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قـائمة مقررات درجة الماجستير في العلوم الصيدلية
قسم الصيدلانيـــات

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١- **مقررات عامة:** Courses	**1-General : (0600700) (12 cr. h)**
٢- **مقررات تخصصية:**	**2- Specialized : (12 cr. h) Course**

First Semester (7 cr. h)

No.	Course code	Courses		Credit hours	
				L	**P**
1	0601701	Advanced Physical Pharmacy	الصيدلة الفيزيائية المتقدمة	2	--
2	0601702	Controlled Drug Delivery	انظمة دوائية للتحكم في توصيل الدواء	2	--
3		Elective Course	مقرر اختياري	3	
		Total		**7**	

Second Semester (5 cr. h)

No.	Course code	Courses		Credit hours	
				L	**P**
4	0601703	*Seminar*	بحث القائي	2	--
5		Elective Course	مقرر اختياري	3	
		Total		**5**	

Elective Courses

No.	Course code	Courses		Credit hours	
				L	**P**
1	0601704	Nano-Based Drug Delivery Systems	أنظمة توصيل الدواء النانومترية	3	--
2	0601705	Biopharmaceutics and Pharmacokinetics: Aspects of Drug Delivery System Design	الصيدلة الحيوية وحركية الدواء: جوانب تصميم نظام توصيل الدواء	3	--
3	0602703	Applied Experimental Pharmacology	تطبيقات علم الادوية التجريبي	2	1*

*1 credit hour practical is 2 hours session weekly

First Semester (7 cr. h)

Course Name	Credit hours		Code No.
	L	**P**	
Advanced Physical Pharmacy الصيدلة الفيزيائية المتقدمة	2	--	0601701

Description: The course covers areas of solid state and solution properties, colloids, surfactant systems, drug dissolution and diffusion phenomenon, particle size analysis. Complexation and protein binding, stability and stabilization of pharmaceuticals are also discussed. Application of thermodynamics principles in pharmaceutical research are discussed. Classification, properties and characterization of polymers & biomaterials and application of polymers in pharmaceutical formulations are overviewed. Students are expected to be able to apply the physical basics acquired from this course to typical formulation and stability issues of conventional and novel pharmaceutical dosage forms.

- Pharmaceutics MS Graduate Program, University of Minnesota
- Master of Science in Pharmaceutical Sciences, School of Pharmacy, Chapman University
- Master of Science in Pharmacy, School of Pharmacy, University of Puerto Rico
- https://www.ox.ac.uk/admissions/graduate/courses/pgcert-nanotechnology?wssl=1

Course Name	Credit hours		Code No.
	L	**P**	
Controlled Drug Delivery أنظمة دوائية للتحكم في توصيل الدواء	2	--	0601702

Description: The course is designed to impart knowledge on the area of advances in novel drug delivery systems. Various approaches for development and characterization of novel drug delivery systems, and criteria for selection of drug and polymers for development of drug delivery systems are discussed. Modulated drug delivery Systems e.g. mechanically activated, pH activated, enzyme activated, and osmotic activated drug delivery systems are covered. The course covers the oral and parenteral routes of administration.

- Pharmaceutics MS Graduate Program, University of Minnesota
- https://www.pharmacy.umn.edu/departments/pharmaceutics/graduate-program/courses

Second Semester (5 cr. h)

Course Name	Credit hours		Code No.
	L	**P**	
Seminar <div dir="rtl">بحث إلقائي</div>	2	--	0601703
Description: *Seminar topics covers controlled drug delivery systems for all routes of administration except oral and parenteral routes.* • Pharmaceutics MS Graduate Program, University of Minnesota • http://farmacia.rcm.upr.edu/academic-programs/master-science-pharmacy/msp-course-descriptions/			

Elective Courses

Course Name	Credit hours		Code No.
	L	**P**	
Nano-Based Drug Delivery Systems <div dir="rtl">أنظمة توصيل الدواء النانومترية</div>	3	--	0601704
Description: The course introduces students to the nano-based drug delivery systems and properties of nanomaterials. Methods of synthesis or preparation of inorganic, magnetic, polymeric, lipid nano-systems are discussed. Self-assembled structures such as liposomes, aquasomes, nano-emulsion and nano-suspension are also covered. Characterization including size, PDI, size distribution, stability, methods of analysis regarding integrity and release of drugs are discussed. Cellular uptake and toxicity, biodistribution, clinical and preclinical nanomedicine as well as special topics in nano-biosensors, nano-fluidics are covered. Application of nanomaterials for cranial, pulmonary and nasal drug delivery and cardiovascular diseases are covered. By the end of the course students should be able to select the right kind of materials, able to develop nano-formulations with appropriate technologies and evaluate the product related tests for identified diseases. • PGCert in Nanotechnology, Oxford University • Nanoscience & nanotechnology MSc., University of Glasgow • https://www.gla.ac.uk/postgraduate/taught/nanosciencenanotechnology/?gclid=EAIaIQobChMImLyVq9av4QIV6BbTCh0lBwfNEAAYASAAEgKE1fD_BwE&gclsrc=aw.ds#tab=1			

Course Name	Credit hours		Code No.
	L	P	
Biopharmaceutics and Pharmacokinetics: Aspects of Drug Delivery System Design الصيدلة الحيوية وحركية الدواء : جوانب تصميم نظام توصيل الدواء	3	--	0601705

Description: The course addresses in detail the aspects of biopharmaceutics in drug delivery. The interrelation of the drug/drug delivery system with biological matrices (e.g. blood, saliva, gastro-intestinal fluids, lung-lining fluids, mucus, epithelia, endothelia) and how this may influence delivery of the drug to exert the desired effect (e.g. effects on PK and PD) are discussed.

The influence of biopharmaceuticals (i.e. peptides, proteins, nucleic acids), small molecule drugs or combination therapies and the application of functionalizing excipients on drug delivery systems are covered.

An overview of basic pharmacokinetic principles and elaboration on model assignment and non-linear pharmacokinetics of drugs is presented. The course will also include detailed discussion of interpretation of plasma drug concentrations, protein binding and its effect on the disposition of drugs, the transport across biological membranes.

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- Master of Science in Pharmaceutical Sciences, School of Pharmacy, Chapman University
- Master of Science in Pharmacy, School of Pharmacy, University of Puerto Rico
- https://www.usnews.com/best-graduate-schools/top-health-schools/pharmacy-rankings