University of the West of England
BRISTOL

ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data						
Module Title	Healthcare Science in Practice					
Module Code	USSJTA-60-2		Level	2	Version	1.1
UWE Credit Rating	60	ECTS Credit Rating	30	WBL module?	No	
Owning Faculty	Health and Applied Sciences		Field	Biological, Biomedical and Analytical Sciences		
Department	Biological, Biomedical and Analytical Sciences		Module Type	Standard		
Contributes towards	FdSc Healthcare Science BSc (Hons) Healthcare Science (Life Science)					
Pre-requisites	USSJT5-30-1 Scientific Basis of Life USSJT7-30-1 Pathophysiology of Disease USSJT8-30-1 Anatomy and Physiology		Co- requisites	None		
Excluded Combinations	None		Module Entry requirements	None		
First CAP Approval Date	21st November 2012		Valid from	September 2015		
Revision CAP Approval Date			Revised with effect from			

Review Date	

Part 2: Learning and Teaching	
Learning Outcomes	On successful completion of this module students will be able to fulfil the common learning outcome: • Demonstrate an understanding of the integrated nature of diagnostic assessments conducted on patients and/or patient samples. On successful completion of this module students will be able to fulfil the learning outcomes from 4 of the following 11 themed units of study (assessment intended for each learning outcome designated by [*] corresponding to assessment section): **Life Sciences Themed Units 1-5:** **1. Blood and Tissue Sciences** • Review the mechanisms responsible for disease and disorders in the human body [A1, B2] • Demonstrate knowledge of the pathophysiology, investigation and diagnosis of selected diseases [A1, B2]

- Demonstrate an understanding and experience of the application of clinical biochemistry methods used to investigate acute disorders of major organ function [A1]
- Demonstrate an understanding and experience of safe handling and preparation of human blood and tissues for microbiology, viability and/or compatibility testing [B2]
- Demonstrate an understanding and experience of the application of molecular, immunological and serological methods used to assess transfusion and transplantation viability and/or compatibility in common medical disorders [A1]
- Develop the ability to integrate the specialist areas of biomedical science into the context of a coherent case study approach [A1, B2, B3]

2. Applied Genetics

- Describe the range of current gene-based techniques used in genetic studies [A1]
- Discuss selected applications of current gene-based technology [A1, B2, B3]
- Appreciate the continuing development gene-based technology [A1, B2, B3]
- Explain the impact of gene-based technology on human society [A1, B2]
- Understand and discuss the general principles underlying genome structure and function in a range of organisms, with a focus on the human genome [A1, B2]
- Understand the fundamentals of molecular evolution and the basis of population genetics [A1]
- Analyse and interpret laboratory data [B2]

3. Biology of Microorganisms

- Understand fundamental aspects of microbial growth, metabolism and lifestyle [A1]
- Describe the unique nature of viruses [A1, B2]
- Appreciate the significance of classification of bacteria [A1, B2]
- Appreciate energy generation and metabolism in microorganisms [A1, B2]
- Analyse data derived from laboratory study of microorganisms [A1, B2]
- Relate the characteristics of certain microorganisms to their survival and success as pathogens [A1, B2]

4. Immunology & Disease

- Demonstrate basic knowledge of the cellular and molecular aspects of immunology [A2]
- Distinguish the role of humoral and cellular mechanisms in response to a wide spectrum of pathogens and antigens [A2]
- Recognise how antibodies and effector cells cause tissue damage in selected immune mediated diseases [A2, B1]
- Demonstrate a basic understanding of the role of the immune system in blood transfusion and transplantation [A2]
- Associate particular symptoms with selected diseases of the immune system [A2, B1]
- Evaluate important laboratory immunological techniques and their theoretical bases [A2, B1, B3]
- Analyse and interpret laboratory data [B1]

5. Human Physiology

- Interpret and explain the principles of operation of the major physiological systems (as in the condition of health), with particular reference to homeostasis [A2, B1]
- Relate particular practical investigative instrumentation / techniques in human physiology and pharmacology to the principles of operation noted above [A2, B1]
- Analyse and interpret laboratory data [B1]

Physiological Sciences Themed Units 6-11:

6. CVRS Physiology

- Demonstrate a detailed knowledge of the anatomy, physiology, pharmacology and control of the CVRS systems [A1, B2]
- Interpret and explain the principles of operation of the CVRS systems (as in the condition of health), with particular reference to homeostasis [A1, B2]
- Relate particular practical investigative instrumentation / techniques in human physiology and pharmacology to the principles of operation noted above [A1, B2, B3]
- Understand the characteristics of blood and air flow [A1]
- Cardiac embryology and foetal heart development [A1]
- Analyse and interpret measurement data acquired either in the lab or in practice [B2]

7. Cardiac Physiology A

- Know and use in context the abbreviations and units used in Cardiac Physiology [A1, B2]
- Describe the concept of "normal" and the calculation and use of normal ranges in the interpretation of cardiac investigations and demonstrate the ability to apply these to clinical situations [A1, B2]
- Recognise the normal physiological variability in humans [A1, B2]
- Explain the need for calibration and quality assurance for all measurements undertaken in Cardiac Physiology [A1, B3]
- Explain the clinical framework for, and basic principles of: clinical electrocardiography; the normal electrocardiogram from birth to old age; common arrhythmias; interpretation of electrocardiograms [A1, B2]
- Recognise life-threatening arrhythmias [A1]
- Outline management of common arrhythmias (e.g. AT/VT) [A1]

8. Cardiac Physiology B

- Explain the need for calibration and quality assurance for all measurements undertaken in Cardiac Physiology [A2]
- Understand the clinical framework for, and basic principles of: blood pressure measurement; ambulatory blood pressure monitoring; ambulatory electrocardiography; cardiac exercise stress testing [A2, B1]
- Discuss and analyse procedure limitations with cardiac physiology for example sensitivity and specificity of exercise stress testing [A2, B1, B3]

9. Pathophysiology of CVRS

- Understand major abnormalities of physiological control mechanisms in diseases of the Cardiac, Vascular and Respiratory systems [A2]
- Explain cellular, tissue and systems responses to diseases of the Cardiac, Vascular and Respiratory systems concentrating on disorders of growth, tissue responses to injury, cell death, inflammation, neoplasia, normal and abnormal immune responses, atheroma, thrombosis, embolism and infarction [A2, B1]
- Describe the basis of common infections of the Cardiac, Vascular and Respiratory systems [A2, B1]
- Describe common diseases that affect the Cardiac, Vascular, Respiratory and Sleep Physiology [A2, B1]
- Gain an awareness of primary and secondary autonomic disorders [A2]

10. **Respiratory & Sleep Physiology A**

- Know and apply the abbreviations and units used in Respiratory and Sleep Science [A1, B2]
- Explain the concept of "normal" and the calculation, use and limitations of reference values, reference ranges, Lower Limits of Normal (LLN) and standardized residuals [A1, B2]
- Explain the normal physiological variability in humans in a range of tests from birth to old age [A1]

- Describe the generation and use of reference ranges to define normal and abnormal lung function and apply knowledge to calculate reference ranges, LLN

	and Standardized residuals [A1] • Explain the need for calibration and quality assurance for all measurements undertaken in Respiratory and Sleep Science [A1, B2, B3] • Explain the application of dynamic lung volumes and flows in routine clinical practice and analyse data [A1, B2] • Compare different techniques to estimate lung volumes and the limitations of each technique [A1, B2, B3] • Discuss the role and application of inhaled drug therapy (Bronchodilators) in the management of respiratory disease [A1] **11. Respiratory & Sleep Physiology B** • Explain the need for calibration and quality assurance for all measurements undertaken in Respiratory and Sleep Science [A2] • Explain the methods that can be used to estimate static lung volumes and analyse data [A2, B1] • Compare different techniques to estimate lung volumes and the limitations of each technique [A2, B1] • Explain the principles of operation of respiratory gas analysers to measure commonly used gases in respiratory measurement [A2] • Describe the routine procedures for care and calibration of gas analysers [A2] • Explain the structure-function relationship determining gas exchange and Carbon Monoxide Transfer Factor [A2] • Assess the principles and operation of pulse oximeters [A2, B1] • Explain the different techniques for measuring respiratory muscle function [A2, B1]
Syllabus Outline	Students will study an appropriate combination of 4 from the following 11 themed units of study: 1. **Blood and Tissue Sciences** Students will carry out case studies selected to illustrate the multifactorial and integrated nature of disease and its laboratory investigation. Indicative content includes: • **Haematology and Transfusion Science**: Haematology of normal and disease states, haemoglobinopathies and thalassaemias, anaemias, leukaemias and thrombosis. Laboratory investigation of disease states. The role of the laboratory in monitoring of therapy. Immunohaematology; including identification of blood group antigens, methods for antibody detection and compatibility testing and safety aspects of blood transfusion. • **Homeostasis and malignant disease**: Central importance of homeostasis, mechanisms of control and the consequences of failure. Concepts of disease and normality, reference ranges, mechanisms of cancer development at a cellular level, haematological disorders and diagnosis and treatment. • **Cellular Pathology**: Microscopic analysis of cells and tissues. Preparative processes for microscopical analysis of tissues and cells. Cell and tissue stabilisation. Histological and cytological features of the disease state. Clinical laboratory applications of cellular pathology; its role in diagnosis, prognosis and prediction. • **Clinical Biochemistry**: Diagnosis, screening and monitoring of disease through qualitative and quantitative evaluation. Diagnosis of Liver, Cardiac diseases and endocrine disorders. Drug toxicity and drug monitoring. **2. Applied Genetics** • **Overview**: Applied genetics; revision of basic genetic concepts and terminology; manipulating the genome – recombinant DNA technology. • **Genome Mapping**: Human genome structure; DNA types; approaches to mapping genes – functional and positional cloning; comparing physical and genetic maps; interpreting sequence data; Using model genomes to afford an insight into functional genomics; legal and ethical issues. • **Genotyping**: DNA variation within organisms; detecting specific DNA variants within individual genomes; disease diagnosis; genetic screening; DNA profiling; ethical and legal issues.

- **Population genetics**: Allele frequencies, genetic equilibria, population mixing, genetic drift and gene flow.
- **Transgenic Organisms**: Creating transgenic organisms; using the technology to study gene function and regulation, transgenic mouse models for human disease; introduction to gene therapy; legal and ethical issues.
- **Developmental genetics**: Stem cells; cell type specification in animals; patterning during embryogenesis; Hox genes in drosophila and mammals

3. Biology of Microorganisms

- Growth, nutrition and death of microbes; catabolism and anabolism
- Microbial evolution; 16sRNA; bacterial taxonomy
- Gram positive and Gram negative bacteria of medical, general or industrial importance
- Virus structure and replication; lysogeny; classification of viruses
- Certain microbiological diseases and their control relationship between host and microorganisms, mechanisms of pathogenicity

4. Immunology and Disease

Core immunology

- The host and environment, antigens, foreignness, innate and acquired immunity
- Innate immune mechanisms, the problem of immune recognition, immunogens and antigens
- Recognition of self and tolerance
- B cells, epitopes, and antibodies
- Recognition of antigens by T cells, the major histocompatibility complex, and antigen presentation
- Cell-mediated immune reactions
- Basic structure of antibodies, antibody classes, isotypes, allotypes and idiotypes, monoclonal antibodies
- Biological functions of antibodies and complement
- Antigen–antibody interactions; detection and measurement of antibodies
- Different types of immune cells and the lymphatic system
- The humoral response, T–B cell interactions, cytokines and memory cells

Clinical immunology

- Antibody-mediated diseases: hypersensitivity reactions, red cell antigens and transfusion reactions, transplantation
- Humoral and cell responses to bacteria, viruses, fungi and parasites
- Prophylaxis and vaccines
- Rogue T lymphocytes in autoimmunity such as multiple sclerosis, rheumatoid arthritis and diabetes
- The immunology of cancer and immunodeficiency diseases, including AIDS
- Immunoassay, ELISA, SDS-PAGE and Western blotting

5. Human Physiology

- Review of neural and endocrine communication systems related to homeostatic control; somatic neuromuscular control; types of muscle as effectors
- **Cardiovascular system**: Cardiac muscle and intrinsic properties of the heart; extrinsic control; vascular system and peripheral resistance; regulation of cardiovascular parameters such as blood pressure
- **Respiration**: Mechanics of lung ventilation; neural and chemical control; gas exchange and transport including acid-base considerations;
- **Endocrinology**: Selected examples from the endocrine system will be used to illustrate the role of hormones in homeostatic systems
- **Digestion**: Structure and functional differentiation of human digestive tract; examples of integration of neural and endocrine control of motility and digestive secretions

- **Renal physiology**: nephron form and function; measures of function such as clearance; fluid, electrolyte and acid-base balance; endocrinology as

appropriate, including ADH, Aldosterone, ANP, Renin-Angiotensin system
- **Principles of Pharmacology**: Receptors, autonomic and neuromuscular pharmacology; structure-activity relationships; pharmacological analysis of drug-receptor interactions
- **Applied physiology**: Examples of the integrative functioning of physiological systems under stress, to include dynamic, sustained exercise; extreme heat; stress and the general adaptation syndrome

6. CVRS Physiology

Introduction to Cardiac Physiology
- Investigations and procedures carried out in the diagnosis and treatment of cardiac disease
- Characteristics of recording equipment and their evaluation
- 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
- Pharmacology and therapeutics
- Introduction to investigations and procedures carried out in the diagnosis and treatment of respiratory disease including sleep disorders
- Physiological measurement systems used to measure respiration during sleep
- Calculation of reference values and calibration and quality control procedures
- Communicable disease and microbiological hazards in the respiratory laboratory; Methods of sterilisation and disinfection

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

7. Cardiac Physiology A
- Clinical Electrocardiography
- Development of a framework for interpretation of Electrocardiograms
- The Normal Electrocardiogram from birth to old age
- Recognition of life threatening arrhythmias
- Recognition of:
    - Common arrhythmias
    - The effect of myocardial infarction and ischaemia on the electrocardiogram
- Management of common arrhythmias.

8. Cardiac Physiology B
- Routine Blood Pressure Measurement
- Ambulatory blood pressure monitoring
- Ambulatory electrocardiography
- Cardiac Exercise stress testing including an understanding of stress echo and myocardial perfusion scans.

9. Pathophysiology of Common Cardiovascular and Respiratory Conditions
- Cellular, tissue and systems response to common Cardiac, Vascular and Respiratory diseases.
- Basis of common infections affecting the Cardiac, Vascular and Respiratory systems.

	• Common diseases of the Cardiac, Vascular and Respiratory system including the epidemiology, public health and psychosocial aspects including: • Cardiac Disease: Ischaemic heart disease and myocardial infarction; Acquired valvular disease; Hypertensive heart disease; Cardiomyopathy; Congenital heart disease; Autonomic disorders; Heart failure • Vascular Disease: Peripheral arterial disease; Venous disease; • Cerebrovascular disease • Respiratory Diseases: Chronic obstructive pulmonary disease; Asthma; Restrictive lung disease; Congenital and genetic lung conditions; Pneumonia; Lung cancer; Pulmonary Vascular Disorders; Cystic fibrosis; Obstructive sleep apnoea; Central sleep apnoea; Respiratory muscle disorders; Occupational lung disease • The role of respiratory mechanics in control of breathing; Effect of neuromuscular disease on the respiratory system • Impact of smoking on health; common risk factors for cardiovascular disease; the concept of risk assessment. **10. Respiratory & Sleep Physiology A** • Pathophysiological basis of changes in lung function tests observed in common lung diseases. • Pharmacology – basic principles (receptors, pharmacodynamics, pharmacokinetics) • Lung Functions in context – Clinical History, X-Rays. HRCT, Blood Tests • Assessing Lung Function – which test for which question? • Techniques used in the assessment of lung function • Reference ranges, LLN and SR's • Reporting Results • Dynamic Lung Volumes and Flows • Reversibility Testing **11. Respiratory & Sleep Physiology B** • Assessment of Lung Function • Static Lung Volumes • Measurement of Gas Transfer • Spot Check Pulse Oximetry • Respiratory Muscle Assessment
Contact Hours	There will be 2 weeks of contact time at UWE in 2 x 1 week blocks. Included in each block week are laboratory workshops, lectures and tutorials. The contact time will equate to approximately 24 hours per block (a total of 48 hours). In addition to the allocated hours on campus learning, students will engage in synchronous and asynchronous online learning. This will comprise a total of approximately 96 hours of online engagement through a combination of lectures, synchronous online tutorials, synchronous and asynchronous discussions, online quizzes, and collaborative group work.
Teaching and Learning Methods	Students are expected to spend 144 hours on scheduled learning and 456 hours on independent learning. Theoretical material within the module will be presented to the students in the form of regular lectures throughout each of the semesters in the academic year. During those times of work based learning, these lectures will be delivered online and involve a number of technological enhancements. The learning of lecture content will be reinforced through time spent in independent learning by the directed reading of recommended texts and through the use of technology enhanced learning resources that will be provided online. This online learning and engagement will be delivered through several avenues: • Synchronous online tutorials in protected learning time where the student will contribute/attend an online activity appropriate to the content at the time at

which the academic will be present online to facilitate and lead this scheduled/timetabled session. This tutorial will be themed/planned.

- Asynchronous discussions in the student's own time (or during protected time where permitted and appropriate) where they will engage/collaborate with other students on the course or in specified groups, and in which the academic is permitted to moderate where necessary, but is not expected to contribute.
- Synchronous surgery sessions timetabled for a specific time in which the academic will be available online to answer live questions via discussion boards/blogs/collaborate or to respond to questions posted/asked prior to the session.
- Interactive, online formative quizzes made available either following a particular package of knowledge exchange/learning, or in specified sessions/time periods.
- Lectures delivered online through a combination of one or more of the following: visual/audio/interactivity/personal formative assessment

Practical classes will include simulated case-study based investigations which will allow students to develop their analytical, interpretive and data handling skills.

The remainder of the independent learning time allocated to the module should be spent preparing written assessments for submission [B1, B2, B3], and undertaking revision for the controlled component [A1, A2].

Scheduled learning includes lectures, seminars, tutorials, project supervision, demonstration, practical classes and workshops; fieldwork; external visits; work based learning; supervised time in studio/workshop.

Independent learning includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc. These sessions constitute an average time per level as indicated in the table below. Scheduled sessions may vary slightly depending on the module choices you make.

Key Information Sets Information

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.

Key Information Set - Module data

Number of credits for this module				60
Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours
600	144	456	0	600

The table below indicates as a percentage the total assessment of the module which constitutes a -

Written Exam: Unseen written exam, open book written exam, In-class test
Coursework: Written assignment or essay, report, dissertation, portfolio, project
Practical Exam: Oral Assessment and/or presentation, practical skills assessment, practical exam
Please note that this is the total of various types of assessment and will not necessarily reflect the component and module weightings in the Assessment section

	of this module description: Total assessment of the module: Written exam assessment percentage 50% Coursework assessment percentage 50% Practical exam assessment percentage 0% 100%
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. A detailed reading list will be made available through relevant channels, e.g. module handbooks, Blackboard, etc.
Indicative Reading List	**Blood & Tissue Sciences** Ahmed, N., Dawson, M., Smith, C. and Wood, E. (2007) *Biology of Disease*. Abingdon: Taylor & Francis Gp. The following text is highly recommended for professional aspects: Pitt, S.J. and Cunningham, J.M. (2009) *An Introduction to Biomedical Science in Professional and Clinical Practice*. Oxford: Blackwell Publishers. **Applied Genetics** Brown, T.A. (2002) *Genomes.* 2nd ed. Oxford: Wiley-Liss. Lamb, B.C. (2006) *The Applied Genetics of Plants, Animals, Humans and Fungi.* 2nd ed. World Scientific Publishing. Lodish, H., Berk, A., Kaiser, C.A., Krieger, M., Bretscher, A., Ploegh, H., Amon, A. and Russell, P.J. (2009) *iGenetics: A Molecular Approach.* 3rd ed. San Francisco: Pearson Benjamin Cummings. Scott, M.P. (2012) *Molecular Cell Biology*. 7th ed. New York: WH Freeman and Co. **Biology of Microorganisms**

Brooks, G.F., Carroll, K.C., Butel, J.S., Morse, S.A. and Mietzner, T. (2010) *Jawetz, Melnick & Adelberg's Medical Microbiology.* 25th ed. New York: McGraw Hill.

Strelkauskas, A., Strelkauskas, J. and Moszyk-Strelkauskas, D. (2010) *Microbiology: a clinical approach*. New York: Garland Science.

Willey, J.M., Sherwood, L.M. and Woolverton, C.J. (2011) *Prescott's Microbiology* 8th ed. New York: McGraw Hill.

Human Physiology

Berne, R. and Levy, M. (2010) *Principles of Physiology.* 6th ed. London: Mosby.

Marieb, E. and Hoen, K. (2011) *Human Anatomy and Physiology.* 9th ed. San Francisco: Pearson Benjamin Cummings.

Silverthorn, D. (2012) *Human Physiology: An Integrated Approach.* 6th ed. San Francisco: Pearson Benjamin Cummings.

Stanfield, C.L. & Germann, W.J. (2007). *Principles of Human Physiology*. 3rd ed. San Francisco: Pearson Benjamin Cummings.

Tortora, J.G. & Derrickson, B.H. (2008) *Principles of Anatomy and Physiology.* 12th ed. New York: WH Freeman and Co.

Immunology and Disease

Male, D., Bronstoff, J., Roth, D.B. and Roitt, I. (2012) *Immunology.* 8th ed. London: Elsevier.

Owen, J. Punt, J. and Stranford, S. (2012) *Kuby: Immunology.* 7th ed. New York: WH Freeman and Co.

CVRS Physiology

Brown, H. and Kozlowski, R. (1997) *Physiology and Pharmacology of the heart.* Oxford: Blackwell Publishers.

Davies, A. and Moores, C. (2011) *The Respiratory System*. 2nd ed. Edinburgh: Churchill Livingstone.

Holler, T. (2008) *Cardiology Essentials.* London: Jones and Bartlett Publishers.

West, J.B. (2012) *Respiratory Physiology: The Essentials.* 9th ed. Philadelphia: Lippincott Williams & Wilkins.

Cardiac A

Bennett, D.H. (2006) *Cardiac Arrhythmias: Practical notes on interpretation and treatment*. 7th ed. Oxford: Blackwell Publishers.

Davey, P. (2008) *ECGs at a Glance*. Oxford: Blackwell Publishers.

Jenkins, D. and Gerred, S. (2011) *ECGs by Example.* 7th ed. Edinburgh: Churchill Livingstone.

Remedica Medical Education and Publishing (2011) *ECG Pocket Reference UK*. Version 1.041. Free App for iPhone

Cardiac B

Ahmed, M. (2009) *Cardiac Stress Testing Pocketcard Set*. Borm Bruckmeier Publishing LLC

Ellestad M.H. (2003) *Stress Testing: Principles and Practice. 5*th ed. Oxford: Oxford University Press.

Respiratory & Sleep A

Cotes, J.E., Chinn, D.J. and Miller, M.R. (2006) *Lung Function*. 6th ed. Oxford: Blackwell Publishers.

Gibson, G.J. (2009) *Clinical Tests of Respiratory Function*. 3rd ed. London: Hodder Arnold.

Newall, C., Evans, A., Lloyd, J., Shakespeare, J. and Carter, R. *ARTP Handbook in Spirometry*. 2nd ed. Association of Respiratory Technology & Physiology.

The ARTP Practical Handbook of Respiratory Function Testing – Part 1. 2nd ed. (2003) Association of Respiratory Technology & Physiology.

The ARTP Practical Handbook of Respiratory Function Testing - Part 2. (2005) Association of Respiratory Technology & Physiology.

Respiratory & Sleep B

Cotes, J., Chinn, D.J. and Miller, M.R. (2006) *Lung Function*. 6th ed. Oxford: Blackwell Publishers..

Gibson, G.J. (2009) *Clinical Tests of Respiratory Function*. 6th ed. London: Hodder Arnold.

Hughes, M. (2010) *Physiology & Practice of Pulmonary Function*. Association of Respiratory Technology & Physiology.

West, J.B. (2012) *Respiratory Physiology The Essentials*. 9th ed. Philadelphia: Lippincott Williams & Wilkins.

Pathophysiology of CVRS

Lumb, A.B. (2010) *Nunn's Applied Respiratory Physiology*. 9th ed. Edinburgh: Churchill Livingstone.

Nobel, A., Johnson, R., Thomas, A. and Bass, P. (2010) *The Cardiovascular System: Basic Science and Clinical Conditions*. 9th ed. Edinburgh: Churchill Livingstone.

Shneerson, J.M. (2005) *Sleep Medicine.* 2nd ed. Oxford: Blackwell Publishers.

The ARTP Practical Handbook of Respiratory Function Testing – Part 1. 2nd ed. (2003) Association of Respiratory Technology & Physiology.

West J.B. (2012) *Respiratory Physiology: The Essentials.* 9th ed. Philadelphia: Lippincott Williams & Wilkins.

Part 3: Assessment

Assessment Strategy	The Assessment Strategy has been designed to support and enhance the development of both subject-based and more general skills, whilst ensuring that the modules learning outcomes are attained, as described below. **Component A** The written exam will provide students with an opportunity to demonstrate both their knowledge on a broad range of topics through a series of short essay questions. Continuous assessment will be provided by the use of 6 x 30 minute online activities embedded in the module. These activities will require UWE login. The module leader will have full access to up-to-date data to monitor progress and marks obtained by students. Feedback at this level will also be provided online and will be by review of the tests after they have been completed and will include the correct answers (after the relevant assessment period has concluded). The design of these online assessed activities will be varied, for example: • Timed essay questions • MCQ • Label the structure • Prioritisation structure • Scenario based questions **Component B** The first element will capture the content of online learning and practical workshops delivered in the block weeks. This summative assessment will take the form of a poster presentation. The second element will be an independent case study of direct relevance to the student's employment, which is to be prepared and presented for assessment as an oral presentation during a block attendance at university. The third element is a contextual review of a recent article related to diagnostic advance(s) in a technique(s) of relevance to the student's employment, the content of which will be negotiated with the appropriate academic tutor. Formative feedback is available to students throughout the module through group discussions, and in workshops. Students are provided with formative feed-forward for their exam through a revision and exam preparation session prior to the exam and through the extensive support materials supplied through Blackboard. All work is marked in line with the Department's Generic Assessment Criteria and conforms to university policies for the setting, collection, marking and return of student work. Where an individual piece of work has specific assessment criteria, this is supplied to the students when the work is set. This assessment strategy has been designed following best practice on effective assessment from JISC (http://www.jisc.ac.uk/whatwedo/programmes/elearning/assessment/digiassess.aspx) and The Open University's Centre for Excellence in Teaching and Learning (http://www.open.ac.uk/opencetl/centre-open-learning-mathematics-science-computing-and-technology/activities-projects/e-assessment-learning-the-interactive-comp). Technical design and deployment of the activities will also follow best practice developed at UWE by the Education Innovation Centre in collaboration with academic colleagues across the university. Staff guidance and support are already in place (http://info.uwe.ac.uk/online/Blackboard/staff/guides/summative-assessments.asp).
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** **(as % of component)**
1. Examination (3 hours)	50%
2. 6 x 30 minute online activities embedded in the learning process	50%
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Case study (poster)	40%
2. Case study oral presentation (15 minutes)	40%
3. Short contextual review (1000 words)	20%

Resit (further attendance at taught classes is not required)	
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. Examination (3 hours)	50%
2. Examination (3 hours)	50%
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Case study poster and oral presentation (15 minutes)	80%
2. Short contextual review (1000 words)	20%

If a student is permitted a retake of the module under the University Regulations and Procedures, the assessment will be that indicated by the Module Description at the time that retake commences.