

## Liverpool John Moores University

Title: PALAEOCLIMATOLOGY, PALAEOECOLOGY AND PALAEOGEOGRAPHY  
Status: Definitive  
Code: **6106NATSCI** (101347)  
Version Start Date: 01-08-2011

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

Team	Leader
Laura Bishop	Y
Kostas Kiriakoulakis	
Graham Sherwood	
Clare Milsom	

**Academic Level:** FHEQ6      **Credit Value:** 24.00      **Total Delivered Hours:** 51.00  
**Total Learning Hours:** 240      **Private Study:** 189

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	30.000
Off Site	4.000
Practical	4.000
Seminar	4.000
Workshop	6.000

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	essay & interpretive questions	50.0	3.00
Report	Fld rpt	field report	15.0	
Presentation	Poster	poster presentation	20.0	
Essay	Essay	essay	15.0	

### Aims

*To understand the major controls on the evolution of the Earth's climates, geography and ecology.*

## **Learning Outcomes**

After completing the module the student should be able to:

- 1 Analyse palaeomagnetic data and evaluate their significance
- 2 Critically evaluate the role of palaeomagnetic data in palaeogeographic reconstructions
- 3 Evaluate the evidence for palaeoclimatic changes in the geological past
- 4 Reconstruct past environments from field evidence
- 5 Discuss the role of palaeontological, geochemical and sedimentological data in reconstructions of past environments.

## **Learning Outcomes of Assessments**

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

Exam	1	5
Field Report	4	
Poster Presentation	3	
Essay	2	

## **Outline Syllabus**

*Fossils as palaeoenvironmental indicators; climate from plants, temperature from oxygen isotopes. Quantitative analysis of fossil assemblages. Palaeoecology; trophic structures and community evolution. Palaeoenvironmental reconstruction: Microfossils as palaeoceanographic and palaeoenvironmental indicators Palaeoclimatic indicators. Global climatic fluctuations through time - mechanisms and evidence.*

*Palaeomagnetism and palaeogeographical reconstructions: sources of error and possible problems. Case studies: Late Precambrian palaeogeography, reconstruction of the Caledonides, evolution of the Mediterranean.*

## **Learning Activities**

Lectures are seen as the starting points for independent research by students. Hands-on practical experience of macro and micro-fossil analysis is gained through field and laboratory work.

Students are encouraged to share their research with the group through formal and informal presentations.

## References

<b>Course Material</b>	Book
<b>Author</b>	Van der Voo, R
<b>Publishing Year</b>	2005
<b>Title</b>	Paleomagnetism of the Atlantic, Tethys and Iapetus Oceans
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	Cambridge University Press
<b>ISBN</b>	0521612098

<b>Course Material</b>	Book
<b>Author</b>	Cronin, T.M.
<b>Publishing Year</b>	2009
<b>Title</b>	Paleoclimates
<b>Subtitle</b>	understanding climate change past and present
<b>Edition</b>	
<b>Publisher</b>	University Presses of California, Columbia and Princeton
<b>ISBN</b>	0231144946

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## Notes

This module analyses how palaeoenvironments may be established from palaeomagnetic, sedimentological and palaeontological data. Emphasis is placed on palaeoclimatic indicators and the application of palaeontological techniques in palaeoenvironmental analyses.