

S.87-36

SIMON FRASER UNIVERSITY

MEMORANDUM

TO: Senate
FROM: J.W.G. Ivany,
Chair, SCAP
SUBJECT: Faculty of Arts
Department of Archaeology
Reference: SCUS 87-20; SCAP 87-9
DATE: Nov.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 forth in S.87-36 the following new course:

ARCH 105-3 The Evolution of Technology"

SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL FORM

1. Calendar Information

Department Archaeology

Abbreviation Code: Arc Course Number: 105

Credit Hours: 3 Vector: 2-1-0

Title of Course: The Evolution of Technology

Calendar Description of Course: A history of technology from earliest times to the beginning of the Industrial Revolution. The course will discuss the causes and effects of technological change, as illustrated by specific technological developments including stone tools, metallurgy, agriculture, etc

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?

Semester in which the course will first be offered? 88-3

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

HAYDEN, NELSON

3. Objectives of the Course

To provide a history of technology, to analyse the causes and consequences of technological change.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty None

Staff None

Library None

Audio Visual None

Space None

Equipment None

5. Approval

Date: Feb. 27, 1987

Sept 30/87

R. Carlow

Re Bm

[Signature]

Department Chairman

Dean

Chairman, SCUS

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

Archaeology 105 The Evolution of Technology

Rationale:

Archaeology encompasses more than two million years of human technological development, and is the discipline most concerned with relating technology and human behaviour. Archaeology can provide a view of the long-term effects of technological change and of the reasons for the emergence of new technologies.

No course currently offered in the Department of Archaeology examines the evolution of technology, yet this is clearly a topic of interest to a range of students outside the archaeology programme.

A course of this nature would also be a useful addition to the Certificate in Liberal Arts.

Course content:

The course would provide a theoretical overview of the interrelationship of technology and culture, emphasising technology as a major aspect of human adaptation. Examples of the interrelationship would be drawn from a range of cultures and time periods. The following list of topics exemplifies the scope of the course:

Theory

Archaeology as the study of material culture

Technology as an adaptive system

Causes and consequences of technological change

Evolution of modes of production (craft specialisation etc.)

Examples

Early technology - flaked stone and fire

Advanced lithics - blades, microblades and ground stone

Pottery

Agricultural techniques

Transportation

Storage

Metallurgy and other chemistry

Warfare

Machines

Buildings

Text:

B. Cotterell and J. Kamminga, Engineering Principles in Archaeology, Cambridge University Press, 1987.

Specimen course outline: Archaeology 105

Part 1: Foundation Concepts

1. **The archaeological view of the world; definitions of culture.**
Read: Gould 1978; Binford 1962; Flannery 1967; Wilson 1978 Ch. 1-3
2. **Adaptation; cultural ecology**
Read: Harris 1975 Ch. 12-14
3. **Units of analysis: individual choice vs. cultural selection; subsystems of culture: subsistence & economy, social structure, ideology.**
Read: Fried 1960

Part 2: Dynamics of Change

4. **Causes of technological change**
Read: Hayden 1981
5. **Resistance to change: long term adaptations**
Read: Isaac 1978; Harris 1975 Ch. 14
6. **Material displays in non-egalitarian societies**
Read: Sanders and Price 1968:37-57; Peebles and Kus 1977; Gilman 1981.
7. **Demography and technological change**
Read: Boulding 1959; Cowgill 1975
8. **Specialisation of tools; stone vs. metal; resharpening**
Read: Hayden in press
9. **Housing**
Read: McQuire and Schiffer 1983; relevant chapter in Cotterell and Kamminga
10. **Metallurgy**
Read: relevant chapter in Cotterell and Kamminga
11. **Early machines**
Read: relevant chapter in Cotterell and Kamminga
12. **Military technology**
Read: relevant chapter in Cotterell and Kamminga
13. **Transportation**
Read: relevant chapter in Cotterell and Kamminga
14. **Implications for the present and future.**

Grading

Midterm	30%
Final	30%
Paper	30%
take-home exercises	10%

Reading List

Binford, Lewis

1962 "Archaeology as anthropology". American Antiquity, 28:217-225.

Boulding, Kenneth

1959 "Foreward". In Thomas Malthus, Population: the first essay.
University of Michigan Press: Ann Arbor. Pp. v-xii.

Cotterell, B. and J. Kamminga

1987 Engineering Principles in Archaeology. Cambridge University
Press.

Cowgill, George

1975 "On causes and consequences of ancient and modern population
changes." American Anthropologist 77:505-525.

Flannery, Kent

1967 "Review: 'An introduction to American archaeology, vol. 1: North
and Middle America, by Gordon Willey.'" Scientific American
217(2):119-22.

Fried, Morton

1960 "On the evolution of social stratification and the state." In S.
Diamond (ed.), Culture in History, Columbia University Press: N.Y.

Gilman, Antonio

1981 "The development of social stratification in Bronze Age Europe."
In Current Anthropology 22:1-24.

Gould, Richard A.

1978 "From Tasmania to Tucson: new directions in ethnoarchaeology."
In Gould, R.A. (ed.), 1978:1-10, Explorations in Ethno-archaeology.
University of New Mexico Press: Albuquerque.

Harris, Marvin

1975 Culture, People, and Nature, Crowell: New York.

Hayden, Brian

1981 "Research and development in the stone age: technological
transitions among hunter-gatherers." Current Anthropology
22:519-548.

McGuire, Randall, and Michael Schiffer

1983 "A theory of architectural design". In Journal of Anthropological Archaeology 2:277-303.

Peebles, Christopher, and Susan Kus

1977 "Some archaeological correlates of ranked societies." American Antiquity 42:421-448.

Sanders, W.T., and Barbara Price

1968 Mesoamerica: the evolution of a civilization. Random House: N.Y.

Wilson, Edward

1978 On Human Nature. Harvard University Press: Cambridge, Mass.