



MODULE SPECIFICATION

Code: USSJSE-20-1 **Title:** Introduction to Physiological Sciences **Version:** 1

Level: 1 **UWE credit rating:** 20 **ECTS credit rating:** 10

Module type: Standard

Owning Faculty: Health and Life Sciences **Department:** Applied Sciences

Faculty Committee approval: Quality and Standards Committee **Date:** May 2011

Approved for Delivery by: N/A

Valid from: September 2011 **Discontinued from:**

Pre-requisites:
None

Co-requisites:
None

Entry Requirements:
N/A

Excluded Combinations:
None

Learning Outcomes:

The student will be able to:

Knowledge and Understanding

- Demonstrate a broad basic and clinical sciences knowledge and apply that knowledge with respect to Cardiology, Vascular, Respiratory and Sleep Sciences.
- Discuss the application of safe and effective practice in physiological measurement.
- Discuss the basic principles underpinning typical investigations and procedures carried out in the diagnosis and treatment of cardiovascular and respiratory diseases.
- Demonstrate an appreciation of the importance of patient-centred care including the range of needs of people with disabilities.
- Discuss the importance of effective multidisciplinary team working in the investigation and treatment of relevant disorders.

Associated Personal Qualities and Behaviours (Professionalism)

- Discuss complex scientific information in ways that can be understood by patients and by practitioners in other areas.
- Use correct terminology when discussing scientific issues.
- Work safely in relevant areas.

Syllabus Outline:

Anatomy, physiology and pathophysiology applied to Cardiology, Vascular, Respiratory and Sleep Sciences

- The cardiac, vascular and respiratory systems
- Sleep wake cycle and common sleep disorders
- Overview of the pathophysiology of key body systems related to physiological sciences

Application of safe and effective clinical practice in physiological measurement

- Risk management
- Infection control

- Team working
- Partners in the management of disease
- Patient-centred care
- Disability including learning disabilities
- Children and adults
- Communication skills
- Team Working

Introduction to Cardiac Physiology

- Investigations and procedures carried out in the diagnosis and treatment of cardiac disease
- Characteristics of recording equipment and their evaluation
- Basic cardiac electrophysiology
- Recognition and interpretation of normal ECG waveforms
- Control of the circulation
- Cardiac embryology and foetal heart development
- The relationship between atherosclerosis and cardiovascular disease
- Heart failure and its effect on the cardiovascular and other body systems

Introduction to Respiratory and Sleep Science

- Anatomy and physiology of the respiratory system, and central and autonomic nervous systems
- Control of respiration during sleep
- Control of sleep wake cycle
- Pathophysiology of lung diseases
- Pharmacology and therapeutics
- Investigations and procedures carried out in the diagnosis and treatment of respiratory disease including sleep disorders
- Methods of sterilisation and disinfection
- Physiological measurement systems in the evaluation of lung function
- Dynamic lung volumes and transfer factors: mechanics and measurement
- Physiological measurement systems used to measure respiration during sleep
- Calculation of reference values
- Calibration and quality control procedures
- Communicable disease and microbiological hazards in the respiratory laboratory

Introduction to Vascular Science

- Anatomy of the vasculature; characteristics of blood flow
- Diseases of the vascular system
- Investigations and procedures carried out in the diagnosis and treatment of vascular disease
- Characteristics of recording equipment and their evaluation
- Ultrasound and physiological measurement systems in the evaluation of the vascular system
- Common abbreviations and units

Teaching and Learning Methods:

The theoretical material will be delivered mostly as lectures reinforced by directed reading, practical activities and directed tasks. The practical work will support and extend lecture material, and may include simulation workshops and data interpretation. Tutorials and learning support will be offered at key times. Blackboard will support the module, and will provide access to course documents, sample exam questions, and learning materials.

Reading Strategy:

All students will be encouraged to make full use of the print and electronic resources available to them through membership of the University. These include a range of electronic journals and a wide variety of resources available through web sites and information gateways. The University Library's web pages provide access to subject relevant resources and services, and to the library catalogue. Many resources can be accessed remotely. Students will be presented with opportunities within the curriculum to develop their information retrieval and evaluation skills in order to identify such resources effectively.

Any **essential reading** will be indicated clearly, along with the method for accessing it, e.g. students may be expected to purchase a set text, be given or sold a print study pack or be referred to texts that are available electronically, etc. This guidance will be available either in the module handbook, via the module information on Blackboard or through any other vehicle deemed appropriate by the module/programme leaders.

If **further reading** is expected, this will be indicated clearly. If specific texts are listed, a clear indication

will be given regarding how to access them and, if appropriate, students will be given guidance on how to identify relevant sources for themselves, e.g. through use of bibliographical databases.

Indicative Reading List:

Modernising Scientific Careers Programme Training Manual for appropriate Division and Specialist Route. Available from <http://www.networks.nhs.uk/nhs-networks/msc-framework-curricula/ptp>

The most recent editions of the following texts:

Noble, A. The Cardiovascular System: Systems of the Body Series. Churchill Livingstone.

Davies, A. The Respiratory System: Basic science and clinical conditions (Systems of the Body) Churchill Livingstone.

Davidovits, P. Physics in Biology and Medicine. Academic Press.

Stanfield CL. Principles of Human Physiology. Pearson Education Ltd.

Silverthorn D. Human Physiology an Integrated Approach. Pearson Education Ltd.

Assessment:

Weighting between components A and B (standard modules only) A: 40% B: 60%

FIRST ATTEMPT

First Assessment Opportunity

Component A (*controlled*)

Description of each element

EX1 Exam (2 hours) Assessment Period 2

Element Wt (Ratio)

(*within Component*)

Final Assessment 1

Component B

Description of each element

CW1 Practical report

Element Wt (Ratio)

(*within Component*)

1

Second Assessment Opportunity (Resit) further attendance at taught classes is not required

Component A (*controlled*)

Description of each element

EX2 Exam (2 hours) Assessment Period 3

Element Wt (Ratio)

(*within Component*)

Final Assessment 1

Component B

Description of each element

CW2 Practical report

Element Wt (Ratio)

(*within Component*)

1

EXCEPTIONAL SECOND ATTEMPT Attendance at taught classes is required.

Specification confirmed by**Date**
(Associate Dean/Programme Director)