An Introduction to Paleoradiography: Course handbook

Introduction to the course:

Thank you for deciding to embark upon this short online course about paleoradiography – the use of X-rays in archaeology. This short document provides an overview of the course, navigating the webpages, and outlines how it supports specific National Occupational Standards for archaeologists. More information can be found on the course webpages.

This is an introductory course, providing key practical knowledge for the application of radiography in archaeology. The tutor uses examples from published academic literature to illustrate its application with human remains, metalwork and ceramics. The course is entirely online and can be accessed at any time for six months from the point of purchase or activation.

This course has been approved as Continual Professional Development by the Chartered Institute of Archaeologists (United Kingdom) and the Register of Professional Archaeologists (USA). Completing the course provides you with four hours of CPD that can contribute your requirements as an accredited archaeologist.

About the tutor:

James Elliott completed his BSc in Archaeology with Bioarchaeological Science at Newcastle before retraining by studying BSc Diagnostic Radiography at Portsmouth University. Despite changing career, he maintained an interest in archaeology and brought the two disciplines together with a Masters of Science in Forensic Radiography from Teesside University. He has worked in hospitals around the south east of England and published research concerning radiography, nuclear medicine and archaeology. This short course is the culmination of his research into the use of X-rays in archaeology and his experience as a senior lecturer in higher education with Canterbury Christ Church University in the United Kingdom.

Course structure:

The course is split into four parts, each providing students with key information about paleoradiography. Whilst it is meant to be completed sequentially, students may access the content in any order.

Part 1 – Core concepts

- What are x-rays?
- What is radiography?
- How are x-rays used in archaeology?

Part 2 – Image brightness and contrast

- How are x-rays made?
- Object density and image grayscale
- Photodensitometry

Part 3 – Radiographic technique

- What is radiographic technique?
- Geometric unsharpness
- Radiogrammetry

Part 4 – Paleoradiography in research

- Using DICOM files
- Data extraction
- Related technologies

Course navigation:

You will need to be logged into the website in order to view the course webpages. Once you have done so, click on the 'Course Homepage' on the drop down menu for 'Paleoradiography Online Course'. At the top of the webpage, and on every subsequent course webpage, you will see the following navigation icons to help you navigate the course. Click on the icons to navigate to the homepage, help & contact page, and each part of the course (1 to 4).



To locate specific sub-sections of the course you can view the Course Map, shown on the Course Homepage. A copy is shown on the next page of this handbook. If you navigate away from the course webpages (by clicking on any other part of the paleoimaging.com website) you will need to revisit the 'Course Homepage' to view the map and the navigation icons once more.

Part 1 - Core Concepts

1.1 Overview of Part 1
1.2 What are X-rays?
1.3 What is radiography?
1.4 How are X-rays used in archaeology?
1.5 Summary and quiz

Part 2 - Image Brightness and Contrast

2.1 Overview of Part 2
2.2 How are X-rays made?
2.3 Object density and image greyscale
2.4 Photodensitometry
2.5 Summary and quiz

Part 3 - Radiographic Technique

3.1 Overview of Part 3
3.2 What is radiographic technique?
3.3 Geometric unsharpness
3.4 Radiogrammetry
3.5 Summary and quiz

Part 4 - Paleoradiography in Research

4.1 Overview of Part 4
4.2 Using DICOM files
4.3 Data extraction
4.4 Related technologies
4.5 Summary, quiz and completion of course

National Occupational Standards:

This online course has been approved as supporting the following National Occupational Standards by the Chartered Institute of Archaeologists –

An introduction to paleoradiography short online course supports the knowledge requirements for

AC1 Research and analyse information to achieve objectives

K2 what the research aims of the project are

K3 the sources of information relevant to the research

K6 how to obtain different types of information

K10 how different types of information relate to the research aims

K12 the research aims

K13 which types of analysis method are appropriate

https://www.ukstandards.org.uk/PublishedNos-old/CCSAPAC1.pdf

AC2 Conduct non-intrusive investigations

K1 how to verify the aims and goals of the project

K6 how to brief personnel on investigation methods

K8 the relevant technical and ethical standards applicable to the work

K9 the different types and modes of investigation

K12 the types of equipment which may be required

K13 the types of facilities required

K15 how to conduct investigations

K19 how to adapt investigation procedures and practices to suit different conditions

K22 types and modes of investigation

K23 circumstances and conditions which can affect investigation operations

K29 how to advise users on the interpretation of investigation

K30 the different types of investigation data

K31 the limitations of techniques and data

K32 the different types of data analysis

https://www.ukstandards.org.uk/PublishedNos-old/CCSAPAC2.pdf

AC8 Undertake analysis and interpretation of archaeological material and data

K1 How to carry out analysis and interpretation

K3 Relevant technical and ethical standards

K4 Types of analysis and interpretation

K5 Types of method

K6 How to conduct analysis and interpretation

K9 How to adapt analysis and interpretation procedures and practices to suit different conditions

K11 Types and modes of analysis and interpretation

K12 Circumstances and conditions which can affect analysis and interpretation activities

https://www.ukstandards.org.uk/PublishedNos-old/CCSAPAC8.pdf

Frequently Asked Questions:

How long does the course take?

The course is designed to take four hours to complete, however I have provided additional reading if you wish to explore the topic further. All literature mentioned during the course can be found within the Learning Resources section. Where possible I have provided links to Open Access journal articles, meaning you will not need to purchase the articles to read them. Suggested academic textbooks are typically not available online (for free), you may wish to request a copy from your public or university library.

How long do I have to access the course?

You will have access to the course webpages for six months from point of purchase.

I want to view the course on my mobile phone / tablet. Does it work?

I recommend that you view the course on a PC or laptop screen due to the use of pictures, videos and text as part of the learning content. You should be able to access the course on your phone or tablet but I cannot guarantee you will be able to navigate the page normally. I recommend using a wide PC/laptop screen at 90% or 100% zoom to see all of the content correctly.

The YouTube videos are not showing/loading. What do I do?

The simplest way is to clear your browser cookies/cache by clicking on 'Clear browsing history' within Chrome. Other web-browsers may differ. Refresh the webpage once you have done this, the video should display as normal.

I've done all the Parts of the course. How do I get my certificate?

Please complete the Course Completion form (the link can be found on the final webpage, in Part 4.5). Your certificate will be sent to the email address you used to register on the paleoimaging.com website. It is important to spell your name correctly. You will continue to access all of the course webpages until your pass expires. Please allow up to 5 working days for the certificate to be sent.

I've forgotten my password for logging into the website!

On the login page click 'Forgot password?'. A password reset will be sent to your email address. You will then have the opportunity to enter a new password.

Is this a recognised course for archaeologists?

Yes, it has been approved by the Chartered Institute of Archaeologists and has been mapped to National Occupational Standards for the archaeology profession. CIfA is the leading professional body representing archaeologists working in the UK and overseas.

Which National Occupational Standard have been mapped to this course?

This course supports the knowledge for:

AC1 Research and analyse information to achieve objectives

AC2 Conduct non-intrusive investigations

AC8 Undertake analysis and interpretation of archaeological material and data

A full description of the NOS for this course is available within the Course Handbook.

A guide to the course icons:

A variety of icons are used in the course to aid navigation or interaction of the webpages.

Course Home Page

This is where you will find a video explaining the content and structure of the course. This is also where the Course Map is, with direct links to each webpage.



Help and Contact

Click on this icon to take you to the Help and Contact page, but you knew that already! This is where the Frequently Asked Questions will be. If you do not see the answer to your question, send me a message.

Learning Resources

Click on this icon to view all of the reading tasks and optional reading for the course. This icon is also used for the direct reading tasks.



Tutor's thoughts and opinions

Every now and then I'll be providing my own opinion on matters related to paleoradiography.



Warning sign

The video or journal article contains images of human remains that some may find disturbing.



Course Map

This link takes you to the list of links for each part of the course (found within the Course Home Page).

