MODULE COORDINATOR: Professor Dorian Q Fuller (d.fuller@ucl.ac.uk)

- office hours: Wed 11-12; Thursday 1-2pm
- room (office): 311
- phone: 020 7679 4771

OTHER CONTRIBUTING INSTRUCTORS:
- Dr. Michèle Wollstonecroft (m.wollstonecroft@ucl.ac.uk)
- Dr. Manuel Arroyo-Kalin (m.arroyo-kalin@ucl.ac.uk)

Meeting Time and Place: [Term 1] THURS 11am-1pm, Room: 313 [Archaeobotany Lab]

PLEASE READ THIS HANDBOOK THOROUGHLY

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COURSE OVERVIEW
This course is intended to provide the theoretical grounding for practical projects in examining past subsistence systems through archaeozoology, archaeobotany, and geoarchaeological approaches.

Summary of the course contents
The seminars, readings and assignments cover the most important theoretical debates and methodological issues in the archaeological study of human subsistence, changes in subsistence practices and related human modifications of environments.

Summary of the method of delivery
The course consists of 10 x 2-hour sessions, by a mixture of lectures by the instructor(s) and seminar discussions, and presentations by students. Note: student presentations are required but do not affect the final mark.

Timetable:
- 3 Oct.: WEEK 1 - Course Introduction and the Anthropocene Earth *(DF)
- 10 Oct.: WEEK 2 - The Evolution of the Human Diet: the Rise and fall of Dietary Diversity, and why it matters. *(MW)
- 17 Oct.: WEEK 3 - Hunter-Gatherer(-Fishers), Introduction & Overview *(MW)
- 31 October: WEEK 5 Student PowerPoint Presentations (Assignment 1, part 1)
- 5 November: READING WEEK [5-9 Nov.] NO CLASSES
- 14 November: WEEK 6 - Animal Domestication *(DF)
- 21 November: WEEK 7 - Secondary Products revolution & Variables Of Pastoral Production *(DF)
- 28 November: WEEK 8 - Resource Intensification/the Intensification of Production *(MAK)
- 5 December: WEEK 9 – Genetics, ancient DNA and its contribution to studying, domestication, agricultural transformations and migrations *(DF)
- 12 Dec: WEEK 10 - Complex societies: Producers, Consumers, The Scale Of Surplus and social dimension of food and agriculture *(DF)

*Instructor: DF= Dorian Fuller, MW= Michele Wollstonecroft, MAK = Manuel Arroyo-Kalin
Aims, Objectives & Intended Learning Outcomes of the Course

Aims:
This course is intended to provide the theoretical grounding for practical projects on past subsistence systems, subsistence change and related human modifications of environments using archaeozoology, archaeobotany, and/or geoarchaeological approaches. Altogether, the lectures, readings, class discussions, and assignments are designed to facilitate an improved understanding of the many forms and degrees of human-environment interactions, particularly human interactions with and influences on other organisms within their environments.

Objectives of the module:
On successful completion of this course a student should:

- understand current debates about hunter-gatherer’s subsistence, agricultural origins, intensification and social and cultural aspects of food procurement and production systems, as well as issues in human dietary selection, food preparation and consumption; and,

- be familiar with a wide range of case studies and data sets, their problems and possible interpretations, in order to

- be able to contribute constructively to knowledge-based debates on a range of current issues in past human resource use and major transitions in subsistence mode; and able to

- recognise and situate archaeological plant and/or animal assemblages within the spectrum of human subsistence system.

Intended learning outcomes
Enhanced skills in:

- Critical analysis of theoretical models and arguments;

- Understanding of technical archaeozoology and archaeobotany publications;

- Comprehension of technical jargon relevant to subsistence, domestication and intensification, including arguments about how these issues are interpreted from archaeological datasets;

- Written analysis and presentation of ideas;

- Formal and informal oral presentation of ideas.

STUDENT WORKLOAD DISTRIBUTION ~ 150 HRS

<table>
<thead>
<tr>
<th>Nature Of The Work</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Lectures</td>
<td>10</td>
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<tr>
<td>Private reading</td>
<td>60-70</td>
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<tr>
<td>Seminars/ problem classes / tutorials</td>
<td>10</td>
</tr>
<tr>
<td>Required written work (e.g. essays/reports)</td>
<td>60-70</td>
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Coursework Information:
Coursework includes weekly readings and written summaries (i.e. an abstract) of one or two assigned reading, which are to be submitted to Moodle in advance of the class; the abstracts are required but not assessed for a mark. The final mark for the course is based two written assignments, which will be discussed in class in advance of the submission deadline. If students are unclear about the nature of an assignment, they should discuss this with the Course Co-ordinator.

**A practice essay will be assigned during the first weeks of class, for the purpose of identifying any problems that students may have with written coursework. It does not count towards the course assessment.**

Students are not permitted to re-write and re-submit essays in order to try to improve their marks. However, students are encouraged, in advance of the deadline for a given assignment, submit for comment a brief outline of the assignment or consult directly with the course co-ordinator during office hours or via Moodle or email.

FOR ALL MARKED COURSEWORK students should put their Candidate Number on the blue cover sheet as well as on each page of the written work.

STUDENT ASSESSMENT

In this course, students are marked on two written assignments. **Note: that course co-ordinators will return your coursework after first marking within 4 weeks of submission.**

Assignment 1 (35% Of Course Mark): This assignment is a comparison of the subsistence practices of two small-scale societies from comparable environments.

It is in two parts: the first being a 10-15 min PowerPoint presentation, to be presented in class on *Week 5 Tues 30 Oct*, and the second part is a two-page written summary of the powerpoint presentation, *due on Friday 16 November (end of week 6).*

*Only the second part (the written summary) of Assignment 1 is assessed for a mark. Note: The paper will be (first) marked and returned to students before the end of Term 1 so students can benefit from instructors feedback before writing their second assignment (due in early Term 2).*

Assignment 1 Research Aims:
Each student is to examine the similarities and differences in the annual, seasonal, and regular food procurement routines of two small-scale societies from comparable but separate environments, to identify each groups’ resource selection preferences, land-use and ecological interactions with their environments. Archaeological and/or ethnographic or ethnohistorc sources can be used. Students are to focus on what is common to both groups and what is unique to each, and consider potential explanations for these similarities and differences.

ASSIGNMENT 1 TOPICS: Students should choose from the list below and email their choice to the course instructor:

1. Comparison of subsistence systems of hunter-gatherers-fishers from temperate southeast Australia (e.g. the Mara) with a Neolithic group (or groups) of your choosing from Atlantic Europe: (examining similarities and differences in their terrestrial as well as aquatic resource exploitation practices.)

2. Comparison of the plant exploitation systems of the Baka forest Hunter-gatherers of Southern Cameroon, particularly their uses of yams, with the Enset-farming complex in southwest Ethiopia.
3. Comparison of Sami Reindeer-herding systems in Arctic and hunting-based system of the Inuit of the West-Central Canadian Arctic, focusing on animal resources.

4. Comparison of Sami Reindeer-herding systems with Canadian Plateau Hunter-gatherer Fisher systems focusing on plant uses, particularly trees.

5. Comparison of Mississippi Valley hunter-gatherer subsistence system with that of early Lower Yangtze wet rice farming systems. Consider how the river, and flooding, affected these subsistence systems.

6. A comparison of late Jomon hunter-gatherer-fisher economies with Northwest Coast subsistence practices. Consider how fishing, plant selection, resource management (e.g. tending, protection) and storage practices influenced mobility/sedentism.

7. Analysing human resource exploitation practices of groups living on islands with a Mediterranean climate: evaluate the similarities and differences in subsistence practices of California island hunter-gatherer-fishers and prehistoric Balearic island agriculturalists.

ASSIGNMENT 1, PART 1: GUIDELINES FOR POWERPOINT PRESENTATION

to be delivered in class Week 5 - Thursday, October 31, 2019. (Note: if the class has eight or more participants, students may be asked to work in pairs for the presentation.):

1. Use 10-15 PowerPoint slides maximum, not including references cited. (A separate slide for references cited should be shown at the end.)

2. Keep to the 10-15 minute time frame.

3. The Introduction should explain the geographic locations of the two groups under study and the relevance for the comparison in terms of the environments in which they live, and a general explanation of their socio-economic structures.

4. The body of the presentation should present and examine the major resources exploited by each of the groups in your study, including how they obtain those resources, species choice, resource focus (e.g. as staple, supplementary or occasional foods), and harvesting, collecting, hunting, and/or herding and culling practices. Students are encouraged to consider factors such as dietary diversity, forms of human-plant interactions, associated skills and knowledge, environmental management practices, labour organization, windows of resource availability, seasonal scheduling.

5. Students are encouraged to use charts and tables, preferably of their own making, to summarise the information, and to draw on a range of sources, which should be listed at the end of the PowerPoint. Tables and figures that are taken from other sources are also acceptable, and should be appropriately referenced on the slide and in the list of References Cited.

6. Citations and References Cited: At least 12 sources, at least 50% from the student’s own research and up to 50% can be drawn from reading lists provided in the course handbook. Please carefully follow the guidelines for Harvard Referencing Style.

7. While it is only the written (second) part of this assignment that is assessed for a mark, students should aim for a high quality PowerPoint presentation so that the organization and content of the presentation can contribute to shaping the written work; tables and figures from these may also be used in the final paper.
8. A print-out or email copy of the PowerPoint should be submitted to the course instructor on or before the day class in Week 6.

ASSIGNMENT 1, PART 2: GUIDELINES FOR WRITTEN PAPER, due Mon. 11 Nov, 2019.

Expected return by 19 November.

1. 2 pages of text (i.e. two sides of an A4) with 1.5 spacing.
2. Summarise the the differences between the two small scale societies that you have studied and consider possible explanations for these differences.
3. Figures and Tables and References Cited should be included but on a separate page (are not counted as part of the two page word limit).
4. Again, carefully follow the Harvard Referencing Style as consistent, appropriate referencing is assessed in all written work for this course.
5. This part of the assignment is to be produced by each student individually, even if the presentation was presented in pairs of students.
6. First marking of Assignment 1, Part 2 will be done before the end of Term 1 so students can apply the instructors feedback to improving their second assignment (due in early Term 2).

Expected Learning Outcome Of Assignment 1:

- A Deeper and More Nuanced Understanding of The Diversity in Resource Exploitation Practices, Land Uses, and Ecological and Technological Expertise and Knowledge of Societies that are (Broadly) Classified Under Broad Titles such as “Hunter-Gatherer”, “Farmer” and “Pastorialist;
- Enriched skills in reasoning and Critical Assessment of Multiple Sources;
- Enriched skills in Research Use of Library/Archival facilities;
- Experience in the Production of Presentation Graphics at a Professional level;
- Experience in the Oral Presentation of Original Research Results;
- Time Limited Assessment, permitting use of sources, testing the employment of information learned in class, as well as appropriate choice of sources, and application of independent research skills.

If students are unclear about the nature of an assignment, they should discuss this with the Module Co-ordinator.


This essay is of comparable length to that of a research paper that one might encounter in a journal. Students should therefore regard it as an opportunity to present a high caliber review with an original synthesis and/or ideas. Students should aim to draw on ca. 30 cited sources or more, moving beyond what is provided in the course reading lists to explore the topic with library and journal resources available at UCL. Readings in this hand-out and discussed in seminars provide only a starting point.
Assignment 2 Essay Topics. Please select a topic from the list below and email your choice to your instructor before the end of Term I:

1. Discuss the role of cultural niche construction in the changing human strategies for animal and plant exploitation evident at the terminal Pleistocene and/or early Holocene, in a region of your choice. Provide up to 3 case studies.

2. “A Calorie is Not Necessarily a Calorie” Consider the dietary, ecological, economic and social implications of advances in food processing, food preservation and storage for prehistoric human societies, providing archaeological examples.

3. What contributions can the study of plant remains, animal bones and geoarchaeology make to understanding the rise of complex societies? Provide at least 3 case studies.

4. Evaluate the evidence for the initial spread of crops and livestock into a region of your choice.

5. Compare and contrast approaches to investigating agricultural “intensification” highlighting the contribution of evidence from animals, plants and/or sediments. Outline avenues for further research.

6. Consider how social class or gender divisions of labour and/or food consumption can be inferred from archaeobotanical and/or zooarchaeological evidence from hunter-gatherer or early farming sites. Provide at least 3 case studies.

7. Consider the traditional ecological, biological and technological skills and expertise that are necessary for the accumulation, preservation and storage of food for future use; examine in detail how these activities are linked to resource selection, labour organisation, land-use, seasonality and seasonal scheduling. Discuss at least three case studies, which should include at least one hunter-gatherer and one farmer society.

8. A topic of your own choosing, which must be approved by the course co-ordinator

IMPORTANT UCL RULES FOR COURSEWORK LENGTH AND SUBMISSION

Word counts

Students are given a range that word counts must not exceed. The following should not be included in the word-count: title page, contents pages, lists of figure and tables, abstract, preface, acknowledgements, bibliography, lists of references, captions and contents of tables and figures, appendices.

Penalties will only be imposed if you exceed the upper figure in the range. There is no penalty for using fewer words than the lower figure in the range: the lower figure is simply for your guidance to indicate the sort of length that is expected.

The penalties for overlength work are as follows:

- For work that exceeds the specified maximum length by less than 10% the mark will be reduced by five percentage marks, but the penalised mark will not be reduced below the pass mark, assuming the work merited a Pass.
- For work that exceeds the specified maximum length by 10% or more the mark will be reduced by ten percentage marks, but the penalised mark will not be reduced below the pass mark, assuming the work merited a Pass.
Coursework submission procedures

- All coursework must normally be submitted both as hard copy and electronically unless instructed otherwise. (However, bulky portfolios and lab books are normally submitted as hard copy only.)
- You should staple the appropriate colour-coded IoA coversheet (available in the IoA library and outside room 411a) to the front of each piece of work and submit it to the red box at the Reception Desk (or room 411a in the case of Year 1 undergraduate work).
- All coursework should be uploaded to Turnitin by midnight on the day of the deadline. This will date-stamp your work. It is essential to upload all parts of your work as this is sometimes the version that will be marked.
- Instructions are given below. Please note that the procedure has changed for 2019-20, and work is now submitted to Turnitin via Moodle.

1. Ensure that your essay or other item of coursework has been saved as a Word doc., docx. or PDF document. Please include the module code and your candidate number on every page as a header.
2. Go into the Moodle page for the module to which you wish to submit your work.
3. Click on the correct assignment (e.g. Essay 1).
4. Fill in the "Submission title" field with the right details: It is essential that the first word in the title is your examination candidate number (e.g. YGBR8 Essay 1). Note that this changes each year.
5. Click "Upload".
6. Click on "Submit".
7. You should receive a receipt – please save this.
8. If you have problems, please email the IoA Turnitin Advisers on ioa-turnitin@ucl.ac.uk, explaining the nature of the problem and the exact module and assignment involved.

One of the Turnitin Advisers will normally respond within 24 hours, Monday-Friday during term. Please be sure to email the Turnitin Advisers if technical problems prevent you from uploading work in time to meet a submission deadline - even if you do not obtain an immediate response from one of the Advisers they will be able to notify the relevant Module Coordinator that you had attempted to submit the work before the deadline.
"Diet is a direct link between an organism and its environment" (Ungar, Grine and Teaford 2006:210)

WEEK 1. INTRODUCTION TO COURSE & SELECTED CASE READINGS FOR DISCUSSION:

Environmental archaeology can provide direct evidence of human subsistence practices and resource selection/modification decisions that set in motion (sometimes irreversible) changes to a resource and/or to the environment as well as to humans themselves (see Boivin et al. 2016; Ellis et al. 2013; Wollstonecroft 2011).

The impact of humans on the earth’s environments is an important theme of this course. The readings this introductory week are seminal papers in the Anthropocene discourse (e.g. Ellis 2015; Ellis et al. 2013; Ruddiman et al. 2016), an interdisciplinarity debate in which environmental archaeology has made substantial and significant contributions. The debate considers the degree to which humans have contributed to changes in earth’s biosphere, the origins and antiquity of the human activities that have had the most impact, and when the impact first became visible archaeologically as well as in the natural world.

A second important theme of this course concerns how the resource selection decisions and subsistence practices (including routines, technology, task division, mobility/settlement) of past peoples were limited or promoted by environments, environmental change and the characteristics of the available resources themselves (as opportunities, challenges or constraints) (see for example, Fuller et al. 2014; Hillman 1989; Rindos 1989; Speth 2010, listed below) The contributions of environmental archaeology to understanding these types of issues is discussed by Wilkinson and Stevens (2003), which is on your reading list.

Students are strongly encouraged to familiarize themselves with the publications listed below as many of them will show up again on the reading lists as the term progresses, as well as in other courses.

CONSIDER:

What types of information about past human societies and the environments that they inhabited and/or exploited can be obtained through examining their resource selection & subsistence practices? How is this line of inquiry of relevance for addressing present day global concerns? Which of theoretical positions discussed in the papers below do you find the most compelling, and why?

WEEK 1 READINGS:

Key readings


Murphy, Charlene and Dorian Q Fuller (2017) The Future is Long-term: past and current directions in environmental archaeology. General Anthropology 24(1): 1, 8-10


A number of recent, useful papers can be found in *The Oxford Handbook of the Archaeology of Diet* (2015). Some chapters are on-line: http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199694013.001.0001/oxfordhb-9780199694013

**WEEK 2: THE EVOLUTION OF THE HUMAN DIET**

“Humans are well adapted for lean meat, fish, insects and highly diverse plant foods without being dependent on any particular proportions of plants versus meat” (Lindeberg 2009, p. 43)

In this session we examine theories about how our species came to have the dietary patterns that we see around us today, including: scholarly arguments about hominin diet based on evidence from palaeoanthropology, primatology, archaeology, biochemistry, and nutrition, including staple-isotope and zooarchaeological research.

**CONSIDER:**

What features of the human diet that can be traced to our hominoid ancestors? What features of our diet do we share with the great apes? What features of the diet are unique to Homo? What features of the diet are unique to Homo sapiens? What is the role of culture, particularly tools but also ecological knowledge and its dissemination across and between generations, in the evolution of the human diet?

**WEEK 2 READINGS:**


The following three papers should be read together and in sequence:


Speth, J.D. 2010. *The Paleoanthropology and Archaeology of Big Game Hunting*. Protein, Fat or Politics? Springer, The Netherlands. See Chapter 12: Big-Game Hunting: Protein, Fat or Politics?


**Ecological models of food selection/food avoidance**


WEEK 3: HUNTER-GATHERER-FISHERS

In this session we examine the contributions of environmental archaeology to studies of hunter-gatherers. We discuss several models that classify hunter-gatherer groups by their subsistence practices.

Key topics to consider:
- How does mobility influence site-location and settlement patterns?
- How does seasonality of resources influence site-location (e.g. “
- Degree of specialisation on resources
- Degree of specialisation of types of sites
- Degrees of interaction/interdependence between communities

Questions to ask of site data include:
- Is the site permanently or temporarily (possibly seasonally?) occupied?
- Is it a single occupation, or was it repeatedly occupied?
- Is there evidence for exploitation at the site of only locally available resources, or a wider range of resources?
- What part of a temporal cycle does a site represent?
- What part of the economic system does the site represent?

Also consider different emphases of models, such as:
- Central-place foraging models (Winterhalder 2001; Bird & Bird 1997)
- gender-based differences (Hawkes 1996)
- role of juvenile foragers (Bird & Bird 2000; Hawkes et al. 1995; Bock 2007; Tucker and Young 2007)
- diet-breadth models (Kelly 1995; Stiner & Munro 2002)
- patch-choice models (Kelly 1995; Winterhalder 2001)
- Evolutionary aspects of hunter-gatherer behavioural ecology (Hawkes et al. 1997)
- Niche construction (Rowly-Conwy and Layton 2011, Smith 2011)
- Resilience theory (Rosen and Rivera-Collazo 2012.)

READINGS WEEK 3:


**Note:** If you are not familiar with traditional anthropological evolutionism (bands-tribes-chiefdoms-states, which Cohen uses as a general framework then you should also read Chap. 3]


Smith B. D. 2011 General patterns of niche construction and the management of ‘wild’ plant and animal resources by small-scale pre-industrial societies. *Phil. Trans. R. Soc. B* 366, 836–84


Wollstonecroft M. 2002."The Fruit of their labour: plants and plant processing at EeRb 140 (860 ± 60 uncal to 160± 50 uncal B.P.) a late prehistoric hunter-gatherer-fisher site on the southern Interior Plateau, British Columbia, Canada". *Vegetation History and Archaeobotany* 11, 61-70.

Wollstonecroft M, Ellis PR, Hillman GC, Fuller D.Q. 2008."Advancements in plant food processing in the Near Eastern Epipalaeolithic and implications for improved edibility and nutrient bioaccessibility: an experimental assessment of sea club-rush (Bolboschoenus maritimus (L.) Palla)". *Vegetation History and Archaeobotany* 17 (Suppl. 1), S19-S27.

**Further readings on Gender and hunter-gatherer subsistence practices**


Bodenhorn, B. 1990. "I'm not the great hunter, my wife is": Iñupiat and anthropological models of gender. Études/Inuit/Studies 1 4, 55-74.


WEEK 4. ORIGINS of PLANT DOMESTICATION and AGRICULTURE, with a focus on the Near East

In this session we examine general principles involved in the study of agricultural origins, including defining domestication of plants and animals, cultivation and pastoralism, and review some of the kinds of archaeological and other evidence that can be used to investigate them. A range of additional readings, and some beginnings readings for different world regions are provided below.

BASIC READINGS WEEK 4:

**CONSIDER:** What are the meanings of the terms: “Plant Management”, “Cultivation”, “Domestication” and “Agriculture”?

To be sure that you understand the vocabulary used in the discussion of the origins of agriculture, as well as the debates and state of knowledge, everyone should read these two articles:


Further readings by D. R. Harris will enhance your understanding of the issues in the archaeology of the origins of agriculture, and how our understanding has change over the past ~40 years:


Global overviews


Over the past ~25 years archaeobotany has been applied at more sites and in more regions. As a result, our understanding of the timing, speed and sequences of plant domestication has changed. Compare the seminal experiments and analyses of Harlan (1967) and Hillman and Davies (1990) with more recent work by Tanno and Willcox (2006), Fuller (2007), Fuller, Asouti and Purugganan (2011) (below).


On Southwest Asia


**Consider the following Hillman et al. (2001) paper and Colledge and Conolly’s (2010) critique**


**Americas**


Pearsall Deborah M. 2008 Plant Domestication and shift to Agriculture in the Andes in: Silverman H. and W.H. Isbell (eds.) *Handbook of South American Archaeology* New York: Springer 105-120

Smith, Bruce D. 2001. Documenting plant domestication: The consilience of biological and archaeological approaches, *Proceedings of the National Academy of Science USA* 98(4): 1324-1326 [Teaching Collection; this article can be downloaded through the UCL network from http://www.pnas.org/all.shtml]


**Compare Rindos’ evolutionary perspective on the origins of agriculture with that of Zeder 2016 –below.**


**The following Basic Readings provide useful analyses of the processes associated with agricultural origins, the features and consequences of particular pathways outside the Near East:**


Murphy, C., Fuller, D. 2016. the transition to agricultural production in India: South Asian entanglements of domestication. In Schug, G., Walimbe, S. (Eds.), *A Companion to South Asia in the Past*. John Wiley & Sons


**Useful reference books on domestication**


**General models & evidence for agricultural spread into Europe**


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**WEEK 5. STUDENT POWERPOINT PRESENTATIONS**

*(Assignment 1, Part 2, see pages 4 and 5 of this handbook)*

**WEEK 6. ANIMAL DOMESTICATION**

This session will focus in more detail on the zooarchaeological evidence for animal domestication and inferences of how early herds were managed. It also touches on the issue of initial herd dispersals, such as from southwest Asia to Cyprus, and later dispersals towards Europe.

**READINGS WEEK 6:**


Craig, O. E. et. al. 2005. 'Did the first farmers of central and eastern Europe produce dairy foods?' *Antiquity* 79, 882–894.
http://www.nature.com/news/archaeology-the-milk-revolution-1.13471


**WEEK 7. SECONDARY PRODUCTS REVOLUTION**

It has long been recognized that domestication made possible a range of further exploitation strategies which gradually were adopted and developed by human societies. Termed “secondary products” by Sherratt, these activities have been searched for, initially with little success. However, in the case of dairying, the last decade has seen a series of initiatives which have led to the identification of milk residues in ceramics. Elsewhere, less work has been done on intensified agricultural production. This seminar will consider the progress that has been made so far and consider ways in which future lines of investigation may develop.
### WEEK 7 READINGS:

#### Animal Secondary Products


Alternatively

if pressed for time, see Sherratt’s entry ‘secondary products revolution’ in the Oxford Companion to Archaeology (Fagan, B. (Ed.) 1996. [Inst Arch AG Fag]


#### Milk and residues


### Cash crops


McCorriston, J. 1997. The fiber revolution. *Current Anthropology* 38, 517-550. [with commentaries] [can be downloaded through the college network from: http://www.journals.uchicago.edu/CA/journal/contents/v38n4.html]


**WEEK 8. AGRICULTURAL INTENSIFICATION AND LAND USE**

Integrating environmental data with archaeological discoveries within reliable chronological frameworks and at variable scales, geoarchaeology serves as a key approach for the investigation of agricultural development and long-term land use. This session will first briefly introduce and review theories, methods and advantages/disadvantages of geoarchaeology in the study of early agriculture

**READINGS WEEK 8:**


**Further Recommended reading.**


**WEEK : 9. Genetics, ancient DNA and its contribution to studying, domestication, agricultural transformations and migrations “(DF)**

This session will provide an introduction to some of the implications of the genomics and ancient DNA revolution for archaeology and especially environmenta archaeology through a discussion.

Basic premises:

A) Some genomes are simply inherited maternally intact (mitochondria, plant chloroplast), or father to son (Y-chromosome). The rest of the genome (most of it) recombines and mixes up 50% from each parent. (But in self-pollinating plants the mother and father may be the same!)
B) Genetics does not provide as straight forward answers about prehistory as you might expect! It finds patterns of relationship but there may be more than one historical process to explain those relationships. Analyses either focus on shared ancestry (phylogeny and/or coalescence) or hybridization (network models, structure, principle components) an the reality is likely some combination of the two.

Genetic changes: mutations, drift that removes or shift frequency if variants and relates to population size and time, selection that removes or increases variants as adaptation, some changes may piggy back selection.

C) Most genetics papers tell just-so stories, but really you should be looking for strong inference from multiple working hypothesis and some sort of model testing for the best fitting hypothesis (story testing not story testing: see below)

The reading list below develops some themes and approaches to analysing genetic data for archaeological, population history questions. As general background I suggest thre things: (1) Kristiasen’s discussion of genetics and language in Europe (2) Gerbault et al “Story testing paper”; and (3) the Shapiro & Hofreiter review on the state ancient DNA research. Beyond that read some of the pairs or trios of papers listed after the first 3 readings and be prepared to discuss them.


In an ideal world, think about working through the list below in order. Otherwise choose one of these pairs or trios of papers to read and consider.

4 + 7 [Pigs in Europe], then compare with humans (#15) or dogs (#16)

7 + 8 [Pigs in Europe vs. Pigs in Asia] then compare with humans in India (#6) or dogs in Europe (#16)

4+ 9+ 16 Comparing domesticates: Pigs, Barley and dogs

10 + 11 + 12 [Debates on rice]

13 + 14 Ancient hominins (Neanderthals and Denisovans- the first papers.

14 + 18 The legacy of Denisovans and adaptions from ancient genomes

15 + 17 The peopling of Europe based on aDNA. Consider alongside #1

5 + 6 + 19 The peopling of South Asia

Phylogeny, phylogeography: examples from animals and humans

This study demonstrated how phylogeny of maternally inherited markers, when combined with geographical distribution could suggest something where domestication took place and the geography of dispersal – but it misses some of the story! A fundamentally similar approach underlay the first 20 or so years human genetics and the inference of migration histories, as in the two examples below.


But look how the European pig story becomes more complicated with ancient DNA. This shows how the history recorded in genetic evidence may be incomplete due to poor sampling. Sampling is needed not just across space but across time, to account for lineage extinction/ extirpation.


Now consider how the situation in China and SE Asia contrasts with that of Europe, thus implying very different systems of pig management and domestication processes over the long-term. The phylogenetic patterns on regional wild and domesticated populations are different in different reasons, we need to explain this in terms of different traditional management practices.


What about plant domestication? Barley should be a straight forward self-pollinating case (outcrossing is estimated to be ~2%). Selected data froo across the genome data again indicates phylogepographic patterns that separate east and west which is supported by a structure analysis” of admixture (e.g. Saisho & Purugganan 2007).


Now consider rice origins: single origin or more? What is the genetic picture? What about maternal versus nuclear markers, whole chromosomes versus whole genomes? What role for hybridization?


Ancient hominin genomes that rewrote Out of Africa stories and brought in new tools for admixture studies:


Structural analysis: identifying ancestral populations and extent of admixture. Ancient genomes can be included in these analyses.


Dogs follow people


This brings us to the developing “BIG DATA” potential of aDNA and genomics


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**WEEK 10 - Complex societies: Producers, Consumers, The Scale Of Surplus and social dimension of food and agriculture *(DF)*

In this class we examine issues where food and food production are taken in new directions by hierarchical and complex societies, including the role of processing, storage, conspicuous consumption. In all human societies, food procurement, production and consumption are known to be culturally mediated. Increasingly, archaeologists have come to recognise that the social dimensions of subsistence and consumption have had a significant bearing on the archaeological record. The division of labour and differential access to resources, be it by gender, age, social status/rank, that have shaped human societies in the past, will likewise have shaped the form and content of archaeological sites and the distribution of sites over the landscape.
Week 10 Readings


Food, Agriculture and Social Status


Gender and food production:


**Food Traditions: socially and culturally-mediated food preferences and avoidances**


Washington, D.C.


APPENDIX A: POLICIES AND PROCEDURES 2019-20 (PLEASE READ CAREFULLY)

This appendix provides a short précis of policies and procedures relating to modules. It is not a substitute for the full documentation, with which all students should become familiar. For full information on Institute policies and procedures, see the IoA Student Administration section of Moodle:  https://moodle.ucl.ac.uk/module/view

For UCL policies and procedures, see the Academic Regulations and the UCL Academic Manual:  
http://www.ucl.ac.uk/srs/academic-regulations ; http://www.ucl.ac.uk/academic-manual/

GENERAL MATTERS

ATTENDANCE: A register will be taken at each class. If you are unable to attend a class, please notify the lecturer by email. Students are normally required to attend at least 70% of classes.

DYSLEXIA: If you have dyslexia or any other disability, please discuss with your lecturers whether there is any way in which they can help you. Students with dyslexia should indicate it on each coursework cover sheet.

COURSEWORK

LATE SUBMISSION: Late submission will be penalized in accordance with current UCL regulations, unless formal permission for late submission has been granted.

The UCL penalties are as follows:

- The marks for coursework received up to two working days after the published date and time will incur a 10 percentage point deduction in marks (but no lower than the pass mark).
- The marks for coursework received more than two working days and up to five working days after the published date and time will receive no more than the pass mark (40% for UG modules, 50% for PGT modules).
- Work submitted more than five working days after the published date and time, but before the second week of the third term will receive a mark of zero but will be considered complete.

GRANTING OF EXTENSIONS: Please note that there are strict UCL-wide regulations with regard to the granting of extensions for coursework. You are reminded that Module 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 Support and Wellbeing (SSW) to make special arrangements. Please see the IoA website for further information. Additional information is given here

http://www.ucl.ac.uk/srs/academic-manual/c4/extenuating-circumstances/
RETURN OF COURSEWORK AND RESUBMISSION: You should receive your marked coursework within one month of the submission deadline. If you do not receive your work within this period, or a written explanation, notify the Academic Administrator. When your marked essay is returned to you, return it to the Module Co-ordinator within two weeks. You must retain a copy of all coursework submitted.

CITING OF SOURCES and AVOIDING PLAGIARISM: Coursework must be expressed in your own words, citing the exact source (author, date and page number; website address if applicable) of any ideas, information, diagrams, etc., that are taken from the work of others. This applies to all media (books, articles, websites, images, figures, etc.). Any direct quotations from the work of others must be indicated as such by being placed between quotation marks. Plagiarism is a very serious irregularity, which can carry heavy penalties. It is your responsibility to abide by requirements for presentation, referencing and avoidance of plagiarism. Make sure you understand definitions of plagiarism and the procedures and penalties as detailed in UCL regulations:
http://www.ucl.ac.uk/current-students/guidelines/plagiarism

RESOURCES

MOODLE: Please ensure you are signed up to the module on Moodle. For help with Moodle, please contact Charlotte Frearson (c.frearson@ucl.ac.uk)