



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: 3
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	2 hours	74%
2	Blended		
3	E-learning	√	26%
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	22
2	Laboratory/Studio	30
3	Tutorial	
4	Others (E-learning + Exams + office hours)	15
	Total	67

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 and Understanding

CLOs		Aligned PLOs
1.1	Recognize the principles of organic analysis in analytical chemistry.	K1 & K2
1.2	List the procedures of elemental analysis	K2
1.3	Explain the application importance.	K1
2	Skills :	
2.1	Differentiate between the different types of hetero-organic compounds analysis	S2
2.2	Apply the principles of organic analysis for qualitative and quantitative analysis.	S1
2.3	Explain the different strategies for analysis of organic compounds	S1
2.4	Practice chemical processes and techniques for identification and investigation of organic compounds.	S3
2.5	Use computers and internet to find all information related to analysis of organic compounds	S5
3	Values:	
3.1	Ability to work in a team to perform specific experimental tasks.	V3
3.2	Use information and communication technology.	V2
3.3	Able to calculate, discuss the facts and logically propose methods to solve the difficulties.	V2 & V3

C. Course Content

No	List of Topics	Contact Hours
1	Determination of elements in organic compounds	2+IE
2	Determination of Carboxylic acids	2
3	Determination of esters	2
4	Determination of amino groups	2
5	Determination of hydroxylic groups	2+IE
6	Determination of carbonyl groups and their derivatives	2+IE
7	Determination of nitro and nitroso groups	2
8	Determination of the state of unsaturation in organic compounds	2
9	Determination of organic peroxide, Determination of isothiocyanate and isocyanates	2+2E
10	Discussion the formation method of oxime (equilibrium and kinetic study) as a model in organic analytical chemistry	2+IE
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 and Understanding		
1.1	Recognize the principles of organic analysis in analytical chemistry.	Lecture	Exam
1.2	List the procedures of elemental analysis	Lectures Lab work E-Learning	Exam Practical Lab exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
			Assignments and activities on blackboard
1.3	Explain the application importance.	Lecture, library visit	Short essays
2.0	Skills		
2.1	Differentiate between the different types of hetero-organic compounds analysis	Scientific discussion	Laboratory demonstration
2.2	Apply the principles of organic analysis for qualitative and quantitative analysis.	Lecture, scientific discussion	Essays
2.3	Explain the different strategies for analysis of organic compounds	E-Learning Mind Mapping	Assignments and activities on blackboard
2.4	Practice chemical processes and techniques for identification and investigation of organic compounds.	Lab work	Practical Lab exam
2.5	Use computers and internet to find all information related to analysis organic compounds	Self-Directed private Study	Assignments and activities on blackboard
3.0	Values		
3.1	Ability to work in a team to perform a specific experimental task.	Class discussion and research activity	Laboratory demonstration
3.2	Use information and communication technology.	Lecture, scientific discussion	Individual or group presentation
3.3	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	E-learning	All weeks	5%
2	Assignments and activities	All weeks	5%
3	Mid-term Exam	6	20%
4	Practical Lab Work (Reports and Exams)	11	30%
5	Final Exam.(2 hours exam)	12	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, Analytical Chemistry, 7th edition, Springer (2014)
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. • 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	Quality committee and department counsel
Reference No.	1st meeting
Date	2022

Head of Chemistry Department



Dr Moataz Morad

