MODULE SPECIFICATION

Part 1: Information			
Module Title	Cell Signalling		
Module Code	USSKB4-15-2	Level	Level 5
For implementation from	2020-21		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Health & Applied Sciences	Field	Applied Sciences
Department	HAS Dept of Applied Sciences		
Module type:	Standard		
Pre-requisites	Cells, Biochemistry and Genetics 2020-21		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Overview: Pre-requisite: Students must have taken Cell Biochemistry and Genetics (USSKA4-30-1)

Educational Aims: See Learning Outcomes.

Outline Syllabus: The syllabus includes:

Principles underlying cell signalling events:

The production of signals, their perception and the responses they evoke will be discussed in a generic setting to impress on the commonality of signalling principles. Examples will be drawn mainly from mammalian systems, but commonalty to systems in other eukaryotes will be emphasised. Cell-cell signalling, such as endocrine, paracrine and autocrine, along with gap-junctions, will be covered, leading to discussion of hormones, cytokines and growth factors.

Each signalling pathway and type of signalling will be discussed with respect to their roles in health and in specific diseases

Specific signal transduction pathways, including those involving:

cAMP, adenylyl cycles and G proteins, with discussion of the control of glycogen metabolism, cholera, pertussis toxin and cancer and any other relevant diseases

Inositol phosphates, lipid signalling, how these elements integrate into signalling. The recycling of inositols will be discussed.

Calcium ions, calmodulin, calcium sequestration, calcium ion oscillations and waves.

Developmental signalling pathways and their relevance to disease Electrical excitability

Neuronal signalling and the role of neurotransmitter signalling in mental illness

Role and mechanisms of action of cell receptors.

How ligands are perceived, receptor changes and the transition of the signal into or through the cell. Intracellular receptors which respond to pharmaceuticals such as steroids will also be discussed.

Teaching and Learning Methods: The module will be delivered as mainly as lectures and lectorials, with some practical classes, tutorial sessions and revisions sessions. Teaching will be underpinned by research of the department and wider literature to keep the content current and relevant.

Scheduled learning
Scheduled contact time is structured around a series of lectures that introduce the key concepts of the topic under discussion.

The practical class will be used to underpin key concepts, and provide opportunities for the students to engage in data analysis relevant to the major signalling pathways.

Lectorial/Tutorial sessions will cover critical analysis of published papers, and will involve discussions and group work.

Revision session will be based around writing targeted essay plans and exam strategy, based on past or specimen papers, towards the end of the module.

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.

The module will be supported by Blackboard.

Contact Hours:

The contact hours (33) are distributed as follows:

15 hours of lectures
12 hours of lectorial sessions
3 hours of practical classes
3 hours of revision sessions

Part 3: Assessment

The Assessment for this module is designed to test the breadth and depth of students' knowledge, as well as their ability to analyse, synthesize and summarise information critically, including published research and data from the 'grey' literature.

Component A is a written online exam. There will be a 24 hour window in which to submit exam answers, but the recommended length of time to spend on the exam is 3 hours (and therefore a 3000 word limit will apply), which is consistent with the Department's assessment strategy for Level 2 modules. The examination provides students

with the opportunity to demonstrate their knowledge and understanding of the key concepts and paradigms associated with the subject matter, to use examples and other evidence critically to support their arguments.

The written assignment provides the opportunity for the student to critically analyse a published paper based around one of the major signalling topics covered in the lectures.

Opportunities for formative assessment and feedback are built into the assignment and review of past exam papers.

All work is marked in line with the Department's Generic Assessment Criteria and conforms to the 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.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Examination (Online) - Component A	✓	50 %	Online examination (24 hours)
Written Assignment - Component B		50 %	Written critique of research paper (1500 words)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Examination (Online) - Component A	✓	50 %	Online examination (24 hours)
Written Assignment - Component B		50 %	Written critique of research paper (1500 words)

Part 4: Teaching and Learning Methods

Learning Outcomes

On successful completion of this module students will achieve the following learning outcomes:

Module Learning Outcomes	**Reference**
Understand and discuss the general principles underlying cell signalling events in mammals and other organisms	MO1
Discuss specific signal transduction pathways, including those involving cAMP, G proteins, inositol phosphates and calcium ions and other second messengers	MO2
Discuss the role and mechanisms of action of cell receptors	MO3
Discuss the role of signalling pathways in specific diseases	MO4
Find and use up-to-date literature	MO5
Communicate elements of cell signalling in written format	MO6

Contact Hours

Independent Study Hours:

Independent study/self-guided study	117
Total Independent Study Hours:	117

Scheduled Learning and Teaching Hours:

	Face-to-face learning	33
	Total Scheduled Learning and Teaching Hours:	33
	Hours to be allocated	150
	Allocated Hours	150
Reading List	*The reading list for this module can be accessed via the following link:* https://uwe.rl.talis.com/modules/usskb4-15-2.html	

Part 5: Contributes Towards
This module contributes towards the following programmes of study: Biomedical Science {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2018-19 Biomedical Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2018-19 Biomedical Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2018-19 Biomedical Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2018-19