

نموذج توصيف مقرر
Course Description Form

Name of College\Faculty : Science

Name of Department: Chemistry

اسم الكلية:

اسم القسم العلمي:

Course Name	Organic Chemistry: Natural Products and Synthetic Polymers	اسم المقرر
Course No.	CHEM 455	رقم المقرر
No. of Credits	3	عدد الوحدات
Theoretical Hours	3	عدد الساعات النظرية
Practical Hours	0	عدد الساعات المحلّية
Course topics		مواضيع المقرر
Carbohydrates (monosaccharides, disaccharides, oligosaccharides, and polysaccharides). Amino acids, peptides, and proteins (three-dimensional structure). Terpenes (classification, synthesis, and biosynthesis). Alkaloids. Nucleic acids, DNA, and RNA. Synthetic and natural polymeric compounds. Lipids. Steroids.		
Text book: (Name, Author , Year , Publisher)		عنوان الكتاب : (الاسم ، المؤلف ، سنة الطبع ، دار النشر)
1. P. Y. Bruice, Organic Chemistry, Prentice Hall International, Latest Edition. 2. M. A. Fox and J. K. Whitesell, Organic Chemistry, 2nd Edition, 1997, Jones and Bartlett Publishers.		
References: (Name , Author , Year . Publisher)		عنوان المرجع : (الاسم ، المؤلف ، سنة الطبع ، دار النشر)
None.		

Prerequisites		متطلبات المقرر			
CHEM 355					
	Exams		%		الاختبارات
	Quizzes		%		امتحانات قصيرة

Grading	H.W.		%		واجبات	آلية رصد المقرر
	Project (field study)		%		مشاريع (دراسة ميدانية)	
	Final		%		الاختبار النهائي	
	%					

Chapters included:

Chapter	Topic	Sections Included	Sections Excluded
	Review of organic reactions and solution stoichiometry		
CH.22	Carbohydrates	all	
CH.23	Amino Acids, Peptides, and Proteins	1-5, 7-16	6
CH.26	Lipids	all	
CH.27	Nucleosides, Nucleotides, and Nucleic Acids	1-4, 6-17	5
CH.22*	Energy Storage in Organic Molecules	all	
CH.24	Catalysis	all	
CH.25	The Organic Mechanisms of the Coenzymes	all	
CH.30	The Organic Chemistry of Drugs	all	
	Modern Versus Classical Approaches to Natural Products Biosynthesis	all	

Course objectives					
No.	Course Objectives (Learning Outcomes)	Example(s) of relevant (Topics and activities)	Recommended Level to satisfy the objectives		
			High	Medium	Low
1	To introduce the importance of naturally occurring compounds.			X	
2	To introduce the structure, chemical characterization, and synthesis of naturally occurring oxygen compounds.		X		
3	To introduce the structure, chemical characterization, and synthesis of naturally occurring nitrogen compounds.		X		



4	To introduce the chemistry of synthetic polymers: different methods of polymerization (radical, cationic, and anionic; cross-linking).		X		
5	To understand the chemical kinetics of multistep reactions and relate this with how energy is stored and processed in organic systems.			X	
6	To link chemistry to biochemistry.			X	
Fields					
Skills					
Coordinator (Name and Rank) :	Convener of the organic chemistry				
Signature and stamp :					
Date:	11\ 11 \2025				