



ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data					
Module Title	Respiratory & Sleep Physiology & Pathophysiology A				
Module Code	USSKAY-30-2	Level	2	Version	1.1
Owning Faculty	Health and Applied Sciences	Field	Applied Sciences		
Department	Applied Sciences				
Contributes towards	BSc (Hons) Healthcare Science (Physiological Sciences) With pathways in: BSc (Hons) Healthcare Science (Cardiac Physiology), BSc (Hons) Healthcare Science (Respiratory & Sleep Physiology)				
UWE Credit Rating	30	ECTS Credit Rating	15	Module Type	Standard
Pre-requisites			Co- requisites	USSKBA-30-2 Respiratory & Sleep Physiology & Pathophysiology B	
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	V1 August 2014 V1.1 July 2016
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Part 2: Learning and Teaching	
Learning Outcomes	<p>On successful completion of this module the student will:</p> <p>A. Normal Anatomy & Physiology – assessed in component A</p> <ol style="list-style-type: none"> 1. Recall the normal structure and function of the Respiratory system. 2. Know the abbreviations and units used in Respiratory and Sleep Science. <p>B. Defining Normal – assessed in component A + B</p> <ol style="list-style-type: none"> 1. Explain the concept of “normal” and the calculation, use and limitations of reference values, reference ranges, Lower Limits of Normal (LLN) and standardized residuals in defining normal and abnormal lung function. 2. Explain the normal physiological variability in humans in a range of tests from birth to old age 3. Explain and evaluate the methods available for assessing respiratory function in children ≥ 5 years of age through to adults.

C. Disease States – assessed in components A + B

1. Understand the basis of common infections of the Respiratory system.
2. Discuss 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, and embolism.
3. Describe common diseases that affect Respiratory and Sleep Physiology.
4. Gain an awareness of primary and secondary autonomic disorders.
5. Describe major abnormalities of physiological control mechanisms in diseases of the Respiratory system.

D. Communication + analysis – assessed in component B

1. Evaluate and synthesise material from a variety of sources to assess the needs/diagnosis of patients
2. Evaluate clinical scenarios based on current literature and guidelines
3. Communicate clinical information effectively

In addition to these outcomes, the students are expected to integrate knowledge from this module with the content of USSKBA-30-2.

The exact Learning Outcomes assessed in component B will alter year on year but will reflect one or more of the Learning Outcomes 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. Respect and uphold the rights, dignity and privacy of patients.
2. Establish patient-centred rapport.
3. Appreciate the empathy and sensitivity needed when dealing with the patient experience of long-term conditions and terminal illness.
4. Actively seek accurate and validated information from all available sources with respect to respiratory and sleep investigations.
5. Select and apply appropriate analysis or assessment techniques and tools.
6. Critically discuss the problems associated with the care of patients undergoing respiratory investigations or treatments.
7. Discuss complex scientific information in ways that can be understood by patients and practitioners in other areas.
8. Use correct terminology when discussing scientific issues.
9. Work safely in clinical areas.

Syllabus Outline

Indicative Content

A. Normal Anatomy & Physiology

1. Review normal anatomy, histology & physiology

- Anatomy of airways and alveoli
- Anatomy of pulmonary, bronchial and systemic circulation
- Histology of the airways and alveoli
- Respiratory mechanics and ventilation
- Gas Exchange and Acid-Base balance
- Control of breathing

2. Pharmacology

- Basic principles
- Receptors
- Pharmacodynamics and pharmacokinetics

B. Defining Normal

- 1. Reference ranges, LLN and SR's**
 - Basic Statistics
 - Derivation of Reference Equations
 - Application of reference equations
 - Limitations of current reference equations
- 2. Reporting Results**
 - Percent predicted
 - Standardized Residuals (z-scores)
 - National guidelines
- 3. Development and ageing of respiratory system**
 - In utero
 - Birth to aged 5 year
 - 5 years to 18 years
 - 18 years onwards

E. Disease States

- 1. Lung Function Testing in context**
 - Clinical History
 - X-Rays
 - HRCT
 - Blood Tests
- 2. Assessing Lung Function**
 - Which test for which question?
- 3. Common diseases of the Respiratory system, outlining - pathophysiological basis, epidemiology, public health and psychosocial aspects, and including -**
 - Chronic obstructive pulmonary disease (COPD)
 - Asthma
 - Restrictive lung disease
 - Pulmonary vascular disorders
 - Congenital and genetic lung conditions
 - Pneumonia
 - Neuromuscular disorders
 - Occupational lung disease
 - Lung cancer
 - Cystic fibrosis
 - Non-Respiratory Disorders
 - Obstructive and central sleep apnoea
 - Respiratory muscle disorders
- 4. Cellular, tissue and systems response to common Respiratory diseases including**
 - Tissue response to injury
 - Cell death
 - Inflammation
 - Neoplasia
 - Normal and abnormal immune responses
 - Embolism
 - Anatomical airway obstruction
 - Genetic Mutations
 - The effect of the ageing process
- 5. Impact of smoking on health**
 - Common risk factors for cardiovascular disease
 - Risk assessment.

	<p>6. Basis of common infections affecting the Respiratory system.</p> <p>Students are also expected to integrate the content of this module with that USSKBA-30-2 to gain a thorough understanding of the scientific basis and diagnosis of respiratory conditions.</p>
Contact Hours/Scheduled Hours	The module will be delivered by specialist practitioners and will be a blended learning approach comprising – online lectures, face-to-face lectures, seminars, tutorials, practicals, and observational visits to local centres as appropriate to the module content.
Teaching and Learning Methods	<p>Students are expected to spend 72 hours on scheduled learning and 228 hours on independent learning.</p> <p>Independent learning will take the following forms with an approximate indication of time required for each:</p> <ul style="list-style-type: none"> • 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 <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>
Reading Strategy	<p>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.</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>
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	<p>The assessments within this module have been designed to show that the student has developed the required knowledge and clinical skills required of a respiratory and sleep physiologist. There will be two components to the assessment of this module</p> <p>Component A: Two examinations under controlled conditions, in order to test knowledge, understanding and data analysis.</p> <p>Component B: Integrated assignment, including a written report and an oral presentation with questions. This will test communication skills and the ability to use and evaluate/synthesise multiple literature and data sources.</p>
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Identify final assessment component and element	Component A Element 2	
% 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 <i>(as % of component)</i>	
1. Exam 1 (1.5 hours)	50	
2. Exam 2(1.5 hours)	50	
Component B Description of each element	Element weighting <i>(as % of component)</i>	
1. Integrated Assignment (2000 words or equivalent)	70	
2. Oral Presentation (30 minutes including questions)	30	

Resit (further attendance at taught classes is not required)		
Component A (controlled conditions) Description of each element	Element weighting <i>(as % of component)</i>	
1. Exam (3 hours)	100	
Component B Description of each element	Element weighting <i>(as % of component)</i>	
1. Extended Case-study (3000 words)	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>		