

نموذج وصف المقرر

1. اسم المساق					
صيدلة فيزيائية ١ (نظري وعلمي)					
2. رمز المساق					
Phind24_214-					
3. السنة الدراسية/ الفصل الدراسي					
السنة الثانية / الفصل الاول					
4. تاريخ اعداد الوصف					
٢٠٢٤/٩/١					
5. استمارات الحضور المتوفرة					
قائمة تواقيع الطلبة عند الحضور					
6. عدد الساعات والوحدات الدراسية					
٣ ساعات نظري و ٢ ساعة عملي / ٤ وحدات					
7. اسماء التدريسيين المسؤولين عن الكورس الدراسي مع الايميل الرسمي					
الجزء النظري:					
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دكتورة رشا خالد شاكر					
Email: rasha.kh@uomosul.edu.iq					
8. اهداف الكورس					
<ul style="list-style-type: none">تعلم المبادئ الفيزيائية التي توجه الشكل الصيدلاني.فهم أساس الذوبان والحركية وإيصال الدواء.					
9. إستراتيجيات التعلم والفهم					
<ul style="list-style-type: none">حاضرةندواتالعمل في المنزلالعروض المعملية العملية والعمل الجماعي في المختبر					
10. بنية المقرر					
الاسبوع	الساعات	مخرجات التعلم	اسماء المواضيع	طرق التعلم	طرق التقييم
1	3+2	1. Understand the nature of the intra- and intermolecular forces that are involved in stabilizing molecular and physical structures.	States of matter, binding forces between molecules.	Theoretical lectures. Laboratory experiments	Paper-based exams

			<p>2. Understand the differences in these forces and their relevance to different types of molecules.</p> <p>3. Appreciate the differences in the strengths of the intermolecular forces that are responsible for stability of structure the different states matter.</p>		
Paper-based exams	<p>Theoretical lectures.</p> <p>Laboratory experiments</p>	Gases, liquids, solid crystalline matters;	<p>1. Understand the properties of the different states of matter.</p> <p>2. Describe the pharmaceutical relevance of the different states of matter to drug delivery systems by reference to specific examples given in the text boxes.</p> <p>3. Describe the solid state, crystallinity, solvates, and polymorphism.</p>	3+2	2
Paper-based exams	<p>Theoretical lectures.</p> <p>Laboratory experiments</p>	phase equilibria and phase rule and Thermal analysis	<p>1. Understand phase equilibria and phase transitions between the three main states of matter.</p> <p>2. Understand the phase rule and its application to different systems containing multiple components.</p>	3+2	3
Paper-based exams	<p>Theoretical lectures.</p> <p>Laboratory experiments</p>	Thermodynamics, first law, second law, third law, free energy function and applications	<p>1. Understand the theory of thermodynamics and its use for describing energy-related changes in reactions.</p> <p>2. Understand the first law of thermodynamics and its use.</p>	3+2	4

Paper-based exams	Theoretical lectures. Laboratory experiments.	Thermodynamics, first law, second law, third law, free energy function and applications	1.Understand the second law of thermodynamics and its use. 2.Understand the third law of thermodynamics and its use. 3.Define and calculate free energy functions and apply them to pharmaceutically relevant issues.	3+2	5
Paper-based exams	Theoretical lectures. Laboratory experiments	Solutions of electrolytes, properties	1.Identify and describe the four colligative properties of nonelectrolytes in solution. 2.Understand the various types of pharmaceutical solutions.	3+2	6
Paper-based exams	Theoretical lectures. Laboratory experiments	ideal and real colligative properties, molecular weight determination	1.Define ideal and real solutions using Raoult's and Henry's laws. 2.Calculate vapor pressure lowering, boiling point elevation, freezing point lowering, and pressure for solutions of nonelectrolytes.	3+2	7
Mid-term exam					8
Paper-based exams	Theoretical lectures. Laboratory experiments.	Solution of electrolyte properties	1.Understand the important properties of solutions of electrolytes. 2.Calculate the conductance of solutions, the equivalent conductance, and the equivalent conductance of electrolytes. 3.Apply the Arrhenius theory of	3+2	9

			electrolytic dissociation.		
Paper-based exams	Theoretical lectures. Laboratory experiments	Ionic strength, Debye-Huckle theory, coefficients for expressing colligative properties	1.Calculate ionic strength. 2.Calculate osmotic coefficients, osmolality, and osmolarity. 3.Understand the differences between osmolality and osmolarity.	3+2	10
Paper-based exams	Theoretical lectures. Laboratory experiments	Ionic equilibria, modern theories of acids, bases, salts, acid-base equilibria	1.Describe the Brønsted–Lowry and Lewis electronic theories. 2.Understand the concepts of acid–base equilibria and the ionization of weak acids and weak bases.	3+2	11
Paper-based exams	Theoretical lectures. Laboratory experiments	calculation of pH, acid constants, the effect of ionic strength and free energy	1.Calculate dissociation constants K_a and K_b and understand the relationship between K_a and K_b . 2.Understand the concepts of pH, pK, and pOH and the relationship between hydrogen ion concentration and pH.	3+2	12
Paper-based exams	Theoretical lectures. Laboratory experiments	Buffered and isotonic solutions: Buffer equations, buffer capacity	1.Understand the common ion effect. 2.Discuss the factors influencing the pH of buffer solutions.	3+2	13
Paper-based exams	Theoretical lectures. Laboratory experiments	isotonic solutions	1.Describe the concept of tonicity and its importance in pharmaceutical systems. 2.Calculate solution tonicity and tonicity adjustments.	3+2	14
Students' seminars					15

11. التقييم

الامتحانات التحصيلية وتوزيع الدرجات من 100

- 20 درجة تقييم نظري.
- (اختبار منتصف الفصل الورقي + اختبار قصير + حضور + ندوة)
- 20 درجة تقييم عملي (حضور + اختبار + تدريب)
- 60 درجة الامتحان النهائي النظري الورقي

المجموع 100 درجة

12. المصادر التعليمية

1- Alfred Martin et al, Physical Pharmacy, 6th edition, 2010.
Laboratory Manual for Practical Physical pharmacy adopted by department.

الكتب المنهجية

- 1- **Physicochemical Principles of Pharmacy** by Alexander Taylor Florence and David Attwood.
- 2- **Fast track: Physical Pharmacy** by Alexander Taylor Florence and David Attwood.

المصادر الرئيسية