Module **AR3007**  Forensic Archaeology

**Academic Year:** 2009-2010

**Semester:** 1

**Time and location:** Thursdays 14:00-16:00  
Weeks 2 – 6, 8 and 11 – Att. SB2.07  
Weeks 9 and 10 – Bone and Ceramics Lab

**First meeting:** 8th October

**Module coordinator:** Dr. Richard Thomas

**e-mail:** rmt12@le.ac.uk

**Room:** 124

**Office hours:** Tuesdays 13:00-15:00

**Your individual appointments (e.g. tutorials, seminars):** See notice board on door..........................

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AR3007 Forensic Archaeology

Weighting: 20 credits
Coordinator: Dr. Richard Thomas and Dr. Mark Gillings
Other tutors: Dr. Stephany Leach and Dr. Andrew Shortland (Cranfield University)

Module outline: This course offers an introduction to forensic archaeology, the application of archaeological methodology within crime scene investigation. The module will be taught in conjunction with the Centre for Archaeological and Forensic Analysis, Cranfield University and Dr Stephany Leach, a forensic anthropologist who has recent experience excavating victims of the First World War at Fromelles.

In this module, the whole range of criminal investigation in murder investigations will be covered, from the location of clandestine burials, through to their recovery, analysis, interpretation of peri-mortem events and trial. The course will include examples of single homicides, multiple murders and mass burials/war graves as well as other types of criminal activity. The role of the archaeologist in these processes is increasingly seen as key and many of the techniques that have been developed to study the past are equally applicable within this contemporary context.

In addition to demonstrating the application of a broad range of archaeological techniques beyond the discipline, this course will stress the benefits of a multidisciplinary approach to enquiry.
Aims: The course aims to:
1. Provide a broad introduction to the application of archaeological methodology within crime scene investigation;
2. Provide students with opportunities to develop a wide range of subject specific and key transferable skills.

Intended Learning outcomes: On completion of the module, students will be able to demonstrate:
1. An ability to apply archaeological methodology to the field of criminal investigation, this will include the application of the following skills:
   - Geophysical techniques and landscape analysis in the search for buried remains;
   - Excavation of buried remains;
   - Analysis of human skeletal remains (applied physical anthropology);
   - Archaeological science (entomology, palynology and materials analysis) for information gathering at the scene of a crime.
2. An awareness of the judicial and police frameworks in the UK and the role of the forensic archaeologist within those systems;
3. An appreciation of the integration of different disciplines – archaeological, medical and biochemical – required in the field of crime scene investigation;
4. An ability to convey scientific and analytical arguments in written form

Methods of teaching: The course will be largely lecture based; however, there will be a practical physical anthropology session in which the identification of human skeletal remains, ageing, sexing, identification, and determination of the cause of death will be covered.

Methods of assessment: The assessment consists of:
1. Case investigation (40%);
2. An assessed essay (60%).

All assessed coursework should be submitted in the box in the foyer of the School of Archaeology and Ancient History with a completed cover sheet.
## Teaching schedule

| Week 2  | 08.10.07 | Introduction to forensic archaeology (RT) |
| Week 3  | 15.10.07 | Locating buried remains (MG) |
| Week 4  | 22.10.07 | Recovering individual buried remains (RT) |
|         |          | The realities of forensic investigation (Video) |
| Week 5  | 29.10.07 | Mass grave investigations and ethical frameworks (RT) |
| Week 6  | 05.11.07 | Establishing the time since death (RT) |
| Week 7  | 12.11.07 | Reading Week |
| Week 8  | 19.11.07 | Forensic anthropology: lecture (SL) |
| Week 9  | 26.11.07 | Forensic anthropology: practical I (RT) |
| Week 10 | 03.12.07 | Forensic anthropology: practical II (RT) |
| Week 11 | 10.12.07 | The archaeology of violent death (AS) |
Assignments and deadlines

1. *Case Investigations*. You are the member of a crime scene investigation team. For this assignment you are asked to take on the role of an ‘expert’ in providing advice regarding one of the three cases outlined below. Your brief is to satisfy the outcomes that are outlined below in a 2000-2500-word report. Your analysis should be properly referenced and employ the use of illustrations/diagrams where appropriate. The deadline for submission is: 5pm on Monday 16th November and this piece of work will constitute 40% of the total final mark for this module.

You are also required to submit an electronic copy of your case investigation via the Turnitin facility of the AR3007 Blackboard site – please make sure that you have read the Turnitin – Personal Data and Intellectual Property section of your Undergraduate Handbook.

The electronic copy is to be submitted by the same deadline as the paper copy (5pm on Monday 16th November). Please note that this electronic submission is COMPULSORY. Late submission of either copy will result in the appropriate lateness penalties being applied to the final mark. Students failing to submit both paper and electronic copies by the designated deadline will be deemed to have FAILED the assessment (i.e. a mark of zero will be recorded).

**CASE A**

A person went missing six weeks ago in Leicestershire. Witness statements reveal that the individual was last seen in the area detailed by the OS map and aerial photograph below (Figures 1 and 2). Police have reason to believe that the individual was murdered and buried within this area. As an ‘expert’ archaeologist, you have been commissioned to write a detailed report prioritising the most likely areas that the victim may have been interred. You have been asked to outline the most effective search techniques in each area and provide details of the logistical requirements needed to conduct the search.

**Figure 1**
Figure 1

CASE B

An entomologist has provided you with a list of species (Figure 3) from a cadaver buried in a forest on the edge of a large urban centre in America
in suspicious circumstances. The body was buried at a minimum depth of 30cm. As an ‘expert’ forensic entomologist you have been commissioned to write a report interpreting these findings. In particular, you have been asked to estimate the Post Mortem interval and provide information concerning the location of the murder site, and any subsequent movement of the body. You have been asked to provide an indicator of the reliability and significance of your interpretations - remember that this report may be later used as evidence in court.

**Figure 3**

<table>
<thead>
<tr>
<th>Species</th>
<th>State</th>
<th>Location</th>
<th>Abundance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calliphora vicinia</td>
<td>eggs</td>
<td>nose and mouth</td>
<td>Few</td>
</tr>
<tr>
<td>Calliphora vomitaria</td>
<td>eggs</td>
<td>nose and mouth</td>
<td>Few</td>
</tr>
<tr>
<td>Calliphora vomitaria</td>
<td>larvae</td>
<td>internal cavities</td>
<td>Many</td>
</tr>
<tr>
<td>Sarcophaga bullata</td>
<td>larvae</td>
<td>internal cavities</td>
<td>Many</td>
</tr>
<tr>
<td><em>Sarcophaga haemorrhoidalis</em></td>
<td>larvae</td>
<td>internal cavities</td>
<td>Many</td>
</tr>
<tr>
<td>Conicera sp.</td>
<td>larvae</td>
<td>external surface of body</td>
<td>Few</td>
</tr>
<tr>
<td>Metopina sp.</td>
<td>larvae</td>
<td>external surface of body</td>
<td>Few</td>
</tr>
</tbody>
</table>

The entomologist felt it was important to note that no *Muscidae* or *Piophilidae* were recovered with the body.

**CASE C**

Aerial photographs have revealed evidence of a large triangular area of disturbed ground, with a temporary track leading up to it, (Figure 4) in a temperate country that has recently been wracked by civil war. Witness testimony indicates that a large numbers of local men had been rounded up in this area by the ruling military junta and have since ‘disappeared’. The United Nations has commissioned you – an expert ‘forensic anthropologist’ - to write a plan of how you will recover any bodies, and associated evidence, at this site. You have been asked to focus your discussion on the logistical, ethical and psychological problems your team is likely to face.

**Figure 4**
2. **Assessed essay:** The deadline for this essay (2500-3000 word) is 5pm on Monday **11th January 2010** and it will constitute **60%** of the final mark for this module. A selection of essay titles is provided below, however, if you have a particular topic that you would like to pursue then please come and discuss this with me *in advance*. **Remember; you cannot choose the same topic that you undertook for the first assessment.** Each essay should be supported by a number of, critically examined, case studies that support the evidence you are presenting – it should not be purely descriptive!

You are also required to submit an electronic copy of your essay via the Turnitin facility of the AR3007 Blackboard site – please make sure that you have read the Turnitin – Personal Data and Intellectual Property section of your Undergraduate Handbook.

The electronic copy is to be submitted by the same deadline as the paper copy (5pm on Monday **11th January**). Please note that this electronic submission is **COMPULSORY**. Late submission of either copy will result in the appropriate lateness penalties being applied to the final mark. Students failing to submit both paper and electronic copies by the designated deadline will be deemed to have **FAILED** the assessment (i.e. a mark of zero will be recorded).

1. Discuss the role of forensic archaeologists, as expert witnesses, within the UK criminal justice system.

2. In recent years Ground Penetrating Radar (GPR) has become an increasingly favoured technique in searches of clandestine graves. Outline the merits and disadvantages of this technique in light of other non-invasive search techniques.

3. The recovery of buried remains at a crime scene requires the wholesale transference of the methods and techniques employed in the recovery of buried remains on archaeological sites. Discuss.

4. How does the nature of the burial environment affect the preservation of the human body and associated materials? What are the implications for crime scene investigation?

5. Analysing the stages of insect development is the most effective way of establishing time since death. Discuss.

6. What can the analysis of soil samples from beneath buried bodies reveal about peri-mortem events? What techniques should forensic archaeologists employ to collect such samples?
7. What ethical implications do forensic anthropologists face? Compare and contrast this to the issues faced by physical anthropologists studying archaeological (i.e. non forensic) human remains?

8. Outline the potential and pitfalls of using Computerised Tomography (CT) scanning as a non-invasive technique in the analysis of skeletons of murder victims.
Reading list: AR3007

N.B. Please note that many of the publications that you will be expected to read are located in the Medical School library. Inability to use this facility will not be a sufficient excuse for limited bibliographies! If you have trouble accessing any of the references then please let me know. Many of the pre-1992 articles from the Journal of Forensic Sciences etc. are now also available in the short loan section of the Main Library. Other online journals can be accessed through Google Scholar.

Detailed supplementary information can also be found on Blackboard.

Core reading


**General forensic archaeology/anthropology/pathology**


**Locating buried remains**


Forensic taphonomy and decay processes


**Recovering buried remains (practice and ethics)**


Stoutamire, J. 1983. Excavation and recovery, in Morse, Duncan, Stoutamire 1983: 20-47


**Physical anthropology**

American Journal of Physical Anthropology (Available, and searchable, online)

International Journal of Osteoarchaeology (Available, and searchable, online)


**Dating time of death**


*Archaeological science and forensic science*
Forensic Science International (available online and in Clinical Sciences Library)

Journal of Forensic Sciences (available online and in Clinical Sciences Library)


Beard, B. L. and Johnson, C. M. 2000. Strontium isotope composition of skeletal material can determine the birth place and geographic mobility of humans and animals. Journal of Forensic Sciences 45 (5): 1049-1061. (Available online)


