LF266-15 Blood and Circulation for Neuroscience

22/23

Department Life Sciences Level Undergraduate Level 2 Module leader Mark Wall Credit value 15 Module duration 5 weeks Assessment Multiple Study location University of Warwick main campus, Coventry

Description

Introductory description

The overall aim of the module is to describe the haematological system (blood and the tissues and organs associated with it) and the cardiovascular system (CVS) in an integrated manner in order to give students a good understanding of the physiology, in health and disease, of these two linked systems.

Module aims

The lectures fall into three segments: Renal Structure and Function, Haematology – the study of blood (aka blood sciences) and the Cardiovascular System (CVS).

Students will learn about renal function (kidney structure and function), cardiovascular pathology (including conditions such as hypertension and myocardial infarction) and cardiovascular risk (links with lipids, lipid lowering drugs etc). These lectures build on BS129 Physiology and Metabolism.

In the Haematology lectures, students will learn the nature of blood – the cellular and non-cellular components, and how it is formed (haematopoiesis). Students will also gain an understanding of the various pathological conditions associated with blood, how they are recognised, the

consequences, and how they are treated.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Lecture 1 and 2: Kidney structure and function

- Lecture 3: Cardiovascular Risk
- Lecture 4: Blood cells, Plasma and Serum
- Lecture 5: Haematopoiesis
- Lecture 6: Blood transfusion
- Lecture 7: Blood disorders
- Lecture 8 Hypertension (MW)
- Lecture 9 Angina
- Lecture 10 Heart Failure
- Lecture 11 Cardiac Arrhythmias
- Lecture 12 The Pharmacology of Anti-arrhythmic drugs
- ECG workshop and self-directed learning

Learning outcomes

By the end of the module, students should be able to:

- The biological principles of haematology including blood structure and homeostasis (including kidney)
- The biological basis of circulation, especially cardiac and vascular processes.
- The biological basis of neurological function, including development of the central nervous system at a cellular level.
- The functioning of these systems in both health and disease including the current treatment options for specific examples.

Indicative reading list

Pocock G. and Richards. Human physiology : the basis of medicine, 3rd edn. (Oxford : Oxford University Press, 2006). Hugh-Jones N. C., Wickramsinghe S. N. and Hatton C. Lecture notes on Haematology, 7th edn. (Blackwell, 2004). Purves, D. et al. (Eds.) Neuroscience, 4th edn. (Sinauer, 2008)

Subject specific skills

Explain the basics of haematology, including the role of kidney; formation, structure and function of blood cells

Understand the rationale for, and biology of, blood transfusion

Understand the biology of circulation through disease processes (hypertension, myocardial

infarction, angina, cardiovascular disease, heart failure, arrhythmias)

Explain the current treatment options for example blood and circulatory diseases

Transferable skills

Adult learning, self-directed learning, team based learning and quantitative analysis of data.

Study

Study time

Туре	Required	
Lectures	15 sessions of 1 hour (10%)	
Other activity	10 hours (7%)	
Private study	125 hours (83%)	
Total	150 hours	

Private study description

125 hrs of self-study and directed reading

Other activity description

In-module assessment

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group D

WeightingStudy timeIn-Module Assessment20%30 hoursAuthentic assessment, based on a common problem or dataset researchers would deal with on a
regular basis in the academic environment. This is in-line with both AQSC and RSB requirements
on assessmentsStudy time

Blood and Circulation ECG Workshop 10% In-module Laboratory ~Platforms - AEP

- Online examination: No Answerbook required
- Students may use a calculator

Assessment group R

	Weighting	Study time
Online Examination - Resit	100%	
45 min SAQ paper / 45 min essay paper		

- Online examination: No Answerbook required
- Students may use a calculator

Feedback on assessment

Pastoral meetings with personal tutors

Past exam papers for LF266

Availability

Courses

This module is Core for:

- Year 2 of ULFA-B140 Undergraduate Neuroscience (BSc)
- Year 2 of ULFA-B142 Undergraduate Neuroscience (MBio)
- Year 2 of ULFA-B143 Undergraduate Neuroscience (with Industrial Placement) (MBio)
- Year 2 of ULFA-B141 Undergraduate Neuroscience (with Placement Year) (BSc)