

Liverpool John Moores University

Title: CATCHMENT TO OCEAN
Status: Definitive
Code: **6112NATSCI** (119655)
Version Start Date: 01-08-2014

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

Team	Leader
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Academic Level: FHEQ6 **Credit Value:** 24.00 **Total Delivered Hours:** 47.00
Total Learning Hours: 240 **Private Study:** 193

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	30.000
Off Site	7.000
Practical	6.000
Workshop	2.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	exam	exam	40.0	2.00
Report	report	field and lab report	40.0	
Essay	Essay	Essay	20.0	

Aims

To provide students with an appreciation of fundamental processes that operate in (and link) catchments, riverine, coastal and marine environments. To equip the

students with the necessary skills and techniques that are used for monitoring and comprehending these complex and dynamic systems.

Learning Outcomes

After completing the module the student should be able to:

- 1 Describe and evaluate the processes that drive the evolution and functioning of catchments and rivers
- 2 Gain an awareness of the importance and complexity of coasts and estuaries including sea level change
- 3 Explore the fundamental processes and systems that operate in ocean margins in relation to the neighbouring land
- 4 Critically review and judge advanced scientific information relating to a variety of environments from catchments to oceans

Learning Outcomes of Assessments

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

exam	1	2	3	4
field and lab report	1	4		
Essay	2	4		

Outline Syllabus

Soil erosion. Fluvial morphology, processes and development. River and hillslope hydrology and hyporheic processes. Sea level rise and salt marshes. Floodplain and estuarine contamination. Organic matter in estuaries and the coastal ocean. Particle transport in the ocean. Continental shelf and slope processes and morphology.

Learning Activities

Lectures, workshops, practicals, fieldtrips.

Notes

The environmental amenity of water in catchments, waterways and the coastal zone is under increasing threat from human generated pollutants entering the system through soil erosion. At the same time catchment characteristics, such as river bed morphology (evolved through time) and processes, sediment types and hydrology play an important role in determining flood events and the biogeochemical cycling and transport of nutrients and trace metals. Roughly 2/3 of the world's biggest cities are located in estuaries and most pollution ends up or channelled through them.

Estuaries are also paramount in supplying the coastal ocean with material and nutrients for the support of its ecosystems. The coastal ocean is home to ~90% of the world's fisheries and marine oil reserves therefore understanding of the processes delivering and redistributing material in the coastal ocean is of great importance but little understood. In addition, more than 60% of the human population lives in coastal environments and global warming with the associated sea level rise will pose a serious challenge to the management and function of these sensitive systems.

In this module, soil erosion, river morphology and evolution, catchment hydrology, pathways and transformation of material from the catchments, to rivers and estuaries, sea level rise and shelf and slope ocean processes will be covered.