Philadelphia University	PHILADELPHIA UNIVERSITY THE WAY TO THE FUTURE	**Approved Date: 20/10/2021**
Faculty: pharmacy		**Issue: 1**
Department:-		**Credit Hours:3**
Academic Year:2021/2022	**Course Syllabus**	**Bachler:**

Course Information

Course No.	Course Title	Prerequisite	
0510410	Pharmaceiutical medicinal chemistry 3	Pharmaceutical Organic Chemistry-2 (0510210)	
Course Type		**Class Time**	**Room No.**
☐ Univirsity Requirement ■ Fuclty Requirement ■ Major Requirement ☐ Elective Compulsory		**9:45-11:15: Sun,Tus** **12:45-2:15 Mon,Wend**	**611** **620**

Instructure Information

Name	Office No.	Phone No.	Office Hours	E-mail
Dr. Soha Taher Telfah	**528**	**2356**	**12:45-2:00 daily**	**s_telfah@philadelphia.edu.jo**

Course Delivery Method

☐ Blended	☐ Online	■ Physical	
Learning Model			
Percentage	**Synchronous**	**Asynchronous**	**Physical**
			100%

Course Description

The first part of the subject deals with drugs used in cancer with main emphasis on alkylating agents, platinum based drugs, antimetabolites, antibiotics, mitotic inhibitors and combination therapy. The second part of the course will concentrate on studying diuretics and respiratory drug development. The last part will study the design and development of cardiovascular drugs that are specially used in the treatment of hypertension such as β-blockers, ACE inhibitors, calcium channel blockers. In all the above mentioned groups, chemical structure will be extensively studied an attempt to build a suitable SAR and try to modify structures to improve activity and minimize toxicity.

Course Learning Outcome

Number	Outcome	Corresponding Program Outcomes	Corresponding Competencies
Knowledge			
K1	Acquire basic knowledge about the pharmacological aspect for cancer, hypertension, diabetes, inflammation and ulcer	K_P1	C1
K2	Outline the basic concepts for drug design and development for anticancer, cardiovascular agents, diuretics, NSAID, antidiabetic agents, and drugs used for gastric ulcer	K_P1	C1
K3	To comprehend the prodrug approaches for anticancer drugs and proton pump inhibitors and their value to improve pharmacokinetic and pharmacodynamic properties for correspondimng drugs	K_P1	C1
K4	To distinguish between different classes of cardiovascular drugs, NSAID, antidiabetic their main SAR, classes and indications and contraindications	K_P1	C1
K5	To give example for the synthesis for commercially available drug, utilizing the basic principles in organic chemistry	K_P1	C1
S1	Figure out the main problem in designing: anticancer, angiotensin converting enzyme inhibitors and PPI and the main approach used to solve these problem utilizing the complementarity principle, either electronic or steric. Utilizing SAR model	S_P2	C8
S2	Demonstrate effective written and oral communication skills, especially the ability to transmit complex technical information in a clear and concise manner.	S_P6	C12

Learning Resources

Course Textbook	-An introduction to Medicinal Chemistry by Graham L. Patrick. fifth edition, Oxford, 2013. Foyes principle of medicinal chemistry by David H. Williams, Thomas L. Leuke, Williams O. Foye. Lippincott William and Wilkins. Seventh edition, 2013
Supporting References	-Wilson and Gisvolds text book of organic medicinal and pharmaceutical chemistry by John H. Black and John M. Beale, jr. Twelfth edition, Lippincott Williams and Wilkings 2011
Supporting Websites	www.scinecedirect.com, www.youtube.com
Teaching Environment	■ **Classroom** ☐ **laboratory** ☐ **Learning Platform** ☐ **Other**

Meetings and Subjects Time Table

Week	Topic	Learning Method*	Task	Learning Material
1	**Introduction to medicinal chemistry-III** **Anticancer agents** An introduction Alkylating agents	Lecture problem solving based learning,		Vision and Mission of faculty of pharmacy Course syllabus Graham Patrick, chapter 21
2	**Anticancer agents** Alkylating agents	Lecture		Graham Patrick, chapter 21
3	Platinum based drugs Antimetabolites	Lecture	Quiz	Graham Patrick, chapter 21
4	Antibiotics Plant extracts (mitotic inhibitors and topoisomerase inhibitors)	Lecture	**Online lecture**	Graham Patrick, chapter 21
5	Insulin and antidiabetic agents	Lecture		Wilson and Gisvold, , chapters 19 & 20
6	Insulin and antidiabetic agents	Lecture		Wilson and Gisvold, , chapters 19& 20
7	Insulin and antidiabetic agents	Lecture	**Midterm Exam**	Foys, Chapter 22

8 & 9	**Cardiovascular drug development** ✓ Antihypertensive agents-An introduction ✓ Angiotensin converting enzyme inhibitors (ACE inhibitors) ✓ Calcium channel blockers ✓ Vasodilator ✓ ARBs	Lecture	**Midterm Exam**	Wilson and Gisvold, Chapter 19
10	✓ Hormone(oestrogen, progesterone, androgen, anabolic steroid	Lecture	**Quiz**	
11	✓ Hormone(oestrogen, progesterone, androgen, anabolic steroid	Lecture		Wilson and Gisvold, Chapter 19
12	✓ Loop diuretics ✓ Thiazide and thiazide-like diuretics ✓ Potassium-sparing diuretics ✓ Osmotic diuretics			
13	✓ Thiazide and thiazide-like diuretics ✓ Potassium-sparing diuretics ✓ Osmotic diuretics			
14	Non steroidal anti-inflammatory drugs	Lecture		Wilson and Gisvold, , chapters 24
15	Non steroidal anti-inflammatory drugs	Lecture	Quiz	Wilson and Gisvold, , chapters 24
15	**Gastric drug development** Design and development of proton pump inhibitors (PPIs)	Lecture		Graham Patrick, chapter 25
16	**Final Exam**			

*Includes: lecture, flipped Class, project based learning, problem solving based learning, collaboration learning.

Course Contributing to Learner Skill Development

Using Technology
Using Microsoft programs (word, power point), YouTube videos, Google and scientific websites, chemdraw and schrodenger software.
Communication Skills
Videos and home works discussion
Application of Concept Learnt

Assessment Methods and Grade Distribution

Assessment Methods	Grade	Assessment Time (Week No.)	Course Outcomes to be Assessed
Mid Term Exam	**% 30**	6 th	K(1, 2, 3, 4 and 5) and S (1&2)
Term Works*	**% 30**	Continuous	
Final Exam	**% 40**	16 th	All
Total	**%100**		

* Include: quizzes, in-class and out of class assignment, presentations, reports, Videotaped assignment, group or individual project.

Alignment of Course Outcomes with Learning and Assessment Methods

Number	Learning Outcomes	Corresponding Compatienes	Learning Method*	Assessment Method**
Knowledge				
K1	Acquire basic knowledge about the pharmacological aspect for cancer, hypertension, diabetes, inflammation and ulcer	C1	Lecture	Quizzes Exam
K2	Outline the basic concepts for drug design and development for anticancer, cardiovascular agents, diuretics, NSAID, antidiabetic agents, and drugs used for gastric ulcer	C1	Lecture	Quizzes Exam
K3	To comprehend the prodrug approaches for anticancer drugs and proton pump inhibitors and their value to improve pharmacokinetic and pharmacodynamic properties for correspondimng drugs	C1	Lecture	Quizzes Exam
K4	To distinguish between different classes of cardiovascular drugs, NSAID, antidiabetic their main SAR, classes and indications and contraindications	C1	Lecture	Quizzes Exam Group project

K5	To give example for the synthesis for commercially available drug, utilizing the basic principles in organic chemistry	C1	Lecture	Quizzes Exam
Skills				
S1	Figure out the main problem in designing: anticancer, angiotensin converting enzyme inhibitors and PPI and the main approach used to solve these problem utilizing the complementarity principle, either electronic or steric.	C8	problem solving based learning	Quizzes Exam
S2	Demonstrate effective written and oral communication skills, especially the ability to transmit complex technical information in a clear and concise manner.	C12	collaboration learning.	Quizzes Exam

*Include: lecture, flipped class, project based learning, problem solving based learning, collaboration learning.
** Include: quizzes, in-class and out of class assignments, presentations, reports, videotaped assignments, group or individual projects.

Course Polices

Policy	Policy Requirements
Passing Grade	The minimum pass for the course is (50%) and the minimum final mark is (35%).
Missing Exams	• Anyone absent from a declared semester exam without a sick or compulsive excuse accepted by the dean of the college that proposes the course, a zero mark shall be placed on that exam and calculated in his final mark. • Anyone absent from a declared semester exam with a sick or compulsive excuse accepted by the dean of the college that proposes the course must submit proof of his excuse within a week from the date of the excuse's disappearance, and in this case, the subject teacher must hold a compensation exam for the student. • Anyone absent from a final exam with a sick excuse or a compulsive excuse accepted by the dean of the college that proposes the material must submit proof of his excuse within three days from the date of holding that exam.
Attendance	The student is not allowed to be absent more than (15%) of the total hours prescribed for the course, which equates to six lecture days (n t) and seven lectures (days). If the student misses more than (15%) of the total hours prescribed for the course without a satisfactory or compulsive excuse accepted by the dean of the faculty, he is prohibited from taking the final exam and his result in that subject is considered (zero), but if the absence is due to illness or a compulsive excuse accepted by the dean of the college that The article is introduced, it is considered withdrawn from that article, and the provisions of withdrawal shall apply to it.
Academic Integrity	Philadelphia University pays special attention to the issue of academic integrity, and the penalties stipulated in the university's instructions are applied to those who are proven to have committed an act that violates academic integrity, such as cheating, plagiarism (academic theft), collusion, intellectual property rights.

Program Learning Outcomes to be assessed in this Course

Number	Learning Outcome	Course Title	Assessment Method	Targeted Performance level

Description of Program learning Outcomes Assessment Method

Number	Detailed Description of Assessment

Assessment Rubric of the Program Learning Outcomes
