



Course Specifications

Course Title:	Organic analytical chemistry
Course Code:	4022145-3
Program:	Chemistry and industrial chemistry
Department:	Chemistry
College:	Faculty of Applied Science
Institution:	Umm Al-qura University



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A. Course Identification

1. Credit hours:
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: 4 th level / 2 nd year
4. Pre-requisites for this course (if any): Volumetric and Gravimetric Analysis Chemistry
5. Co-requisites for this course (if any): ---

6. Mode of Instruction (mark all that apply)

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

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	30
2	Laboratory/Studio	42
3	Tutorial	
4	Others (exam @ quizzes)	8
	Total	80
Other Learning Hours*		
1	Study	30
2	Assignments	10
3	Library	
4	Projects/Research Essays/Theses	20
5	Others (Exams @ quizzes)	20
	Total	80

* 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

A branch of analytical chemistry aims at covering topics that are mentioned in the course contents.

2. Course Main Objective

1.1. Demonstration analytical methods which include the analysis of organic compounds

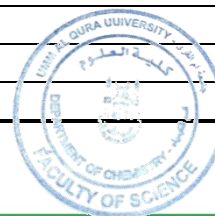
- 1.2. Know the different function groups in organic compounds
- 1.3. Determination of the state of unsaturation in organic compounds
- 1.4. Stress the different analytical methods to determine organic compounds in real samples.
- 1.5. Recognize the formation method of oxime

3. Course Learning Outcomes

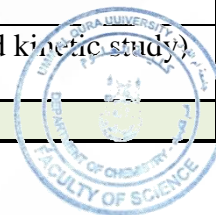
CLOs		Aligned PLOs
1	Knowledge:	
1.1	Recognize the principles of organic analysis in analytical chemistry.	K3, K5
1.2	Identify the classification of organic analysis methods	K3
1.3	List the procedures of elemental analysis	K5
1.4	Define the concentration parameters	K5
1.5	Recognize the meaning of equivalent weight and saponification	K1, K5
1.6	Recognize the statistical methods that are used in organic analysis	K2
1.7	Identify the proper method to determine the strength of aniline solution	K3
1.8	Demonstrate the state of unsaturation in organic compounds	K5
1.9	Recognize the formation method of oxime (equilibrium and kinetic study) as a model in organic analytical chemistry	K3
1.10	Underline the application importance.	K5
2	Skills :	
2.1	Apply the suitable methods for elemental analysis	S3, S8
2.2	Differentiate between the different types of hetero-organic compounds analysis	S2
2.3	Explain the principles of organic analysis methods and its classification	S1 , S8
2.4	Analyze different amino-acid compounds	S3, S7
2.5	Summarize the principles of organic analysis	S4
3	Competence:	
3.1	Ability to work in a team to perform specific experimental tasks.	C1
3.2	Ability to work independently to handle chemicals.	C3
3.3	Ability to communicate the work results to classmate and participate in class or laboratory discussions.	C1, C2
3.4	Use information and communication technology.	C3
3.5	Scientific writing	C2
3.6	Use his/her observations to solve problems.	C1
3.7	Doing research and conduct searches for restoring information.	C3
3.8	Able to calculate, discuss the facts and logically propose methods to solve the difficulties.	C4

C. Course Content

No	List of Topics	Contact Hours
1	Determination of elements in organic compounds	4
2	Determination of Carboxylic acids	2
3	Determination of esters	2
4	Determination of amino groups	2
5	Determination of hydroxylic groups	4



6	Determination of carbonyl groups and their derivatives	4
7	Determination of nitro and nitroso groups	2
8	Determination of the state of unsaturation in organic compounds	2
9	Determination of organic peroxide	2
10	Determination of isothiocyanate and isocyanates	2
11	Discussion the formation method of oxime (equilibrium and kinetic study) as a model in organic analytical chemistry	4
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	Recognize principles of organic analysis in analytical chemistry.	Lecture	Exam
1.2	Identify the classification of organic analysis methods	Lecture, library visit	Exam
1.3	Know the procedures of elemental analysis	Lecture, library visit	Short essays
1.4	Define the concentration parameters	Lecture	Exam
1.5	Recognize the meaning of equivalent weight and saponification	Lecture	Exam
1.6	Describe statistical methods in organic analysis.	Lecture and Web-based study	Short essays
1.7	Select the proper method to determine the strength of aniline solution	Lecture	Exam
1.8	Demonstrate the state of unsaturation in organic compounds	Lecture	Exam
1.9	Recognize the formation method of oxime (equilibrium and kinetic study) as a model in organic analytical chemistry	Lecture, web-based study, library visit	Exam
1.10	Outline application important	Lecture, web-based study	Exam, short essays
2.0	Skills		
2.1	Apply the suitable methods for elemental analysis	Scientific discussion	Laboratory demonstration
2.2	Compare the different types of hetero-organic compounds analysis	Web-based study	Exam
2.3	Explain principles of organic analysis methods and its classification	Lecture	Exam
2.4	Analyze different amino-acid compounds	Web-based study, lecture	Laboratory demonstration
2.5	Summarize the principles of organic analysis	Lecture, scientific discussion	Essays
3.0	Competence		
3.1	Ability to work in a team to perform a specific experimental task.	Class discussion and research activity	Laboratory demonstration

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
3.2	Ability to work independently to handle chemicals.	Class discussion and research activity	Laboratory demonstration, Cross questions after finishing laboratory work
3.3	Ability to communicate results of work to classmate and participation in class or laboratory discussions	Class discussion	Group presentation
3.4	Use information and communication technology.	Lecture, scientific discussion	Individual or group presentation
3.5	Scientific writing	Lecture, Web-based study, library visit	Essays
3.6	Use his/her observations to solve problems.	Lecture	Laboratory demonstration
3.7	Doing research and conduct searches for restoring information.	Lecture, library visit, web-based study	Laboratory demonstration
3.8	Able to calculate, discuss the facts and logically propose methods to solve the difficulties.	Lecture, web-based study	Exams

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Homework or activities	-----	10 %
2	Midterm exam	8	20 %
3	Practical exam	14	30 %
4	Final exam	16	40 %

*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 :

- We have faculty members to provide counseling and advice.
- Office hours: During the working hours weekly.
- Academic Advising for students.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Douglas A. Skoog, Donald M. West, James F. Holler and Stanley R. Crouch, <i>Analytical Chemistry</i> , 7th edition, Springer (2014)
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Essential References Materials	Lecture handouts available on the coordinator website.
Electronic Materials	<ul style="list-style-type: none"> • http://www.chemweb.com • http://www.sciencedirect.com • http://www.rsc.org
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> • Classrooms capacity (30) students. • Providing hall of teaching aids including computers and projector.
Technology Resources (AV, data show, Smart Board, software, etc.)	Room equipped with computer and projector and TV.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	No other requirements.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Obtaining Student Feedback on effectiveness of teaching.	Students	Direct
Independent evaluation for extent to achieve students the standards.	Program leader, peer reviewer	Direct
Independent advice of the duties and tasks.	Program leader	Direct

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	
Reference No.	
Date	2019-2020

Received by: **Dr. Ismail Althagafi**

Department Head

Signature:



Date: 20/12/2019

