

Course Specifications

University	Beni-Suef
Faculty	Pharmacy
Dept.	Medicinal chemistry

1-Course Info.	Course Name: Medicinal chemistry I
Code No. 801	Academic year/ Level: : Fourth year students- 1 st semester
Credit hours: Lecture	(2.....) hour + Practical (...2..) hour

2-Overall Aim of the Course

The aim of this course is to introduce students to the basic concepts of drug design, drug discovery drug metabolism the fundamental principles that underpin modern medicinal chemistry of steroidal and peptide hormones, oral hypoglycemics and diuretics.

3-Intended Learning Outcomes of the course (ILOs)

a. Knowledge and understanding

1. Demonstrate comprehensive knowledge of the principles behind chemical identification and lead compound development.
2. Demonstrate a detailed clear knowledge of the principle bonding interactions in drug receptor level, the basic concepts of structure activity relationships (SAR).
3. Demonstrate clear understanding of the physiochemical parameters of the

	<p>drug that affect drug-receptor interactions.</p> <ol style="list-style-type: none"> 4. Understanding the concepts of drug latency, bioisosterism, soft drugs and their biological activities. 5. Explain the utility of prodrugs and their mechanisms of activation. 6. Demonstrate the general pathways of drug metabolism. 7. Demonstrate appropriate knowledge of the role of computer in drug design and basic concepts and principle used. 8. Describe the synthesis, chemical properties, mode of action, assay, metabolism, adverse side effects and structure-activity relationship of the drugs related to the topics covered by this course. 9. Explain the relationship between molecular structure and its biological action particularly in drugs related to the topics covered by this course.
<p>b. Intellectual Skills</p>	<ol style="list-style-type: none"> 1. Analyze the contributions of organic functional groups to receptor binding of drug molecules and predict their effects on activity/potency. 2. Predict metabolism, and pharmacological activity/potency of individual drugs that their names were not covered by the course contents based on the contribution of their functional groups to their structures. 3. Solve physicochemical problems and using the outcomes to assist in drug design. 4. Apply chemical knowledge to the development and analysis of drugs.
<p>c. Professional and P Skills</p>	<ol style="list-style-type: none"> 1. Carry out appropriate experiments to determine the purity of raw

	<p>materials.</p> <ol style="list-style-type: none"> 2. Analyze quantitatively drugs and their physicochemical properties. 3. Determine some physicochemical parameters of drugs. 																						
<p>d. General and Transferable Skills</p>	<p style="text-align: center;">Communication:</p> <ol style="list-style-type: none"> i. Demonstrate competence in oral, written communication and data analysis and interpretation. <p style="text-align: center;">Group working:</p> <ol style="list-style-type: none"> 1. Demonstrate the ability to work effectively as part of a team. <p>Set realistic plan work to meet target within deadlines</p>																						
<p>4-Course Contents</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Topics</th> <th style="text-align: center;">No. of Hours</th> </tr> </thead> <tbody> <tr> <td>Introduction to medicinal chemistry and drug design</td> <td style="text-align: center;">4 Hrs</td> </tr> <tr> <td>Hormones.</td> <td style="text-align: center;">6 Hrs</td> </tr> <tr> <td>Drug metabolism</td> <td style="text-align: center;">4 Hrs</td> </tr> <tr> <td>Diuretics</td> <td style="text-align: center;">3 Hrs</td> </tr> <tr> <td>Oral hypoglycemics</td> <td style="text-align: center;">3 Hrs</td> </tr> <tr> <td>Total</td> <td style="text-align: center;">20 Hrs</td> </tr> <tr> <td colspan="2" style="text-align: center;">Tutorial /Practical</td> </tr> <tr> <td>Limit test of cl (Ep and Bp)-)</td> <td style="text-align: center;">2Hrs</td> </tr> <tr> <td>limit test of SO₄ (Ep and BP , Limit test for iron.</td> <td style="text-align: center;">2Hrs</td> </tr> <tr> <td>Limit test of heavy metals, pb , Ca and Mg</td> <td style="text-align: center;">2Hrs</td> </tr> </tbody> </table>	Topics	No. of Hours	Introduction to medicinal chemistry and drug design	4 Hrs	Hormones.	6 Hrs	Drug metabolism	4 Hrs	Diuretics	3 Hrs	Oral hypoglycemics	3 Hrs	Total	20 Hrs	Tutorial /Practical		Limit test of cl (Ep and Bp)-)	2Hrs	limit test of SO ₄ (Ep and BP , Limit test for iron.	2Hrs	Limit test of heavy metals, pb , Ca and Mg	2Hrs
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	Tests of purity of phosphoric acid and citric acid	2Hrs
	Tests of purity of NaCl, glycerol,	2Hrs
	Quantitative determination of : Progesteron Norethisterone L-Thyroxin	2Hrs
	Quantitative determination of : Metformin.HCl Glibneclamide Frusemide	2Hrs
	Quantitative determination of : Spironolactone Haemodialysis solution	2Hrs
	LogP and pka determination.	2Hrs
	Total	18Hrs
5- Teaching and learning Strategies	1. Lectures.	

	2. Practical laboratory sections. Problem solving and working in groups
6- Teaching and learning Methods for Special Needs Students.	
7- Student Assessment Methods	
a-Methods	<ol style="list-style-type: none">1. Laboratory work (practical sections activities and other assignments delivered as reports and oral presentations) and quiz to assess the theoretical aspects of experimental work.2. Practical examination to assess gained practical skills.3. Written exam to assess knowledge and understanding of theoretical information as well as higher intellectual skills.4. Oral examination to assess acquired knowledge and higher intellectual skills.

b- Assessment Schedules	Assessment	Week	
	Assessment 1: written quizzes 1 & 2	Week 3,5 7,10	
	Assessment 2: Practical Exam1&2 and practical Quiz	Week: 8 & 14	
	Assessment 3: Final Written and Oral Exam.		
c- Weighting of Assessment Marks	Type of Assessment	Marks	Weight (%)
	Semester work	5	3%
	Sheet exam	5	3%
	Practical exam	50	34%
	Final written exam	80	54%
	Final oral exam	10	6%
Total		100%	

8-List of References	
a.Notes	<ol style="list-style-type: none">1. Practical notes2. Reference books
b.Mandatory Books	<ol style="list-style-type: none">i. Foye, W.O.; "Principles of Medicinal Chemistry", 4th edition, Lippincott Williams & Wilkins, U.S.A. <p>Patrick, G. L.; "An introduction to medicinal Chemistry", 3rd Edition, Oxford University Press, 2005.</p>
c.Suggested Books	<ol style="list-style-type: none">i. Abraham, D.J.; "Burger's Medicinal Chemistry", 6th edition, John Wiley & sons, New Jersey, 2003. <p>Delgado, J.N. and Remers, W.A.; "Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry", 11th edition, Lippincott Williams & Wilkins, U.S.A. 2004</p>
d.Journals	<ol style="list-style-type: none">i. European journal of medicinal chemistry.ii. Journal of American chemical society

Course Coordinators **Dr. Mohammed Taha El-Saadi**

Head of department:Mohammed Taha El-Saadi

Date:2018/2019.....

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