

Liverpool John Moores University

Title: FORMULATION AND DRUG DELIVERY
Status: Definitive
Code: **7121PHASCI** (127508)
Version Start Date: 01-08-2021

Owning School/Faculty: Pharmacy & Biomolecular Sciences
Teaching School/Faculty: Pharmacy & Biomolecular Sciences

Team	Leader
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Academic Level: FHEQ7 **Credit Value:** 20 **Total Delivered Hours:** 49
Total Learning Hours: 200 **Private Study:** 151

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	20
Practical	18
Workshop	8

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	CW1	The assignment will be based on a group project relevant to drug delivery. The assignment will comprise: (1) an individual written short essay for 20% of marks and (2) a group presentation (20%)	40	
Exam	EX1	Written exam comprising but not	60	3

Category	Short Description	Description	Weighting (%)	Exam Duration
		limited to long answer (essay) questions		

Aims

To provide students with knowledge and skills to master the principles of pharmaceutical formulation and advanced drug delivery methods.

Learning Outcomes

After completing the module the student should be able to:

- 1 Demonstrate expertise in applying the principles of pharmaceutical formulation in the design of advanced drug delivery systems
- 2 Formulate and evaluate a pharmaceutical delivery system.
- 3 Display mastery of interpreting complex information and data in the evaluation of advanced drug systems

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Mini project	1	2	3
exam	1	3	

Outline Syllabus

Introduction to the basic components of formulation, delivery systems (nanoparticles, tablets, capsules, etc.) and routes of delivery (oral, buccal, parenteral, pulmonary, nasal, topical, transdermal).

Immediate and modified release systems: excipients and polymers; immediate release formulations; modified release formulations; oral and buccal delivery; fast disintegrating tablets and enteric coatings etc; Paediatric delivery.

Nanoformulation; nanomedicines; biodegradable polymers; polymeric micro/nanoparticles; lipid-based nanoparticles; parenteral and pulmonary delivery; targeted delivery; cancer therapy.

Challenges in biopharmaceutical delivery: proteins, vaccines, genes; biomolecule stability, bioavailability and first pass metabolism; solutions, nanoparticles and lipid carriers; Routes of delivery; insulin and vaccine delivery.

Special topics and future developments supported by recent literature. For example; clays for drug delivery, wound healing, nanoparticles for medical diagnosis.

Mini-project: Group project to design, produce and evaluate a delivery system for an assigned API.

Learning Activities

Lectures covering each topic within the module

Practical sessions giving students first-hand experience of relevant formulation principles

Workshops to support reviews of current literature, experimental design and analysis of data generated during practical sessions

Notes

Practical sessions will involve students developing hands-on experience of formulating and evaluating delivery systems.

Exam will assess students understanding of the principles through data interpretation and problem solving questions