University of the West of England
BRISTOL

CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data						
Module Title	Human Biological Systems					
Module Code	USSJRU-30-1		Level	1	Version	1.1
Owning Faculty	Health & Applied Sciences		Field	Applied Sciences		
Contributes towards	BSc (Hons) Forensic Science, BSc (Hons) Forensic Science (with Foundation Year), MSci Forensic Science, MSci Forensic Science (with Foundation Year)					
UWE Credit Rating	30	ECTS Credit Rating	15	Module Type	Standard	
Pre-requisites	None		Co- requisites	None		
Excluded Combinations	None		Module Entry requirements	N/A		
Valid From	September 2016		Valid to	September 2020		

CAP Approval Date	July 2016

Part 2: Learning and Teaching	
Learning Outcomes	On successful completion of this module students will be able to: • describe the structure and function of the main systems of the human body (assessed in Component A); • describe the coordinated biological processes which support human life; and at a basic level, the effects of hormones/drugs on human biological processes (assessed in Component A); • demonstrate an understanding of the relationship between tissue structure and function in the human body (assessed in Component A); • describe the structure of biological membranes and explain key concepts in membrane transport (assessed in Component A); • describe the ultrastructure and function of eukaryotic cells, and their organelles, in contrast to prokaryotic cells (assessed in Component A); • describe the key properties and functions of the principal cellular macromolecules and understand how they are synthesised and metabolised (assessed in Component A and B1); • understand the organisation, structure, regulation and expression of the genetic material of the cell (assessed in Component A and B1); • explain how genetic material can be altered by natural and manipulated means (assessed in Component A);

	• describe the modes of inheritance of characteristics and explain the mechanisms of evolutionary change (assessed in Component A and B1); • demonstrate practical skills in data observation, collection, handling and report writing (assessed in Component B2).
Syllabus Outline	This module examines the fundamentals of human biology particularly the molecular events that occur at the cellular level and how these affect the function of tissues and organs. • An examination of the organisation of the human body, including appreciation of the location, structure and function of the major organs and systems and the contribution of cells and tissues to the whole. • Homeostasis and biological processes which support life. • Communication between cells/tissues/organs: including an introduction to signalling and receptors, endocrine control, nervous control and synapses. • Structure and function of cell membranes. • Structure and function of generalised prokaryotic and eukaryotic cells. • Amino acids and proteins: properties of amino acids; primary, secondary, tertiary and quaternary structure of proteins. • Carbohydrates. Monosaccharides. Glycosidic bonds. Structures of some storage and structural polysaccharides. • Lipids, fatty acids, glycerol, sterols as components of lipid structure. Phospholipids and their role in membrane structure. • General metabolic overview and an introduction to the biochemical processes of the cell, with illustrative examples of catabolic and anabolic pathways. • The genetic material and genomes. Replication of DNA. Decoding the messages within the genes - gene expression: transcription, RNA processing and translation. Altering the genetic material -mutation, recombination and gene cloning. • Mutations, genetic variation and the idea of selection pressure, introduction to Hardy-Weinberg equilibrium. • Gene inheritance patterns in humans and introduction to population genetics.
Contact Hours	The contact hours (72) are distributed as follows: 31 hours interactive lectures 20 hours practicals 21 hours workshops/seminars
Teaching and Learning Methods	The theoretical material will be delivered mostly as lectures reinforced by directed reading, practical activities and directed tasks. The practical work will support and extend lecture material, and will include simulation workshops and data interpretation. Tutorials and learning support will be offered at key times. Online resources will support the module. It will provide access to course documents, sample exam questions and other learning materials. **Scheduled learning** includes lectorials and laboratory practical classes. **Independent learning** includes hours engaged with essential reading, assignment preparation and completion, etc.

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

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,
Coursework: Practical report and data interpretation

Total assessment of the module:	
Written exam assessment percentage	40%
Coursework assessment percentage	60%
	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	*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.*

	Indicative Reading List: Most recent edition of: Alberts, B. *et al*., *Essential Cell Biology*, New York; London: Garland Science Godfrey, H. *Understanding The Human Body.* Edinburgh; New York: Churchill Livingstone. Nelson, D. and Cox, M. *Lehinger Principles of Biochemistry*. New York: W.H. Freeman. Reece, J.B. *et al.,* Campbell Biology. London: Pearson Education Ltd. Russell, P.J. *iGenetics A Molecular Approach*. New York: Pearson. Stanfield, C.L. *Principles of Human Physiology*. London: Pearson Education Ltd. Silverthorn, D. *Human Physiology an Integrated Approach*. London: Pearson Education Ltd. Tortora, G.J. and Derrickson, B. *Essentials of Anatomy and Physiology*... Hoboken, NJ: Wiley

Part 3: Assessment	
Assessment Strategy	The controlled component consists of a written examination and a series of in-class tests using personal response devices. The written examination is an effective means for assessing a student's in-depth knowledge, as well as testing their ability to organize information logically and coherently in order to demonstrate understanding of the topic. (Summative). The examination will be held in January for the duration of 1.5 hours. This is consistent with the department's assessment strategy for Level 1 modules. The use of in-class tests through Semester 2 (using personal response devices) assesses the student's application of knowledge, applying principles learnt in class, whilst providing timely feedback relating to the student's attainment and breadth of knowledge of the subject. (Summative). The coursework comprises two elements. The first element is data interpretation. This provides an opportunity for students to complete an in-depth analysis of biological data. The recording and analysis of laboratory data is a vital skill for forensic science students; consequently this assessment can be described as an assessment to enhance employability and learning. The second element is a Practical Portfolio which is based on the laboratory practical series. This portfolio requires the detailed recording of data followed by analysis, interpretation and discussion of these data. Opportunities for formative assessment and feedback are built into the workshop and seminar series, through discussion of current research, the evaluation of research methods, and review of past exam papers. 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. Assessments are described in the module handbook that is supplied at the start of module. Formative feedback is available to students throughout the module through group discussions, practical classes and in tutorials. 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. 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**:
	40%	**60%**

First Sit	
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. Written Examination (1.5 hours) assessment period 1	50%
2. Series of in-class tests (within Semester 2) using personal response systems	50%
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Data interpretation	40%
2. Practical Portfolio	60%

Resit (further attendance at taught classes is not required)	
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. Written examination (3 hours)	100%
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Portfolio – practical report, data interpretation and written task	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.	