature in cursive script, appearing to read "I. Mugridge", with a horizontal line underneath the name.

I. Mugridge

:ams

att.

SIMON FRASER UNIVERSITY

SCUS 15-14-

MEMORANDUM

Senate Committee on
Undergraduate Studies

Subject NEW COURSE PROPOSALS
CHEM 003-3 and 004-3

From S. Aronoff *S. Aronoff*
Dean of Science

Date March 5, 1975

The Faculty of Science, at its meeting of February 27, 1975, passed the following motions:

"That the Faculty approve new course proposal CHEM 003-3, 'Chemistry, Technology and Society', and forward to SCUS for consideration."

"That a request be made for a waiver of lead time in order to allow the offering of CHEM 003-3 for the first time in Fall, 1975."

"That the Faculty approve new course proposal CHEM 004-3, 'Pollution, Energy and Resources', and forward to SCUS for consideration."

The supporting documentation for these courses is attached.

/pel
Incl.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: Chemistry

Abbreviation Code: CHEM Course Number: 003 Credit Hours: 3 Vector: 2-1-0

Title of Course: Chemistry, Technology and Society

Calendar Description of Course:

Truth in science; nuclear warfare and nuclear power; drugs and the drug industry; automation; role of the universities, government and industry in science; national and international science policy.

Nature of Course Lecture / Tutorial

Prerequisites (or special instructions):

None. For Chemistry Major or Honours students, this course is available only as a "free elective".

What course (courses), if any, is being dropped from the calendar if this course is approved: 001-2 and 002-2. This course if approved would replace 001 which is scheduled to be given in the Fall of 1975. Waiver of lead time

2. Scheduling

requested. How frequently will the course be offered? Minimum once every 6 semesters

Semester in which the course will first be offered? Fall 1975

Which of your present faculty would be available to make the proposed offering possible? M. Benston, I. Gay, J. Walkley, B. Pate, J. D'Auria

3. Objectives of the Course

This course will discuss science in society at a level accessible to students from outside the Science Faculty. It represents an expansion of material previously successfully presented as part of Chem 001-2. The course outline, reading list and rationale attached.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty None

Staff "

Library "

Audio Visual Minor

Space Lecture Room

Equipment None

5. Approval

Date: 10 June 75

6/11/75

[Signature]
Department Chairman

S. Amoff
Dean

Chairman, SCUS

A. Course Outline

1. Truth in science. Nature and limits of the scientific method. Nature of scientific discovery.
2. Overview of the general organization of science. Decision making, funding, general roles of different institutions--university, government and industry.
3. Nuclear technology. Nature of fission and fusion reactions. The development of the atomic and hydrogen bombs; national and international science policy, science in the development of both weapons and nuclear power. Basic technology of nuclear reactors.
4. Drugs and the drug industry. Basic chemistry of some important drugs: antibiotics, birth control pills, barbiturates, amphetamines, scientific aspects of policy regarding them; role of the drug industries; present research.
5. Automation. The basic technology, its uses and limits in government and industry; possible future developments.
6. "Big Science". Generalizations about present science structure and policy. Speculation about the future development of science based on present trends.

B. Reading List

Recommended Texts: "Science, Man and Society", by Robert B. Fischer (W.B. Saunders Co.).

"The Closing Circle" by B. Commoner (Alfred Knopf).

"Wednesday Night at the Lab" by K.L. Rinehart, W.O. McClure and T.L. Brown (Harper and Row)

Selected Readings from:

"Scientific American" Magazine

C. Rationale

The course attempts, at a level accessible to non-science students, to discuss the nature of, and the difference between, science and technology, together with the organization of and the financial support of scientific and technological activity. The basic scientific principles are discussed, from an elementary point of view, behind three areas of public concern: Nuclear Technology (including its application both in peace and in war), drugs and the drug industry, and automation. The emphasis is on technical fact, together with some analysis of the history of the interaction between technological activity and public institutions.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

Calendar Information

Department: Chemistry

Abbreviation Code: CHEM Course Number: 004 Credit Hours: 3 Vector: 2-1-0

Title of Course: Pollution, Energy and Resources

Calendar Description of Course:

Chemistry of the environment, energy sources and the energy "crisis", pollution, resources and agriculture, limits to growth.

Nature of Course Lecture/Tutorial

Prerequisites (or special instructions): None. For Chemistry major and honours students, this course is available only as a free elective.

What course (courses), if any, is being dropped from the calendar if this course is approved: Chem 001-2 and 002-2

2. Scheduling

How frequently will the course be offered? Minimum once every 6 semesters.

Semester in which the course will first be offered? Spring 1976

Which of your present faculty would be available to make the proposed offering possible? M. Benston, I. Gay, J. Walkley, B. Patc, J. D'Auria

3. Objectives of the Course

This course will discuss environmental chemistry and the chemistry of energy, resource and food production and utilization at a level accessible to students from outside the Science Faculty. See the attached course outline, reading list and rationale.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty None

Staff "

Library "

Audio Visual Minor

Space Lecture Room

Equipment None

5. Approval

Date: 30 June 75

[Signature]
Department Chairman

Dean

Chairman, SCUS

A. Course Outline

1. Air Pollution. The chemistry of common air pollutants arising from automobiles, coal-burning power plants, and industrial operations. Effects of inversions and other climatic features on air pollution levels.
2. Water Pollution. The chemistry of common water pollutants, including fertiliser and pesticide runoff, industrial operations including pulp mills, and domestic sewage. Lake eutrophication; pollution of river systems; chemistry of sewerage treatment.
3. Energy Utilization. The energy crisis; the energy resources available to mankind and the consequences of their exploitation. Oil extraction; transportation and oil spills; refining. Coal mining especially strip mining; radioactivity and other carcinogen content. Nuclear power reactors; differences between Canadian and American present nuclear fission and future breeder technology; radiation and radioactivity pollution and its consequences; nuclear waste storage; nuclear accidents. Hydroelectricity development and its ecological impact. Solar power.
4. Resources and Limits to Growth. Depletion of mineral resources, interrelationship between population, food requirements, industrial production, pollution, and health. Club of Rome predictions on future trends and limits to growth of population and industrial and technological activity; critiques of these predictions.
5. Canada's Present Position and Future Role. Public decision making on power options and related public problems. Impact of power and mineral resource development technology. Canadian technological and resource development; future global policies on growth.

Recommended Texts

"The Closing Circle" by B. Commoner (Alfred Knopf).

"The Limits to Growth" by D.H. Meadows et alia (Potomac Associates)

Selected Readings from:

"Scientific American" and "Ecologist" magazines.

C. Rationale

This course discusses the basic scientific and technological data (at a level accessible to non-science students) in interrelated fields: the exploitation of energy and mineral resources, pollution, the limits to economic growth (imposed by resource depletion and pollution), and Canadian policy in regard to these areas. The importance of the time scale within which public policy decisions must be made is stressed; the objective is to convey essential factual material upon which an intelligent political choice can be made.

SIMON FRASER UNIVERSITY

MEMORANDUM

Office of the Dean... Faculty of Science	From: Edward A. Weinstein Library, Sciences
Subject: Proposed New Courses: CHEM 003 004. Library Impact.	Date: February 6, 1975

CHEM 003: Chemistry, technology, and politics.

CHEM 004: Pollution, energy, and resources.

The above are topical courses for non-science (and science) majors. Both are discursive in nature, require no specific texts, and will utilize selected readings from a wide variety of sources, doubtless via xerography. No library impact.

SEARCHED
SERIALIZED

SEARCHED	SERIALIZED
SERIALIZED	INDEXED
INDEXED	FILED