



CORPORATE AND ACADEMIC SERVICES

**MODULE SPECIFICATION**

Part 1: Basic Data					
Module Title	Principles in Healthcare Science				
Module Code	USSJT6-30-1	Level	1	Version	1
Owning Faculty	Health and Applied Sciences	Field	Department of Biological Biomedical and Analytical Sciences		
Contributes towards	FdSc Healthcare Science				
UWE Credit Rating	30	ECTS Credit Rating	15	Module Type	Professional practice
Pre-requisites	None		Co- requisites	None	
Excluded Combinations	None		Module Entry requirements	n/a	
Valid From	September 2013		Valid to	Current/ongoing	

<b>CAP Approval Date</b>	21 <sup>st</sup> November 2012
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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><b>Part I – Scientific Principles</b></p> <p>Knowledge and understanding</p> <ul style="list-style-type: none"> <li>perform basic scientific calculations relevant to healthcare and the physiological sciences [B]</li> <li>use statistical methods to describe datasets using a variety of techniques [B]</li> <li>apply the concepts of normal distribution to analyse data [B]</li> <li>estimate the uncertainties in the results of scientific measurements [B]</li> <li>use spreadsheets to perform a variety of calculations and to store and display data [B]</li> <li>apply a basic knowledge of nuclear and atomic physics to describe the basis of instruments, equipment and procedures in nuclear medicine [B]</li> </ul> <p><b>Part II – Patient Care Principles</b></p>

	<p>Knowledge and understanding</p> <ul style="list-style-type: none"> <li>• Describe the structure, management and legal framework for health and social care services including local healthcare systems in the United Kingdom and funding flows [A]</li> <li>• Demonstrate an awareness of the processes involved in clinical physiology practice contributing to the identification of health care needs and the delivery of care [A]</li> <li>• Identify and explain the rationale for monitoring and maintaining health, safety and security in the workplace in order to facilitate safe practice [A]</li> <li>• Have an understanding of an apprentice's rights and responsibilities under the Employment Rights Act 1996, Equality Act 2010 and Health &amp; Safety legislation, together with the responsibilities and duties of employers [A]</li> </ul> <p>Subject, Professional and Practice skills</p> <ul style="list-style-type: none"> <li>• Reflect on physiology practice which contributes to the identification of health care needs and the delivery of care [A]</li> <li>• Develop awareness of identified essential health care skills taking into account the multicultural dimension of inter-professional care across the age and disability spectrum [A]</li> <li>• Demonstrate accountability according to codes of practice in relation to management of patients within the physiology [A]</li> <li>• Recognise safe and effective practice when working in a health care setting [A]</li> </ul>
Syllabus Outline	<p>This module provides the learner with essential knowledge and understanding of principles underpinning work in healthcare science and the regulatory framework in which work takes place.</p> <p><b>Part I – Scientific Principles</b></p> <p>Basic medical imaging science</p> <ul style="list-style-type: none"> <li>• The structure of the atom, mass number, atomic number, isotopes</li> <li>• The structure of the nucleus, modes of radioactive decay, the ranges and ionisation properties of radioactivity, half-life, inverse square law, units of activity, the biological effects of radiation, dose and dose equivalent</li> <li>• Production of x-rays, CT, ultrasonic imaging, image formation, filtering and image enhancement techniques</li> </ul> <p>Performing calculations</p> <ul style="list-style-type: none"> <li>• Rearranging formulae, scientific notation, significant figures, powers and indices</li> <li>• Logs and exponentials, basic trigonometry</li> </ul> <p>Estimating uncertainties</p> <ul style="list-style-type: none"> <li>• Precision and accuracy, histograms, bar charts, box and whisker plot, mean, mode, standard deviation, variance, IQRs, samples and populations</li> <li>• The normal distribution, 95% confidence limits, combining uncertainties</li> </ul> <p>Using computers</p> <ul style="list-style-type: none"> <li>• Basic spreadsheet skills - copying, formatting, addressing</li> <li>• Graphical techniques - different graph types, formatting, regression lines</li> <li>• Calculational techniques - formulae, functions, formatting numbers</li> </ul> <p><b>Part II – Patient Care Principles</b></p>

	<p>The workbased learning content/competencies will be relevant to the role of the individual student within their workplace and linked to the appropriate learning packages.</p> <p><b>Patient Management</b></p> <ul style="list-style-type: none"> <li>• To include an understanding of patient presentation, physiological examinations that may be required and an understanding of specific patient needs and care</li> <li>• Age-specific needs</li> <li>• Disability needs – communication passports</li> <li>• Carer needs</li> </ul> <p><b>Professional skills</b></p> <ul style="list-style-type: none"> <li>• Infection control</li> <li>• Ethics and confidentiality</li> <li>• Health and safety (patient, personal, equipment)</li> <li>• Fitness to practice</li> <li>• Quality, risk and audit</li> <li>• Record keeping</li> <li>• Patient observations/management</li> <li>• Recognising the deteriorating patient and when to intervene</li> </ul> <p><b>Personal Development</b></p> <ul style="list-style-type: none"> <li>• Communication and listening skills relevant to effective clinical practice</li> <li>• Awareness of patient needs and rights as an individual to include: Informed consent, Equality rights and diversity, Human dignity/privacy, Patient psychology, cultural differences</li> <li>• Recognise professional responsibilities with respect to children and vulnerable adults</li> <li>• Managing violence and aggression, awareness of triggers and body language</li> </ul> <p><b>Employee Rights and Responsibilities (ERR), (required for Apprenticeships)</b></p>
<p>Contact Hours/Scheduled Hours</p>	<p><b>Part I</b></p> <p>There will be a total of 6 hours of on campus learning in each week of the blocks, with the remaining 30 hours split into periods of 2 hours of protected learning time in the work place throughout the year. These will be required for the engagement of online learning material/online tutorials/cohort interaction.</p> <p><b>Part II</b></p> <p>The training for and assessment of professional competencies is undertaken outside the University in a professional setting, combining practice with related study. Assessment of competence in professional practice must involve an appropriately qualified practitioner.</p>
<p>Teaching and Learning Methods</p>	<p>The strategy of this module is to provide a platform for students to gain an understanding of the underlying principles behind both the scientific and patient care aspects of healthcare.</p> <p>In order to achieve its main purpose this module therefore uses a variety of teaching and learning methods and approaches.</p> <p>For <b>Part I</b> (total 150 hours) students are expected to spend 54 hours on scheduled learning and 96 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</p>

	<p>learning and engagement will be delivered through several avenues:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• Interactive, online formative quizzes made available either following a particular package of knowledge exchange/learning, or in specified sessions/time periods.</li> <li>• Lectures delivered online through a combination of one or more of the following: visual/audio/interactivity/personal formative assessment</li> </ul> <p>An online multiple choice test will be provided at the end of each of the four sections of the theoretical material. These will be repeatable, with their completion leading to the release of the next section.</p> <p>The remainder of the independent learning time allocated to the module should be spent undertaking revision for the interim (EX1) and final exams (EX2).</p> <p>For <b>Part II</b> (total 150 hours), professional competencies will be taught through "on the job" work based training, and will be recorded through a Competency Portfolio (facilitated through Blackboard).</p> <p><b>Scheduled learning</b> includes lectures, seminars, tutorials, practical classes and workshops; assignment preparation and completion, exam revision etc.</p> <p><b>Independent learning</b> includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc.</p> <p><b>Work based learning:</b> Work based skills will be gained during on the job training which will be based on the appropriate professional competencies. This will be within a pro rata allocation of the 16 hours per week for the programme The work-based training will be augmented with blended learning to ensure the student understands the breadth of the application of science within their Healthcare Science Division and can apply that knowledge in practice.</p>
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				30
Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Workbased study hours	Allocated Hours
300	54	96	150	300

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	100%
Coursework assessment percentage	0%
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.

#### Indicative Reading List

It is recommended that the following book be purchased by all students as it covers all aspects of the mathematical and statistical topics students are likely to encounter on the module. The maths and statistics sections of the syllabus will adhere closely to the content of this book.

Currell G and Downman AA (2009) *Mathematics and Statistics for Science*. Wiley-Blackwell.

	<p>It is not recommended that students purchase scientific texts specifically for this module as extensive notes will be provided via blackboard on the scientific topics. Links to useful and credible websites will also be provided.</p> <p>With regards to patient care the following list is offered to provide validation panels/accrediting bodies with an indication of the type and level of information students may be expected to consult. As such, its currency may wane during the life span of the module specification. However, as indicated above, current advice on readings will be available via other more frequently updated mechanisms.</p> <p>Christe, Barbara L (2009) <i>Introduction to biomedical instrumentation: the technology of patient care</i>. Cambridge University Press. eBook</p> <p>Frampton, Susan B &amp; Charmel, Patrick A (2009) <i>Putting patients first: best practices in patient-centered care</i>. 2nd ed. Jossey-Bass. eBook</p> <p>Allen, Judy and Brock, Susan A (2000) <i>Health care communication using personality type: patients are different!</i> Routledge. eBook</p> <p>Institute for Innovation and Improvement (2012) <i>Transforming the Patient Experience, Essential Guide</i>. <a href="http://www.institute.nhs.uk/patient_experience/guide/home_page.html">http://www.institute.nhs.uk/patient_experience/guide/home_page.html</a></p> <p>The ARTP Practical Handbook of Respiratory Function Testing - Part 1. (2003) Second edition. ARTP</p>
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<b>Part 3: Assessment</b>
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Assessment Strategy	<p>The nature of this module, and the program to which it relates, necessitates a variety of assessment types.</p> <p><b>Part I</b></p> <p>Summative assessment will comprise of two examinations consisting of short answer and multiple choice questions.</p> <p><b>Part II</b></p> <p>The professional competencies will be assessed in accordance with the requirements for and Apprenticeship Technical Certificate and will include evidence collected from:</p> <p>Direct Observation of Practical Skills (DOPS); the observation and evaluation of a procedural/technical or practical skill performed by a student in a live environment.</p> <p>Case Based Discussions (CBDs) which are designed to provide structured teaching and feedback in a particular area of clinical or technical practice by evaluating decision making and the interpretation and application of evidence. They also enable the discussion of the context, professional, ethical and governance framework of practice, and in all instances, they allow students to discuss why they acted as they did. CBDs are used throughout training and should encourage a reflective approach to learning.</p> <p>Mini Clinical Examinations (mini-Cex) where relevant. These are a short snapshot of practitioner/patient interaction. They are designed to assess the clinical skills, attitudes and behaviours of students essential to providing high quality care. (This tool will not be relevant to all disciplines as it is principally designed to assess direct interaction with patients.)</p> <p>Professional competencies will be evidenced in a Competency Portfolio.</p>
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Identify final assessment component and element		
% weighting between components A and B	<b>A:</b>	<b>B:</b>
	<b>PF</b>	<b>100</b>
<b>First Sit</b>		
<b>Component A</b> (controlled conditions) <b>Description of each element</b>	<b>Element weighting</b> <b>(as % of component)</b>	
1. Competency Portfolio	100	
<b>Component B</b> <b>Description of each element</b>	<b>Element weighting</b> <b>(as % of component)</b>	
1. EX1 Examination (1 hour) assessment period 1	50	
2. EX2 Examination (1 hour) assessment period 2	50	
<b>Resit (further attendance at taught classes is not required)</b>		
<b>Component A</b> (controlled conditions) <b>Description of each element</b>	<b>Element weighting</b> <b>(as % of component)</b>	
1. Competency Portfolio	100	
<b>Component B</b> <b>Description of each element</b>	<b>Element weighting</b> <b>(as % of component)</b>	
1. EX3 Examination (2 hours) assessment period 3	100	
If a student is permitted an <b>EXCEPTIONAL RETAKE</b> of the module the assessment will be that indicated by the Module Description at the time that retake commences.		