

The Cryosphere in a Changing Climate

Module Information

2022.01, Approved

Summary Information

Module Code	5403NATSCI
Formal Module Title	The Cryosphere in a Changing Climate
Owning School	Biological and Environmental Sciences
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Biological and Environmental Sciences

Learning Methods

Learning Method Type	Hours
Lecture	20
Practical	18
Workshop	12

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

Aims and Outcomes

Aims	This module aims to examine the physical processes controlling the cryosphere and the changes it has and will undergo. This will look at the interactions between the cryosphere, the environment, and societies in polar and alpine regions. The module aims to provide students with necessary knowledge and practical skills for understanding the changes the cryosphere is undergoing.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Describe and discuss the role of cryosphere in the Earth's climate system
MLO2	2	Critically assess, synthesise, and interpret cryospheric data from palaeo-records, monitoring, and projections
MLO3	3	Understand the impact of a changing climate (warming and cooling) on all aspects of the cryosphere
MLO4	4	Understand the impacts a changing cryosphere will have on human populations

Module Content

Outline Syllabus	Ice in the climate system, glacier mass balance, ice dynamics, the Arctic (ice caps, sea-ice, climatological importance), Antarctica (ice streams, ice shelves, East Antarctica and West Antarctica), mountain glaciers. Permafrost, permafrost degradation, society and permafrost.
Module Overview	This module aims to examine the physical processes controlling the cryosphere and the changes it has and will undergo. This will look at the interactions between the cryosphere, the environment and societies in polar and alpine regions. The module aims to provide necessary knowledge and practical skills for understanding the changes the cryosphere is undergoing.
Additional Information	The module will examine the cryosphere and its importance to global systems and humans. The initial themes will introduce subject specific knowledge of the cryosphere, before more complex concepts of changes, causation, and teleconnections are explored. The last section of the module will explicitly explore the impacts on humans.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Stakeholder report	60	0	MLO2, MLO3, MLO4
Presentation	Specialist presentation	40	0	MLO1, MLO2

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Timothy Lane	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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