UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title	Molecules To Systems
Module Code	PHA4008-C
Academic Year	2020/1
Credits	30
School	School of Pharmacy and Medical Sciences
Subject Area	Pharmacy
FHEQ Level	FHEQ Level 4
Pre-requisites	N/A
Co-requisites	N/A

Contact Hours	
Type	Hours
Online Seminar (Synchronous)	22
Practical Classes or Workshops	30
Laboratories	11
Directed Study	237

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Academic Year

Module Aims

To introduce students to the structure, function, properties of biological membranes, microorganisms, human cells and tissues to understand their role in the functioning of the body both in health and disease.

Outline Syllabus

To start to explore and familiarise students with a systems-based approach looking at how molecular structures evolve into cells, tissues, organs and body systems by exploring:

Fundamental structures and functions of main organic macromolecules.
Structure, function and life-cycle of a cell.
Structure and function of simple and compound glands.
Structure and function of specialist cells and tissues.
Membrane structure and the properties and functions of membrane lipids and proteins.
The movement of ions and molecules across membranes.
The effect and influence of chemical messengers on the activity of cells and organs.
The effect of disease processes on cells and tissues.
The characteristics of a range of micro-organisms and their role in infectious disease
The modes of action of a range of antimicrobial agents and development of antibiotic resistance and strategies to combat resistance including antimicrobial stewardship.
The structure and function of antibodies, the use of vaccines and the characteristics and role of the innate and specific immune system.

Learning Outcomes

Outcome Number	Description
01	Develop a core understanding of important macro-molecules in biological systems.
02	Understand and apply knowledge of cell and tissue structure and function to explain how the human body functions in health and disease.
03	Describe the biophysical, chemical and pharmacological principles of membrane structure and the properties and functions of membrane lipids and proteins to explain the movement of ions and molecules across membranes.
04	Apply these new physiological principles to explore how chemical messengers, such as hormones and neurotransmitters and drugs influence the activity of cells and organs.
05	Use the principles of the biology of microorganisms in health and disease to explain the aetiology of disease.
06	Identify preventative measures in the treatment of infectious disease.
07	Describe the concepts of antimicrobial action and stewardship.
08	Explain antibody development in biological systems and the role of vaccines.
09	Understand their role within the team.

Learning, Teaching and Assessment Strategy

Students will develop the knowledge, understanding and skills necessary to meet the learning outcomes of the module through the programme's instructional learning and teaching strategy; Team-Based Learning (TBL). By studying the core knowledge-based content of the module out of class through guided reading, supported by orientational lectures students will engage in group activities to ensure understanding and application of their developed knowledge. Activities will be based in a number of settings including classrooms and laboratories.

Resources for self-directed study will be provided for students. Self-directed study will include guided reading and completion of TBL Study Packs, preparation for RAPs, Application Exercise and laboratory/workshop sessions.

Students are assessed via a range of assessments, including both individual and team assessments. Students are assessed through a number of individual readiness assurance tests (iRAT) throughout the academic year. On completion of the iRAT assessment, students form their pre-assigned teams (5-7 students) and retake the assessment as a team (tRAT). Once all of the answers have been collated, students receive instant in-class feedback from the academic expert. In subsequent sessions, teams of students will apply their new knowledge to a number of formative and summative Application Exercises (AE), including role plays, problem solving and laboratory experiments and submission of reports. At the end of the academic year, summative assessment of learning outcomes is through an examination. To pass the module, students will need to demonstrate a pass standard of 40% in the module overall and must also achieve at least 40% in the exam.

Keeping in mind the health and safety of the students due to the current Covid-19 situation learning and teaching sessions will be mixture of both face to face and active online sessions. We will have a combination of Online Lecture (Synchronous), Online Lecture (Asynchronous), Practical Class, Workshops, Learning Objects Interaction, Online Tutorial (Synchronous), Seminar and laboratory sessions.

Mode of Assessment

Type	Method	Description	Length	Weighting
Summative	Examination - Open Book	Individual Canvas Quiz [MUST PASS at 40%]	2 hour	70%
Summative	Classroom test	iRATs 15%; tRATs 5%; Application Exercises/Lab reports 5%; Peer Review 5% [Supp= 1000 word Reflection 30%]	N/A	30%
Formative	Examination - MCQ	Sample written exam	2 hours	N/A
Formative	Classroom test	Formative peer review	1 hour	N/A
Formative	Classroom test	Application Exercises / laboratory reports	3.5 hour	N/A
Formative	Classroom test	Readiness Assurance Process (RAP)	3.5 hour	N/A

Reading List

To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:
This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.

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