University of the
West of England
BRISTOL

ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data						
Module Title	Principles in Healthcare Science					
Module Code	USSJT6-30-1		Level	1	Version	1.1
UWE Credit Rating	30	ECTS Credit Rating	15	WBL module?	Yes	
Owning Faculty	Health and Applied Sciences		Field	Biological, Biomedical and Analytical Sciences		
Department	Biological, Biomedical and Analytical Sciences		Module Type	Professional Practice		
Contributes towards	FdSc Healthcare Science BSc (Hons) Healthcare Science (Life Science)					
Pre-requisites	None		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 (assessment intended for each learning outcome designated by [*] corresponding to assessment section): **Part I – Scientific Principles** Knowledge and understanding - Perform basic scientific calculations relevant to healthcare and the physiological sciences [A1, A2] - Use statistical methods to describe datasets using a variety of techniques [A2] - Estimate the uncertainties in the results of scientific measurements [A2] - Apply a basic knowledge of nuclear and atomic physics to describe the basis of instruments, equipment and procedures in nuclear medicine [A1, A2] **Part II – Patient Care Principles** Knowledge and understanding - Describe the structure, management and legal framework for health and social care services including local healthcare systems in the United Kingdom and funding flows [B1]

	• Identify and explain the rationale for monitoring and maintaining health, safety and security in the workplace in order to facilitate safe practice [B1] Subject, Professional and Practice skills • Reflect on physiology practice which contributes to the identification of health care needs and the delivery of care [B1, B2] • Develop awareness of identified essential health care skills taking into account the multicultural dimension of inter-professional care across the age and disability spectrum [B1, B2]
Syllabus Outline	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. **Part I – Scientific Principles** Basic medical imaging science • The structure of the atom, mass number, atomic number, isotopes • 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 • Production of x-rays, CT, ultrasonic imaging, image formation, filtering and image enhancement techniques Performing calculations • Rearranging formulae, scientific notation, significant figures, powers and indices • Logs and exponentials, basic trigonometry Estimating uncertainties • Precision and accuracy, histograms, bar charts, box and whisker plot, mean, mode, standard deviation, variance, IQRs, samples and populations • The normal distribution, 95% confidence limits, combining uncertainties Using computers • Basic spreadsheet skills - copying, formatting, addressing • Graphical techniques - different graph types, formatting, regression lines • Calculational techniques - formulae, functions, formatting numbers **Part II – Patient Care Principles** 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. Patient management • To include an understanding of patient presentation, physiological examinations that may be required and an understanding of specific patient needs and care • Age-specific needs • Disability needs – communication passports • Carer needs Professional skills • Infection control • Ethics and confidentiality • Health and safety (patient, personal, equipment) • Fitness to practice • Quality, risk and audit

	• Record keeping • Patient observations/management • Recognising the deteriorating patient and when to intervene Personal development • Communication and listening skills relevant to effective clinical practice • Awareness of patient needs and rights as an individual to include: Informed consent, Equality rights and diversity, Human dignity/privacy, Patient psychology, cultural differences • Recognise professional responsibilities with respect to children and vulnerable adults • Managing violence and aggression, awareness of triggers and body language
Contact Hours	There will be 3 weeks of contact time at UWE in 3 x 1 week blocks. Included in each block week are service-user interaction sessions, workshops, lectures and tutorials. The contact time will equate to approximately 4 hours per block (a total of 12 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 60 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	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. In order to achieve its main purpose this module therefore uses a variety of teaching and learning methods and approaches. For **Part I** (total 150 hours) students are expected to spend 72 hours on scheduled learning and 78 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 The remainder of the independent learning time allocated to Part I should be spent undertaking revision for the interim [A1] and final exams [A2].

	For **Part II** (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). **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. **Work based learning**: Work based skills will be gained during on the job training which will be based on the appropriate professional competencies. 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.
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	Placement study hours	Allocated Hours	
300	72	228	0	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%
Practical competency assessment		P/F
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	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, A.A. (2009) *Essential Mathematics and Statistics for Science.* Ames: Wiley-Blackwell. [Also available through UWE library as an e-book] 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. 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. Christe, B.L. (2009) *Introduction to biomedical instrumentation: the technology of patient care.* Cambridge: Cambridge University Press. [Also available through UWE library as an e-book] Frampton, S.B. and Charmel, P.A. (2009) *Putting patients first: best practices in patient-centered care*. 2nd ed. San Francisco: Jossey-Bass. [Also available through UWE library as an e-book] Allen, Judy and Brock, Susan A (2000) *Health care communication using personality type: patients are different! London:* Routledge. [Also available through UWE library as an e-book] Institute for Innovation and Improvement (2012) *Transforming the Patient Experience, Essential Guide.* http://www.institute.nhs.uk/patient_experience/guide/home_page.html

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 exams will provide students with an opportunity to demonstrate both their knowledge on a broad range of topics through a series of short answer questions, and more in-depth knowledge though a selection of medium length questions. These assessments will test the full range of learning outcomes in Part I.

Component B

Professional competencies will be evidenced in a Competency Portfolio. The professional competencies will be assessed in accordance with the requirements for and Apprenticeship Technmical Certificate and will include evidence collected from:

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.

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.

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.)

Students will also be expected to complete a specific number of Reflective Blog entries over the year, discussing service-user interaction sessions, their progress and feedback on the course. Each individual entry will be read and commented on by the programme team.

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**:
	100	**P/F**

First Sit	

Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. Examination (1 hour)	50%
2. Examination (1 hour)	50%
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Competency Portfolio	P/F
2. Reflective Blog (minimum 8 entries)	P/F

Resit (further attendance at taught classes is not required)	

Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. Examination (2 hours)	100
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Competency Portfolio	P/F
2. Reflective Essay (500 words)	P/F

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.