GEOARCHAEOLOGY: METHODS AND CONCEPTS
ARCLG104
Term I, 2017-8,

Masters Option, 15 credits
Turnitin Class ID: 3225939
Turnitin Password: IoA1617

Assessment deadlines: **11 December 2017, 25 January 2018**

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1. OVERVIEW

Short description

This course provides a broad overview of the discipline of geoarchaeology and its application in a range of different environmental settings and archaeological contexts. Specifically, the course illustrate how geoarchaeology draws on earth-scientific thinking, approaches, and techniques to tackle archaeological questions.

Week-by-week summary

<table>
<thead>
<tr>
<th>Week (starts on)</th>
<th>Tuesdays 11am</th>
<th>Wednesdays 1pm</th>
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<tbody>
<tr>
<td>II (9 Oct)</td>
<td>11-13hrs L1&amp;2 Archaeology, the Geosciences, and the Anthropocene B13</td>
<td>-none-</td>
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<tr>
<td>III (16 Oct)</td>
<td>11-12 hrs L3 Soils and Sediments B13 12-13 hrs L4 Landforms &amp; Process 1 B13</td>
<td>1-2pm S1 Slopes &amp; Mounds GS101 2-3pm L5 Landforms &amp; Process 1 GS101</td>
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<tr>
<td>IV (23 Oct)</td>
<td>11-12 hrs S2 Geoarchaeology and soils B13 12-13 hrs L6 Landforms &amp; Process 3 B13</td>
<td>2-3pm L7 Strat., paleosols, archaeosols FC243</td>
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<tr>
<td>V (30 Oct)</td>
<td>11-12 hrs S3 Geoarchaeology, stratigraphy B13 12-13 hrs L8 Occupation deposits B13</td>
<td>1-2pm S4 Occupation deposits 1 GS101 2-3pm S5 Occupation deposits 2 GS101</td>
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<tr>
<td>6 Nov</td>
<td>-none-</td>
<td>1-4 pm P1 Rock micromorphology SW42</td>
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<tr>
<td>VI (13 Nov)</td>
<td>11-12 hrs L9 Human impact and landscapes B13 12-13 hrs S6 Agrarian landscapes B13</td>
<td>1-3 pm P2 Soil micromorphology B10 3-4 pm S7 Experimental Geoarchaeology B10</td>
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<tr>
<td>VII (20 Nov)</td>
<td>11-12 hrs S8 Coastal Geoarchaeology B13 12-13 hrs S9 Cave Geoarchaeology B13</td>
<td>1-3 pm P3 Soil micromorphology B10 3-4 pm S10 Geo-Ethno-Archaeology B10</td>
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<tr>
<td>VIII (27 Nov)</td>
<td>11-13 hrs P4 Soil micromorphology B10</td>
<td>1-2 pm S11 Tells and Mounds B13 2-3 pm P5 Geoarchaeology project B50</td>
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<tr>
<td>IX (4 Dec)</td>
<td>11-13 hrs P6 Geoarchaeology project B50</td>
<td>1-3 pm P7 Geo-archaeology project B50</td>
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<tr>
<td>X (11 Dec)</td>
<td>11-13 hrs P8 Geoarchaeology project B50</td>
<td>1-3 pm P9 Geo-archaeology project B50</td>
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L=Lecture; S=Seminar; P= Practical

Locations:
L5, S1, S4, and S5 will take place at GS101 Gordon Square (23) 101
L7 will take place at FC243 Foster Court 243
P1 will take place in SW42 South Wing Room 42
P2, P3, P4 will take place in Room B10 (Microscopy Lab), IoA
P4, P5, P6, P7, P8 will take place in Room B50 (Geoarchaeology Lab), IoA
L1,L2, L3, L4, L6, L8, L9 and S2, S3, S5, S6, S8 and S9, will take place in Room B13, IoA
Basic texts

INTRODUCTION TO GEOMORPHOLOGY


In addition to those listed above, the following books contain important position statements about what geoarchaeology is. Students should familiarise themselves with these positions:


**Methods of assessment:** this course will be assessed as follows:

a) A max. 2000-word scientific catalogue, contributing 40% of the course grade, and

b) A max. 2000-laboratory report, contributing 60% of the course grade

**Assessments:**

- **SCIENTIFIC CATALOGUE due on 11 December 2017**
- **LAB REPORT DUE on 25 January 2018**

Please see **Assessment Tasks** (below) for further details about individual assessments

**Teaching methods:** The course is organised as a series of lectures, seminars, and laboratory sessions. All meetings are compulsory and most have recommended readings. Lectures provide general overviews of key geoarchaeological themes: the more you read beforehand, the better you will understand the subject matter. The finer details of specific themes are expanded and discussed during seminars, where students are expected to have undertaken at least two thirds of the readings for each session (sometimes reading may be assigned to groups of students – this means that students are expected to have read at least all of the specifically assigned readings). Seminars are a crucial part of the course and students should ensure the pay attention to specific inferential pathways employed in different case studies. Laboratory practicals – which include work with bulk sediment samples and an introduction to the use of soil and sediment micromorphology in

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1 Word counts exclude the title page, the table of contents, any lists of figures and tables, abstract, preface, acknowledgements, bibliography, lists of references, captions, contents of tables and figures, and appendices.
geoarchaeological research – provide demonstrations of how specific techniques are used. These demonstrations are essential for students to understand how geoarchaeology develops and analyses its basic data. Lessons and insights from all three types of meetings (lectures, seminars and practicals) will be used when producing assessed coursework.

**Workload:** There will be 9 hours of lectures, 11 hours of seminars, and 22 hours of laboratory practicals. Students can be expected to undertake around 33 hours of reading for lectures, seminars and laboratory tutorials, as well as additional 55 hours producing assessed work (of which 50% are likely to be spent in the lab). This adds up to a total workload of 150 hours for the course.

**Prerequisites:** This course does not have a prerequisite and does not demand a strong *a priori* background in science.

### 2. AIMS, OBJECTIVES AND ASSESSMENT

**Aims and Objectives:** This course introduced Geoarchaeology at the Masters Level. The aim of the course is to provide students with the knowledge base and practical tools necessary to critically evaluate geoarchaeological research, formulate geoarchaeological research questions, and undertake entry-level geoarchaeological investigations.

**On successful completion of this course, students will**

- Understand the main concepts, themes, and approaches that make up the discipline of geoarchaeology, including how it relates to broader archaeological and earth science concerns.
- Understand how a geoarchaeological perspective can be employed to formulate and tackle archaeological research questions in different landscape contexts.
- Acquire a comprehensive overview of the practical approaches that can be employed to study sediments and soils in the course of geoarchaeological research.
- Acquire practical laboratory skills to implement some of these approaches, specifically with a view to undertaking geoarchaeological research during and after the postgraduate course.

**Learning Outcomes:** A range of generic skills will be sharpened or developed during the course, including summarising scientific papers, the manipulation of data with spreadsheets, and technical report writing based on laboratory work. In addition, those students who did not possess a background in science will find that they now do.

**Assessment tasks:**

A. The **Scientific Catalogue** (deadline: **11 December 2017**) is a catalogue of signature macros, meso and micromorphological characteristics associated with particular archaeological depositional environments. These features must be relevant to identify specific earth dynamics, understand associated site formation process and/or pertinent to deciphering specific forms of human impact on the landscape. Some examples of choice topics//settings:

- alluvial environments  - aeolian environments  - coastal environments
- Tells and mounds in  - Paleo soils  - Karstic caves
- shell middens  - Colluvial deposits  - burning features
- raised fields  - anthrosols  - another topic you choose (talk to MA-K first)

The catalogue should be conceptualised as an image catalogue that reviews published reference works and case studies paying critical attention to descriptions. It should incorporate clearly-explained good quality photographs (ideally colour and high resolution) and/or drawings of specific relevant features. Students should register a topic with the course coordinator by email no later
than 3 November 2017. Formative feedback can be requested by 1 December and will be offered provided that the catalogue by then has expanded to 1000 words. The completed assignments must be uploaded to Turnitin as a single word file. The hardcopy can be printed in b/w. The total length (minus referencing) should be 2200 words.

B. The Assessed Laboratory Report (deadline: 25 January 2018) will consist of sediment descriptions, data from analyses, micromorphological observations, and a summary discussion of results of a laboratory exercise with real archaeological samples that will be undertaken by the entire class under supervision of MA-K and Sandra Bond during December.

3. SCHEDULE and SYLLABUS

Week I.

Tuesday 10 October

12-1pm L1&2. Introduction: Archaeology, the Geosciences, and the Anthropocene

We start with a double lecture discussing the broad scope of geoarchaeology, its historical origins and links to the geosciences, its multiple approaches, and its pertinence within current discussions about the Anthropocene. The lecture will be preceded by a general briefing on the course structure.

Sources:


On how archaeology and geology developed together:


Approaches to geoarchaeology:


On the Anthropocene:


Harvey, Adrian W. 2002. 'Effective timescales of coupling within fluvial systems', Geomorphology, 44: 175-201.


~Wednesday 11 October

No classes

Week II.

Tuesday 17 October

11am-12pm L3. Soils and Sediments

This lecture sets out the contrast between soils and sediments and reviews key types of soil forming dynamics, providing a background to assess the integrity of environmental archives lodged in soils and sediments.

Sources (*recommended):


Other reference works on soils:


12-1 pm L4. Landforms and Processes 1

In this (L4) and two subsequent lectures (L5 & L6) we examine we emphasise key aspects of geomorphological knowledge and their interface with geoarchaeological questions by examining 5 broad depositional contexts, their associated landforms, and the range of earth-surface processes that characteristically display.

**Required readings (L4, L5, and L6):**


**Wednesday 18 October**

1-2pm  **S1. Slopes and Mounds**

Readings:


2-3pm  **L5. Landforms and surface processes 2**

In this (L5) and two other lectures (4 & L6) we examine we emphasise key aspects of geomorphological knowledge and their interface with geoarchaeological questions by examining 5 broad depositional contexts, their associated landforms, and the range of earth surface processes that characteristically display

See Lecture 4 for reading list.
Week III.

~Tuesday 24 October

11am-12pm S2. Geoarchaeology of soils

Soils in geoarchaeology

12-13hrs L6. Landforms and surface processes 3

In this (L6) and the two preceding lectures (L4 & L5) we examine we emphasise key aspects of geomorphological knowledge and their interface with geoarchaeological questions by examining 5 broad depositional contexts, their associated landforms, and the range of earth surface processes that characteristically display

See Lecture 4 for reading list

~Wednesday 25 October

2-3 pm L7. Stratigraphy, paleosols, archaeosediments

In this lecture we examine basic principles of stratigraphy and how they shape our understanding of paleosols and archaeosediments


Week IV.

~Tuesday 31 October

11-12 hrs S3. Geoarchaeology and stratigraphy

Seminar readings


12-13 hrs L8. Occupation deposits

Required readings:

**~Wednesday 1 November**

**1-2pm S4. Occupation deposits seminar 1**


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**2-3p S5. Occupation deposits 2**

Readings will be assigned from the following list:


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**Week V.**

**~Wednesday 8 November**

**1-4pm P1. Introduction to Optical Petrography**

Dr Patrick Quinn will introduce minerals and rocks and their study in thin section. Students will apply these to soil and sediment micromorphological analysis.

**Required readings:**


Week VI.
~Tuesday 14 November
11-12hrs L9. Human Impact on landscapes


12-13pm S6. Agrarian landscapes

Readings will be assigned from the following list:


Various Authors (2005) Geoarchaeology Special Issue: Landscape and Land Use—Geoarchaeological Approaches to Human Impact, 20(2):

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**Wednesday 15 November**

1-3pm P2. Soil micromorphology

Practical tutorials P2, P3 and P4 will introduce the main features of soil and sediment micromorphological analysis as employed within geoarchaeological research. The readings below are important for this and other micromorphology tutorials. Kemp (1985) still provides one of the best short introductions to the technique. Many of the reading lists for other lectures include important case studies that employ soil micromorphological analysis.

**Required readings:**


Note the following important reference texts:


**3-4pm S7: Experimental Geoarchaeology**

**Reading list**


**Week VII.**

~Tuesday 21 November

**11-12 hrs S8. Geoarchaeology of coastal processes**

**Required readings:**


12-13hrs S9. Cave Geoarchaeology


Case studies:


~Wednesday 22 November

1-3pm P3. Soil micromorphology

See readings for P2 (15 November)
3-4pm. S10. Geo-Ethno-Archaeology

Week VIII.

~Tuesday 28 November

11-13hrs P4. Soil micromorphology

See readings for P2 (15 November)

~Wednesday 29 November

1-2pm P4. S11. Tells and Mounds

Case Studies:
monumental building at Tel Dor (Israel). Journal of Archaeological Science 32, 1417-1431.

2-3pm P5. Assessed Geoarchaeology project

During this and the following sessions, students will work on their assessed laboratory project, which will employ different procedures to undertake basic physical and chemical characterisation of sediments in the laboratory.

Required readings.

Week IX.

~Tuesday 5 December
11-13 hrs P6. Assessed Geoarchaeology project

During this session students will work on their assessed laboratory project.

~Wednesday 6 December
1-3 pm P7. Assessed Geoarchaeology project

During this session students will work on their assessed laboratory project.
Week X.

~Tuesday 12 December  
11-13 hrs P8. Assessed Geoarchaeology project

_During this session students will work on their assessed laboratory project._

~Wednesday 13 December  
1-3 pm P9. Assessed Geoarchaeology project

_During this session students will continue working on their assessed laboratory project._

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**ADDITIONAL INFORMATION**

**INSTITUTE OF ARCHAELOGY COURSEWORK PROCEDURES**

General policies and procedures concerning courses and coursework, including submission procedures, assessment criteria, and general resources, are available on the IoA Student Administration section of Moodle: https://moodle.ucl.ac.uk/course/view.php?id=40867

. It is essential that you read and comply with these. Note that some of the policies and procedures will be different depending on your status (e.g. undergraduate, postgraduate taught, affiliate, graduate diploma, intercollegiate, interdepartmental). If in doubt, please consult your course co-ordinator.

**GRANTING OF EXTENSIONS:** Note that there are strict UCL-wide regulations with regard to the granting of extensions for coursework. Note that Course Coordinators are not permitted to grant extensions. All requests for extensions must be submitted on a the appropriate UCL form, together with supporting documentation, via Judy Medrington’s office and will then be referred on for consideration. Please be aware that the grounds that are
acceptable are limited. Those with long-term difficulties should contact UCL Student Disability Services to make special arrangements. Please see the IoA Student Administration section of Moodle for further information. Additional information is given here

http://www.ucl.ac.uk/srs/academic-manual/c4/extenuating-circumstances/