UCL Institute of Archaeology
MSc Environmental Archaeology Degree Programme Handbook
2023-24

Archaeobotany, Geoarchaeology and Zooarchaeology

DEGREE COORDINATOR:
Professor Louise Martin (louise.martin@ucl.ac.uk) room 303

OTHER CORE INSTRUCTORS:
Professor Dorian Fuller (d.fuller@ucl.ac.uk),
Dr Manuel Arroyo-Kalin (m.arroyo-kalin@ucl.ac.uk)
Dr Rhiannon Stevens (rhiannon.stevens@ucl.ac.uk)

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Please read this handbook carefully

Introduction to the MSc in Environmental Archaeology

This degree program is designed to provide students with the methodological and theoretical tools, and basic practical skills, to carry out research in Environmental Archaeology. Environmental archaeology, which includes **archaeobotany, geoarchaeology** and **zooarchaeology**, is distinct from other sub-disciplines of archaeology in that it follows a *community ecology* approach to study past human-environment interactions. Research is focused on how communities of humans have interacted with communities of plants, animals and other organisms that shared their environments. Interactions include, for example, predation, herbivory, mutualism, competition, management and/or domestication. Likewise, an environmental archaeology approach considers how interconnected communities of humans and other organisms have, over time, influenced changes to themselves and their environments, e.g. through shifts in their subsistence practices that effect biodiversity and/or food webs. Environmental archaeology further investigates how these interconnected communities of organisms have, through interactions with the abiotic components of their environments, influenced the transformation of landscapes over time. An understanding of evolutionary theory is key to the environmental archaeology approach.

This handbook should be used alongside the **Institute of Archaeology Student Handbook & Study Skills guide:**

https://www.ucl.ac.uk/archaeology/current-students

These contain **essential information** on:

- Induction Degree handbooks, Modules & Timetables
- Key staff, facilities and resources at the IoA & UCL
- Policies, Forms, Guidance
- Course enrolment and attendance requirements
- Presentation of coursework, word length regulations
- Citing of sources, use of Turnitin and avoidance of plagiarism
- Submission of coursework, deadline regulations
- Granting of extensions for extenuating circumstances
- Marking criteria for coursework and dissertations
- Planning and writing dissertations
- Student feedback and representation
- Disabilities

Prerequisites:

Most modules for IoA Master's Programs do not have prerequisites; students will have been accepted to the programme on the understanding that they have sufficient background in archaeology or a relevant field, either through their previous degree, or through relevant experience, to be able to follow the programme and modules for which they have been accepted.* **If students wish to change their programme or any modules, please discuss with the degree coordinator as early as possible.**

Note:* ***ARCL0232 Biomolecular Archaeology *requires a relevant educational background*

Aims, Objectives & Intended Outcomes of the MSc Environmental Archaeology

The **core modules** and **practical options** in the program are designed to provide students with methodological and theoretical tools, as well as practical skills, to carry out research in Environmental Archaeology; the dissertation provides an opportunity to put those tools and skills into practice.

Specific aims, objectives and intended outcomes:

1. To provide students with a theoretical understanding of **research questions and methodologies** in the study of past human-environment interactions, particularly human subsistence and subsistence change.
2. To provide participants taking the MSc qualification with training in **research methods** relevant to environmental archaeology, including familiarity with evidence from archaeobotany, geoarchaeology and zooarchaeology.
3. To provide **practical training in laboratory practice** of at least one environmental archaeological science (archaeobotany, geoarchaeology or zooarchaeology).
4. To enable degree holders to pursue **specialised research** on archaeological material/data relating to past environments and/or human subsistence (through a dissertation research project that is an original contribution to environmental archaeology).
5. To enhance essential research skills, particularly the ability to access information from a diverse range of sources; to work independently to meet deadlines; and to collaborate and work as a team member.
6. To contribute to professional development and transferable skills, such as the ability to collect, organise, analyse, present and interpret complex data (in writing and orally).

Programme Structure

The programme consists of 180 credits: 90 credits to be made up from modules (most are 15 credits, although there are some two-term 30-credit modules), with the 15,000-word dissertation worth 90 credits (ie 50% of the degree).

Students must take two Core modules (each 15 credits) and at least one of the Laboratory-based modules: archaeobotany, geoarchaeology, zooarcheology (each 15 credits).

Students complete module requirements over **Terms I and II**. Dissertation research begins in **Term III** with submission in September (**2 September 2024**).

Dissertation: students decide a dissertation topic in **Term II.** They should arrange to meet with a member of staff who covers their area of interest (preferably one of the MSc Environmental Archaeology staff) to discuss and agree a topic, and agree supervision. Wider IoA staff can be included in supervision/co-supervision on occasions (with agreement). Students interested in archaeobotany topics should consult Dorian Fuller; in geoarchaeology, should consult Manuel Arroyo-Kalin; for zooarchaeology, consult Louise Martin; and for isotopes/zoom topics consult Rhiannon Stevens.

Part-time students are normally expected to take 60 credits in the first year (including the core modules) and the remaining elements in the second.

Core modules (compulsory)

There are two compulsory core modules: **ARCL0128 Resources and Subsistence** and **ARCL0129 Environmental Archaeology in Practice.** These introduce theoretical and methodological approaches to environmental archaeology research questions, and analytical approaches to environmental archaeology data. Timetable for 2023-24:

Credits	Code	Title		Term		Room
15	ARCL0128	Resources and Subsistence	Dorian Fuller	Term I	Weds 9-11am	410
15	ARCL0129	Environmental Archaeology in Practice	Louise Martin	Term II	Weds 9-11am	410

ARCL0128 Resources and Subsistence – Term 1. *Weekly 2 hr seminar.*
(co-ordinated by Dorian Fuller, email: d.fuller@ucl.ac.uk; room 311)
The principal aims of this core module are to provide students of Environmental Archaeology with **1)** an overview of current theoretical debates on the study of humans and their environments; **2)** a familiarity with archaeological and ethnographic case studies that illustrate current issues in the study of human/environmental relations; and **3)** an understanding of how to generate problem-driven research for geoarchaeology, archaeobotany and zooarchaeology, skills that they will also acquire in this MSc.

Assessment: the module is assessed by **two** pieces of work:
1) A PowerPoint presentation (given in Week 5) and a short, written summary (700 words) due after Reading Week (Week 7) (worth 35% of module mark)
2) An essay, of c. 3300 words (due at the end of term) (worth 65% of module mark).

ARCL0129 Environmental Archaeology in Practice –Term 2. *Weekly 2 hr seminar.*
(co-ordinated by Louise Martin, email: louise.martin@ucl.ac.uk; room 303)

This core module aims to provide a grounding for practical projects in archaeobotany, geoarchaeology or zooarchaeology. The principal aims are to develop a working knowledge of key methods in data analysis for environmental archaeology, including dating and the Bayesian analysis of radiocarbon calibration, sampling strategies on-site and off-site, quantification of biological and geoarchaeological datasets, and approaches to statistical analysis. Problems in taphonomy of environmental datasets will also be introduced.

Assessment: the module is assessed by **two** pieces of work:
1) A Quantification Report, c1500 words, due after Reading Week (week 7) (40%)
2) Essay c2500 words: a case study critique, due at the end of term (60%).

Laboratory-based modules: Archaeobotany, Geoarchaeology, Zooarchaeology.

Practical skills in working with archaeological environmental/subsistence evidence are a key part of this degree. Students must take **at least one** of the laboratory-based modules of **Archaeobotany, Geoarchaeology or Zooarchaeology**, but can elect to do take two or all three modules, depending on their interests. In addition, students can select **Biomolecular Archaeology** but should be aware that numbers are limited.

Credits	Code	Title		Term		Room
15	ARCL0096	Archaeobotanical analysis in practice	Dorian Fuller	II	Reading Week: daily 9-5	313
15	ARCL0097	Geoarchaeology	Manuel Arroyo-Kalin	II	Friday 9-11am Weds 11-1	B13 410
15	ARC0125	Zooarchaeology in Practice	Louise Martin	I	Monday 1-4pm	308
15	ARCL0232	Biomolecular Archaeology (*max 10; relevant background needs approving)	Rhiannon Stevens/ Katie Hemer	I	Reading Week: daily 9-5	209/lab

ARCL0096 Archaeobotanical Analysis in Practice. Coordinator: Dorian Fuller. This module runs in **Term II,** Reading Week as an intensive all week course, in the archaeobotany laboratory (Room 313)

The module focuses on the practical hands-on aspects of sorting, identifying, quantifying and reporting archaeobotanical macro-remains, with primary emphasis on seeds, and as well as the preparation of basic descriptive archaeobotanical reports. Seed identification is focused on the detailed identification of major Old-World seed crops (including Near East/European as well as some South/East Asian and African taxa). Students are given basic tools for identification that can be applied to the identification of other taxa. A written assignment with be due around the end of April and a practical examination (on identifications) will be scheduled in May.

ARCL0097 Geoarchaeology. Coordinator: Manuel Arroyo-Kalin. Term II.

This Term 2 module will cover general concepts in geoarchaeology, including key aspects of geomorphology and soils science relevant to the study archaeological sites in different environmental settings, and the characteristics of specific sedimentary environments. The aim of the module is to provide an introduction to the reconstruction of past landscapes, the study of sediments in archaeological contexts, and the use of sediment and soil analyses in paleoenvironmental reconstruction. Students will acquire an understanding of how earth science thinking is used to answer archaeological questions, gain the ability to critically appraise geoarchaeological reports and papers, and become familiar with the use of multiple geoarchaeological laboratory techniques. The module is taught through a combination of lectures, seminars, and laboratory practical sessions. The module is assessed through two assignments (a scientific catalogue and a laboratory report) that are each due during term 2.

In conjunction with ARCL0097, an optional intensive training week on soil micromorphological analysis can be attended by ARCL0097 students who plan to employ this technique in their MSc dissertations. The training week is scheduled to run **during reading week of Term 2**.

ARCL0125 Zooarchaeology in Practice. Coordinator: Louise Martin. Term I. Monday 1-4, room 308.

The aim of the module is to introduce students to the practical and analytical aspects of vertebrate zooarchaeology, to encourage discussion and critique of current approaches, and to explore how zooarchaeological data can be analysed and interpreted. The focus is on **practical and laboratory experience**, where students learn identification and observation skills for a selected range of Old World taxa. The module focuses on vertebrate remains, and students will become particularly familiar with issues and problems of mammalian zooarchaeology, with sessions on birds and fish also included.
Topics to be included in laboratory sessions include: identification methods, ageing and sexing animal remains (dental eruption and wear, epiphyseal fusion, sexual dimorphism), osteometrics, body part analysis, quantification methods, bone modification/taphonomy, small mammals, birds, fish, databases and recording systems, analysis and interpretation of data. The module is assessed by one essay (due in the second half of term) and one practical report (due at the start of Term II).

ARCL0232 Biomolecular Archaeology. Co-ordinators Rhiannon Stevens/Katie Hemer. Term I Reading Week, all week intensive course, 209/lab.

This module introduces biomolecular archaeology at the Masters Level. The main aim is to provide students with the knowledge base to critically evaluate research that includes analysis of ancient biomolecules, formulate research questions that can be addressed by biomolecular approaches and be able to design experimental programs that can tackle those research questions. The module introduces the concept of ancient biomolecules and the range of archaeological issues that can be investigated via biomolecular approaches. Students will gain a good understanding of biomolecular preservation in skeletal remains and archaeological artefacts, and of key methodologies used to investigate ancient biomolecules. A range of biomolecular approaches will be covered (e.g. stable isotope analysis, proteomics, organic residue analysis, ancient DNA). Practical classes will focus on sample preparation for stable isotope and proteomic (ZooMS) analyses and data analyses.

Additional Options:

The remaining modules can be selected from the outstanding range of Masters course modules available at the IoA, but for this degree, the normal choices include:

- Aegean Prehistory: Major Themes and Current Debates (ARCL0135, 15 credits, 11 weeks)
- Archaeology of Early Human Origins (ARCLG212, 15 credits, 11 weeks)
- Archaeology of Hunter-Gatherers from the Emergence of Modern Humans (ARCL0109, 15 credits, 11 weeks)
- British and European Prehistory: Neolithic to Iron Age (ARCL0146, 15 credits, 11 weeks) Not running in 2023-24
- Exploratory Data Analysis in Archaeology *(* ARCL0087, 15 credits, 11 weeks)
- Funerary Archaeology (ARCL0156, 15 credits, 11 weeks)
- The Mediterranean World in the Iron Age (ARCL0138, 15 credits, 11 weeks)
- The Neolithic and Early Bronze Age of the Near East: The emergence of villages and urban societies (ARCL0151, 15 credits, 11 weeks) Not running in 2023-24

Please note:

- **Not** all modules are available every year
- Some modules may have capped numbers
- Exceptionally, it is possible to take a module in another UCL Department – please discuss with co-ordinator
- Students should take modules relevant to any Dissertation topic they wish to pursue

Teaching methods: combination of lectures, seminars (student-led, advance-reading required) and laboratory classes. *Student presentations are expected in some modules.

Dissertation (ARCL0089)

The dissertation is valued at 90 credits. **Due 2 September 2024**. Wordcount: 15,000 words.

The dissertation is a guided independent piece of research. For the MSc Environmental Archaeology, dissertations are normally laboratory-based, but can be focused on library/archive work, or metadata analyses. Topics should be decided as early as possible, at latest during Term II. Be aware that finding material/assemblages/samples can take time, so early enquiries are advised.

Students should discuss ideas with potential supervisors, agree topics, materials, methods and supervision. Students are welcome to use material from their own (previous) work. The dissertation is a key exercise in developing and applying methods and theories learnt during the degree, and showcasing skills for future employers or potential research supervisors.

Please discuss topics with potential supervisors **early in Term II.**

Please do not schedule periods of leave/fieldwork in Term III and over summer before discussing this with your Dissertation supervisor (who will have their own fieldwork/leave timetables to balance with supervision).

For further guidance:
https://www.ucl.ac.uk/archaeology/current-students/ioa-study-skills-guide/dissertations

Oral Examination

Note: All Master's students are required to undertake an 'oral examination' as part of their dissertation assessment. This will normally be held in mid-June. The exam will involve each student giving a 10-15 minute powerpoint presentation on their dissertation plans which is normally held in front of their peers, the Degree Coordinator and their Dissertation. Supervisor. This will be followed by a Q&A and feedback session for 15 minutes. No marks are awarded for the oral examination (it is pass/fail) but it is a compulsory part of the programme.

Potential Dissertation topics

Students should feel free to develop their own projects, in discussion with a supervisor, if appropriate samples/study material can be obtained and arrive at the IoA by end of Term II. For other laboratory-based topics:

> **Archaeobotanical assemblages** (seeds, phytoliths, wood charcoal), from Middle East, sub-Saharan Africa, India, Southeast Asia, UK etc. Or **Methodological experiments** (experimental charring, morphometrics analyses, image-analyses) – see Dorian Fuller.
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> **Geoarchaeological projects** and **micromorphology studies** (e.g. anthropogenic dark earths, palaeosols, Neolithic house floors, spherulites in animal dung, analyses of mudbrick, site stratigraphy, anthropic soils) – see Manuel Arroyo-Kalin.
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> **Zooarchaeological assemblages** (mammals, birds), from Middle East, Arabia, UK; morphometric analyses; **experimental/taphonomic** projects (e.g. bone working, burning), or **ethnographic** projects (bone working, dairying, cheese-making) – see Louise Martin.
>
> **Isotopes/ZooMS** projects: (e.g. identification of undiagnostic bones from assemblages via ZooMS; diet and mobility studies) - see Rhiannon Stevens.

Communication
Primarily via **email** (please check your allocated UCL email address regularly), **Teams**, and degree/module **Moodle** pages. Individual meetings can be arranged with staff in person (or over Teams). Please also ensure that you keep your contact details (especially your telephone number) up to date on **Portico**, in case you need to be contacted.

Attendance is logged at classes via card-readers in most teaching rooms, and Departments are required to report the attendance to **UCL for monitoring**. If you are unable to attend a class, please email the module coordinator to explain, in order to ensure that there is a record of the reasons for your absence. A **minimum attendance** at all scheduled sessions is required (excluding absences due to illness or other adverse circumstances, provided that these are supported by medical certificates or other documentation, as appropriate).

Library Resources, UCL and outside UCL:
In addition to the Library of the Institute of Archaeology, other libraries in UCL with holdings of relevance to this degree are the Science Library located in the main campus. On occasion the main library, which has holding in classics and ancient history may be useful. All essential readings should be available online.

Some archaeobotanical reference books are available for consultation in the archaeobotany laboratory (Room 313). Libraries external to UCL which resources may have relevant to this degree are: the SOAS library, Economic Botany Library at Kew, British Library, Library of the Linnean Society, and libraries at the Natural History Museum.

Comparative Collections and other Laboratory resources

The IoA houses comprehensive archaeobotany, zooarchaeology and geoarchaeology comparative collections. Because of their unique breadth, quality, condition and accessibility (meticulous organisation), these valuable collections, the result of 50+ years of collecting, are used by IoA and external specialists. Some laboratories, such as archaeobotany, have book collections (on botany, flora, etc.); **these should be used in the laboratory and not removed**, but if required they can be photocopied on the third floor.

Students are permitted and encouraged to use our collections as part of their module and/or dissertation research. Students using the labs and comparative materials are asked to appropriately take care with the materials, and to return them to their original drawers after using. **Students are also reminded that they are required to clean up after themselves when they depart the lab: to put away equipment, return comparative materials to their drawers, cover microscopes, and wipe up any mess/debris**.

Practice Essay
All students are required to write a 2-page practice essay during the first weeks of Term I. This will be marked by the degree coordinator. Note: the mark does **not** count towards the degree. The essay intends to familiarise students with assessment criteria, referencing protocols, and to identify any problems that need to be addressed early in the program. Please use IoA referencing system/bibliography (see Student Handbook & Study Skills Guide). PLEASE DO NOT USE ANY AI TOOLS (e.g. Grammarly, ChatGPT) in your writing.

Submission date: 13 October 2023 (for all MA/MSc students) (23.59)

Practice essay title:

What are the main aims and objectives of Environmental Archaeology?

Students should submit this via the Degree Moodle page:

https://moodle.ucl.ac.uk/course/view.php?id=39778

Disabilities including dyslexia

If you have dyslexia or any other disability, please see Judy Medrington who is the IoA Disabilities Coordinator asap (j.medrington@ucl.ac.uk). Judy will direct you towards application for a SoRA (Statement of Reasonable Adjustment) which is undertaken centrally by UCL.

Health & Safety

The IoA has a Health and Safety policy and code of practice which provides guidance on laboratory work, etc. All work undertaken in the IoA is governed by these guidelines; staff and students have a duty to be aware of them and to adhere to them at all times. **Risk Assessments** are required for **ALL** lab-work, fieldwork, field-trips or experimental work undertaken as part of this degree.

Feedback

To make this degree as effective as possible, we welcome feedback at any time, whether in person, in writing, or confidentially (via a third party, e.g. Chair of Teaching, Graduate Tutor, or Academic Administrator). At stages during each module, there will be opportunities for anonymous feedback, but please feel free to raise any issues with module teachers or the degree co-ordinator at any time.

What is Environmental Archaeology? Some of the main aims & objectives:

1. To characterise 'short-term' environments, on various spatial scales, which relate to designated phases of occupation of an archaeological site (or past settlement system in an area). Both on-site and off-site data are often used, the former potentially giving detailed information about very local (intra-site) environmental variation.
2. Following from this, to infer, using both off-site and on-site data, what resources were available to and utilised by people in the past, including the modelling, both spatially and temporally (e.g. seasonality), of the ways in which landscapes were exploited for targeted resources.
3. To consider the possible impact of such exploitation on the resource base, and the environment in general.
4. To build longer-term environmental sequences, over time scales relevant to the archaeological investigations in the study area, for modelling relationships between environmental changes (both 'natural' and anthropic) and changes in resource exploitation and subsistence systems.
5. To examine the evolution in time and space of 'cultural' ecosystems, such as crop-weed associations, managed woodlands, field systems, modified landforms, etc. The fundamental approach to reconstructing past environments in environmental archaeology is through the recovery, analysis and interpretation of palaeoenvironmental data (principally soils, sediments, and plant and animal remains) from on-site and off-site contexts.
6. To consider how biotic resources (from animals and plants) were procured, culturally modified and employed in social systems, as resources for storage, trade, conspicuous consumption, etc.
7. An understanding of evolutionary relationships, particularly phylogeny and/or domestications, is fundamental to environmental archaeology, particularly archaeobotany and zooarchaeology where knowledge about evolutionary relationships within and between (plant or animal) families, genera and species is essential for identification and interpretation

Recommended texts: (those marked * especially useful for Practice Essay)

*Albarella, U. (Ed.) 2001. *Environmental Archaeology: Meaning and Purpose*. Kluwer Academic Publishers, Dordrecht. **INST ARCH Issue Desk: IoA ALB.**

Barker, G. 2006. *The Agricultural Revolution in Prehistory*. Oxford University Press

Butzer, K. W. (1982). Archaeology as Human Ecology. Cambridge, Cambridge University Press.

Clutton-Brock, J. (Ed.) 1989. *The Walking larder: patterns of domestication, pastoralism, and predation*. London: Unwin Hyman.

Denham, T., Iriarte, J. & Vrydaghs, L. (Eds.) 2008. *Rethinking Agriculture. Archaeological and Ethnoarchaeological Perspectives*. Left Coast Press, Walnut Creek

*Evans, J. & O'Connor, T.1999. *Environmental Archaeology. Principles and Methods.* Sutton, Stroud. **INST ARCH BB6 EVA**

French, C. 2003. *Geoarchaeology in Action. Studies in soil micromorphology and landscape evolution.* Routledge, London.

Goldberg, P. and Macphail. R.I. 2006. *Practical and Theoretical Geoarchaeology.* Blackwell, Oxford

Grayson, D.K. 1984. *Quantitative Zooarchaeology: Topics in the analysis of Archaeological Faunas*. Orlando: Academic

Hardy, K. and Kubiak-Martens, L. (Eds.) 2016. *Wild Harvest: Plants in the hominin and pre-agrarian human worlds*. Oxford: Oxbow Books.

Hather, J.G. and S.L.R. Mason (Eds.) 2002. *Hunter-Gatherer Archaeobotany: Perspectives from the northern temperate zone*. UCL Institute of Archaeology, London.

Harris, D.R. and Hillman, G. C. (Eds.) 1989. *Foraging and Farming: The Evolution of Plant Exploitation*. London: Unwin Hyman.

Harris DR (Ed.) 1996. *The Origins and Spread of Agriculture and Pastoralism in Eurasia.* London: UCL Press.

Hastorf, C. A. and Popper, V. S. (Eds.) 1988. *Current Paleoethnobotany: Analytical Methods and Cultural Interpretations of Archaeological Plant Remains*. Chicago; London: University of Chicago Press.

Hillman, G. and Wollstonecroft, M. 2014. "Dietary Diversity: Our Species-Specific Dietary Adaptation". In *The Archaeology of African Plant Use,* eds. S Nixon, MA Murray and DQ Fuller. Institute of Archaeology Publication (Left Coast Press).

Humblin, J. and Richards, M. P. (Eds.) 2009. *The Evolution of Hominin Diets: Integrating Approaches to the Study of Palaeolithic Subsistence*. Dordrecht: Springer.

Lyman, R. Lee. 1994. *Vertebrate taphonomy*. Lyman. New York: Cambridge University Press

MacPhail, R. and Goldberg, P. 2017. *Applied soils and Micromorphology in Archaeology (Cabridge Manuals in Archaeology).* Cambridge, Cambridge University Press. doi:10.1017/9780511895562

Orton, C. 2000. *Sampling in Archaeology*. Cambridge: Cambridge University Press

Panter-Brick, C., Layton, R.H. and Rowley-Conwy, P. (Eds.) 2001 *Hunter-Gatherers: An interdisciplinary perspective*. Cambridge: Cambridge University Press.

Roberts, N. 1998. *The Holocene,* second edition. Blackwell, Oxford.

Rosen, A. 2007. *Civilizing Climate.* Alta Mira Press

Speth, J.D. 2010. *The Palaeoanthropology and Archaeology of Big Game Hunting.* Protein, Fat or Politics? Springer, The Netherlands.

Ruddiman, W. F. 2008 *Earth's Climate. Past & Future.* Freeman & Co, New York.

Van Zeist, W., Wasylikowa, K. and Behre, K.-H. (Eds.) 1991. *Progress in Old World Palaeoethnobotany*. Rotterdam: Balkema

Waters, M. R. 1992. *Principles of Geoarchaeology: A North American perspective.* Tucson, University of Arizona Press.

Wilkinson, K. and Stevens, C. 2008. *Environmental Archaeology: Approaches, Techniques & Applications*. Stroud: Tempus. **A valuable text for students with/without an environmental archaeology background. It explains method and theory and defines scientific terms used in the field. Case studies exemplify the many uses of archaeobotany, zooarchaeology and geoarchaeology for addressing archaeological questions. INST ARCH BB WIL and Online Access.

Zeder, M., Emshwiller, E., Smith, B.D. and Bradley, D.G. (Eds.) 2006. *Documenting domestication.* University of California Pres.

Stiner, M. and Kuhn, S.L. 2006. Changes in the 'connectedness' and resilience of palaeolithic societies in Mediterranean ecosystems. *Human Ecology* 34, 693-712.

Template for MSc Environmental Archaeology module selection:

My modules selected	Term	Day/time	Credits (must total 90)
Core (required) module ARCL0128 Resources and Subsistence	I	Weds 9-11	15
Core (required) module ARCL0129 Environmental Archaeology in Practice	II	Weds 9-11	15
Envt Arch module(s): at least one			
Other options:			
Dissertation	II/III		90
TOTAL (must add up to 180 credits)			