University of the West of England
BRISTOL

CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data						
Module Title	Respiratory & Sleep Physiology & Pathophysiology A					
Module Code	USSKAY-30-2		Level	2	Version	1
Owning Faculty	HAS		Field	BBAS		
Contributes towards	Healthcare Science (Physiological Sciences) Cardiovascular and Respiratory & Sleep Sciences					
UWE Credit Rating	30	ECTS Credit Rating	15	Module Type	Standard	
Pre-requisites	USSKA9-30-1 Introduction to Physiological Sciences and Patient Care		Co- requisites			
Excluded Combinations	Cardiac Physiology A and B [for those registered on HCS(PS)]		Module Entry requirements	Appropriate Experiential Learning		
Valid From	September 2014		Valid to	September 2020		

CAP Approval Date	28/03/2014

Part 2: Learning and Teaching	
Learning Outcomes	On successful completion of this module students will be able to: All L.O. assessed in both A&B 1. Recall the normal structure and function of the Respiratory system. 2. Describe major abnormalities of physiological control mechanisms in diseases of the Respiratory system. 3. Describe cellular, tissue and systems responses to diseases of the Respiratory system concentrating on disorders of growth, tissue responses to injury, cell death, inflammation, neoplasia, normal and abnormal immune responses, thrombosis, and embolism. 4. Know and apply the abbreviations and units used in Respiratory and Sleep Science. 5. Explain the concept of “normal” and the calculation, use and limitations of reference values, reference ranges, Lower Limits of Normal (LLN) and standardized residuals 6. Explain the normal physiological variability in humans in a range of tests from birth to old age 7. 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 8. Explain the need for calibration and quality assurance for all measurements undertaken in Respiratory and Sleep Science. 9. Explain the application of dynamic lung volumes and flows in routine clinical practice. 10. Compare different techniques to estimate lung volumes and the limitations of each technique. 11. Discuss the role and application of inhaled drug therapy (Bronchodilators) in the management of respiratory disease. 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 <u>but not formally discretely assess</u> 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. Work safely in clinical areas. 4. Establish a vocabulary of terminology used in the classification, investigation and description of disease. 5. Integrate information from different laboratory disciplines.
Syllabus Outline	A) Pathophysiological basis of changes in lung function tests observed in common lung diseases including. • Chronic obstructive pulmonary disease • Asthma • Restrictive lung disease • Pulmonary vascular disease • Congenital and genetic lung conditions • Neuromuscular disorders • Occupational lung disease • Lung cancer • Cystic fibrosis • Non-Respiratory Disorders B) Pharmacology – basic principles (receptors, pharmacodynamics, pharmacokinetics) C) Lung Functions in context – Clinical History, X-Rays. HRCT, Blood Tests D) Assessing Lung Function – which test for which question? E) Techniques used in the assessment of lung function F) Reference ranges, LLN and SR's • Basic Statistics • Derivation of Reference Equations • Uses • Limitations G) Reporting Results H) Dynamic Lung Volumes and Flows • Characteristics of recording equipment • Indications • Contra-Indications • Recommended technique – Volume-time vs Flow Volume • Calculations • Cleaning procedures

	• Common problems • Normal values and interpretation of results I) Reversibility Testing • Drugs routinely used in reversibility testing • Characteristics of recording equipment • Indications • Contra-Indications • Recommended measurement technique • Calculations • Common problems • Interpretation of results J) Cellular, tissue and systems response to common Respiratory diseases including: • Tissue response to injury • Cell death • Inflammation • Neoplasia • Normal and abnormal immune responses • Atheroma • Thrombosis • Embolism • Infarction • Anatomical airway obstruction • Genetic Mutations • The effect of the ageing process K) The role of respiratory mechanics in control of breathing • Effect of neuromuscular disease on the respiratory system L) This module will also consider the impact of smoking on health and introduce the common risk factors for cardiovascular disease and the concept of risk assessment.
Contact Hours/Scheduled Hours	• 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	Students are expected to spend 72 hours on scheduled learning and 228 hours on independent learning. Independent learning will take the following forms with an approximate indication of time required for each: • Essential reading to support acquisition of knowledge relating to lectures and practical exercises – 104 hours • Researching case studies, including accessing VLE scenarios such as 'Virtual Patient' – 37 hours • Preparation and submission of assessment – 15 hours • Revision and preparation for exam – 72 hours **Scheduled learning** includes lectures, tutorials, demonstration, practical classes and workshops; external visits.

	Independent learning includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc.
Reading Strategy	Students will be expected to purchase one or more of the Essential texts listed and to access the further reading. The module booklet will set out which text(s) should be purchased – where more than one, the cost of items and/or their use on other modules will have been considered in making the recommendation. Copies of essential texts will be provided within the library stock, on restricted loan for reference. Further reading will be provided as handouts, or as digitalised book chapters or journal articles, where free electronic access is not available. 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. 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.
Indicative Reading List	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. Bourke, S.J. Burns, G.P. (2011) *Lecture Notes: Respiratory Medicine*. Oxford: Wiley-Blackwell Cotes, J.E. Chinn, D.J. Miller, M.R. (2006) *Lung Function, 6th Ed*. Oxford: Blackwell Publishing Davies, A. and Moores, C. (2011) *The Respiratory System. 2nd ed.* Edinburgh: Churchill Livingstone Gibson, G.J. (2009). *Clinical Tests of Respiratory Function*, 3rd ed. London: Hodder Arnold Hughes, M. (2010) *Physiology & Practice of Pulmonary Function*. Lichfield: Association of Respiratory Technology & Physiology Lumb, A.B. (2010). *Nunn's Applied Respiratory Physiology*, 7th ed. Edinburgh: Churchill Livingstone Maskell, N. Millar, A. (2009). *Oxford Desk Reference: Respiratory Medicine*. Oxford: OUP Naish, J., Revest, P. and Syndercombe, Court D. (2009) Medical Sciences. Edinburgh: W.B.Saunders

	Newall, C., Evans, A., Lloyd, J., Shakespeare, J. & Carter, R. *ARTP Handbook in Spirometry.* 2nd ed.. Lichfield: Association of Respiratory Technology & Physiology Ruppel, G.L. (2003) *Manual of Pulmonary Function Testing*. 8th ed. London: Mosby Shneerson, J.M. (2005). *Sleep Medicine*: *a guide to sleep and its disorders*. 2nd ed. Oxford: Blackwell ARTP, (2003) *The ARTP Practical Handbook of Respiratory Function Testing - Part 1.* 2nd ed.. Lichfield: Association of Respiratory Technology & Physiology ARTP (2005) *The ARTP Practical Handbook of Respiratory Function Testing - Part 2.* 2nd ed.. Lichfield: Association of Respiratory Technology & Physiology West, J.B. (2012) *Respiratory Physiology The Essentials*. 9th ed.. Philadelphia, PA: Lippincott Williams & Wilkins **Journals** Respiration Physiology Thorax Chest European Respiratory Journal Respiratory Medicine Therapeutic Advances in Respiratory Disease Journal of Sleep Research Sleep and Breathing

Part 3: Assessment	
Assessment Strategy	• 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 comprise two elements the first being a mid-point in class assessment using a Personal Response System ('Clickers') to provide an early assessment of learning and rapid feedback to the student about their level of understanding. The second element 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 of Applied Sciences, and made available to students, will be used for all assessments.

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. Exam (3 hours)	100
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Clicker test	30
2. Case-study	70

Resit (further attendance at taught classes is not required)	
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. Exam (3 hours)	100
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Extended Case-study	100
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.	