

## Liverpool John Moores University

Title: Human Physiology and Genetics  
Status: Definitive  
Code: **4012BMBMOL** (117069)  
Version Start Date: 01-08-2015

Owning School/Faculty: Pharmacy & Biomolecular Sciences  
Teaching School/Faculty: Pharmacy & Biomolecular Sciences

Team	Leader
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**Academic Level:** FHEQ4      **Credit Value:** 24.00      **Total Delivered Hours:** 62.00  
**Total Learning Hours:** 240      **Private Study:** 178

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	46.000
Practical	10.000
Seminar	6.000

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	Practical	Practical report involving calculations and drawing graphs.	30.0	
Presentation	Seminar	Group seminar based on a given physiological problem.	30.0	
Test	HP test	In class test based on Human Physiology Lectures and practical.	40.0	

## Aims

- 1) To provide an introduction to the integration of physiological processes in humans.
- 2) To provide an introduction to the principles of genetics and the science of inheritance.

## Learning Outcomes

After completing the module the student should be able to:

- 1 Discuss the different physiological systems and their functions and the role of mutations in human genetics diseases.
- 2 Present, analyse and interpret physiological and genetic data, and work in a group to prepare a verbal presentation on a physiological subject.
- 3 Describe Mendelian and non-Mendelian inheritance in eukaryotes and interpret the patterns of inheritance from experimental crosses.
- 4 Recall the main theories accounting for the presence of genetic variation in populations and describe how evolutionary pressures act on this diversity to produce evolutionary change.

## Learning Outcomes of Assessments

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

Practical report	2		
Problem-based learning seminar	2		
Class test	1	3	4

## Outline Syllabus

*Review of the heart and blood vessels in the systemic and pulmonary systems. Electrical and mechanical events in the cardiac cycle. Control of heart rate and cardiac output. Regulation of blood pressure.*

*Control of ventilation. Factors affecting alveolar exchange of respiratory gases. Haemoglobin and oxygen transport. Carriage and elimination of carbon dioxide.*

*Exocrine function of the digestive tract and accessory glands. Absorption of nutrients. Neuro-hormonal control of digestion.*

*Thermoregulation in humans.*

*Mendelian genetics: mono and dihybrid crosses, modifications to Mendelian ratios, sex determination and linkage, probabilities, non-Mendelian inheritance, human genetic disease.*

*Population genetics: Hardy-Weinberg equilibrium, neutral theory of drift, genetic*

*analysis of populations.*

*Evolutionary genetics: Darwinian and neo-Darwinian evolution, evolution and speciation, mechanisms of cladogenesis, maintenance of polymorphisms, altruism, mimicry, kin selection, inclusive fitness, grand patterns of evolution.*

## **Learning Activities**

Lectures, practicals, problem-based learning seminars

## **Notes**

Physiology of the human cardiovascular, respiratory, renal and gastrointestinal systems.

An introduction to genetics and evolutionary theory.