



Module Specification

Cell Control and Disease

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Part 1: Information

Module title: Cell Control and Disease

Module code: USSKFR-15-3

Level: Level 6

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Health & Applied Sciences

Department: HAS Dept of Applied Sciences

Partner institutions: None

Field: Applied Sciences

Module type: Module

Pre-requisites: Cell Signalling 2022-23, Molecular Biotechnology 2022-23

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Pre-requisites: students must take one out of Genetics USSKFQ-15-2 or Molecular Biotechnology USSKAM-30-2 or Cell Signalling USSKB4-15-2

Features: Not applicable

Educational aims: This module will give an overview of Cell Signalling in cells, with a more in depth discussion of dysfunction of mechanisms that lead to disease. It will

take a holistic approach to organisms, so will include animals and plants, but will have a focus on human biology to ensure relevance and interest.

Outline syllabus: The module will have lectures on:

Principles of cell signalling: what is a good signal?; signal transduction; amplification; crosstalk etc.

Extracellular signalling and receptors: hormones, cytokines, types and action of receptors, including steroids

Intracellular signalling mechanisms: cAMP; IP₃; Ca²⁺ ion signalling, role of G proteins

Post-translational modifications; phosphorylation; oxidations; nitrosation etc.

The influence of epigenetics on cell signalling pathways

Signalling which leads to diabetes, insulin production and perception

Signalling involved in apoptosis and cancer; mitochondria dependent- and non-dependent pathways

Responses to environmental changes; how cells respond to changes from outside, such as heavy metals, temperature, light, pathogens etc.

Part 3: Teaching and learning methods

Teaching and learning methods: See assessment strategy

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

MO1 Have an understanding of how cell signalling events manage the metabolism and gene expression in cells .

MO2 Undertake data analysis relevant to the field (Component B) and disseminate information on cell signalling in a written format.

MO3 Discuss how cells perceive signals from their extracellular environment, how this initiates signal transduction pathways and how they lead to the control of cellular events.

MO4 Discuss how dysfunction of cell signalling pathways may lead to disease.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 117 hours

Face-to-face learning = 33 hours

Total = 150

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link

<https://rl.talis.com/3/uwe/lists/D4C684DB-3F29-E584-6368-5F5B4D5ECF1D.html?lang=en-US&login=1>

Part 4: Assessment

Assessment strategy: Assessment will be of two types:

Coursework will be a data-based assignment. This has been chosen to allow students to think about how cell signalling works and how data from relevant experiments can be interpreted.

Exam (online with 24 hour submission window).

It is important that students can understand the types of experiment that leads to knowledge in this area, and how to interpret such data being generated (coursework). It is also important for students to be able to disseminate this knowledge in a logical and clear manner, and hence an essay-based assignment is

appropriate (exam).

Assignments will be supported by in-class tutorial work.

Assessment tasks:

Examination (Online) (First Sit)

Description: Online Exam (24 hour submission window)

Weighting: 60 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Written Assignment (First Sit)

Description: Data-interpretation coursework (1500 words)

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2

Examination (Online) (Resit)

Description: Online Exam (24 hour submission window)

Weighting: 60 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Written Assignment (Resit)

Description: Data-interpretation coursework (1500 words)

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Biological Sciences [Sep][FT][Frenchay][4yrs] MSci 2021-22

Biological Sciences [Sep][FT][Frenchay][3yrs] BSc (Hons) 2021-22

Biological Sciences [Sep][SW][Frenchay][4yrs] BSc (Hons) 2020-21

Biological Sciences [Sep][SW][Frenchay][5yrs] MSci 2020-21

Biological Sciences {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2020-21

Biological Sciences {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2020-21

Biological Sciences {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2019-20

Biological Sciences {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2019-20