



Module Specification

Disease, Diagnosis and Monitoring

Version: 2023-24, v2.0, 16 Jun 2023

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Part 1: Information

Module title: Disease, Diagnosis and Monitoring

Module code: USSJKX-15-M

Level: Level 7

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: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: Yes

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: In each subject area, disease pathology, screening, diagnosis, monitoring and prognosis will be discussed from the perspective of existing health technology and their associated limitations. This will be discussed together with respect to how AI and digital medicine has the potential to dramatically change and improve these clinical tools, ultimately improving healthcare and the associated economic burden.

Chronic conditions can be defined as conditions that last longer than 3-6 months,

usually a slow progression and requires ongoing medical intervention. Commonly these conditions limit an individual's ability to perform their day-to-day living and accessibility to amenities, resulting in their premature admission to care homes. The common conditions discussed in this module include, chronic respiratory disease, cancer, cardiovascular disease (including hypertension), diabetes, neurodegenerative conditions (such as Alzheimer's disease) and musculoskeletal conditions such as osteoporosis and rheumatoid arthritis. Infectious diseases such as viral pandemics will also be discussed. This will be delivered through a series of lecture, tutorials and laboratory practical classes.

Features: Not applicable

Educational aims: The aim of this module is to introduce the key chronic disease conditions that will benefit from advances in AI and digital technologies.

Outline syllabus: •Respiratory disease: Diagnosis and monitoring

•Cancer: Clinical markers of disease together with physical imaging techniques.

•Cardiovascular disease: Lifestyle choices and disease pathology and how damage to the cardiovascular system is clinically assessed.

•Diabetes: Screening, monitoring and diagnosis of type II diabetes and new technology such as wearables and mobile Apps (M health).

•Mental health: Living well with dementia, robotics and smart technology.

•Musculoskeletal: New technological advances for medical implant functionalisation.

•Infectious disease: COVID-19 and Dengue Fever

Part 3: Teaching and learning methods

Teaching and learning methods: Lectures: This module will be delivered through integrated lectures, where each lecture will provide the basic underpinning of each chronic disease, highlighting the unmet clinical need that AI or digital technology can address.

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

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

MO1 Critically evaluate biomedical data in the investigation and diagnosis of disease and discuss the origin and effects of an abnormal biochemical profiles (Component A)

MO2 Write informed practical reports that critically evaluate practical data with a focus on data integrity and analysis (Component B)

MO3 Communicate how an understanding of pathology is important to critically evaluate the clinical utility of current diagnostic tools (Component A)

MO4 Assess the unmet clinical need for the development of new technologies using AI in areas where existing technology fails to achieve diagnostic power (Component B).

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://rl.talis.com/3/uwe/lists/289167AC-A638-4F29-FADA-DF108EFDB6A5.html) via the following link <https://rl.talis.com/3/uwe/lists/289167AC-A638-4F29-FADA-DF108EFDB6A5.html>

Part 4: Assessment

Assessment strategy: Assessment 1 is a practical report. The students will develop their critical analytical skills to differentially diagnose a disease across several biomedical disciplines. This will cover several practical classes culminating in a final practical report (1,500 words). This case study will evidence how several biomedical fields all contribute to a diagnosis. The students will gain an appreciation of the wider application of diagnostic and physical tools and how AI and use of digital data will support these unmet clinical needs.

Assessment 2 is a poster, which will detail the pathology of a particular disease, how it can be differentially diagnosed together with the limitations of current technology. This provides the foundation for understanding the unmet clinical need and the gaps that can be filled with AI and new technology. The student will also defend this poster in an oral defence (20 minutes). Formative assessment is embedded in the tutorial sessions that develops the students pitching and communication skills.

Assessment tasks:**Report (First Sit)**

Description: Practical report (1,500 words).

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO3, MO4

Poster (First Sit)

Description: Poster and oral defence (20 minutes)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Report (Resit)

Description: Practical report (1,500 words).

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO3, MO4

Poster (Resit)

Description: Poster and oral defence (20 minutes)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Health Technology [Frenchay] MSc 2023-24

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