

## Liverpool John Moores University

Title: METEOROLOGY & CLIMATE  
Status: Definitive  
Code: **4008MAR** (105570)  
Version Start Date: 01-08-2011

Owning School/Faculty: Engineering  
Teaching School/Faculty: Engineering

Team	Leader
Trevor Kelly	Y

**Academic Level:** FHEQ4  
**Credit Value:** 12.00  
**Total Delivered Hours:** 40.00  
**Total Learning Hours:** 120  
**Private Study:** 80

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	34.000
Tutorial	6.000

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	coursework	60.0	
Report	AS2	observation report	40.0	

### Aims

*To provide an introduction to the principles of meteorology and climate together with a appreciation of meteorological processes and observing methods, codes and weather services to marine community.*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Use meteorological observing methods, World Meteorological Organisation (WMO) codes and describe weather services available to marine community.
- 2 Understand meteorological processes.
- 3 Identify and describe the weather associated with the main features of a synoptic chart.
- 4 Demonstrate an understanding of the general circulation of the atmosphere, the main climatic zones over the oceans and the ocean currents of the world.

## Learning Outcomes of Assessments

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

CW	1	2	4
CW	1	3	

## Outline Syllabus

*Atmosphere: Structure and composition.*

*Atmospheric Pressure: Definitions, standard atmospheric conditions and diurnal range.*

*Temperature: Solar and terrestrial radiation. Methods of heating and cooling of the troposphere.*

*Wind: Forces, general circulation, geostrophic wind, localised effects and local winds.*

*Water Vapour: Water phases, Humidity and Dew Point.*

*Instruments: Barometer, Hygrometer, Thermometer, Anemometer and other instruments.*

*Clouds: Atmospheric stability and instability, cloud formation, cloud types and thunderstorm*

*Precipitation: Formation and types of precipitation and the causes of reduced visibility.*

*Organisation and Operation of Meteorological Services: Meteorological observations and W.M.O. codes, coding and de-coding, Weather services available to shipping*

*Main synoptic patterns and air masses: Air masses and the weather associated with each including fronts and other patterns. Monsoons. ITCZ and TRS*

*Ocean currents: Description and evaluation. Characteristics. Ice conditions.*

## Learning Activities

Formal lectures and videos

Weather observation - including using meteorological equipment.

Practical exercises to code weather and produce forecasts.

## References

<b>Course Material</b>	Book
<b>Author</b>	Meteorological Office
<b>Publishing Year</b>	1995
<b>Title</b>	Marine Observer's Handbook
<b>Subtitle</b>	
<b>Edition</b>	11th ed
<b>Publisher</b>	HMSO
<b>ISBN</b>	011400367X

<b>Course Material</b>	Book
<b>Author</b>	Meteorological Office
<b>Publishing Year</b>	2002
<b>Title</b>	Meteorology for Mariners
<b>Subtitle</b>	
<b>Edition</b>	3rd ed
<b>Publisher</b>	HMSO
<b>ISBN</b>	0114003114

<b>Course Material</b>	Book
<b>Author</b>	Meteorological Office
<b>Publishing Year</b>	0
<b>Title</b>	Ships' code and decode book
<b>Subtitle</b>	12th ed
<b>Edition</b>	
<b>Publisher</b>	HMSO
<b>ISBN</b>	0114003688

<b>Course Material</b>	Book
<b>Author</b>	Kemp, J. and Young, P
<b>Publishing Year</b>	1993
<b>Title</b>	Notes on Meteorology
<b>Subtitle</b>	
<b>Edition</b>	3rd ed
<b>Publisher</b>	Butterworth
<b>ISBN</b>	0750617365

<b>Course Material</b>	Book
<b>Author</b>	Watts, A
<b>Publishing Year</b>	1999
<b>Title</b>	The Weather Handbook
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	Waterline Books
<b>ISBN</b>	1840370890

<b>Course Material</b>	Book
<b>Author</b>	Ahrens, C. D.

<b>Publishing Year</b>	1994
<b>Title</b>	Meteorology Today
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	West Publishing Company
<b>ISBN</b>	0314027793

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### **Notes**

This module delivers the knowledge necessary to understand the meteorological and climate as prescribed by STCW for Deck Officers.