

## Liverpool John Moores University

Title: METEOROLOGY  
Status: Definitive  
Code: **4011NAU** (119104)  
Version Start Date: 01-08-2016

Owning School/Faculty: Maritime and Mechanical Engineering  
Teaching School/Faculty: Maritime and Mechanical Engineering

Team	Leader
Barbara Kelly	Y

**Academic Level:** FHEQ4      **Credit Value:** 12      **Total Delivered Hours:** 42  
**Total Learning Hours:** 120      **Private Study:** 78

### Delivery Options

Course typically offered: Runs Twice - S1 & S2

Component	Contact Hours
Lecture	30
Tutorial	10

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS1	observation report	40	
Exam	AS2	examination	60	2

### Aims

*To provide an introduction to the principles of meteorology and climate together with an appreciation of meteorological processes and observing methods, codes and weather services to the 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 Evaluate meteorological processes for marine applications.
- 3 Identify and describe the weather associated with the main features of a synoptic chart.
- 4 Demonstrate an appreciation 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:

Essay	1	3
Exam	2	4

### **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 understand the production of forecasts.

### **Notes**

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