



T-104
2022

Course Specification



Course Title:	Organic Chemistry
Course Code:	203 CHEM-3
Program:	Bachelor in Biology
Department:	Biology
College:	College of Science
Institution:	Jazan University (JU)
Version:	T-104 2022
Last Revision Date:	23 January 2023



Table of Contents:

Content	Page
A. General information about the course:	3
1. Teaching mode (mark all that apply)	4
2. Contact Hours (based on the academic semester)	4
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	4
C. Course Content	5
D. Students Assessment Activities	6
E. Learning Resources and Facilities	6
1. References and Learning Resources	6
2. Required Facilities and equipment	7
F. Assessment of Course Quality	7
G. Specification Approval Data	7
H. Attachments.....	8
1- Practical Work.....	8
2- Blue Print	9

A. General information about the course:

Course Identification

1. Credit hours:

2. Course type

a. University ☐ College ☐ Department ☒ Track ☐ Others ☐

b. Required ☒ Elective ☐

3. Level/year at which this course is offered: Level 4
Year 2

4. Course general Description

Course Title	Course Number	Contact Hours (CU)		Credit unit (CU)	Year	Level	Pre-requisite
		Lec.	Prac.				
Organic Chemistry	203 CHEM3	2	2	3	2	4	101CHEM4

N

Course objectives: By the end of this course, students will be able to:

- 1- Identifying different ways for nomenclature of organic compounds.
- 2- To identify the functional groups in organic compounds.
- 3- To identify the saturated aliphatic hydrocarbons, methods of preparation and the most important chemical reactions.
- 4- To define carbohydrates, amino acids and fatty acids

Syllabus: A-Theoretical contents

Introductory Concepts, structure and hybridization in organic compounds, Types of Organic reactions, functional groups and types of isomerism, Hydrocarbons (Alkanes, their cyclic forms) Nomenclature, preparation, natural source and chemical reactions, Alkenes and alkynes (Nomenclature, isomerism, preparation and reactions), Aromatic compounds benzene and its derivatives Nomenclature of aromatic compounds, Preparation and Electrophilic substitution for benzene, Alcohols, ethers and phenols Nomenclature, preparation and chemical reactions, Aldehydes and ketones Nomenclature, preparation and chemical reactions, Carboxylic acids and its derivatives Nomenclature, preparation and chemical reactions, Amines Nomenclature, preparation and chemical reactions, Definition of Carbohydrates, amino and fatty acids.

Syllabus: B-Practical contents

Selected experiments related to organic chemistry topics.

5. Pre-requirements for this course (if any): **101CHEM4**

6. Co- requirements for this course (if any):

none

7. Course Main Objective(s)

This course aims to give students the basic knowledge concerning organic compound and related carbohydrates, amino acids, fatty acids.

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom		100
2.	E-learning		
3.	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	22
2.	Laboratory/Studio	22
3.	Field	
4.	Tutorial	
5.	Others (specify)	
	Total	44

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding ; (Upon completion of the course, student will be able to)			
1.1	Demonstrate abroad knowledge and understanding in fundamentals of	K(1.1)	Lecture	Objective Questions



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	organic chemistry topics as, aliphatic and aromatic hydrocarbons and their reactions. (I)			
1.2	Describe correctly the atomic structure, bonding in organic chemistry, reactions of some organic compounds. (I)	K(1.2)	Lecture	Objective Questions
2.0	Skills ; (Upon completion of the course, student will be able to)			
2.1	Demonstrate the knowledge and skills to predict the effect of function groups in the reaction results, types of bonds and hybridization. (I)	S(2.1)	Lecture	Essay Questions+ Solving Problems
2.2	Demonstrate the skills of designing and carrying out scientific experiments as well as accurately record and analyze the results of such experiments. (I)	S(2.2)	Laboratory	Objective Questions + Essay questions
2.3	know and follow proper procedures and regulations for safe handling, use, and disposal of chemicals (I)	S(2.3)	Group work Lab work	Objective Questions

C. Course Content

No	List of Topics	Contact Hours
1.	Introductory Concepts, structure and hybridization in organic compounds	1
2.	Types of Organic reactions, functional groups and types of isomerism	1
3.	Hydrocarbons (Alkanes, their cyclic forms) Nomenclature, preparation, natural source and chemical reactions.	3
4.	Alkenes and alkynes (Nomenclature, isomerism, preparation and reactions)	3
5.	Aromatic compounds benzene and its derivatives Nomenclature of aromatic compounds, Preparation and Electrophilic substitution for benzene	2
6.	Alcohols, ethers and phenols Nomenclature, preparation and chemical reactions.	3
7.	Aldehydes and ketones Nomenclature, preparation and chemical reactions.	3
8.	Carboxylic acids and its derivatives Nomenclature, preparation and chemical reactions	3



9.	Amines Nomenclature, preparation and chemical reactions.	2
10.	Definition of Carbohydrates, amino and fatty acids.	1
11.	Some experiments related to the course topics	22
Total		44

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Homework assignment	End of Each Chapter	5
2.	Mid-term exam	5 th	15
3.	Safety Quiz	6 th	3
4.	Practical Sheet	11 th	7
5.	Final practical exam	11 th	20
6.	Final Exam	12 th	50
total			100

*As8.sessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

9.

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	<ul style="list-style-type: none"> Organic Chemistry (tenth edition) Written by T. W. Graham Solomons and Craig B. Fryhle http://chemistry.com.pk/books. (أسس الكيمياء العضوية) الدكتور محمد بن ابراهيم الحسن والدكتور حسن بن محمد الحازمي 2019 الناشر دار الخريجي للنشر و التوزيع
Supportive References	<ul style="list-style-type: none"> Organic Chemistry, Robert T. Morrison, Robert N. Boyd Translation copyright 2000 by Arab center for arabization, translation, authorship & publication (ACATAP, branch of ALECSO).
Electronic Materials	<ul style="list-style-type: none"> https://www.pdfdrive.net/organic-chemistry https://clemmastio.files.wordpress.com/.../organic-chemistry-solom. https://en.wikipedia.org/wiki/Organic_chemistry https://www.masterorganicchemistry.com/organic-1/
Other Learning Materials	<ul style="list-style-type: none"> https://www.youtube.com/watch?v=n5vjCqnVb6s https://www.chemguide.co.uk/orgmenu.html https://www2.chemistry.msu.edu/faculty/reusch/virttxtjml/intro1.html



2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ul style="list-style-type: none"> 1 Lecture room for groups of 30 students. 1 Laboratory for group of 15 students
Technology equipment (projector, smart board, software)	Data show, smart Board, Chem Draw, power point and Active Inspire.
Other equipment (depending on the nature of the specialty)	Glassware, chemicals, hotplates, water bathes and flam.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Student	Likert-type Survey (CES) Indirect
Effectiveness of students assessment	Instructor & Course coordinator	Class room evaluation (direct & indirect)
Quality of learning resources	Program coordinator	Indirect
The extent to which CLOs have been achieved	Assessment committee	Indirect
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	Chemistry Department Council CHEMS2301
REFERENCE NO.	CHEMS230104
DATE	11/1/2023G – 18/06/1444H





H. Attachments

1- Practical Work

#	EXPERMENTS	Equipment, Chemicals and Tools.	No. of weeks for each experiment
1	General Safety Rules, Introduction of Basic Laboratory Techniques	Theoretical	1 week
2	Identification of Carboxylic Acid	Chemicals: Oxalic acid, tartaric acid , citric acid ,benzoic acid , salicylic acid , Phthalic Acid FeCl ₃ , CaCl ₂ , H ₂ SO ₄ ,KMnO ₄ , Na HCO ₃ Recersinol, NaOH(10%). Tool: test tubes, Beaker Equip. :water bath	2 weeks
3	Salts of carboxylic acid,	Chemicals: Amm.oxalate , Amm.tartarate , sodenzoate sod. Salicylate , FeCl ₃ , CaCl ₂ , NaOH , NaHCO ₃ ,AgNO ₃ , Tool: test tubes, Beaker . Equip. :water bath	2 weeks
4	Aniline salt & Urea	Chemicals: Aniline HCl ,Aniline H ₂ SO ₄ ,Urea , Na ₂ NO ₂ ,β-naphthaol, NaHCO ₃ , AgNO ₃ ,BaCl ₂ ,NaOH ,CuSO ₄ Tool: test tubes, Beaker , ice bath. Equip. :water bath	1 week
5	Identification of carbohydrates	Chemicals: Glucose,galactose, ftuctose , sucrose , maltose , maltose , lactose, starch , α – naphthaol , H ₂ SO ₄ (conc) , barfoid reagent , iodine , Fehling's solution , Bendict reagent Tool: test tubes, Beaker . Equip. :water bath	2 weeks
6	Scheme and revision	All the chemicals and tool and equip. Written above	2 weeks
7	Final Exam		1 week



2- Blue Print

Course Name	Organic Chemistry							
Course Code	203CHEM-3							
PLOs	K1	K2	S1	S2	S3	S4	V1	V2
CLOs	1.1	1.2	2.1	2.2	2.3	---	--	--
Marks	30	25	15	27	3	--	--	--
Learning Domain	PLOs	CLOs	Assessment Type	Assessment Tool	No of Questions	Marks of the Assessment	Weight of the Assessment	
Knowledge & understanding	K1	1.1 (30 M)	Homework	Objective Q	2	2	2%	
			Midterm	Objective Q	2	7	7%	
			Final Exam	Objective Q	2	21	21%	
	K2	1.2 (25 M)	Homework	Objective Q	2	2	2%	
			Midterm	Objective Q	2	5	5%	
			Final Exam	Objective Q	2	18	18%	
Skills	S1	2.1 (15 M)	Homework	Solving Problems	2	1	1%	
			Midterm	Solving Problems	2	3	3%	
			Final Exam	Solving Problems	3	11	11%	
	S2	2.2 (27 M)	Practical Sheet	Objective Q + Essay Q	7	7	7%	
			Final Practical Exam	Report of Lab Exam	---	20	20%	
	S3	2.3 (3 M)	Safety EXAM	Objective Q	6	3	3	
TOTAL		100				100	100%	



