

Liverpool John Moores University

Title: FORENSIC ENVIRONMENTAL GEOSCIENCE
Status: Definitive
Code: **5104NATSCI** (112588)
Version Start Date: 01-08-2013

Owning School/Faculty: Natural Sciences & Psychology
Teaching School/Faculty: Natural Sciences & Psychology

Team	Leader
Laura Bishop	Y
Kostas Kiriakoulakis	
Jason Kirby	
Silvia Gonzalez	
Graham Sherwood	

Academic Level: FHEQ5 **Credit Value:** 24.00 **Total Delivered Hours:** 60.00
Total Learning Hours: 240 **Private Study:** 180

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	24.000
Off Site	13.000
Practical	20.000
Seminar	3.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	Lit Review	Literature Review Essay	40.0	
Report	Field Rpt	Field and Lab Report	60.0	

Aims

This module aims to give a theoretical and practical introduction to a range of

geological, geophysical and geochemical techniques common to environmental sciences and explores their applications in forensic and archaeological contexts.

Learning Outcomes

After completing the module the student should be able to:

- 1 Observe, describe and evaluate a range of geological evidence in a forensic context.
- 2 Discuss and apply methods used to determine the environmental and geological contexts of forensically relevant occurrences.
- 3 Synthesise the results of field and laboratory studies and communicate them to specialists and non-specialists.
- 4 Evaluate the role that environmental science plays in forensic investigation.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Literature Review	3	4
Essay		
Field and Laboratory Report	1	2

Outline Syllabus

Prospecting and site detection. Maximising the information from a site – recovery, sieving and floatation. Collection and examination methods. Field methods – soil profiling and geophysical techniques. Optical microscopy and characterization of sediments and rocks. Analytical techniques - use and interpretation of data. Dating methods. Taphonomy. Environmental reconstruction . Provenance and life history of human remains – stable isotope analysis. Using secondary sources of data. Synthesis of field and laboratory data.

Learning Activities

The module has an emphasis on laboratory and field-based study. The majority of learning will be centred on an investigative project that will involve the use of a wide range of techniques.

References

Course Material	Book
Author	Brothwell, D.R. and Pollard, A.M.
Publishing Year	2005
Title	Handbook of Archaeological Sciences.
Subtitle	
Edition	

Publisher	Wiley.
ISBN	0470014768

Course Material	Book
Author	Murray, R.C.
Publishing Year	2004
Title	Evidence from the Earth :Forensic geology & criminal investigation.
Subtitle	
Edition	
Publisher	Mountain Press.
ISBN	0878424989

Course Material	Book
Author	Pye K. & Croft D.J.
Publishing Year	2004
Title	Forensic geoscience :principles, techniques and applications.
Subtitle	
Edition	
Publisher	Geological Society Publishing House.
ISBN	1862391610

Notes

This module introduces a range of field and laboratory techniques in forensic environmental geoscience to students of earth science and the forensic sciences. Emphasis is on practical and field skills and on the synthesis of analyses from a variety of techniques.

Handbook of Archaeological Sciences. Chichester, New York, Weinheim, Brisbane, Singapore, Toronto: John Wiley & Sons, Ltd. INST
ARCH AJ BRO. Demortier, G. and Adriaens, A. (eds), 2000. Archaeological theories and archaeological sciences, in A. Gardner, M.
Lake and U. Sommer (eds.), Oxford Handbook of Archaeological Theory. Oxford: Oxford University Press. Online.
@inproceedings{Pollard2001HandbookOA, title={Handbook of archaeological sciences}, author={A. M. Pollard and D. Brothwell}, year=
{2001} }. A. M. Pollard, D. Brothwell. Published 2001. Geography. List of Contributors. Foreword: Martin Aitken FRS.

Acknowledgements. Introduction: Archaeological Science: A current Perspective (D. Brothwell & A. Pollard). DATING. Overview -- Dating
in Archaeology: Past, Present and Future (R. Hedges). Quaternary Geochronological Frameworks (J. Lowe). Radiocarbon Dating (R.
Taylor). Dendrochronology and Other Applications of Tree-ring Studies in Archaeology (P. The Handbook of Archaeological Sciences is
intended to bring together a substantial overview of the sciences in archaeology in one complete volume. The book is organised under
eight broad headings: dating, quaternary palaeoenvironments, human palaeobiology, developments in biomolecular archaeology,
resource exploitation, archaeological prospection, conservation science in the archaeological context and statistical and computer
applications. Section 4: BIOMOLECULAR ARCHAEOLOGY. Overview - Archaeological Science in the Biomolecular Century (A.
Pollard). 25. Ancient DNA (T. Brown). 26. Blood Residues in Archaeology (P. Smith & M. Wilson). Handbook of Archaeological Sciences
book. Read reviews from world's largest community for readers. D.R. Brothwell and A.M. Pollard have got together to c... The
Handbook of Archaeological Sciences is intended to bring together a substantial overview of the sciences in archaeology in one
complete volume. The book is organised under eight broad headings: dating, q D.R. Brothwell and A.M. Pollard have got together to
create the first large scale review of the many sciences which contribute to modern archaeology for over 30 years. The Handbook of
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Handbook of Archaeological Theories Edited by R. Alexander Bentley, Herbert D. G. Maschner, and Christopher Chippindale ALTAMIR
A Division of ROWMAN & LITTLEFIELD PUBLISHERS, INC. Lanham & New York & Toronto & Plymouth, UK CHAPTER 8 ty i-
Darwinian Archaeologies R. Alexander Bentley, Carl Lipo, Herbert D. G. Maschner, and Ben Marler It may be that the next great
developments in The first factor, the environment, centers. on the the social sciences will come not from pro notion that the external
world makes things change, fessed social scientists but from people trained but it does not spe