

SIMON FRASER UNIVERSITY

S.73-47

MEMORANDUM

To SENATE

From SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Subject NEW COURSE PROPOSALS - FACULTY OF
ARTS - GEOGRAPHY 318-3 - SEDIMENT-
OLOGY AND PAST ENVIRONMENTS;

Date MARCH 15, 1973

ARCHAEOLOGY 438-3 - APPLICATION OF
SEDIMENTOLOGY TO ARCHAEOLOGICAL SITES

MOTION 1: "That Senate approve, as set forth in S.73-47,
the new Faculty of Arts course proposals for
Geography 318-3 - Sedimentology and Past
Environments, and Archaeology 438-3 - Application
of Sedimentology to Archaeological Sites."

If the above motion passes,

MOTION 2: "That Senate waive the normal two semester time
lag requirement in order that Geography 318-3
may first be offered in the Fall semester 73-3."

SIMON FRASER UNIVERSITY

S.73-47

MEMORANDUM

To SENATE

From SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Subject NEW COURSE PROPOSALS - FACULTY OF
ARTS - GEOGRAPHY 318-3 - SEDIMENT-
OLOGY AND PAST ENVIRONMENTS,
ARCHAEOLOGY 438-3 - APPLICATION OF
SEDIMENTOLOGY TO ARCHAEOLOGICAL SITES

Date FEBRUARY 28, 1973

On the recommendation of the Faculty of Arts, the Senate Committee on Undergraduate Studies has approved, as set forth in SCUS 73-5, the new course proposals for Geography 318-3 - Sedimentology and Past Environments, and Archaeology 438-3 - Application of Sedimentology to Archaeological Sites, and recommends approval to Senate.

It further recommends that the normal two semester time lag requirement be waived in order that Geography 318-3 may first be offered in the Fall semester, 73-3.

John G. ...

SIMON FRASER UNIVERSITY

SCUS 73-5

As amended Feb.13, 1973
and updated Feb.20, 1973

MEMORANDUM

To..... Mr. H. Evans, Secretary
Senate Committee on
Undergraduate Studies
New Courses Geography 318-3
Subject..... and Archaeology 438-3

From D.H. Sullivan, Dean
Faculty of Arts
Date January 15, 1973

The Faculty of Arts has approved the following courses:

Geography 318-3, "Sedimentology and Past Environments"

Archaeology 438-3, "Application of Sedimentology to Archaeological Sites"

Would you please ensure that these courses are put before SCUS as soon as possible.

D. H. Sullivan
D. H. Sullivan

/dt

Attachments

cc: Dr. I. Mugridge, Assistant
Vice-President, Academic

RESULTS OF REFERENDUM BALLOT #36
(sent to all Faculty in Arts
and counted January 15, 1973)

GEOGRAPHY 318-3 - Sedimentology and Past Environments

I agree with the decision of the Arts Curriculum
Committee that Geography 318-3 be approved for
inclusion in the 1973/74 Undergraduate Calendar.....

I do not agree.....

I abstain.....

ARCHAEOLOGY 438-3 - Application of Sedimentology
to Archaeological Sites

I agree with the decision of the Arts Curriculum
Committee that Archaeology 438-3 be approved for
inclusion in the 1973/74 Undergraduate Calendar.....

I do not agree.....

I abstain.....

REMINDER

PLEASE BE SURE YOUR NAME IS ON THE OUTER SELF-ADDRESSED
ENVELOPE WHEN MAILING THIS BALLOT.

/dt

FACULTY OF ARTS

NEW COURSE PROPOSAL

1. CALENDAR INFORMATION

Department: Geography

Course Number: 318

Title: Sedimentology &
Past Environments

Sub-title or Description:

An introduction to the interpretation of sedimentary bodies as geomorphic features. Special attention will be given to the development of sedimentology and pedology as tools in geomorphology and archaeology.

Credit Hours: 3

Vector Description: 2-0-3

Pre-requisite(s): Geography 211 or one of Arch. 101, 272 or 273, or permission of the Instructor.

2. ENROLMENT AND SCHEDULING

Estimated Enrolment: 60

Semester Offered (e.g. yearly, every Spring; twice yearly, Fall and Spring):
Yearly

When will course first be offered?

1973-3

3. JUSTIFICATION

A. What is the detailed description of the course including differentiation from lower level courses, from similar courses in the same department, and from courses in other departments in the University?

This subject is introduced in lower level Geography courses but is not covered in depth. There are no identical courses in this or other departments. The course fills a gap in the physical geography program. Also see section H.

B. What is the range of topics that may be dealt with in the course?

Lectures, labs & field trips will deal with the description and interpretation of sediments and their soils as indicators of palaeoenvironments.

C. How does this course fit the goals of the department?

The use of sediments and soils as tools of environmental reconstruction is a traditional field of physical geography. This course will strengthen the existing physical geography offerings in the Department.

D. How does this course affect degree requirements?

This course can be used to satisfy degree requirements and is recommended for geography majors specialising in geomorphology, and for archaeology majors.

E. What are the calendar changes necessary to reflect the addition of this course?

Addition to the calendar as a new course in the Dept. of Geography; listed as prerequisite for Archaeology 438-3 in Dept. of Archaeology; p. 87 of Calendar to read: "Physics 281-3, Physical Science in Archaeology, & Geography 381-3, Sedimentology & Past Environments, are specifically recommended for majors."

F. What course, if any, is being dropped from the calendar if this course is approved?

Geography 413 will be offered less frequently; i.e. from twice to once each year.

G. What is the nature of student demand for this course?

High. The Department of Archaeology has assured this Department that at least 30 of their students each year will require Geography 318; it is also likely that a similar number of students will be drawn from elsewhere.

H. Other reasons for introducing the course.

In addition to strengthening the existing programme in physical geography, Geography 318 represents, in part, a service course for Archaeology students. The Archaeology Department has requested the mounting of such a course by the Geography Department; the course is a prerequisite for a new Archaeology offering. Arch. 438.

4. BUDGETARY AND SPACE FACTORS

A. Which faculty will be available to teach this course?

Professor E.J. Hickin
Professor M.C. Kellman
Professor F.F. Cunningham

B. What are the special space and/or equipment requirements for this course?

Existing lab. facilities in Geography Department.

C. Any other budgetary implications of mounting this course:

None apart from the normal operating costs associated with any course.
(see also 3F above.)

Approval:

Curriculum Committee:

Dean of Faculty:

Senate:

Course Outline

Sedimentology and Past Environments

General - Geography 318 is a laboratory-oriented course designed to introduce students to the dynamics of the sedimentation process in a number of different environments. Attention will be given to problems of interpreting the character of sedimentary bodies (structure composition, and placement) in terms of depositional environments. Techniques of field and laboratory description of strata and horizonation will be developed together with their application to the general problems of interpreting archaeological sites.

Text - There will be no single text for the course. Students will be directed to a number of key journal articles in the areas of sedimentology and pedology.

Course Topics

1. The dynamics of the sedimentation process in
 - (a) glacial and periglacial environments
 - (b) fluvial environments
 - (c) lacustrine and deltaic environments
 - (d) coastal environments
 - (e) aeolian environments (wind and gravity deposits)
 - (f) volcanic environments
2. Physical description of sediments
3. Chemical description of sediments
4. Description of sedimentary structures
5. Weathering and soil development in sediments
6. Interpretive sedimentology

FACULTY OF ARTS

September 1971

NEW COURSE PROPOSAL

1. CALENDAR INFORMATION

Application of Sedimentology to
Archaeological Sites

Department: Archaeology

Course Number: 438

Title: ~~Applied~~
~~Sedimentology~~ XXX

Sub-title or Description:

The applications of techniques of sedimentology and pedology to the descriptive analysis of archaeological sites.

Credit Hours: 3

Vector Description: 0-0-3

Pre-requisite(s):

Geography 318 and one lower division archaeology course

2. ENROLMENT AND SCHEDULING

Estimated Enrolment: \$ 30

Semester Offered (e.g. yearly, every Spring; twice yearly, Fall and Spring):

once yearly

When will course first be offered?

1974-1

3. JUSTIFICATION

A. What is the detailed description of the course including differentiation from lower level courses, from similar courses in the same department, and from courses in other departments in the University? This subject is introduced in lower level courses but not dealt with in detail. There are no identical courses presently offered.

B. What is the range of topics that may be dealt with in the course? This course will cover the descriptive analysis of cultural deposits including their characteristics, classification, and temporal and paleo-climatic implications. Physical and chemical techniques introduced in Geography 318 will be applied to the critical analysis of a body of archaeological literature, and to the descriptive interpretation of the stratigraphy of local archaeological sites.

C. How does this course fit the goals of the department?
The analysis of sedimentary and stratigraphic features of archaeological sites is an integral aspect of archaeological interpretation.

D. How does this course affect degree requirements?

This course can be used to satisfy degree requirements and is recommended for archaeology majors.

E. What are the calendar changes necessary to reflect the addition of this course?

Addition to the calendar

F. What course, if any, is being dropped from the calendar if this course is approved?

None

G. What is the nature of student demand for this course?

High

H. Other reasons for introducing the course.

The combination of Geography 318 and Archaeology 438 will provide the students with a valuable introduction to the application and potentialities of interdisciplinary research.

4. BUDGETARY AND SPACE FACTORS

A. Which faculty will be available to teach this course?

K.R.Fladmark
H.L.Alexander

B. What are the special space and/or equipment requirements for this course?

Cooperative utilization of the Geography Department geomorphology laboratory

C. Any other budgetary implications of mounting this course:

None

Approval:

Curriculum Committee:

Dean of Faculty:

Senate Undergraduate
Studies Committee:

Senate:

Application of Sedimentology and Stratigraphy to Archaeological Sites:

Archaeology 438-3

Archaeology Section - Outline:

A. Descriptive Analysis of Cultural Deposits

1. Cultural Depositional Environments - differentiation from natural
2. Characteristics - physical and chemical
3. Types of Deposits - cultural soils; shell-middens; bone deposits; cave deposits, etc.
4. Cultural stratigraphy - disturbance, excavations, reversals
5. Temporal Implications of Depth of Deposits, organic decay, etc.
6. Paleontological Remains as Paleo-environmental Indicators

B. Critical Review of the Archaeological Literature

This section will involve research papers and class seminars in which the techniques learned in previous sections of these two classes (Geography 318-3 and Archaeology 438-3) will be applied to a critical review of archaeological reports dealing with sedimentological analysis.

A partial reading list is appended.

C. Practical Situation

Application of techniques and approaches learned in previous sections to the descriptive analysis of the cultural and non-cultural constituents of a local archaeological site.

K. R. Fladmark

Preliminary Reading List, Archaeology 438

K.R.Fladmark, Nov. 22, 1972

- Anderson, Douglas D. 1968. A Stone Age Campsite at the Gateway to America. Scientific American, Vol.218, No.6
- Bedwell, S.F. 1970. Prehistory and Environment of the Pluvial Fort Rock Lake Area of South Central Oregon. Ms. Ph.D thesis, Univ. of Ore.
- Black, R.F. 1966. Late Pleistocene and Recent History of Bering Sea, Alaska Coast, and Man. Arctic Anthropol., Vol.3, No.2.
- Black, R.F. and W.S. Laughlin 1964. Ananagula: A Geological Interpretation of the Oldest Archaeological Site in the Aleutians. Science, Vol.143, pp.1321-2.
- Bliss, W.L. 1938. An Archaeological and Geological Reconnaissance of Alberta, Mackenzie Valley, and Upper Yukon. Amer. Phil. Soc. Yearbook, pp.136-9.
- Borden, C.E. 1965. Radiocarbon and Geological Dating of the Lower Fraser Canyon Sequence. Procs. of 6th. Int. Conf. on C-14 and Tritium Dating, Pullman, pp.165-78.
- Bryan, Kirk 1941. Correlation of the Deposits of Sandia Cave, New Mexico, with the Glacial Chronology. Smith. Instit. Misc. Contribs. Vol.99, No.23.
- Bryan, Kirk and L.R. Ray 1940. Geologic Antiquity of the Linderneir Site in Colorado. Smith. Instit. Misc. Contribs. Vol.99, No.2.
- Butzer, Karl 1964 (1971). Environment and Archaeology. Aldine Press.
- Carter, G.F. 1956. On Soil Colour and Time. S.W.J.A., Vol.12, pp.295-324.
- 1957. Pleistocene Man at San Diego. John Hopkins Press.
- Cook, S.F. 1949. Soil Erosion and Population in Central Mexico. Univ. of Cal. Ibero-America Vol.34.
- 1950. Physical Analysis as a Method for Investigating Prehistoric Habitation Sites. Univ. of Cal. Arch. Survey Reports, Vol.7, pp.2-5.
- 1963. Erosion Morphology and Occupation History in Western Mexico. Univ. of Cal. Anthl. Records Vol.17, No.3.
- Cook, S.F. and R.F. Heizer 1951. The Physical Analysis of Nine Indian Mounds of the Lower Sacramento Valley. Univ. of Cal. Publs. in Amer. Archy. and Ethnol., Vol.40, pp.282-312.
- Studies on the Chemical Analysis of Archaeological Sites. Univ. of Cal. Press, 1965
- Cornwall, I.W. 1954. Soil Science and Archaeology with Illustration from some British Bronze Age Monuments. Procs. of the Prehist. Soc. (1953), pp.129-47.
- 1958. Soils for the Archaeologist. Phoenix House, London.
- 1960. Soil Investigations in the Service of Archaeology. Viking Fund Publs. in Anthropol. No.28, pp.265-99.
- 1963. Soil Science Helps the Archaeologist. In: E. Pyddoke (ed.), The Scientist and Archaeology, pp.31-55, Phoenix House, London.
- Dauncey, K.D.M. 1952. Phosphate Content of Soils in Archaeological Sites. The Advancement of Science, Vol.9, pp.33-6.
- Daugherty, R.D. 1956. Archaeology of the Lind Coulee Site, Washington. Amer. Phil. Soc. Procs., Vol.100, No.3.
- Daugherty, R.D.; Purdy, B.A., and R. Fryxell 1967. The Descriptive Archaeology and Geochronology of the Three Springs Bar Archaeological Site (45-FR-39), Wash. W.S.U. Lab. of Anthropol., Reps. of Invests. No.40.
- Deetz, J. and Dethlefsen, E. 1963. Soil pH as a Tool in Archaeological Site Interpretation. Amer. Ant., Vol.29, pp.242-3.
- Dort, W. 1968. Paleoclimatic Implications of Soil Structures at the Wasden Site. Tobiwa, Vol.11, No.1, pp.31-6.

- Dumond, D.E. 1963. A Practical Field Method for the Preservation of Soil Profiles from Archaeological Cuts. Amer. Ant., Vol. 29, pp. 116-18.
- Eddy, F.W. and Dregne, H.E. 1964. Soil Tests on Alluvial and Archaeological Deposits, Navajo Reservoir District. El Palacio, Vol. 71, pp. 5-21.
- Franken, H.J. 1965. Taking the Baulks Home. Antiquity, Vol. 39, pp. 140-2.
- Fryxell, R. and R.D. Daugherty 1962. Schematic Geoarchaeological Chronology for Eastern Washington and Related Areas. U.S.U. Lab. of Anthro. Reps. of Invests. No. 11.
- Fryell, R. 1960. Stratigraphy and Geologic Dating of the Windust and Votaw Archaeological Sites, Wash. W.S.U. Lab. of Anthro. Reps. of Invests. No. 8.
- 1961. Geologic Field Examination of the Park Lane Housepit Site (45-GR-90), Lower Grand Coulee, Wash. W.S.U. Lab. of Anthro. Reps. of Invests. No. 9.
 - 1962. Geologic Examination of the Ford Island Archaeological Site (45-FR-47), Wash. W.S.U. Lab. of Anthro. Reps. of Invests. No. 18, Sect. 2.
- Greenman, E.F. and G.M. Stanley 1943. The Archaeology and Geology of Two Early Sites in Ontario. Paps. of Mich. Acad. of Sci., Arts and Letters Vol. 28, pp. 505-30.
- Gruhn, Ruth 1961. The Archaeology of Wilson Butte Cave, South Central Idaho. Occ. Paps. of the Idaho State Univ. Mus. No. 6.
- Hamilton, T.D. 1970. Geological Relations of the Akmak Assemblage, Onion Portage, Alaska. In: Akmak (by D.D. Anderson), Acta Arctica Vol. 16, Copenhagen
- Hauroy, E.W. 1950. The Stratigraphy and Archaeology of Ventanna Cave, Arizona. Univ. of Arizona Press.
- 1955. Archaeological Stratigraphy. In: Geochronology, Univ. of Ariz. Bull. Ser. Vol. 26, No. 2, pp. 126-34.
 - 1957. An Alluvial Site on the San Carlos Indian Reservation, Arizona. Amer. Ant., Vol. 23, pp. 2-27.
- Hopkins, D.M. and J.L. Giddings 1953. Geological Background of the Iyatayet Archaeological Site, Cape Denbigh, Alaska. Smith. Instit. Misc. Contribs. Vol. 121, No. 11.
- Johson, F. 1949. The Boylston Street Fishweir II. Paps. R.S. Peabody Found. for Archy., Vol. No. 1.
- Johnson, F. and H.M. Raup 1964. Investigations in the Southwest Yukon. Paps. R.S. Peabody Found. for Archy., Vol. 6, No. 1.
- Lotspeich, F.B. 1961. Soil Science in the Service of Archaeology. Pt. Burghin Res. Center Publ. No. 1, pp. 137-44.
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- MacKay, J.R. and Mathews, W.D. 1956. Surficial Geology of the Fifth River Archaeological Site, Yukon Territory. Arctic, Vol. 14, No. 1, pp. 25-52.
- Moore, G.W. and J.L. Giddings 1962. Record of 5,000 Years of Arctic Wind Direction Recorded by Alaskan Beach Ridges. G.S.A. Spl. Pap. No. 68.
- Parsons, R.B. 1962. Indian Mounds of Northeast Iowa as Soil Genesis Benchmarks. Journ. of Iowa Archl. Soc., Vol. 12, No. 2, Iowa City.
- Pewe, T.L. 1954. The Geological Approach to Dating Archaeological Sites. Amer. Ant., Vol. 20, pp. 51-61.
- Pewe, T.L., Hopkins, D.M., and J.L. Giddings 1965. The Quaternary Geology and Archaeology of Alaska. In: The Quaternary of the United States, Princeton Univ. Press, pp. 355-74.
- Reger, R.D., et al. 1954. The Geology and Archaeology of the Yardang Flint Station. Anthl. Paps. of the Univ. of Alaska, Vol. 12, No. 2, pp. 92-100.
- Saucier, R.T. 1966. Soil Survey Reports and Archaeological Investigations. Amer. Ant., Vol. 31, pp. 419-22.
- Schmid, E. 1963. Cave Sediments and Prehistory. In: Brothwell and Higgs (eds.), Science in Archaeology, pp. 123-38, Thames and Hudson, London.
- Sokoloff, V.P. and Carter G.F. 1952. Time and Trace Elements in Archaeological Sites. Science, Vol. 116, pp. 1-5.

Arch.438 Reading List Cont'd. p.3

- Sokoloff, V.P. and J.L. Lorenzo 1959. Modern and Ancient Soils at Some Archaeological Sites in the Valley of Mexico. Amer. Ant., Vol. 19, pp. 50-55.
- Solecki, R.S. 1951. Notes on Soil Analysis and Archaeology. Amer. Ant., Vol. 16, pp. 254-6.
- Stalker, A.M.S. 1969. Geology and the Age of the Early Man Site at Taber, Alberta. Amer. Ant., Vol. 34, pp. 425-8.
- Strong, W.D. and C. Evans 1952. Cultural Stratigraphy. Columbia Sts. in Arch. and Ethnol. Vol. 4.
- Treganza, A.E. and S.F. Cook 1948. The Quantitative Investigation of Aboriginal Sites: Complete Excavation with Physical and Archaeological Analysis of a Single Mound. Amer. Ant., Vol. 13, pp. 287-97.

SIMON FRASER UNIVERSITY

MEMORANDUM

To	Ian Mugridge, Chairman, S.C.U.S.	From	Roy Carlson, Chairman, Archaeology Department.
Subject	Your memo February 15th	Date	February 20, 1973

In response to your memo of February 15th regarding Archaeology 438-3 "Applications of Sedimentology and Stratigraphy to Archaeological Sites": this subject is introduced in the following lower level courses:

1. Archaeology 272 - "Archaeology of the Old World", partly in discussing the sequence of cultural deposits at Olduvai Gorge.
2. Archaeology 273 - "Archaeology of the New World", partly in discussing the depositional sequences in the Arctic, in the Southwest, and on the northwest coast.

The subject is not covered in detail in any of these courses but is simply introduced. A great many subjects are introduced in lower level courses as this is the nature of lower level courses. This is not "overlap" but is part of the structure of knowledge and part of teaching method, that is, subjects introduced in lower level courses are covered in depth in upper level courses.

A sample course outline is attached as requested.

R Carlson

/sh

attach.