



CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data					
Module Title	Cardiovascular Physiology & Pathophysiology A				
Module Code	USSKAW-30-2	Level	2	Version	1
Owning Faculty	Health and Applied Sciences	Field	Biological, Biomedical and Analytical Sciences		
Contributes towards	BSc. (Hons) Healthcare Science (Physiological Sciences) : Cardiac Physiology				
UWE Credit Rating	30	ECTS Credit Rating	15	Module Type	Standard
Pre-requisites	Cardiac Physiology A & B (level 2)	Co- requisites	None		
Excluded Combinations		Module Entry requirements	Appropriate Experiential Learning		
Valid From	September 2014	Valid to	September 2020		

CAP Approval Date	28 March 2014
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Part 2: Learning and Teaching	
Learning Outcomes	<p>On successful completion of this module students will be able to:</p> <p>All L.O. in assessed in both A&B</p> <ol style="list-style-type: none"> 1. Recall the normal structure and function of the Cardiac and Vascular systems and blood cell types. 2. Describe major abnormalities of physiological control mechanisms in diseases of the Cardiac and Vascular systems. 3. Describe cellular, tissue and systems responses to diseases of the Cardiac and Vascular systems concentrating on disorders of growth, tissue responses to injury, cell death, inflammation, neoplasia, normal and abnormal immune responses, atheroma, thrombosis, embolism and infarction. 4. Know the relevant abbreviations and units used in Cardiac Physiology and demonstrate the ability to apply these to clinical situations. 5. Describe the concept of “normal” and the calculation and use of normal ranges in the interpretation of relevant cardiac investigations and demonstrate the ability to apply these to clinical situations. 6. Explain relevant normal physiological variability in humans. 7. Demonstrate how to utilise normal ranges to define normal and abnormal test results across a range of relevant cardiac investigations. 8. Explain the need for calibration and quality assurance for relevant measurements undertaken in Cardiac Physiology. 9. Explain the clinical framework for, and basic principles of: <ul style="list-style-type: none"> • Clinical Electrocardiography • The normal Electrocardiogram from birth to old age • Common arrhythmias

- Interpretation of Electrocardiograms
10. Recognise life-threatening arrhythmias.
 11. Outline management of common arrhythmias (e.g. AT/VT)

LOs will be assessed via component A, the focus of the component B case-study will alter year on year but will reflect one or more of the LOs listed above.

In addition the educational experience may explore, develop, and practise but not formally discretely assess the following Professional aspects, as set out within the Modernising Scientific Careers Curriculum:

1. Discuss complex scientific information in ways that can be understood by patients and practitioners in other areas.
2. Use correct terminology when discussing scientific issues.
3. Establish a vocabulary of terminology used in the classification, investigation and description of disease.
4. Integrate information from different laboratory disciplines.

Syllabus Outline

In this module students will build on Year 1 learning and begin detailed learning that underpins routine practical techniques. This module is partnered with, but not dependent on, Cardiac Physiology B.

A) Clinical Electrocardiography

- Characteristics of recording equipment
- Components and functions
- Settings and adjustments made based on patient category
- Recommended recording and measurement technique

B) Development of a framework for interpretation of Electrocardiograms from birth to old age

- Anatomy
- Physiology
- Leads
- Rate
- Rhythm
- Cardiac Axis
- Terminology
- Normal findings (Sinus Rhythms)

C) Recognition of life threatening arrhythmias

- Ventricular fibrillation
- Asystole
- Ventricular tachycardia


D) Recognition of

- Common arrhythmias
 - Sinus arrhythmia
 - Sinus bradycardia
 - Sinus tachycardia
 - Atrial fibrillation
 - Atrial ectopics
 - Atrioventricular conduction blocks
 - Ventricular arrhythmias
- The effect of myocardial infarction and ischaemia on the electrocardiogram

E) Management of common arrhythmias.

F) Cellular, tissue and systems response to common Cardiac and Vascular diseases including:

- Tissue response to injury
- Cell death

	<ul style="list-style-type: none"> • Inflammation • Neoplasia • Normal and abnormal immune responses • Atheroma • Thrombosis • Embolism • Infarction • Anatomical airway obstruction • Genetic Mutations • The effect of the ageing process 										
Contact Hours	<ul style="list-style-type: none"> • The student will have a minimum of 3 hours per week contact time over the two semesters. This will typically take the form of alternating lecture and practical weeks. The module will be delivered by Applied Sciences staff plus specialist practitioners. • The module will also take advantage of virtual learning environments (VLEs) and other technology-aided means, such as 'Virtual Patient' to aid and consolidate student learning. 										
Teaching and Learning Methods	<p>Students are expected to spend 72 hours on scheduled learning and 78 hours on independent learning.</p> <p>Independent learning will take the following forms:</p> <ul style="list-style-type: none"> • Essential reading to support acquisition of knowledge relating to lectures and practical exercises • Researching case studies, including accessing VLE scenarios such as 'Virtual Patient' • Preparation and submission of assessment • Revision and preparation for exam <p>Scheduled learning includes lectures, tutorials, demonstration, practical classes and workshops; external visits.</p> <p>Independent learning includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc.</p>										
Key Information Sets Information	<p>Key Information Sets (KIS) are produced at programme level for all programmes that this module contributes to, which is a requirement set by HESA/HEFCE. KIS are comparable sets of standardised information about undergraduate courses allowing prospective students to compare and contrast between programmes they are interested in applying for.</p> <p><u>Key Information Set - Module data</u></p> <p><i>Number of credits for this module</i> 15</p> <table border="1"> <thead> <tr> <th>Hours to be allocated</th> <th>Scheduled learning and teaching study hours</th> <th>Independent study hours</th> <th>Placement study hours</th> <th>Allocated Hours</th> </tr> </thead> <tbody> <tr> <td>150</td> <td>72</td> <td>78</td> <td></td> <td>150</td> </tr> </tbody> </table> 	Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours	150	72	78		150
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Reading Strategy	<p>Students will be expected to purchase any core text recommended, access to the core text will also be provided for reference via the library, but is not expected to negate the need for the student to provide their own copy. Students will be expected to access all other essential reading either via handouts provided or online through the library, Blackboard, or other recommended source (typically free access e-journal). Wherever possible, where free online access is not available digitalised copies of book chapters</p>										

	<p>or articles will be provided.</p> <p>All students are encouraged to read widely using the library catalogue, a variety of bibliographic and full text databases and Internet resources. Many resources can be accessed remotely. Guidance to some key authors and journal titles available through the Library will be given in the Module Guide and updated annually. Assignment reference lists are expected to reflect the range of reading carried out.</p> <p>Students are expected to be able to identify and retrieve appropriate reading. This module offers an opportunity to further develop information skills introduced at Level 1. Students will be given the opportunity to attend the GDP sessions on selection of appropriate databases and search skills. Additional support is available through the Library Services web pages, including interactive tutorials on finding books and journals, evaluating information and referencing. Sign up workshops are also offered by the Library.</p>
<p>Indicative Reading List</p>	<p>There is no one essential text for this course, therefore students are guided to access a range of texts available either in hardcopy through the library or electronically as free access material or as digitalised copies available on Blackboard and through the library.</p> <p>Aaronson P., Ward J. P. T., (2007), <i>The Cardiovascular System at a Glance</i>. 3rd ed.. Oxford : Blackwell Publishing Ltd,</p> <p>Bennett, D.H., (2012) <i>Bennett's Cardiac Arrhythmias: Practical notes on interpretation and treatment</i>. 8th ed.. Oxford: Wiley-Blackwell. (</p> <p>Brown, H. and Kozlowski, R. (1997) <i>Physiology and Pharmacology of the heart</i>. Oxford: Wiley Blackwell.</p> <p>Davey, P. (2008) <i>ECG at a Glance</i>, Oxford: Wiley Blackwell.</p> <p>Hampton, J.R. (2008) <i>The ECG Made Easy</i>. 7th ed.. Edinburgh: Churchill Livingstone.</p> <p>Holler, T., (2007), <i>Cardiology Essentials</i>, Sudbury, Mass: Jones and Bartlett Publishers.</p> <p>Jenkins, D., and Gerred, S. (2011) <i>ECGs by Example</i>. 3rd ed.. Edinburgh: Churchill Livingstone.</p> <p>Klabunde, R.E. (2012) <i>Cardiovascular Physiology Concepts</i>. 2nd ed.. Philadelphia, PA: : Lippincott Williams & Wilkins.</p> <p>Levick, J.R. (2010) <i>An Introduction to Cardiovascular Physiology</i>, 5th ed. London: Hodder Arnold</p> <p>Newby, D.E. and Grubb N.R. (2005) <i>Cardiology: An illustrated colour text</i>, Edinburgh: Churchill Libingstone.</p> <p>Noble, A., Johnson, R., Thomas, A., and Bass, P. (2010) <i>The Cardiovascular System: Basic Science and Clinical Conditions</i>. 2nd ed. . Edinburgh: Churchill Livingstone.</p> <p>Rowlands, A. & Sargent, A. (2011) <i>The ECG Workbook</i>. 2nd ed.. Keswick: M&K Publishing.</p> <p>Quick Reference Sources:</p> <p>Haberl, R. (2006) <i>ECG Pocket</i>. 2nd ed. . Hermosa Beach, CA: Born Bruckheimer. ApplicationsRemedica Medical Education and Publishing (2011) <i>ECG Pocket Reference UK</i>. Version 1.041. Free App for iPhone</p> <p>Touzeau C & Mallikarjunan A (2011) <i>Pocket EKG – Basic</i>. Version 2.0.2 for Android</p> <p>Limmer Creative (2012) <i>12-Lead ECG Challenge</i>. Version 1.2.1 for Android</p> <p>Journals :</p> <p>Acute Cardiac Care</p> <p>Journal of Cardiac Failure</p> <p>Journal of Interventional Cardiac Electrophysiology</p>

Part 3: Assessment

Assessment Strategy	<ul style="list-style-type: none"> • Component A (controlled condition) will take the form of a 3 hour examination. The examination will assess across the module curriculum to ensure an appropriate breadth and depth of knowledge. • Component B will be a case-study assessing the student's ability to synthesise information and draw upon their learning to arrive at an appropriate set of responses. • Lectures and supporting tutorials will use case-based investigations to enable students to engage in group discussions and explore their decision making processes ahead of their coursework submission. • The generic assessment criteria used in the Department BBAS, and made available to students, will be used for all assessments.
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Identify final assessment component and element		
% weighting between components A and B (Standard modules only)	A:	B:
	50	50
First Sit		
Component A (controlled conditions) Description of each element	Element weighting	
1. Exam (3 hours)	100	
Component B Description of each element	Element weighting	
1. Extended Case study	100	

Resit (further attendance at taught classes is not required)		
Component A (controlled conditions) Description of each element	Element weighting	
1. Exam (3 hours)	100	
Component B Description of each element	Element weighting	
1. Extended Case study	100	
<p>If a student is permitted an EXCEPTIONAL RETAKE of the module the assessment will be that indicated by the Module Description at the time that retake commences.</p>		