

Lifecycle of a Medicine

Module Code:	PHA4009-C
Academic Year:	2018-19
Credit Rating:	30
School:	School of Pharmacy and Medical Sciences
Subject Area:	Pharmacy
FHEQ Level:	FHEQ Level 4

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Seminar	14
Practical classes and	18
Laboratory	11
Directed Study	257

Availability Periods

Occurrence	Location/Period
BDA	University of Bradford / Academic Year (Sept - May)

Module Aims

To introduce students to new concepts of drug discovery, design and synthesis, through the fundamental molecular structure and the chemistry of essential reactions to the drug molecules passage through the body. This is illustrated using the concepts of Absorption, Distribution, Metabolism and Excretion (ADME). To explore the drug development cycle and manufacturing regulations to ensure the safe and effective production, storage, packaging and environmentally appropriate disposal of medicines and drug delivery systems.

Outline Syllabus

To introduce and familiarise students with the processes and procedures of drug development from plant to patient by exploring the principles of:

- Origins of drugs, drug discovery process and drug synthesis.
- Molecular structure and functional groups and their interplay.
- Principles of drug design and structure-activity relationships.
- Different drug delivery systems.
- Drug packaging and safe storage.
- Theories of drug administration and absorption including physicochemical properties of drug molecules.
- Processes of drug distribution, metabolism and excretion including essential reactions.
- Medicines disposal and their effect on the environment.
- Clinical trials process and the regulatory framework around the testing of medicines to assure their quality, safety and efficacy including an introduction to the aseptic preparation of medicines.

Module Learning Outcomes

On successful completion of this module, students will be able to...

- 1 Understand the origins of drugs, drug discovery, design and optimisation process and drug synthesis to explain the lifecycle of a medicine.
- 2 Apply and explain the concepts of molecular structure and functional groups, including structure-activity relationships.
- 3 Understand the principles of different drug delivery systems to optimise medicines utilisation.
- 4 Describe and explain the properties of medicine packaging and methods of storage.
- 5 Understand the concepts associated with ADME, including physicochemical properties of drug molecules, to explain the lifecycle of a medicine.
- 6 Familiarise and assess the principles of drug disposal and medicines and the environment to understand the lifecycle of a medicine.
- 7 Appreciate the development of the clinical trials process and the regulatory framework around the testing of medicines to assure their quality, safety and efficacy.
- 8 Apply the principles of aseptic preparation of medicines.
- 9 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 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.

Mode of Assessment

Type	Method	Description	Length	Weighting	Final Assess'
Referral	Examination - MCQ	Individual written exam [MUST PASS at 40%]	2 hours	70%	Yes
Summative	Examination - MCQ	Individual written exam [MUST PASS at 40%]	2 hours	70%	Yes
Formative	Examination - MCQ	Sample written exam	2 hours	%	No
Referral	Coursework	An individual summative reflection (instead of classroom tests)	0-1000 words	30%	No
Summative	Classroom test	Readiness Assurance Process (Individual Readiness Assurance Tests (iRATs) 15% and Team Readiness Assurance Tests (5%))	3.5 hours	20%	No

Summative	Classroom test	Peer review	1 hour	5%	No
Summative	Classroom test	Application Exercises / laboratory reports	3.5 hours	5%	No
Formative	Classroom test	Formative peer review	1 hour	%	No
Formative	Classroom test	Application Exercises / laboratory reports	3.5 hours	%	No
Formative	Classroom test	Readiness Assurance Process (RAP)	3.5 hours	%	No

Legacy Code (if applicable)

Reading List

To view Reading List, please go to [rebus:list](#).