

## Liverpool John Moores University

Title: GLACIOLOGY AND MARINE SYSTEMS  
Status: Definitive  
Code: **6104NATSCI** (112603)  
Version Start Date: 01-08-2016

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

Team	Leader
Sheelagh Conlan	Y
Kostas Kiriakoulakis	

**Academic Level:** FHEQ6      **Credit Value:** 24      **Total Delivered Hours:** 50  
**Total Learning Hours:** 240      **Private Study:** 190

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	26
Off Site	6
Practical	9
Seminar	3
Workshop	3

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Essay and interpretive questions	50	3
Report	Fld rpt	Field Report	30	
Essay	essay	Essay	20	

### Aims

*To provide students with an appreciation of the nature and workings of glaciers and oceans and their interactions with climate.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Evaluate the fundamental controls on ice sheet and glacier dynamics in determining glacial flow.
- 2 Determine the biogeochemical processes that drive the marine system with the use of environmental proxies.
- 3 Assess the interactions between ice masses, oceans and climate over a variety of temporal and spatial scales.
- 4 Critically review and judge advanced scientific information relating to ice sheets and the marine environment.

## Learning Outcomes of Assessments

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

EXAM	1	2	3	4
FIELD REPORT	2	4		
TIMED ESSAY	1	2	4	

## Outline Syllabus

*Glacier mass balance. Glacier thermal regime. Ice dynamics. Glacier hydrological systems. Glaciers, climate and sea level change. Tracers of glacio-marine environments and processes. The ocean as a global reservoir. Marine elemental cycles. Primary productivity and particle fluxes in the ocean. Marine sedimentary processes.*

## Learning Activities

Lectures, practicals workshops seminar and field work.

## Notes

Climate change is intimately linked to the formation and destruction of ice sheets and the corresponding response and mediation of the oceans. This module will provide students with a detailed insight into ice sheet and marine environmental processes that are related to climate and climate change.