

## Liverpool John Moores University

Title: FORMULATION AND DRUG DELIVERY  
Status: Definitive  
Code: **7106PHASCI** (123668)  
Version Start Date: 01-08-2021

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

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**Academic Level:** FHEQ7      **Credit Value:** 30      **Total Delivered Hours:** 49  
**Total Learning Hours:** 300      **Private Study:** 251

### 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 the group project to design, produce and evaluate a delivery system for an assigned API. The assignment will comprise: (1) an individual written short essay for 20% of marks and (2) a group presentation (20%)	40	

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	EX1	Written exam comprising long answer (essay) questions	60	3

## 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