UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title	Fundamentals of Pharmacy Science
Module Code	PHA4011-E
Academic Year	2023/4
Credits	60
School	School of Pharmacy and Medical Sciences
FHEQ Level	FHEQ Level 4

Contact Hours	
Type	Hours
Directed Study	422
Laboratories	22
Lectures	50
Practical Classes or Workshops	106

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

Module Aims

To enable students to understand and develop their knowledge of and skills in supporting themselves and others in their learning and development, along with the verbal, numeric and written academic skills required to develop as a future pharmacist.

To enable students to understand and develop their knowledge of and skills in the underlying theories and concepts of:
- How the body works in health and disease.
- What a drug is and how drugs are designed.
- How drugs work on the body.
- How the body affects drugs.

Outline Syllabus

Understanding the module's aims, learning outcomes and the approach to teaching and assessment. Introduction to library services and how to find information; basis of evidence-based medicine; handling information; report writing, including referencing and plagiarism.
Laboratory work using appropriate technologies; including associated health and safety, report writing and presentation of data including descriptive analysis. Basic mathematical manipulation to complete simple pharmaceutical calculations.

Cell structure and function so that you can explain how the human body functions in health (homeostasis) and disease; the biology of microorganisms in health and disease so that you can explain the aetiology of disease, identify preventive measures, and the treatment of infectious disease; the science of genetics.

How medicines are designed, manufactured and distributed through the pharmaceutical supply chain to patients, taking into consideration the carbon footprint of these processes: principles of drug design and synthesis; clinical trials process and the regulatory framework around the testing of medicines, including packaging and storage, to assure their quality, safety and efficacy; drug packaging and safe storage; medicines disposal and how to reduce their effect on the environment.

The movement of ions and molecules across membranes and how chemical messengers, such as hormones and neurotransmitters and drugs influence the activity of cells and organs; why medicines have side effects based on their mechanism of action at molecular level, and how to manage these side effects. How pharmacological principles are used when choosing a drug to prescribe.

Drug administration: different drug delivery systems; the basic principles of pharmacokinetics (processes of drug absorption, distribution, metabolism and excretion) and their importance in prescribing and drug monitoring.

Learning Outcomes

Outcome Number	Description
01	Understand the theory of a range of scientific communication strategies and demonstrate these in multiple settings.
02	Understand the principles of evidence-based practice, benefit and risk and apply these to everyday problem-solving activities.
03	Accurately perform basic pharmaceutical calculations, including basic numeracy, fractions, percentages, molar calculations and simple dilutions.
04	Understand the scientific principles relating to the discovery, design, development, formulation, preparation, packaging, quality assurance and disposal of medicines and devices, while accounting for sustainability and environmental concerns.
05	Understand the scientific principles relating to chemistry, physiology, pharmacology, genomics and clinical therapeutics.
06	Understand the principles of pharmacovigilance and effective patient monitoring to improve health outcomes and minimise risk.
07	Develop research and scientific dissemination skills in both oral and written format and demonstrate the skills of literature searching and accurate referencing.

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), as outlined in more detail in the Programme Specification. Activities will be based in a range of settings including classroom settings (workshops), laboratories and the clinical skills suite, providing opportunities to practise skills. Acquisition of clinical and communication skills will be enhanced through working in a simulated clinical environment with simulated / real patients.

Resources for self-directed study will be provided for students which will include: guided reading to support completion of TBL Study Packs, with signposting to additional sources of information to help students learn about where to find and how to use relevant information; preparation for taught sessions including RAPs, Application Exercises, workshops and laboratory sessions.

Students will be supported to develop a clear understanding of the module assessment criteria and how the teaching and learning opportunities will help them to achieve these, as outlined in more detail in the Programme Specification.

Following taught sessions to support the development of knowledge and skills required to understand and undertake research, including provision by the Subject Librarian, students will be allocated a supervisor to support them in developing their independent research skills, with group and one to-one support sessions.

Development of mathematical manipulation skills for pharmaceutical calculations will be developed via taught workshop sessions, with additional resources provided to further aid students in meeting this learning outcome.

Students are assessed via a range of assessments, including both individual and team assessments.

Students are assessed through a number of closed-book individual Readiness Assurance Tests (iRATs) 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 open-book formative and summative Application Exercises (AEs), including role plays, problem-solving, laboratory experiments and submission of reports. Formative and summative peer assessment of team members will be used to develop and assess team-working.

Research skills, including written and oral communication of students' findings, are assessed by laboratory report and a written report with accompanying oral presentation.

Pharmaceutical calculations will be examined in the semester 1 exam period of each year; students MUST PASS the stage calculations examination at 70%, in line with the patient safety implications of performance in this area.

At the end of the academic year, summative assessment of learning outcomes is through a written examination and clinical assessment.

An opportunity for formative assessment and feedback is provided for all elements of assessment. 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% (70% in calculations) in each of the elements of assessment (except the TBL component).

Mode of Assessment			
Type	Method	Description	Weighting
Summative	Team-Based Learning Assessment	SUMMATIVE 1: TBL i-RAT 12%; t-RAT 6%; Application exercise 6%; Peer Assessment 6%. RESIT 1: 1000-word reflection 30%	30%
Summative	Laboratory Report	SUMMATIVE 2: Research and scientific dissemination: 1000-words lab report. (PASS AT 40%, MUST PASS)	10%
Summative	Presentation	SUMMATIVE 3A: Research and scientific dissemination: 10-minutes oral presentation (PASS AT 40%, MUST PASS)	10%
Summative	Coursework - Written	SUMMATIVE 3B: Research and scientific dissemination: 1000-words laboratory dissemination report (PASS AT 40%, MUST PASS)	10%
Summative	Examination - Closed Book	SUMMATIVE 4: 60-minutes Calculation Examination (PASS AT 70%, MUST PASS) after Semester 1	0%
Summative	Coursework - Portfolio/e-portfolio	SUMMATIVE 5: e-portfolio Skills Log (PASS/FAIL, MUST PASS)	0%
Summative	Examination - Open Book	SUMMATIVE 6: 120 minutes MCQs, EMQs and short answer questions (PASS AT 40%, MUST PASS) at end of year	40%
Formative	Team-Based Learning Assessment	FORMATIVE 1: Team-based learning with in-class formative feedback.	N/A
Formative	Laboratory Report	FORMATIVE 2: Formative discussion on structure of lab report	N/A
Formative	Presentation	FORMATIVE 3: Formative discussion of structure/format of presentation.	N/A
Formative	Classroom test	FORMATIVE 4: Mock Calculations examination (60-minutes) with formative feedback session.	N/A
Formative	Classroom test	FORMATIVE 6: Mock exam (120-minutes) comprising multiple choice/single best answer questions (MCQ), Extended Matching Questions (EMQ) and short-answer questions. Formative feedback session afterwards	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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