Course Portfolio
Medicinal chemistry (1); code: 704301-4

Academic Year: 1435 - 1436 h **Semester: Third year, first semester**

Instructor's Data

Name:	Dr/ Amany Belal Mohamed Mhaney
Faculty:	Pharmacy - Taif University
Department:	Pharmaceutical Chemistry (Medicinal Chemistry)
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Office Hours:	**Day**	***From - To***
	Saturday	
	Sunday	**8-10 (Theoretical)**
	Monday	
	Tuesday	**12-2 (Practical)**
	Wednesday	**11-12 (Theoretical)**

1.1. Course Information

Class Room No:	23115 (Theoretical)	21120 (Practical)

Course Title: Medicinal Chemistry-1	***Number and Code:*** 704301-4	
Pre-requisites	- Pharmaceutical organic chemistry & analytical chemistry.	
ILOS	- to provide the students with the necessary knowledge and skills concerning total synthesis, mechanism of action, structure activity relationships, adverse reactions, estimation of pharmaceutical products, recognize drug metabolism & pathways of the drug in the body, outline suitable methods for synthesis of some drugs and describe the suggested mechanism of action of the drugs.	
	- to direct students to understand the use of appropriate substitutes.	
	- to acquire the students with a range of transferable skills	

Goals

Student should know skills concerning total synthesis, mechanism of action, structure activity relationships, adverse reactions, estimation of pharmaceutical products, as well as the preferential and specific medicinal uses of the chemotherapeutic medicinal agents

1.2. A Weekly Distributions of the Course Topics

1. Topics to be Covered		
List of Topics		
Lecture contents (3hrs/week.)	**No. of Weeks**	**Practical session (3hrs/lab)**
Introduction o physicochemical properties of drugs	1st week 5-11-1435 8-11-1435	• Laboratory safety measures 7-11-1435
Introduction o Drug design	2nd week 12-11-1435 15-11-1435	• Limit test for chloride 14-11-1435
Introduction o drug receptors and drug-receptor interactions o Drug latentiation	3rd week 19-11-1435 22-11-1435	• Limit test for sulphate 21-11-1435
Drug Metabolism o Functionalization reaction (Phase I)	4th week 26-11-1435 29-11-1435	• **National day** 28-11-1435

▪ Drug Metabolism o Conjugation reactions (Phase II) o Factors affecting drug metabolism	5th week 18-12-1435 21-12-1435	• Limit test for iron 20-12-1435
▪ Drugs acting on the autonomic nervous system ▪ Drugs affecting cholinergic neurotransmission o Cholinergic receptors o Cholinergic agonists o Direct acting cholinergic agents	6th week 25-12-1435 28-12-1435	• Limit test for lead 27-12-1435
o Indirect acting cholinergic agents i. Reversible anticholinestrase ii. Irreversible anticholinestrase	7th week 2-1-1436 5-1-1436	• Test for heavy metals 4-1-1436
8th week	**Mid Term Exam**	**8-1-1436**
▪ Drugs affecting cholinergic neurotransmission o Cholinergic antagonists i. Muscarinic antagonists ii. Nicotinic antagonists	9th week 9-1-1436 12-1-1436	• Quantitative estimation of tolbutamide 11-1-1436
▪ Drugs affecting adrenergic neurotransmission o Adrenergic receptors o Direct acting adrenergic agents o Indirect acting adrenergic agents	10th week 16-1-1436 19-1-1436	• Assay of acetylsalicylic acid (Aspirin)in powder form 18-1-1436
▪ Drugs affecting adrenergic neurotransmission o Sympathomimetics with mixed mechanism of action o Adrenergic receptors antagonists	11th week 23-1-1436 26-1-1436	• Assay of acetylsalicylic acid (Aspirin)in Tablets or suppositories form 25-1-1436
▪ Cardiovascular system drugs o Antianginal drugs	12th week 1-2-1436 4-2-1436	• Colorimetric assay of procaine 3-2-1436
▪ Cardiovascular system drugs o Antihypertensives	13th week 8-2-1436 11-2-1436	• Colorimetric assay of saliclylic acid 10-2-1436
▪ Cardiovascular system drugs o Antiarrhythmic	14th week 15-2-1436 18-2-1436	• Colorimetric assay of sulfacetamide 17-2-1436
▪ Cardiovascular system drugs o Antihyperlipidemic & Anticoagulantas	15th week 22-2-1436 25-2-1436	• Revision 24-2-1436
16th week 29-2-1436		• **final practical exam**
17th week 6-3-1436		• **final exam**

1.3. Proposed Assignments:

Assignment	Assessment task (eg. essay, test, group project, examination etc.)	Week due
1	Attendance & activities	All weeks
2	Periodical exam (Quiz -1)	Week 5
3	Group project	Week 6
4	Mid-Term Exam.	Week 8
5	Periodical exam (Quiz -2)	Week 12
6	Final Exam.	Week 17

1.4. Teaching Methods:

- **-** Lectures
- Self learning
- Discussion
- Assignements

1.5. Instructional Media:

- The methods of instruction may include, but are not limited to:

1. Data show
2. White board

1.6.Assessment Tools:

Assessment	Assessment Tools	Week due	Score Distribution
1	Class involvement	All weeks	10%
2	Quiz 1 & 2	Week 5 & 12	10%
4	Mid-Term Exam.	Week 8	20%
5	Practical exam	Week 16	20%
6	Final- Term Exam.	Week 17	40%
Total			100%

1.7. Score Distribution*:

Assessment tool		Exams		Course work (20)			Total
	Mid-term	Practical exam	Final	Assignments	quiz	Other activities	
Score distribution	20	20	40	10	10	-	100
Total	**20**	**20**	**40**	**10**	**10**	-	**100**

1.8. References and Teaching/ Learning Resources:

A) **Lectures Handouts**

B) **Required Text(s)**

- Wilson, Charles Owens; Beale, John Marlowe; Block, John H.; Block, John H.; Gisvold, Ole "Wilson & Gisvold's Textbook of Organic :Medicinal and Pharmaceutical Chemistry" 11th edn, Wiley-Interscience (2010).

C) **Essential References**

- Williams, David A., William O. Foye, and Thomas L. Lemke "Foye's Principles of Medicinal Chemistry" 5th edn, Lippincott Williams and Wilkins (2006).
- Patrick, Graham L "An Introduction to Medicinal Chemistry" 3 rd edn, Oxford t- University Press (2005).

D) **Recommended Journals**

1) Journal of Medicinal Chemistry
2) European Journal of Medicinal Chemistry
3) Current Medicinal Chemistry
4) Bioorganic & Medicinal Chemistry

E) **Electronic Materials**, Web Sites etc

F) **Other learning material**

such as computer-based programs/CD,

- professional standards/regulations
- Complete drug references Martindale
- British pharmacopeia
- Chem. Draw to draw the structures of different pharmaceutical preparations

2. Course Report *

2.1. Distribution of students post course grades:

Grade	A	B	C	D	F	DN	IC	W	Absent
Sex	Girls	Girls	Girls	Girls	Girls	Girls	Girls	Girls	Girls
Score	26	11	1	2					
%	65	27.5	2.5	5					
Total	40	40	40	40					

2.2. Conclusions about students' grades:

- The overall performance of students as reflected by their total marks is satisfactory in accordance with their caliber.

2.3. Impressions about students' participation and involvement:

- Most of the students are interactive, ambitious and are keen to achieve high grades.

2.4. Other Comments:

Pros	*Cons*	*Problems*
- More than 90% of the students are active participants in classroom discussions.	**Supplying med. Chem. Labs with the required materials, glassware's and instruments.**	**- Availability of chemicals and drug design programs.**

2.5. Recommendations

- Supply the instructor and students with access to new drug design programs.

Instructors' Signature

Dr. Amany Belal Mohamed Mhaney