Jordan University of Science and Technology

Faculty of Pharmacy

Doctor Of Pharmacy (Pharm D.) Department

PHMD351 Pharmaceutics 2

First Semester 2023-2024

Course Catalog
3 Credit Hours. - This course introduces students to the basics of physicochemical principles such as rheology, phase equilibria, interfacial phenomena, and colloids. - Based on the previous description, the course also deals with applications of these physicochemical principles in the design of suspensions, emulsions, aerosols, dermatological and rectal route preparations.

Text Book	
Title	Martin?s Physical Pharmacy and Pharmaceutical Sciences
Author(s)	Patrick J. Sinko
Edition	8th Edition
Short Name	Martin
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ansel	Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems	Loyd V. Allen, Jr., Nicolas G. Popovich & Howard C. Ansel	10th Edition	

Instructor	
Name	**Dr. Nusaiba Al-Nemrawi**
Office Location	-
Office Hours	Sun : 11:30 - 13:30 Mon : 08:30 - 09:30 Tue : 11:30 - 13:30 Thu : 11:30 - 12:30
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Instructor	
Name	**Prof. Shereen Assaf**
Office Location	P2 L1
Office Hours	
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Class Schedule & Room
Section 1: Lecture Time: Sun, Tue, Thu : 09:30 - 10:30 Room: P1103 Section 3: Lecture Time: Mon, Wed : 10:00 - 11:30 Room: PH2104

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
312520	PHMD252 Pharmaceutics 1	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Syllabus, Overview, and introduction	
Week 2	Rheology: a) Newtonian Fluids b) Non-Newtonian Fluids c) Thixotropy d) Determination of Rheologic Properties e) Application to Pharmacy	**16** From **Martin**
Weeks 3, 4	Phase Equilibrium and Phase Rule: a) Phase Rule b) Two Component Systems c) Three Component Systems	**2** From **Martin**
Weeks 4, 5, 6	Interfacial Phenomena: a) Liquid Interfaces b) Adsorption at Liquid Interfaces c) Adsorption at Solid Interfaces d) Application of Surface-Active Agent e) Electric Properties of Interfaces	**15** From **Martin**
Weeks 6, 7, 8	Colloidal Dispersions: a) Types of Colloidal Systems b) Properties of Colloids c) Stabilization of Colloids	**17** From **Martin**
Weeks 8, 9, 10	Coarse Dispersions: a) Formulation of Suspensions and Emulsions b) Pharmaceutical Applications of Suspensions and Emulsions c) Physical Stability of Emulsions and Formulation	**18** From **Martin**
Weeks 10, 11, 12	Semisolid Dosage Forms: a) Structure, Function and Topical Treatment of Skin b) Drug Transport Throughout Skin c) Ointments, Creams, Gels and other preparations d) Formulation of Dermatological Vehicles	**Section IV (10, 11)** From **Ansel**
Weeks 12, 13	Rectal and Vaginal Dosage Forms: a) Rectal Drug Delivery b) Vaginal Drug Delivery c) Formulation of Rectal and Vaginal Dosage Forms	**Section V (12)** From **Ansel**
Week 14	Pharmaceutical Aerosols: a) Properties and Definitions b) Aerosol Packaging Components c) Formulation of Pharmaceutical Aerosols d) Manufacturing and Testing of Aerosols e) Advantages and Disadvantages of Aerosols	**Section VI (14)** From **Ansel**

Mapping of Course Outcomes to Program Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Differentiate between various systems in terms of rheology and discuss its applications in pharmaceutical sciences. [9PLO1.1]	9%	First
Discuss the phase rule and its applications to different systems containing multiple components. [9PLO1.1]	9%	First
Define the interfacial phenomena, adsorption mechanism at interfaces, classify the surface-active agents and their application in pharmacy. [15PLO1.1]	15%	First
Differentiate between different colloids and characterize their optical, kinetic, and electrical properties that are essential in the stabilization of colloidal systems [9PLO1.1]	9%	
Discuss the concepts of pharmaceutical suspensions and emulsions, factors that affect their stability, and describing approaches used in preparing physically stable formulations [23PLO1.1]	23%	
Describe the basic principles for the formulation of semisolid dosage forms, explain transdermal drug delivery and identify creams, ointments, and gels. [15PLO5.1]	15%	
Describe physiological requirements and outline procedures used in the formulation of suppositories [12PLO5.1]	12%	
Describe aerosol dispensers and the most common types of aerosol formulations and compare between their manufacturing methods [8PLO5.1]	8%	

Relationship to Program Student Outcomes (Out of 100%)															
PLO1.1	PLO2.1	PLO2.2	PLO2.3	PLO2.4	PLO3.1	PLO3.2	PLO3.3	PLO3.4	PLO3.5	PLO3.6	PLO4.1	PLO4.2	PLO4.3	PLO4.4	PLO5.1
65															35

Evaluation	
Assessment Tool	**Weight**
First	25%
Second	25%
Active learning	10%

Final	40%

Policy	
Exams	-All exams are closed books and notes. -The final exam is comprehensive (covers all the material). -The first, second, and midterm incomplete exams need approval from the departments' heads. -The final incomplete exams need approval from the dean.
Cheating	Prohibited; The commitment of the acts of cheating and deceit such as copying during examinations, altering examinations for re-grade, plagiarism of homework assignments, and in any way representing the work of others as your own is dishonest and will not be tolerated. Standard JUST policy will be applied. إذا،ضبط الطالب أثناء االمتحان أو االختبار متلبساً المادة 7 بالغش فتوقع عليه العقوبات التالية مجتمعة : : أ- في ذلك االمتحان أو االختبار . اعتباره راسبا ب- الغاء تسجيله في بقية المساقات المسجل لها في ذلك الفصل. جـ- فصله من الجامعة لمدة فصل دراسي واحد، و هو الفصل التالي للفصل الذي ضبط فيه
Attendance	? Attendance is mandatory and will be recorded regularly. ? Excellent attendance is expected. ? Students who miss more than 20% of the classes will be dropped from the course as per JUST policy. ? If you miss class, it is your responsibility to find out about any announcements or assignments you may have missed.
Active learning and students? participation	Students are expected to actively participate in class discussions.
Withdraw	The last day of courses withdrawal (without reimbursement of tuition fees) is announced on the university calendar

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