



Course Specifications

Course Title:	Organic Chemistry 3
Course Code:	313CHEM-2
Program:	Bachelor of Science in Chemistry
Department:	Chemistry
College:	Science
Institution:	King Khalid University

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A. Course Identification

1. Credit hours: 2
2. Course type a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/> b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: Level 5 / Year 3
4. Pre-requisites for this course (if any): 213CHEM-4 -S
5. Co-requisites for this course (if any): No Co-requisite

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	2	100%
2	Blended	0	0
3	E-learning	0	0%
4	Correspondence	0	0
5	Other	0	0%

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	30
2	Laboratory/Studio	---
3	Tutorial	---
4	Others (specify)	---
	Total	30
Other Learning Hours*		
1	Study	10
2	Assignments	10
3	Library	10
4	Projects/Research Essays/Theses	0
5	Others (specify)	0
	Total	30

* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

This course is designed to demonstrate nomenclature, methods of preparation, physical and chemical properties of bifunctional organic compounds.

2. Course Main Objective

. Summary of the main learning outcomes for students enrolled in the course.

The main purpose of this course is to demonstrate to students the principles of nomenclature and different methods used for the preparation of bifunctional organic compounds. The course also aims to teach students how to write the mechanisms of the reactions used to prepare bifunctional organic compounds or that occur during the reactions for these compounds with different reagents.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge:	
1.1	To demonstrate knowledge of the fundamental concepts and principles properties of organic compounds containing more than one function group as well as alicyclic organic compounds	K1
1.2	To understand the way to convert some organic compounds to each other.	K1 and K3
1.3	To demonstrate the distinguish between organic compounds and each other.	K1
2	Skills:	
2.1	To interpret and explain the structure-based mechanism of bifunctional organic reactions.	S1
2.2	To teach students the importance of knowing the ways to prepare these compounds and how to use these methods to convert these compounds too the organic compounds.	S1 and S3
3	Competence:	
3.1	To Educate student the ethics of dealing with his colleagues and with the lecturer.	C1 and C3
3.2	To have full responsibility for working and creating new practices and ways of thinking to enhance the quality of life.	C1 and C5
3.3	To demonstrate the ability to work under time and environmental pressures.	C1

C. Course Content

No	List of Topics	Contact Hours
1	Dihydric Alcohols, Nomenclature, Synthesis, Chemical Reactions, and applications.	2
2	Dicarbonyl compounds, (Dialdehydes and Diketones) Classification, Nomenclature, Synthesis, Chemical Reactions, and applications.	3
3	Hydroxy acids, Classification, Nomenclature, Synthesis and Chemical Reactions	3
4	Keto acids, Classification, Nomenclature, Synthesis and Chemical Reactions	2
5	Dicarboxylic acids, Nomenclature, Synthesis, Chemical Reactions, and applications	4
6	Diethyl Malonate, Synthesis and Chemical Reactions.	3
7	Ethyl acetoacetate, Synthesis, and chemical reactions.	3
8	Unsaturated compounds (unsaturated alcohols - unsaturated aldehydes -	5

	unsaturated ketones – unsaturated monocarboxylic acids), Synthesis and chemical reactions.	
9	Diamines, Nomenclature, Synthesis and Chemical Reactions and Application.	2
10	Alicyclic Compounds, Nomenclature, Synthesis and Chemical Reactions.	3
Total		30

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge		
1.1	To demonstrate knowledge of the fundamental concepts and principles properties of organic compounds containing more than one function group as well as alicyclic organic compounds	<ul style="list-style-type: none"> • Lectures • Classroom discussion • Case study 	<ul style="list-style-type: none"> • Homework • Assignments • Examinations
1.2	To understand the way to convert some organic compounds to each other.		
1.3	To demonstrate the distinguish between organic compounds and each other.		
2.0	Skills		
2.1	To interpret and explain the structure-based mechanism of bifunctional organic reactions.	<ul style="list-style-type: none"> • Lectures • Classroom discussion • Case study 	<ul style="list-style-type: none"> • Written exams • Oral discussion
2.2	To teach students the importance of knowing the ways to prepare these compounds and how to use these methods to convert these compounds too the organic compounds.		
3.0	Competence		
3.1	To Educate student the ethics of dealing with his colleagues and with the lecturer.	<ul style="list-style-type: none"> • Lectures • Classroom discussion • Case study 	<ul style="list-style-type: none"> • Class activities • Oral presentation for students reports • Oral discussion
3.2	To have full responsibility for working and creating new practices and ways of thinking to enhance the quality of life.		
3.3	To demonstrate the ability to work under time and environmental pressures.		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	1 st semi-semester	6 th	15%
2	2 nd semi-semester	12 th	15%
3	Homework assignments	3 rd , 5 th , and 7 th	10%
4	Reports and Oral Discussion	8 th , 9 th , and 11 th	10%
5	Final Written exam	15 th	50%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

10 office hours are offered for students for individual consultations. Communications are available on-site, phone conversations, and chatting by social media.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<p>1- Organic Chemistry. Robert T Morrison, Robert N Boyd. 1992. 6th ed. Prentice Hall. ISBN: 978- 0136436690. Published by Editorial Staff on August 31, 2016</p> <p>2- I. L. Finar, Organic Chemistry, Volume 1, 6th Edition, Published by Pearson, 2014. ISBN 13: 9788177585421.</p> <p>3- T. W. G. Solomons, Fundamentals of Organic Chemistry, 5th Edition, Wiley, and Sons. INC., 2005.</p>
Essential References Materials	<p>1- March's Advanced Organic Chemistry: Reactions, Mechanisms, and Structure. Michael B Smith. 2013. 7th ed. Wiley. ISBN: 978-0470462591.</p> <p>2- Advanced Organic Chemistry, Part A: Structure and Mechanisms. Francis A Carey, Richard J Sundberg. 2008. 5th ed. Springer. ISBN: 978-0387683461</p> <p>3- Advanced Organic Chemistry. Part B: Reaction and Synthesis. Francis A Carey, J. Richard Sundberg. 2007. 5th ed. Springer. ISBN: 978-8132204268</p> <p>4- March's Advanced Organic Chemistry: Reactions, Mechanisms, and Structure, 7th Edition. Michael B. Smith. ISBN: 978-0-470-46259-1. 2080 pages. April 2013.</p> <p>5- Advanced Organic Chemistry – Part A: Structure and Mechanisms (Fifth Edition), Francis A. Carey and Richard J. Sundberg, published by Springer in 2007.</p>
Electronic Materials	<p>http://www.chemguide.co.uk/mechanisms/freerad/whatis.html#top</p>
Other Learning Materials	<p>http://www.chemguide.co.uk/mechanisms/freerad/whatis.html#top</p>

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	1. Lecturer room contain Data Show. 2. Blackboard
Technology Resources (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> • Data Show. • Smart board. • Chem draw program. • ISIS draw program. • Internet access. • Accessible databases
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	---

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Course delivery (teaching methods and assessment methods)	Students	Questionnaire
	Departmental Plan and curriculum committee; external reviewers	Reports and workshops
	Program Leader	Meetings
Course contents (update)	Departmental Plan and curriculum committee; external reviewers	Reports and workshops
Quality of learning resources	External reviewers	Reports

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

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

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Department counsel
Reference No.	1/22/1442
Date	15-9-1442