

SIMON FRASER UNIVERSITY

S.74-47

MEMORANDUM

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| To | SENATE | From | SENATE COMMITTEE ON UNDERGRADUATE STUDIES |
| Subject | NEW COURSE PROPOSAL - GENERAL STUDIES 104-3 - THE SCIENTIFIC ETHOS | Date | MARCH 18, 1974 |

MOTION 1. "That Senate approve, as set forth in S.74-47, the new course proposal for General Studies 104-3 - The Scientific Ethos."

If Motion 1 passes,

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

SIMON FRASER UNIVERSITY

S.74-47

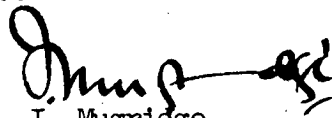
MEMORANDUM

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| To..... | SENATE | From..... | Senate Committee on Undergraduate Studies |
| Subject..... | New Course Proposal - General Studies 104-3; The Scientific Ethos | Date..... | March 18, 1974 |

The attached course proposal, submitted by the Faculty of Interdisciplinary Studies, for a course entitled General Studies 104-3; The Scientific Ethos has been approved by the Senate Committee on Undergraduate Studies and is now forwarded to Senate for its consideration.

It should be noted that, during the discussion of this course, the Committee questioned, among others, the following points:

1. apparent overlap with courses offered in other areas of the University. In this connection, the Committee was satisfied that consultation with the Department of Philosophy had taken place and that that Department had examined the course proposal and concurred with its being offered in the Faculty of Interdisciplinary Studies.
2. the question of the course title. Concern was expressed that the title did not accurately reflect the content and purpose of the course; but a majority of the Committee was finally satisfied that the title and description as proposed would be sufficient.


I. Muir

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SIMON FRASER UNIVERSITY

SCUS 74-9

MEMORANDUM

To Mr. H. Evans, Registrar and
Secretary of the Senate Committee
on Undergraduate Studies.

From R. C. Brown, Dean,
Faculty of Interdisciplinary Studies.
Date January 30/74.

The attached new course proposal, G.S. 104-3, The Scientific Ethos, is forwarded to you for consideration by the Senate Committee on Undergraduate Studies. Would you please place it on the agenda.

RCBrown

Enclosure.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

Calendar Information

Department: I/D Studies

Abbreviation Code: G.S. Course Number: 104 Credit Hours: 3 Vector: 3-0-0

Title of Course: The Scientific Ethos

Calendar Description of Course: This course will examine contemporary ethical approaches to the relationships existing between science, technology and society. These will be examined historically and by a study of contemporary case histories.

Nature of Course Lecture/Tutorial

Prerequisites (or special instructions): None

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

2. Scheduling

How frequently will the course be offered? Yearly

Semester in which the course will first be offered? 74-3

Which of your present faculty would be available to make the proposed offering possible? None - part-time faculty addition.

3. Objectives of the Course See attached

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty 1/4 Sessional Lectureship, on an annual basis

Staff

Library See attached book list.

Audio Visual

Space

Equipment

5. Approval

Date: Jan 30, 1974

Department Chairman

Robert C Brown
Dean

Chairman, SCUS

3. Objectives of the Course

a. 1) Objectives

This course will examine contemporary ethical approaches to the relationships existing between science, technology and society. These will be examined historically and by study of contemporary case histories.

This course is intended for both arts and science majors; it is not an introductory science course for arts students. It is hoped that a mixed student enrolment will encourage more lively discussion of the proposed topics. The aim of the course is to give students some understanding of the rise of scientific optimism in western society; to study the present role of science and to determine how far this optimism is justified; and to evaluate the criticisms of science and technology coming from various quarters. The case histories will be given only a skeletal scientific treatment, rather the choices open to society in various areas will be stressed. The main objective of this combined historical, philosophical and scientific approach is to give students a broader base from which to form their own opinions on present and future science policy.

a. 2) Outline

The Baconian ethic that the purpose of science is "the relief of Man's estate" and the Enlightenment concept of man's progress toward perfection will be traced, briefly, to their modern variants.

The course consists of three main sections:

i) Historical

It is proposed to examine both original sources and modern commentary sources in order to outline the historical attitudes to science from the seventeenth to the twentieth century. Approximately one quarter of the course time will be spent in this area and the students will be expected to write an essay relevant to this section.

ii) Contemporary

An analysis of contemporary attitudes towards science will be made. Different views will be discussed ranging from those found in official government documents to those held by radical critics of present science policies. Possible futures (short term) will be discussed in relation to existing technology. About 3/8 of the course time will be devoted to these topics and students will be asked to present an essay in this area - possibly scenarios for some future aspects of living in a science based society.

iii) Case Histories

About 3/8 of the course time will be spent examining a few case histories. The students will choose one of these on which to write a short essay.

The following topics can thus be discussed with some understanding of the historical and philosophical background of views which are widely held today.

The current revolt against science.
 The counter culture and the reaction of the scientific community.
 Possible futures.
 The development of "hard" and "soft" technologies.
 The role of the scientist in social change.

Some case histories, to be chosen by the students, will be examined. The following are possible examples.

Current research in chemical genetics.
 Research into longevity.
 Drug therapy - the chemical control of Man.
 The development of electronics technology.
 Communications and transportation.
 Computers and "Big Brother".
 Military science and technology.

a. 3) Book List

There will be no assigned text book. There is a large amount of literature relevant to a course on the Scientific Ethos; the books on the attached list, together with journals, will provide a reasonably wide collection. Should the course be approved the library would be requested to have certain passages on reserve as xerox copies. Those books from which it is expected to select such material have been marked with an asterisk. Separate Bibliographies will be filed for the case histories. These will be compiled according to student interest.

- b. This course is intended as a general studies elective.
- c. This course does not overlap with any existing or planned philosophy course.
 See attached memorandum.

Book List

- Galileo* *The Assayer in S. Drake (ed.), Discoveries and Opinions of Galileo (1957)*
- F. Bacon* *Complete works (Spedding (ed.) et al)*
- B. Farrington *Francis Bacon, Philosopher of Industrial Science (1961)*
- R. Descartes* *Discourse on Method*
- F.E. & F.P. Manuel *French Utopias (1966)*
- F.E. Mannel* *Prophets of Paris*
- S.A. Lakoff (ed) *Knowledge and Power (1966)*
- H. Morley* (ed) *Ideal Commonwealths (1885)*
- C. Huygens *The Celestial Worlds Discovered; or Conjectures Concerning the Inhabitants, Plants and Productions of the Worlds in the Planets*
- J. Swift* *Gullivers Travels*
- A. Smith* *The Theory of Moral Sentiments*
The Wealth of Nations (ed. Skinner, Penguin 1970)
- N. Barlow (ed) *The Autobiography of Charles Darwin*
- R. Hofstadter *Social Darwism*
- J.S. Mill* *Principles of Political Economy*
- E. Fromm* *Marx's Concept of Man (1961)*
- J. Gould (ed) *Penguin Social Sciences Survey (1968)*
- H. Butterfield* *The Origins of Modern Science (1962)*
- A.R. Hall *The Scientific Revolution (1966)*
- C.C. Gillispie* *The Edge of Objectivity; an Essay in the History of Scientific Ideas (1960)*
- A. Koyre *From the Closed World to the Infinite Universe (1969)*

J.D. Bernal *Science in History* vols. 2 & 3 (Penguin 1969)

R. Lekachman* (ed) *Keynes General Theory* (1964)

J.K. Galbraith* *The New Industrial State* (1967)

F.W. Matson *The Broken Image*

F. Crick* *Of Molecules and Men* (1966)

W. Fuller (ed) *The Social Impact of Modern Biology*

J. Monod* *Chance & Necessity* (1971)

A. Koestler & J.R. Smythies (eds) *Beyond Reductionism* (N.Y. 1970)

Seyyed Hossein Nasr *The Encounter of Man and Nature* (London 1968)

Derek De Solla Price *Big Science, Little Science* (1963)

Daniel S. Greenberg* *The Politics of Pure Science* (1967) (American)

J. Ellul *The Technological Society* (1964)

L.M. Massak (ed) *The Rise of Science in Relation to Society* (1964)

D.A. Sison *Technology and Change* (1967)

J. Ben David *The Scientists Role in Society* (1971)

R. Jungk *Brighter than 100 Suns* (Penguin 1960)

R. Gilpin *American Scientists and Nuclear Weapons Policy* (1962)

O. Nathan & H. Nordern (eds) *Einstein on Peace* (1968)

A.D. Sakharov* *Progress, Coexistence and Intellectual Freedom* (1968)

P. King Hele* *The End of the Twentieth Century?* (1970)

J. Allen* (ed) *March 4: Scientists, Students and Society* (M.I.T. 1970)

B.F. Skinner *Beyond Freedom and Dignity*

S. Lilley *Man, Machines and History* (2nd ed. 1965)

J.D. Bernal *The Social Function of Science*

Barber & Hirsch* (ed) *The Sociology of Science*

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| R. Miliband & J. Saville (eds) | <i>The Socialist Register 1972</i> |
| H. Nieberg | <i>In the Name of Science</i> |
| N. Calder | <i>Technopolitics</i> |
| B. Barnes (ed) | <i>The Sociology of Science</i> |
| C. Cherry | <i>World Communication: Threat or Promise?</i> |
| W.O. Hagstrom* | <i>The Scientific Community</i> |
| E.A. Burt | <i>The Metaphysical Foundations of Modern Science (1954)</i> |
| R. Clarke | <i>The Science of War and Peace</i> |
| S. Pollard | <i>The Idea of Progress (Penguin 1968)</i> |
| D.E. Wooldridge | <i>Mechanical Man</i> |
| E.M. Forster* | <i>The Machine Stops (in Collected Short Stories) (Penguin 1954)</i> |
| <i>Problems of Life</i> | <i>(Harper Torchbook 1960)</i> |
| B. Commoner | <i>Science and Survival</i> |
| J. Bronowski | <i>Science and Human Values (1965)</i> |
| Charles van Doren | <i>The Idea of Progress (1967)</i> |
| Buckminster Fuller* | <i>Operating Manual for Spaceship Earth (1969)</i> |
| John Ziman* | <i>Public Knowledge. The Social Dimension of Science (1968)</i> |
| T. Kuhn* | <i>The Structure of Scientific Revolutions (2nd edition 1971)</i> |
| I. Scheffler* | <i>Science and Subjectivity</i> |
| J.R. Rowetz* | <i>Scientific Knowledge and its Social Problems (1972)</i> |
| B. Easlea* | <i>Liberation and the aims of Science. An essay on obstacles to the building of a beautiful world (1973)</i> |
| T. Roszak* | <i>Where the Wasteland Ends</i> |

SIMON FRASER UNIVERSITY

MEMORANDUM

To..... Drs. T. Sterling and J. Weinkam,

From..... Norman Swartz,

..... Division of Computing Science

..... Department of Philosophy

Subject..... Course Proposals in General Studies

Date..... August 20, 1973

Thank you for inviting me to react to the two Proposals submitted to the General Studies Program by Dr. Hannah Gay. Curiously in this regard I find myself having a three-fold interest: first, as the Acting Chairman of the Department of Philosophy; second, as the Chairman of its Undergraduate Curriculum Committee; and third, as the faculty member in this Department who is principally concerned with the teaching of the Philosophy of Science. As you doubtless know, I have had for some time a widely expressed interest in promoting the History and Philosophy of Science at Simon Fraser. But at the same time I must see to it that any new courses proposed in this area do not compete with, to the detriment of, existing courses within this Department.

Let me say at the outset that one of the two courses Dr. Gay proposes, "The Scientific Ethos", seems to me to pose no competition to any existing or contemplated Philosophy courses and indeed appears to supplement the existing Philosophy of Science course very nicely. It has my support.

The second course, however, "Scientific Method - Theory, Practice and Goals in the Natural Sciences", does seem to be somewhat problematic. Some of the topics suggested are even now the principal subject matters of two courses in the Department of Philosophy, namely, Philosophy of Science, Philosophy 341, and Theories of Explanation, Philosophy 445. Moreover, the course Proposal mentions "Popperian theory" and "Kuhnian 'irrationality'", both of which areas are currently touched upon by several other departments (e.g. Economics, PSA, etc.). It has been my experience that these topics are dealt with only superficially outside of the Department of Philosophy and are really far too difficult to be treated properly by the non-philosopher. Since the possibility of exposure to Popper's and Kuhn's philosophies is already so widely available in the University, and because a proper understanding of them cannot be had from only a cursory examination, it would seem to me that that aspect of the proposed course could be better devoted to something else. The second half of the Proposal seems to me to contain something genuinely exciting, namely, four case studies of scientific theory construction. I would far prefer to see this latter aspect of the course strengthened and the aforementioned aspect diminished. It seems to me that such a course, with its emphasis redirected as I have suggested, could in time become a happy addition to a Program which I still have hopes of seeing mounted in this University in the History and Philosophy of Science.


Norman Swartz

c.c. Dr. Hannah Gay