



**ATTACHMENT 2 (e)**

**Course Specifications**

**Kingdom of Saudi Arabia**

**The National Commission for Academic Accreditation & Assessment**

# **Medicinal Chemistry**

**4024785-2**

**Course Specifications  
(CS)**





## Course Specifications

Institution: <b>Umm Al-qura University</b>	Date of Report: <b>2017</b>
College/Department : <b>Faculty of Applied Science/ department of chemistry</b>	

### A. Course Identification and General Information

1. Course title and code: <b>Medicinal Chemistry/ 4024785-2</b>	
2. Credit hours: <b>2 (theoretical)</b>	
3. Program(s) in which the course is offered. <b>Industrial Chemistry</b>	
4. Name of faculty member responsible for the course: <b>Dr. Essam M. Hussein</b>	
5. Level/year at which this course is offered: <b>8<sup>st</sup> level / 4<sup>th</sup> year</b>	
6. Pre-requisites for this course (if any): <b>heterocyclic Chemistry</b>	
7. Co-requisites for this course (if any)---	
8. Location if not on main campus: <b>El-Abdyah</b>	
9. Mode of Instruction (mark all that apply)	
a. Traditional classroom	<input checked="" type="checkbox"/> What percentage? <b>100%</b>
b. Blended (traditional and online)	<input type="checkbox"/> What percentage?
c. e-learning	<input type="checkbox"/> What percentage? <input type="checkbox"/>
d. Correspondence	<input type="checkbox"/> What percentage? <input type="checkbox"/>
f. Other	<input type="checkbox"/> What percentage? <input type="checkbox"/>
Comments:	

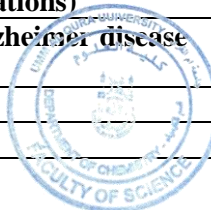


## B Objectives

1. What is the main purpose for this course? <b>The course is designed to know the principles of medicinal chemistry and studying of some organic compounds used in the treatment of various diseases and the study of the structure-activity and quantitative structure-activity relationships.</b>
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) <b>The students will be mentioned to prepare an essay or a report from literature using the library, data base services, and/or websites to follow up and update the new topics of the subject of the course</b>

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
a. <b>General Principles of Drug Action</b>	1	2
b. <b>Defense of the body against bacterial invasion - Microorganisms which cause diseases</b>	1	2
c. <b>Chemotherapy of bacterial diseases and bacterial infections - Structure-activity relationship (SARs) and Quantitative structure-activity relationships (QSARs)</b>	1	2
d. <b>Sulfa drugs (types – synthesis - clinical uses – mode of action)</b>	2	4
e. <b>Antibiotics (Penicillin – synthesis of Penicillin derivatives – Penicillin G – Penicillin V – Amoxicillin - synthesis of Ampicillin from Penicillin G – characteristics of Penicillin –Streptomycin chemistry – Tetracycline antibiotics – Chloramphenicol – synthesis of Chloramphenicol – properties of Chloramphenicol)</b>	2	4
f. <b>Vitamins (importance – Vitamin B<sub>1</sub> –properties of Vitamin B<sub>1</sub> –Deficiency and sources of Vitamin B<sub>1</sub> – Vitamin B<sub>2</sub> – properties of Vitamin B<sub>2</sub> – vitamin B<sub>6</sub> - synthesis of Vitamin B<sub>6</sub>)</b>	1	4
g. <b>Histamine (definition - antihistamines)</b>	2	4
h. <b>Peptic ulcer diseases (causes – antiulcer medications)</b>	1	2
i. <b>Central nerve system drugs – Treatment of Alzheimer disease</b>	2	4
j. <b>Anticancer agents</b>	1	2





2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	28	-		0		28
Credit	2	-		0		2

3. Additional private study/learning hours expected for students per week.	<input type="text"/>
--	----------------------

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
--

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1	Familiar with the importance of chemistry in medical field	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Scientific discussion</li> <li>• Library visits</li> <li>• Web-based study</li> </ul>	<ul style="list-style-type: none"> <li>• Exams</li> <li>• web-based student performance systems</li> <li>• portfolios</li> <li>• long and short essays</li> <li>• posters lab manuals</li> </ul>
1.2	Identify the different classes of chemotherapeutic agents		
1.3	Recognize the different methods used in the preparation of various chemotherapeutic agents		
1.4	Know the basic principles of drug action		
1.5	Determine the structure-activity relationships (SARs and QSARs)		
1.6	Familiar with the basic knowledge about the properties and importance of various chemotherapeutic agents		
1.7			
<b>2.0</b>	<b>Cognitive Skills</b>		
2.1	Explain the structure-activity relationships	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Scientific discussion</li> <li>• Library visits</li> <li>• Web-based study</li> </ul>	<ul style="list-style-type: none"> <li>• Exams</li> <li>• web-based student performance systems</li> <li>• portfolios</li> <li>• posters</li> <li>• demonstrations</li> </ul>
2.2	Compare between the action of different chemotherapeutic agents		
2.3	Explain the mode of action of different chemotherapeutic agents		
2.4	Summarize the different methods used to synthesis of various chemotherapeutic agents		
2.5			
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		



		•	•
3.3			
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
	<ul style="list-style-type: none"> <li>Evaluate the different methods to synthesis of various chemotherapeutic agents</li> <li>Demonstrate a clinical uses of various chemotherapeutic agents</li> <li>Use the internet as a means of communication and a source of information.</li> <li>Encourage students to use internet for searching certain electronic journals regarding topics of the course.</li> <li>Scientific writing.</li> </ul>	<ul style="list-style-type: none"> <li>Lectures</li> <li>Scientific discussion</li> <li>Library visits</li> <li>Web-based study</li> </ul>	<ul style="list-style-type: none"> <li>web-based student performance systems</li> <li>individual and group presentations</li> </ul>
<b>5.0</b>	<b>Psychomotor</b>		
5.1	NOT APPLICABLE		
5.2			

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Homework or activities.	--	10 %
2	First Periodic Exam.	6	20 %
3	Second Periodic Exam.	12	20 %
4	Final Exam. (2hours exam)	16	50 %
5	<b>Total</b>		<b>100 %</b>

#### D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
- We have faculty members to provide counseling and advice.**
  - Office hours: During the working hours weekly.**



- **Academic Advising for students.**

### E. Learning Resources

#### 1. List Required Textbooks

- John M. Beale, Jr. and John H. Block "Textbook of Organic Medicinal and Pharmaceutical Chemistry" 11<sup>th</sup> Edition-Lippincott Williams & Wilkins **2004**.
- Graham L. Patrick "An Introduction to Medicinal Chemistry" OXFORD UNIVERSITY PRESS **1995**.

#### 2. List Essential References Materials (Journals, Reports, etc.)

- Lecture Hand outs available on the coordinator website

#### 3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

1. Thomas L. Lemke, David A. Williams, Victoria F. Roche, S. William Zito "Foye's Principles of Medicinal Chemistry, 7<sup>th</sup> Edition " Lippincott Williams & Wilkins **2012**.
- 

#### 4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

- <http://www.chemweb.com>
- <http://www.sciencedirect.com>
- <http://www.rsc.org>

#### 5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

### F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

#### 1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

- **Classrooms capacity (30) students.**
- **Providing hall of teaching aids including computers and projector.**

#### 2. Computing resources (AV, data show, Smart Board, software, etc.)

- **Room equipped with computer and projector and TV.**

#### 3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

- **No other requirements.**



## G Course Evaluation and Improvement Processes


1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Complete the questionnaire evaluation of the course in particular.
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor <ul style="list-style-type: none"><li>• <b>Observations and the assistance of colleagues.</b></li><li>• <b>Independent evaluation for extent to achieve students the standards.</b></li><li>• <b>Independent advice of the duties and tasks.</b></li></ul>
3 Processes for Improvement of Teaching <ul style="list-style-type: none"><li>• <b>Workshops for teaching methods.</b></li><li>• <b>Continuous training of member staff.</b></li><li>• <b>Review of strategies proposed.</b></li><li>• <b>Providing new tools for learning.</b></li><li>• <b>The application of e-learning.</b></li><li>• <b>Exchange of experiences internal and external.</b></li></ul>
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) <ul style="list-style-type: none"><li>• <b>Check marking of a sample of exam papers, or student work.</b></li><li>• Exchange corrected sample of assignments or exam basis with another staff member for the same course in other faculty.</li></ul>
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. <ul style="list-style-type: none"><li>• <b>Periodic Review of the contents of the syllabus and modify the negatives.</b></li><li>• <b>Consult other staff of the course.</b></li><li>• <b>Hosting a visiting staff to evaluate of the course.</b></li><li>• <b>Workshops for teachers of the course.</b></li></ul>

Faculty or Teaching Staff: Dr. Essam M. Hussein

Signature: 

Date Report Completed: 12/1/2019

Received by: Dr Ismail I. Althagafi Department Head

Signature: 

Date: 20/1/2019

