



**Philadelphia University**  
**Faculty of Pharmacy**  
**Department of Pharmaceutical Science**  
**Second Semester, 2017/2018**

**Course Syllabus**

<b>Course Title: Pharmaceutical Medicinal Chemistry-2</b>	<b>Course code: 0510312</b>
<b>Course Level: 3<sup>rd</sup> level</b>	<b>Course prerequisite (s) and/or corequisite (s): Pharmaceutical medicinal chemistry 1 0510311</b>
<b>Lecture Time:</b>	<b>Credit hours: 3 hours</b>

**Academic Staff Specifics**

		Rank	Office Number and Location	Office Hours	E-mail Address
Lecturer	Dr. Abd El-Naseer Dokkah	Assistant Professor	Pharmacy Building 511		adokka@philadelphia.edu.jo
	Dr. Soha telfah	Assistant Professor	Pharmacy Building 512		S_telfah@philadelphia.edu.jo

**Course module description:**

The subject deals with many drug groups such as antibacterial agents, antiviral agents antifungal agents, anticancer, hypoglycemic, antihyperlipidemic and analgesic agents. Many drug aspects will be studied here, including the physiological and biochemical background of the drug, the mechanism of pharmacological action, the physicochemical properties, the structure activity relationship of each group; in addition to the pharmacokinetic and pharmacodynamic properties of the drugs and the effect of the chemical structure on all these properties.

**Course module objectives:**

Student will be able to have full knowledge of the drug groups to be studied, including their metabolism in the body, the possible mechanism of action, the relationship between their chemical structure and the pharmacological activity as well as the toxicity and the factors

affecting the pharmacokinetic and pharmacodynamic properties of the drug molecule. At the end of the course, the student will be able to design new pharmacologically active agents based on the chemical structure of the currently available agents by using the information known about the chemical structure as well as the drug receptor interactions.

**Course/ Module components:**

**Textbook:**

An introduction to Medicinal Chemistry by Graham L. Patrick. Fourth edition, Oxford, 2009

**Teaching methods:**

Lectures as power point presentations, seminars and discussion groups

**Learning Outcomes:**

**1. Knowledge and understanding:**

- a. Studying different drug groups according to their biological targets, pharmacological actions and chemical structures
- b. Building suitable structure activity relationships for drugs to be studied in order to be able to apply the required chemical modifications to improve activity and overcome possible drug toxicity
- c. Recognize structural moieties essential for drug target interactions and predict possible structural changes to improve binding
- d. Demonstrate knowledge about drug chemical structure and pharmacophores
- e. Study the biological targets for drug groups to be studied at molecular level to understand the possible binding mode and affinity, and how the drug will activate or inhibit its target at the molecular level.

**2. Cognitive skills:**

- a. Identify building blocks in drug structure responsible for activity and target binding
- b. Using information obtained from drug target interaction to predict the consequences of any structural modifications on pharmacological action
- c. Understanding the importance of continuous development of new drugs to overcome resistance tolerance and failure of therapy
- d. Develop critical thinking and problem solving.

**3. Communication skills:**

- a. Try to communicate with partners in the class to study drug target interactions and make logical modifications to improve activity
- b. Gain the spirit of working in groups and two-way discussion
- c. Express ability to interpret data obtained by the team and make conclusions\
- d. The open discussion during the lecture will strengthen the student's self confidence to ask and share his opinion and thoughts in a given subject

**4. Transferable Skills:**

- a. use different concepts and ideas discussed in the course to build new pharmacophore and scaffold to help save time in developing new drugs
- b. Use results obtained from drug comparison at the biological level to improve patient as well as physician knowledge on the best drug selection and possible outcomes expected of the use as well as expected side effects and complications

- c. Demonstrating ability to work with others in teams.
- d. Demonstrate ability to search and use the literature in both printed and electronic formats that help in better understanding a given topic and make better conclusions and outcomes

**Assessment instruments:**

<b><u>Allocation of Marks</u></b>	
<b>Assessment Instruments</b>	<b>Mark</b>
First examination	<b>20</b>
Second examination	<b>20</b>
Reports, research projects, Quizzes, Home works, Projects	<b>20</b>
Final examination: 50 marks	<b>40</b>
<b>Total</b>	<b>100</b>

**Documentation and academic honesty**

- Documentation style taking notes during the discussion and recording the voice of instructors
- Protection by copyright
- Avoiding plagiarism.
- Ethics and Disability Act:
  - Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
  - Students should write their own code. Using code found on books or internet is prohibited.
  - The Instructor follows general university “Academic Dishonesty/Cheating Policy”.

## Course/module academic calendar

<b>week</b>	<b>Basic and support material to be covered</b>
(1)	Introduction to medicinal chemistry (II)
(2-5)	Antibacterial agents (lactams) 1. Penicillins 2. Cephalosporins 3. Carbapenems 4. Monobactams
(6)	B-lactamase inhibitors
<b>First Examination</b>	
(7)	Antibacterial agents: Aminoglycosides
(8,9)	Antibacterial agents: 1. Tetracyclines 2. Macrolides 3.
(10-13)	Synthetic antibacterial agents 1. Sulfonamides 2. Quinolones
<b>Second examination</b>	
(14)	Antifungal agents
(15)	Antiviral agents
(16)	Antimycobacterial agents
<b>Final Examination</b>	

### Expected workload:

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

### Attendance policy:

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

### Module References

- 1- Wilson and Gisvolds text book of organic medicinal and pharmaceutical chemistry by John H. Black and John M. Beale, jr. Eleventh edition, Lippincott Williams and Wilkins 2004.
- 2- Foyes principle of medicinal chemistry by David H. Williams, Thomas L. Leuke, Williams O. Foye. Lippincot William and Wilkins. Fifth edition, 2002, ISBN.