



Module Specification

Blood Science

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Part 1: Information

Module title: Blood Science

Module code: USSJXU-15-2

Level: Level 5

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:

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This module uses a blended learning platform that integrates the understanding of metabolic, genetic and nutritional conditions from a haematology and clinical biochemistry perspective.

Features: Not applicable

Educational aims: See Learning Outcomes.

Outline syllabus: Metabolic and genetic disorders:

The basis of this topic session is to integrate common metabolic disorders that present in haematological and clinical biochemistry platforms but that have genetic predispositions such as Medium-Chain Acyl-CoA Dehydrogenase Deficiency and genetic disorders of the bone marrow. This will be complemented by acquired metabolic conditions such as metabolic syndrome or diabetes.

Nutritional conditions:

In this topic session we aim to explore common nutritional conditions such as anaemia and iron overload over 2 lectures and integrate this with a combined laboratory practical, exploring the haematological and clinical biochemistry analysis of these conditions.

Drug monitoring, diagnostics and toxicology:

This topic session will combine the importance of technology in the development of drug monitoring; point of care tests (for example routinely used haematology for haemostasis testing and biochemistry point of care tests), together with a lab practical to better describe these tests. These sessions will support the coursework assessment.

Part 3: Teaching and learning methods

Teaching and learning methods: This module will be delivered as a series of 3 topic sessions, (4 weeks/topic session). For each individual topic session there will be three weeks of lectures/tutorials and practical classes. The final week of each topic session will be a series of TED-like talks (10 minute) delivered by the academics from each topic session. The topic will then be opened to the students to debate and contribute information based on the lecture series delivered over this period.

Lectures: This module will be delivered in discrete topic sections, following the subject areas outlined in the syllabus. Each topic area will be introduced with underpinning lectures followed by a series of tutorials. Guided reading will be

provided in advance of lectures and will direct the student to both preparative and supplementary information sources. Copies of all handouts will be available on Blackboard.

Tutorials: As part of the lecture series, tutorials will be embedded in each time slot and are open to covering support material from research-based material to case studies. This approach ensures an applied delivery and opportunity to build as individuals.

Laboratory Practical classes: Several laboratory classes will be included that are linked to the lecture series offering the students an applied understanding of each topic section.

TED-Like talks: At the end of each topic section a series of TED-like talks will be delivered from the lead academics. These talks will range from research-based question to topical/relevant biomedical topics that are currently in the news. Following the talk we will open the discussion to the students for debate and also encourage them to integrate their learning from the previous lectures in that series.

Media clip: Students will be required to prepare a media clip based on a point-of-care (POC) test where they will be expected to describe the operational basis of the kit, its limitations, clinical applications and competitor models. This piece of coursework will develop the students critical awareness, their presentation skills and also can they 'market' their product, offering experience at thinking of other employment opportunities within Industry such as Pharmacy Sales, technical directors etc.

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

MO1 Understand the pathogenic mechanisms underpinning the disorders highlighted in the syllabus. (Lectures/tutorial)

MO2 Interpret biomedical data in the investigation and diagnosis of disease and discuss the origin and effects of an abnormal haematological and biochemical profile

MO3 Discuss the relevance of biochemical, molecular biological diagnostic tests in the investigation of disease. (Lectures/tutorial/lab practicals)

MO4 Critically and analytically appraise relevant scientific literature; present scientific information as a debate. (TED-LIKE talks and debate)

MO5 Develop interpersonal skills and science communication skills (Media Clip and TED-LIKE TALKS)

MO6 Learn how to develop and deliver a media clip

MO7 Integrate business and technology

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](https://uwe.rl.talis.com/index.html) via the following link <https://uwe.rl.talis.com/index.html>

Part 4: Assessment

Assessment strategy: There are two pieces of assessment, 1 piece of coursework and 1 examination. The piece of coursework is designed to develop their understanding of how health technology operates and has been developed. Within this assessment the students will develop an ability to critically debate the value of their POC test relative to other tests on the market. As this is a media clip they will also be able to showcase their ability to present and 'sell' their product. This meets the objectives of the module where we are trying to improve the confidence of students, their ability to verbally explain their science but also to think cross-discipline and engage the business element of applied science.

The second piece of assessment is the examination which will assess the topic sections. There will be three sections, based on each topic section. This will address

their ability to describe pathogenic pathways and interpret biomedical data in an integrated manner.

These assessments were chosen to develop student confidence when presenting and also develop their ability to scientifically converse. This will also enable them to gain feedback on presentation skills to assist with future presentations, such as the project poster in the final year. The second piece, the examination was chosen because it is a good way to determine their subject knowledge but also encourage them to attend each topic section. Understanding these pathways will integrate genetic, biochemistry and haematology offering a holistic learning platform.

The assessment brief is tailored to ensure that each student will have to research a specific set of questions relative to a POC test. Moreover, because the students are preparing a media clip we anticipate that it will be more difficult to plagiarise.

During the TED-LIKE talks and the debate there will be opportunity to feedback on their presentation and delivery. The module aims to enhance these skills, which will be showcased in the media clip.

Assessment tasks:

Examination (Online) (First Sit)

Description: Online examination (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7

Presentation (First Sit)

Description: Media Clip (5 mins)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7

Examination (Online) (Resit)

Description: Online examination (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7

Presentation (Resit)

Description: Media Clip (5 mins)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Applied Biomedical Science [Frenchay] BSc (Hons) 2022-23

Biomedical Science [Frenchay] BSc (Hons) 2022-23

Biomedical Science [Frenchay] MSci 2022-23

Biomedical Science [Sep][PT][Frenchay][6yrs] BSc (Hons) 2021-22

Biomedical Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2021-22

Biomedical Science {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2021-22

Biomedical Science [Sep][PT][Frenchay][8yrs] MSci 2021-22

Biomedical Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2021-22

Biomedical Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2021-22

Biomedical Science [Sep][PT][Frenchay][6yrs] BSc (Hons) 2020-21

Biomedical Science [Sep][PT][Frenchay][8yrs] MSci 2020-21

