

# SIMON FRASER UNIVERSITY

S.75-92

## MEMORANDUM

To SENATE

From SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Subject PROPOSED NEW COURSES - ARC. 410-5 -  
ADVANCED ARCHAEOOMETRY AND ARC. 411-5  
- ARCHAEOLOGICAL DATING

Date MAY 16, 1975

MOTION 1: "That Senate approve and recommend approval to the Board, as set forth in S.75-92, that the proposed new courses in Archaeology be approved:

- i) ARC. 410-5 - Advanced Archaeometry
- ii) ARC. 411-5 - Archaeological Dating."

If Motion 1 is approved,

MOTION 2: "That the normal two semester time lag requirement be waived in order that ARC. 410-5 and ARC. 411-5 may be first offered in the Spring semester 76-1."

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## MEMORANDUM

To SENATE

From SENATE COMMITTEE ON UNDERGRADUATE

STUDIES

Subject PROPOSED NEW COURSES - ARC. 410-5 -  
ADVANCED ARCHAEOLOGY AND ARC. 411-5  
ARCHAEOLOGICAL DATING

Date MAY 16, 1975

At its meeting of April 22, 1975, the Senate Committee on Undergraduate Studies considered the proposed new courses, ARC. 410-5 - Advanced Archaeometry and ARC. 411-5 - Archaeological Dating. The Committee had earlier given consideration to these courses but had referred them back to the Department of Archaeology for clarification. The Committee was satisfied with the changes that had been made in the proposals, approved them, and recommends approval to Senate.

It is further recommended that the normal two semester time lag requirement be waived in order that these courses may first be offered in the Spring semester 76-1.

*John P. ...*

SIMON FRASER UNIVERSITY

SCUS 75-21

MEMORANDUM

Dr. I. Mugridge

Chairman, SCUS

Subject NEW COURSE PROPOSALS - ARCHAEOLOGY  
410-5 and 411-5

From Sheila Roberts, Secretary

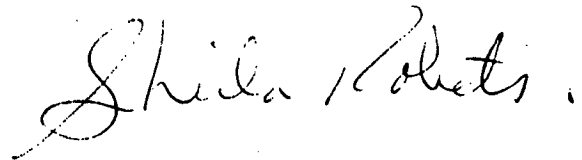
Faculty of Arts Curriculum Committee

Date April 11, 1975

Attached are new course proposals for Archaeology 410 and Archaeology 411. The changes of title and of course description in these courses have been approved by the Faculty of Arts Curriculum Committee who have instructed me to forward them directly to your Committee for approval.

Would you please put these on the agenda of the next SCUS meeting.

Thank you.



Sheila Roberts

SR:mjm  
Attach.

# SIMON FRASER UNIVERSITY

## MEMORANDUM

To..... Faculty of Arts Curriculum  
.....  
..... Committee

From..... P. M. Hobler, Acting Chairman  
.....  
..... Department of Archaeology

Subject.....

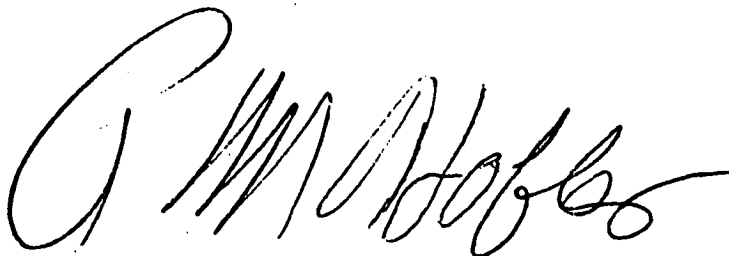
Date..... April 2, 1975

The revised course descriptions for Arc. 410 and 411 are attached. These descriptions differ from the original in that the title of Arc. 410 is changed from Advanced Archaeometric Techniques to Advanced Archaeometry, and the title of Arc. 411 from Advanced Dating Techniques to Archaeological Dating.

In addition, the description in the course outline of the laboratory work in both courses has been made more specific, as it was unclear to some members of SCUS exactly what was intended.

The above changes are in the way of clarification and do not constitute any real changes in the courses as originally proposed.

/inb  
Attach.



SENATE COMMITTEE ON UNDERGRADUATE STUDIES  
NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: Archaeology

Abbreviation Code: Arc. Course Number: 410 Credit Hours: 5 Vector: 3-0-2

Title of Course: Advanced Archaeometry.

Calendar Description of Course:

The explanation and application of various physical science techniques to Archaeology.

Nature of Course 3 hours of lecture and two of laboratory work per week.

Prerequisites (or special instructions):

Physics 281 and Arc. 372, or permission of the Instructor.

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? Once yearly.

Semester in which the course will first be offered? 76-1.

Which of your present faculty would be available to make the proposed offering possible? None. Dr. D. Huntley (Physics), Dr. J. D'Auria (Chemistry), and Dr. R. Carlson (Archaeology) will serve as resource personnel.

3. Objectives of the Course

To further the education of Archaeology students in those areas of physical science which can provide data of importance in archaeological studies.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty One Archaeometrist.

Staff

Library

Audio Visual

Space Physics and Chemistry space and equipment will be available by arrangement. New Archaeology space and equipment have been approved

Equipment

5. Approval

Date: April 3, 75 April 11, 75 \_\_\_\_\_  
[Signature] WAS Smith \_\_\_\_\_  
Department Chairman Dean Chairman, SCUS  
per S. J. Pabulo

ARCHAEOLOGY 410

ADVANCED ARCHAEOOMETRY

Lectures on the Archaeological Applications of:

1. X-ray fluorescence analysis.
2. Neutron activation analysis.
3. Optical emission spectrometry.
4. Atomic absorption spectrometry.
5. X-ray diffraction.
6. Petrographic examination.
7. Beta-ray backscattering analysis.
8. Magnetometer surveying.
9. Resistivity surveying.
10. Electromagnetic Surveying (metal detectors).

Laboratory work:

The laboratory work will be carried out both in the laboratory and in the field, and will be designed to give students experience in how these techniques can be applied to archaeological problems. Demonstrations of some of the above techniques will give students contact with these techniques so that they may better appreciate their strengths and weaknesses, and be in a position to evaluate the results of their application in archaeological research. In addition, the students will learn the types and kinds of archaeological field data necessary for the application of these techniques.

Reading List:

- Tite, M.S.                    Methods of Physical Examination in Archaeology, Seminar Press, London, 1972.
- Aitken, M. J.                Physics and Archaeology, Oxford Univ. Press, 1975.
- Goulding, F.S. and J. M. Jaklevic - Photon excited energy - dispersive X-ray fluorescence analysis for trace elements. Ann.Rev. Nucl.Sci. 23 45-74, 1973.

Perlman, I. and F. Asaro - Pottery Analysis by Neutron Activation.

Archaeometry II, 21-52, 1969.

Archaeometry, a journal, Cambridge University Press.

Prospezioni Archeologiche, an annual,  
Fondazione Lerici, Rome.

SENATE COMMITTEE ON UNDERGRADUATE STUDIES  
NEW COURSE PROPOSAL FORM

1. Calendar Information

Department: Archaeology

Abbreviation Code: Arc. Course Number: 411 Credit Hours: 5 Vector: 3-0-2

Title of Course: Archaeological Dating.

Calendar Description of Course: A study of various scientific methods of dating archaeological samples, including Carbon-14, thermoluminescence, obsidian-hydration, fission-track, potassium-argon, magnetic, and other dating techniques.

Nature of Course 3 hours of lecture and 2 hours of lab. work per week.

Prerequisites (or special instructions): Physics 281 and Arc. 372 or permission of the instructor.

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? 76-1 or 76-3.

Which of your present faculty would be available to make the proposed offering possible? None. Dr. D. Huntley, (Physics), Dr. J. D'Auria, (Chemistry), and Dr. R. Carlson (Arch.) have agreed to serve as resource personnel for this course.

3. Objectives of the Course

To teach advanced dating techniques with some actual laboratory experience, and provide in-depth coverage of the problems and prospects of such techniques, for advanced archaeology students.

4. Budgetary and Space Requirements (for information only)

What additional resources will be required in the following areas:

Faculty One Archaeometrist.

Staff

Library

Audio Visual

Space New space and equipment have been approved for archaeology;

Equipment Physics space and equipment will be available by arrangement. None other is required.

5. Approval

Date: April 8, 75 April 11, 75

[Signature]  
Department Chairman

[Signature]  
Dean  
per S. [Signature]

\_\_\_\_\_  
Chairman, SCUS



ARCHAEOLOGY 411

ARCHAEOLOGICAL DATING

Lectures on dating by:

1. Carbon-14 (approximately 30-40% of the course).
2. Thermoluminescence
3. Obsidian Hydration
4. Fission-track
5. Potassium-argon
6. Magnetic (thermoremanent magnetism)
7. Fluorine and Uranium uptake
8. Uranium and thorium decay chains
9. Racemization

Laboratory Work:

Laboratory work related to Carbon-14, thermoluminescence, obsidian hydration, fission-track, and magnetic dating will be demonstrated in order to familiarize students with the specific steps in the analysis of datable specimens. By observing demonstrations, and where applicable, actually practicing the techniques, the students should learn the strengths and weaknesses of various techniques, the kinds of archaeological samples required, and the relative validity of published results of such analyses.

Reading List:

- Libby, W.F.                    Radiocarbon Dating, Univ. of Chicago Press., 2nd Ed., 1955.
- Olsson, I.V.                    Radiocarbon Variations and Absolute Chronology, (QC 798, D3 L5, 1955).  
Nobel Symposium XII, Almquist and Wiksell, Stockholm, 1970 (QC 798, D3 N6).
- Proceedings of the 8th International Conference on Radio-Carbon Dating, Lower Hutt City, Wellington, N.Z., Oct. 18-25, 1972. Publ. by the Royal Society of New Zealand (QC 798, D3, I68, 1972).
- Tite, M.S.                      Methods of Physical Examination in ARchaeology.  
Seminar Press, London, 1972.

Michael, H.N. and E.K. Ralph (eds.) - Dating Techniques for the Archaeologist, M.I.T. Press, 1971. (cc75 D36).

Aitken, M.J. Physics Applied to Archaeology, I, Dating; Reports on Progress in Physics, Vol. 33, 941-1000, 1970 (QC1 P57).

Aitken, M.J. Dating by Archaeomagnetic and Thermoluminescent Methods, Phil. Trans. Roy. Soc. 269 77-88, 1970.  
Archaeometry, a journal. Cambridge University Press.

Aitken, M.J. Physics and Archaeology, Oxford University Press, 1975.