

## Liverpool John Moores University

Title: METEOROLOGY AND COMPASS  
Status: Definitive  
Code: **4212NAU** (126760)  
Version Start Date: 01-08-2022

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

Team	Leader
Jonathan Warren	Y
Mike Stringfellow	

**Academic Level:** FHEQ4      **Credit Value:** 10      **Total Delivered Hours:** 53  
**Total Learning Hours:** 100      **Private Study:** 47

### Delivery Options

Course typically offered: S1 & S2 & Summer

Component	Contact Hours
Lecture	50

**Grading Basis:** 50 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam 1	Meteorology Exam	80	2
Exam	Exam 2	Compass Exam	20	1

### 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 marine community and the use of compasses*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Explain the use of meteorological observing methods, World Meteorological Organisation (WMO) codes and describe weather services available to ships.
- 2 Demonstrate an appreciation of the general circulation of the atmosphere, ocean currents and weather associated with the features of a synoptic chart.
- 3 Explain the operation of magnetic and gyro compasses, including correcting for error.

## Learning Outcomes of Assessments

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

Meteorology Exam	1	2
Compass Exam	3	

## Outline Syllabus

### *Meteorology*

*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*

*Compass – magnetic and gyro*

*Knowledge of the principles of magnetic and gyro-compasses*

## Learning Activities

Lectures and tutorials integrated with simulator sessions if appropriate and available.

### **Notes**

This module will contribute to the underpinning knowledge required for progression to an Officer of the Watch professional qualification.

This module is subject to component marking - a 50% pass mark must be obtained in both assessment components.