KING SAUD UNIVERSITY

College of Pharmacy

Department of Pharmaceutical Chemistry

جامعة الملك سعود

كليـــــة الصيدلة

قســـــم الكيمياء الصيدلية

نموذج وصف مقرر دراسي

Course Designation	PHC 211	٢١١ كمص	**رقم المقرر ورمزه**
Course Name	Pharmaceutical Organic Chemistry	كيمياء عضوية صيدلية	**إسم المقرر**
No. of Credits	3	٣	**عدد الوحدات الدراسية المعتمدة**
Level	3	٣	**المستوى**
Prerequisites	CHEM 105, CHEM 106	١٠٥ كيم، ١٠٦ كيم	**متطلب سابق**
Credit Distribution	(2+1)	(١+٢)	**توزيع المقرر (نظري+عملي)**

وصف المقرر:

يشمل هذا المقرر دراسة التراكيب البنائية لمجموعات الكيمياء العضوية المتجانسة والمركبات ذات الحلقات غير المتجانسة وتسميتها مع معرفة الخواص الطبيعية والكيميائية. وتشمل الدراسة كذلك التفاعلات الكيميائية لكل منها وميكانيكية تفاعلها بالإضافة إلى معرفة الكيمياء الفراغية للمركبات الكيميائية مع التركيز على المركبات ذات التأثير الحيوي. كما يشمل الجزء العملي التعرف على المركبات العضوية من خلال خواصها الكيميائية والفيزيائية وخواص مجاميعها.

Course Description:

The course covers an in-depth knowledge of organic chemistry with particular emphasis on the synthesis, reactions, mechanism of reactions and stereochemistry of organic molecules. The chemistry of heterocyclic compounds shall be detailed. The importance of different organic classes in nature and in pharmaceutical and chemical industries will be outlined. The laboratory period deals with the identification of different classes of organic compounds based on differences in their physicochemical properties.

الكتب المقررة:

Textbooks:

1- R. Fessenden and J. Fessenden, Organic Chemistry, PWS Publishers, Latest edition.
2- L. G. Wade. Organic Chemistry. Prentice Hall. Pearson Education, Upper Saddle River, NJ. 2003 (latest edition

اعتمد بموافقة مجلس الكلية بجلسته_____ بتاريخ_____

توقيع رئيس القسم:_____ توقيع عميد الكلية:_____

PHC 211 (Pharmaceutical Organic Chemistry) LECTURES' OUTLINE

Week	Lecture number	Date	Topic
1	1		**Introduction to Organic Chemistry**
	2		Concepts: Electronegativity
2	3		Chemical bonding, bond cleavage
	4		Substitution Reactions
3	5		Substitution Reactions
	6		Addition Reactions
4	7		Elimination Reactions
	8		Rearrangement Reactions
5	9		**Review of Chemical Classes of Organic Compounds**
	10		**Review of Chemical Classes of Organic Compounds**
6	11		**Amino acid Chemistry**
	12		Stereochemistry (Structural Isomers)
7	13		Geometrical Isomers
	14		Geometrical Isomers
8	15		Geometrical Isomers
	16		Geometrical Isomers
9	17		Optical Isomers
	18		Optical Isomers
10	19		Optical Isomers
	20		**Heterocyclic Chemistry** (Introduction)
11	21		Nomenclature -1
	22		Nomenclature -2
12	23		Nomenclature -3
	24		Pyrrole and five-membered heterocycles
13	25		Pyrrole and five-membered heterocycles
	26		Pyridine and six-membered heterocycles
14	27		Pyridine and six-membered heterocycles
	28		**Miscellaneous fused rings heterocycles**

PHC 211 LABORATORY PROJECTS' OUTLINE

Week	Topic	Project
1	Physical Properties of Organic Compounds	▪ Physical properties. ▪ Solubility and acid – base character.
2	Infrared spectroscopy	▪ Introduction. ▪ Examination of infrared spectra
3	Chemical tests for special classes	▪ General test for alcohols. ▪ General test for phenols. ▪ General test for aldehydes and ketones. ▪ General test for carboxylic acids. ▪ General l test for aromatic amines. ▪ General test for esters. ▪ General test for amides.
4	Alcohols	▪ Identifications, physical and chemical properties for methanol, ethanol and glycerol
5	Phenols	▪ Identifications, physical and chemical properties for phenol, m-cresol, catechol, resorcinol and hydroquinone.
6	Aldehydes and ketones	▪ Identifications, physical and chemical properties for formaldehyde, acetaldehyde, benzaldehyde, acetone and acetophenone.
7	Revision	
8	Practical Exam -1	
9	Aliphatic carboxylic acids	▪ Identifications, physical and chemical properties for formic, acetic, lactic, oxalic, tartaric and citric acids.
10	Aromatic carboxylic acids	▪ Identifications, physical and chemical properties for benzoic, salicylic and phthalic acids.

LABORATORY PROJECTS' OUTLINE (Cont.)

Week	Topic	Project
11	Aromatic amines	▪ Identifications, physical and chemical properties for aniline, N-methylaniline and N,N-dimethylaniline.
12	Esters and amides	▪ Identifications, physical and chemical properties for methyl salicylate, phenyl salicylate and urea.
13	Revision	
14	Practical Exam -2	

COURSE EVALUATION:

Continuous Assessment: First Assessment Test Second Assessment Test Term Activity* Laboratory Test Final Laboratory Test	 15 % 10 % 10 % 10 % 15 %
Total	60 %
Final Examination: Final Paper test	 40 %
Total Marks	100 %

**Homework and classroom Assignments and Discussion*