Course Specification
(Bachelor)

Course Title:	Organic Chemistry
Course Code:	203 CHEM-3
Program:	Bachelor Science in Biology
Department:	Physical Sciences
College:	Jazan University (JU)
Institution:	Jazan University (JU)
Version:	TP 153 2024
Last Revision Date:	5/5/2024

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (3h)

2. Course type

A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		

3. Level/year at which this course is offered: (Level 1 // year 1)

4. Course general Description:

Course Title	*Course Number*	*Contact Hours (CH)*		*Credit unit (CU)*	*Year*	*Level*	*Pre-requisite*
		Lec.	*Prac.*				
Organic Chemistry	*203 CHEM3*	*2*	*2*	*3*	*1*	*1*	*101CHEM4*

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)**:**

101 CHEM-4

6. Co-requisites 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

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	75	100
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	45
2.	**Laboratory/Studio**	
3.	**Field**	30
4.	**Tutorial**	
5.	**Others (specify)**	
Total		75

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 organic chemistry topics as, aliphatic and aromatic hydrocarbons and their reactions. (I)		Lecture	Objective Questions
1.2	Describe correctly the atomic structure, bonding in organic chemistry, reactions of some organic compounds. (I)		Lecture	Objective Questions

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
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)		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)		Laboratory	Objective Questions + Essay questions
2.3	know and follow proper procedures and regulations for safe handling, use, and disposal of chemicals (I)		Group work Lab work	Objective Questions

C. Course Content

No	List of Topics	Contact Hours
1.	Introductory Concepts, structure and hybridization in organic compounds	4
2.	Types of Organic reactions, functional groups and types of isomerism	4
3.	Hydrocarbons (Alkanes, their cyclic forms) Nomenclature, preparation, natural source and chemical reactions.	5
4.	Alkenes and alkynes (Nomenclature, isomerism, preparation and reactions)	5
5.	Aromatic compounds benzene and its derivatives Nomenclature of aromatic compounds, Preparation and Electrophilic substitution for benzene	5
6.	Alcohols, ethers and phenols Nomenclature, preparation and chemical reactions.	5
7.	Aldehydes and ketones Nomenclature, preparation and chemical reactions.	5
8.	Carboxylic acids and its derivatives Nomenclature, preparation and chemical reactions	5
9	Amines Nomenclature, preparation and chemical reactions.	4
10	Definition of Carbohydrates, amino and fatty acids.	3
11	Some experiments related to the course topics	30
Total		**75**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Homework assignment	Through semester	5
2.	Mid-term exam	9-11	15
3.	Safety Quiz	11-15	3
4.	Practical Sheet	15	7
5.	Final practical exam	15	20
6.	Final Exam	16-17	50
	Total		100%

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

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	• 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 الحازمى 2019 الناشر دار الخريجى للنشر و التوزيع
Supportive References	• 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	▪ https://www.pdfdrive.net/organic-chemistry ▪ https://clemermastio.files.wordpress.com/.../organic-chemistry solom. ▪ https://en.wikipedia.org/wiki/Organic_chemistry ▪ https://www.masterorganicchemistry.com/organic-1/
Other Learning Materials	▪ 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.)	▪ 1Lecture room for groups of 30 students. 1 Laboratory for group of 15 students

Items	Resources
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 and indirect)
Quality of learning resources	***Program committee***	Indirect
The extent to which CLOs have been achieved	Assessment committee	Indirect
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Physical Sciences Department Council
REFERENCE NO.	Psci2415
DATE	28/03/1446 Corresponding to 1 / 10 /2024

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_2SO_4 ,$KMnO_4$, Na HCO_3 Recersinol, NaOH(10%). **Tool:** test tubes, Beaker **Equp**. :water bath	3 weeks
3	Salts of carboxylic acid,	**Chemicals:** Amm.oxalate , Amm.tartarate , sod enzoate sod. Salicylate , $FeCl_3$, $CaCl_2$, NaOH , Na HCO_3 ,$AgNO_3$, **Tool:** test tubes, Beaker . **Equp.** :water bath	3 weeks
4	Aniline salt & Urea	**Chemicals:** Aniline HCl ,Aniline H_2SO_4,Urea , Na_2NO_2,β-naphthaol, $NaHCO_3$, $AgNO_3$,BaCl2 ,NaOH ,$CuSO_4$ **Tool**: test tubes, Beaker , ice bath. **Equp**. :water bath	2 week
5	Identification of carbohydrates	**Chemicals:** Glucose,galactose, ftuctose ucrose , maltose , maltose , lactose, starch , α – aphthaol , H_2SO_4 (conc) , barfoid reagent , iodine , Fehling's solution , Bendict reagent **Tool:** test tubes, Beaker . **Equp**. :water bath	3 weeks
6	Scheme and revision	All the chemicals and tool and equp. Written above	3 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%**