

معلومات المقرر * (Course Information):

اسم المقرر:	كيمياء فراغية
رقم المقرر:	CHM 325
اسم ورقم المتطلب السابق:	كيمياء عضوية - 2, CHM 222
اسم ورقم المتطلب المرافق:	-
مستوى المقرر:	السادس
الساعات المعتمدة:	٢

Module Title:	stereochemistry
Module ID:	CHM 325
Prerequisite (Co-requisite) :	Organic chemistry-2, CHM 222
Co-requisite :	-
Course Level:	sixth Level
Credit Hours:	2

وصف المقرر :

This course include basic of stereochemistry, physical properties of isomers, synthesis , reactions and applications of stereochemistry, studying the different types of isomerism and stereo isomers, chemical reactions with stereo chemical consideration, explaining the configurational inversion and racemization, drawing chemical structures in three dimensions .Reaction Mechanism, and stereochemistry

أهداف المقرر :

Module Aims

1	Recognize basic concepts of stereochemistry. physical properties of isomers, synthesis and reactions and applications of the organic stereochemistry	١
2	Understand configuration and conformational Isomerism in simple aliphatic compounds Chirality and elements of symmetry (axis, Centre and plane).	٢
3	Recall that asymmetric (chiral) centers give rise to optical isomers that exist as non-superimposable mirror images.	٣





4	Recognize the chirality in organic chemistry, stereo genic elements and stereoisomerism, polarimetry, optical activity, stereo genic Elements Stereoisomerism, R,S conformer (L, D) Sequential rule of Chan Ingol and Prelog- exercises, chiral center and enantiomer	
5	Recognize the different between the enantiomers and diastereoisomers, meso compounds. Configurational Stereoisomers of Cycloalkanes, Ring Conformers, Some Conformations of Cyclohexane Rings, Substituted Cyclohexane Compounds.	

Learning Outcomes:

مخرجات التعليم:

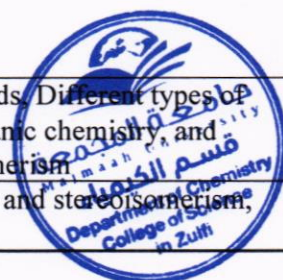
Upon successful completion of this course, the student will be able to :

1	Recognize the stereochemistry of organic compounds, and the different types of isomerism and differentiate between each type of isomers	١
2	Recall that asymmetric (chiral) centers give rise to optical isomers that exist as non-superimposable mirror images ,and draw 3D representations of optical isomers	٢
3	Define and demonstrate understanding of the term optically active and explain why racemic mixtures are optically inactive	٣
4	Estimate the sequential rule of Chan Ingol and Prelog- exercises, recognize the different of Enantiomer, diastereomer, meso diastereomers, stereoisomerism, R,S conformer (L, D conformer).	٤
5	Explain the properties of enantiomers diastereoisomers, and meso compounds	٥
6	Apply the basic principles of stereochemistry and chirality in organic chemistry	٦
7	Communicate effectively in oral and written form.	
8	Use the web chemical data base and chemistry programs	

محتوى المقرر: Course

Contents:

ساعات التدريس (Hours)	عدد الأسابيع (Weeks)	قائمة الموضوعات (Subjects)
4	2	Introduction to stereochemistry of organic compounds, Different types of isomerism in organic compounds. Symmetry in organic chemistry and molecular models optical efficiency and optical isomerism
4	2	Chirality in organic chemistry, stereogenic elements and stereoisomerism, polarimetry, optical activity, stereo genic elements





4	2	Stereoisomerism, R,S conformer (L, D of carbohydrates) Sequential rule of Chan Ingol and Prelog- exercises chiral center and enantiomer
4	2	Chiral compounds containing more than two chiral center Racemization, Formation of racemic mixtures, diastereomer, meso diastereomers
8	4	Geometric isomerism - spatial selectivity in certain organic reactions, Stereoisomers, conformational isomerism, Ethane , Propane, Butane conformations, structure- Configurational Stereoisomers of Cycloalkanes, Ring Conformers, Some Conformations of Cyclohexane Rings, Substituted Cyclohexane Compounds,
4	3	Draw the stereocompounds in 2D , Newmann and the conformation of alkane, Configurational stereoisomers of Cycloalkanes, Ring conformers, Some conformations of cyclohexane rings, substituted cyclohexane compounds,

Textbook and References:

الكتاب المقرر والمراجع المساندة:

ISBN	سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم الكتاب المقرر Textbook title
978-8178881805	2004	Dominant Publishers & Distributors	Mahinder Singh	A Textbook of Stereo Chemistry
	سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم المرجع Reference
978-1842657867	2014	Alpha Science Intl Ltd	Ranjit S. Dhillon	Stereochemistry

* يتم تعبئة معلومات المقرر فقط باللغتين العربية والانجليزية وباقي المعلومات بلغة التدريس المعتمدة ويكرر لكل مقرر في الخطة الدراسية

* Course Information should be filled in Arabic and English. Other information should be filled using the approved teaching language at the college.



