

Full Module Title:	PHYSIOLOGY FOR BIOMEDICINE
Short Module Title:	BMS Physiology
Module Code:	3HCS550
Module Level:	Level 5
Academic credit weighting:	15 Credits
School:	School of Biosciences
Department:	Department of Biomedical Sciences
Length:	1 semester
Module Leader(s):	Prof J Mellerio; extension 3564; e-mail mellerj@wmin.ac.uk
Site:	Cavendish Campus
Host course:	BSc Biomedical Sciences
Status:	Core BSc Biomedical Sciences, Biochemistry & Physiology
Relevant course titles/pathways:	BSc Biomedical Sciences
Subject Board:	Biomedical Sciences
Pre-requisites:	3HCS442 Human Physiology
Co-requisites:	None
Assessment:	60% examination/40% coursework
Special features:	
Access restrictions:	Disrequisite modules are 3HCS543 Dynamic Systems Physiology & 3HCS552 Support Systems Physiology

Summary of Module content

This module will address in detail the **physiological processes**, adaptations and regulation of a range of **body systems** (excretory, gastro-intestinal, hepato-biliary, respiratory, cardiovascular and endocrine systems).selected because of their relevance to the study of biomedical sciences.

Module Aims

The module aims to extend the introductory material of the prerequisite module to provide students with a thorough grounding in the physiology of a range of body systems. Exemplar diseases will be used as appropriate to illustrate system functions.

Learning Outcomes

By the end of the module the student should be able to:

- explain and discuss detailed physiological processes of a range of body systems;
- explain and discuss in detail the structural adaptations of these physiological systems;
- explain and discuss in detail the functioning of the selected physiological systems, with particular consideration of their homeostatic properties;
- evaluate case study data relating to these physiological systems;

- demonstrate appropriate skills in written scientific communication and data handling and problem solving.

Indicative syllabus content

Renal system: structural adaptations of the kidney and the urinary system; detailed mechanisms and regulation of ultrafiltration and tubular resorption;.concept of clearance, micturation.

Gastro-intestinal system: structural adaptations of gut zones; regulation of gut functions; precursor/activation cascades; absorption transport mechanisms; stool physiology and defaecation.

Hepato-biliary system: structure of the system; formation, storage, function and control of release of bile; review of liver functions some illustrated in detail.

Respiratory system: structural adaptations of respiratory tree; respiratory gas transport mechanisms; detailed regulation of breathing and pH of body fluids; evaluation of lung function.

Cardiovascular system: structural adaptations of heart and vasculature; detailed regulation of cardiac output and blood pressure; foetal circulation and congenital malformations.

Endocrine system: Characteristics of hormone; characteristics of hormone secretion and transport; characteristics of hormone responses. Endocrine control mechanisms including hierarchical systems, feedback mechanisms, inhibitory and metabolic control mechanisms and control irregularities.

Teaching and Learning Methods

Lectures	70%
Laboratory sessions	10%
Student centred learning sessions	20%

Assessment rationale

The assessments seek to provide opportunities for students to demonstrate their understanding of the structural adaptations, physiological processes and regulatory control mechanisms of the selected body systems, and their ability to solve problems introduced via case study review. Lab classes do not seek to develop lab techniques but are used only to facilitate presentation of data for the **key skills** so they are not directly assessed. Course work and examinations will both be used to assess the learning outcomes of the module.

Assessment criteria

Students may demonstrate achievement of the learning outcomes by being able to:

- (a) satisfactorily analyse and interpret laboratory data relating to the function of the physiological systems studied, i.e undertake problem solving with detailed case histories in course work or with simpler sets of data in examinations;
- (b) write essays, either under exam conditions or as a piece of coursework when it must be suitably referenced, satisfactorily explaining prescribed physiological processes and discussing the structural adaptations and control mechanisms.

Assessment Methods and Weightings

Coursework 40%: essay 20%
 analysis and interpretation of case study data 20%

Examination 60%

Sources

Essential reading

Hubbard, J. Meham, D. (1997) *The Physiology of Health and Disease*, 1st Edn., Stanley Thornes, Cheltenham, UK

Ganong, W.F. (1997) *Review of Medical Physiology*, Appleton & Lange, Stamford, Co., USA

Further reading

Kumar, P. Clark, M. (1998) *Clinical Medicine*, 4th Edn., Saunders

Periodical references

There are no obvious choices here in such a broad field but students are advised to keep an eye on NEJM, BMJ and the Lancet.

WWW references

Students are advised to look at the electronic versions of the above journals and to use a good search engine. As and when good sites are discovered they will be publicised on the modules web page.

Date of initial Validation: 2002

Dates of CASG approved modifications:

Date of re-validation/review: