كلية الصيدلة

جامعة المنصورة

توصيف مقررات برنامج
بكالوريوس الصيدلة
لائحة فارم دى
2024/2023

Created By: Quality Assurance Unit

فهرس المحتويات

بكالوريوس الصيدلة (فارم دي- Pharm D)

Course Specification

Academic year: 2023/2024

Course name: Pharmaceutical Analytical Chemistry-1	**اسم المقرر :كيمياء تحليلية صيدلية -1**
Academic Level : First Level	**المستوى الأكاديمي : الأول**
Scientific department : Pharmaceutical Analytical Chemistry	**القسم العلمي : الكيمياء التحليلية الصيدلية**
Head of Department : Prof. Dr. Jenny Jeehan Mohammed Nasr	**رئيس القسم : ا.د. جينى جيهان محمد نصر**
Course Coordinator: Prof.Dr. Fatma Alzahraa Mohammed Ali	**منسق المقرر: ا.د. فاطمة الزهراء محمد على**

University	**Mansoura**
Faculty	**Pharmacy**
Department offering the course	**Pharmaceutical Analytical Chemistry**
Department supervising the course	**Pharmaceutical Analytical Chemistry**
Program on which the course is given	**Bachelor in Pharmacy - Pharm D**
Academic Level	**First Level, First semester, 2023-2024**
Date of course specification approval	10/9/2023

A. Basic Information: Course data:

Course Title	Pharmaceutical Analytical Chemistry 1
Course Code	PA 111
Prerequisite	Registration
Teaching Hours/ week: Lecture:	2 hours
Practical:	1 hours
Total Credit Hours	3 Credit Hours

A- Professional Information:

1- Course Aims:

This course enables the students to:

- **Demonstrate the basic concepts of physical chemistry regarding some topics such as the rate of reaction, kinetics of chemical reactions, and photochemical reactions.**
- **Recognize the basic principle of inorganic chemistry including chemical equilibrium, types of reactions, solubility product constant, conversion factor, electrolytes, acid-base reactions, and metathesis reactions.**

2- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements:

Domain 1: fundamental knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Recognize the basic principles of chemical kinetics, photochemistry, chemical equilibrium, and chemical reactions.
1.1.3	1.1.3.1	Combine the principles of fundamental sciences to handle and identify chemical compounds.

Domain 2: professional and ethical practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Identify inorganic salts using specific chemical tests.
2.2.3	2.2.3.1	Apply proper equipment to assess raw materials and pharmaceutical products.
2.2.4	2.2.4.1	Implement calculations to assess the chemical kinetics of pharmaceutical compounds and calculate the expiry date of such compounds for assessing their stability.
2.3.1	2.3.1.1	Apply proper handling and disposal of hazardous chemical compounds.
2.3.2	2.3.2.1	Choose best practices and adhere to high ethical and safety standards for management of chemical compounds.

Domain 4: personal practice

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Apply suitable calculations for chemical analysis.
4.2.2	4.2.2.1	Use tools to present information clearly.
4.3.2	4.3.2.1	Build the ability to learn independently.

3- Course Contents

A) Theoretical part

Week No.	Topics	Lecture credit Hours
1	Introduction to General Inorganic Chemistry. Definition of chemistry, chemical reactions, chemical equilibrium, law of mass action, and manipulation of equilibrium constants.	2
2	Le Chatelier's principle and the mole concept. Le Chatelier's principle and factors affecting chemical equilibrium, common ion effect, different equilibrium constants, definition of mole, problems on mole concept and conversion factors.	2
3	Concentration units and stoichiometry of reactions. Definition of different concentration units, molarity calculations, calculation of stoichiometry, dilution of solutions, and problems on Ksp and pH calculations.	2
4	Solution terminologies and amphoterism. Comparison between saturated, unsaturated, and supersaturated solutions, electrolytes and nonelectrolytes, amphoteric substances, and analytical applications of amphoterism (separation of certain cations).	2
5	Reactions between ions (neutralization, metathesis, complexation, and redox reactions). Neutralization reactions, metathesis reactions and the driving forces of such reactions, complex-formation reactions and their analytical applications, redox reactions and balancing of redox equations.	2
6	Stability of metal complexes (Self learning)	2
7	Introduction to chemical kinetics	2
8	The speed of reaction rate, types of reaction rate, and factors affecting reaction rate.	2
9	Order of reactions. Zero order, first order, and second order reactions, pseudo-order reactions, and determination of the	2

	order of reaction.	
10	Molecularity of reactions and theories of reaction rates.	2
11	Fundamentals of photochemistry. Photochemical reactions, laws of photochemistry, photosensitized reactions, and photophysical processes.	2
12	Laws of photochemistry, photosensitized reactions, and photophysical processes.	2
13	Problems on photochemistry.	2
14	Revision and quiz	2
15	Final written and oral exam	-----

B) Practical part

Week No.	Topics	Hours
1.	Anions: Analysis of Carbonate Group.	1
2.	Anions: Sulphur Group.	1
3.	Anions: Halide and phosphate Groups.	1
4.	Anions: Cyanogen Group.	1
5.	Anions: Nitrogen Group.	1
6.	Cations: General Introduction and Classification of Cations.	1
7.	Cations: Analysis of Group I and II Cations.	1
8	Midterm exam	-
9.	Cations: Analysis of Group II and III Cations.	1
10.	Cations: Analysis of Group III Cations.	1
11.	Cations: Analysis of Group IV Cations.	1
12.	Cations: Analysis of Group V Cations	1
13.	Cations: Analysis of Group VI Cations + revision.	1
14.	Practical Exam (OSPE)	1

3-: Teaching and Learning Methods

4.1	**Computer aided learning:** **a. Lectures using Data show, power Point presentations** **b. Distance learning** • **Online learning through my mans "Mansoura university" as recorded video lectures** • **Interactive discussion through My Mans.**	Weeks 1-14
4.2	**Practical session using chemicals and laboratory equipment and/or tutorials**	1-14
4.3	**Self-learning**	6
4.4	**Class Activity Discussion / Brainstorming / problem solving**	1-13

3- Student Assessment:

a- Assessment Methods:

Assessment Methods	K. elements to be assessed
1-Written exam	**1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.4.1**
2-Practical exam (OSPE)	**1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1,4.1.2.1, 4.2.2.1**
3-Oral	**1.1.1.1, 1.1.3.1, 2.2.4.1, 4.2.2.1.**
4- Periodical exam / Course work	**1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.4.1, 4.1.2.1**

b- Assessment schedule:

Assessment 1	**Periodical / Course work**	**7-9th week**
Assessment 2	**Practical exam (OSPE)**	**14th week**
Assessment 3	**Written exam**	**15th week**
Assessment 4	**Oral exam**	**15th week**

c- Weighing of assessment

1	**Periodical exam / Course work)**	**15%**
2	**Practical exam**	**25%**
3	**Written exam**	**50%**
4	**Oral exam**	**10%**
Total		100%

4- Facilities required for teaching and learning.

-Class room	Data show, Computers, and Internet.
- Laboratory facilities	Equipment and glassware.
-Library	Reference books

5- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Course notes	Course notes
3.	Recorded videos prepared by staff members	Videos on platform
4.	Raymond Chang, Editor, "Physical Chemistry for the Biosciences" Sausalito, California (2005).	Book
5.	Essentials of Physical Chemistry, Arun Bahl, B.S. Bahl, G.D. Tuli, New Delhi 110055, India (2014)	Book
6.	Fundamentals of Analytical Chemistry, Douglas A.; Skoog; Donald M.; West, F. James Holler; Stanely, R. Crouch, Belmont, CA, USA 9th ed. (2014)	Book
7.	Pharmaceutical Analytical Chemistry, Quantitative Analysis, Amer, M.M. Faculty of Pharmacy, Cairo University.	Book
8.	http://www.sciencedirect.com https://scholar.google.com http://www.pubmed.com https://www.ekb.eg	Websites

6- Matrix:

Matrix 1. Course contents and course key elements

A) Theoretical part

Course contents / K. elements	Domain 1		Domain 2					Domain 4	
	1.1.1.1	1.1.3.1	2.2.1.1	2.2.3.1	2.2.4.1	2.3.1.1	2.3.2.1	4.1.2.1	4.2.2.1
Introduction to General Inorganic Chemistry.	✔	✔	✔	✔					
Le Chatelier's principle and the mole concept.	✔	✔							
Concentration units and stoichiometry of reactions.	✔	✔							
Solution terminologies and amphoterism.	✔		✔						
Reactions between ions (neutralization, metathesis, complexation, and redox reactions).	✔		✔					✔	✔
Solubility of precipitates: pH effect, effect of undissociated solutes, and effect of complexing agents (Self	✔								

learning)									
Introduction to chemical kinetics.	✔								✔
The speed of reaction rate, types of reaction rate, and factors affecting reaction rate.	✔								✔
Order of reactions.	✔								✔
Molecularity of reactions and theories of reaction rates.	✔								
Fundamentals of photochemistry.	✔								✔
Laws of photochemistry, photosensitized reactions, and photophysical processes.	✔								✔
Problems on photochemistry	✔								✔

B) Practical part:

Course contents	Domain: 1		Domain: 2					Domain: 4	
	1.1.1.1	1.1.3.1	2.2.1.1	2.2.3.1	2.2.4.1	2.3.11	2.3.2.1	4.1.2.1	4.2.2.1
Anions: Analysis of Carbonate Group.	✔	✔	✔						
Anions: Sulphur Group.	✔	✔	✔	✔	✔	✔	✔		
Anions: Halide and phosphate Groups.	✔	✔	✔	✔	✔	✔	✔		
Anions: Cyanogen Group.	✔	✔	✔	✔	✔	✔	✔		
Anions: Nitrogen Group.	✔	✔	✔	✔	✔	✔	✔	✔	✔
Cations: General Introduction and Classification of Cations.	✔	✔	✔	✔	✔	✔	✔		
Cations: Analysis of Group I and II Cations.	✔	✔	✔	✔	✔	✔	✔	✔	✔
Cations: Analysis of Group II and III Cations.	✔	✔	✔	✔	✔	✔	✔	✔	✔
Cations: Analysis of Group III Cations.	✔	✔	✔	✔	✔	✔	✔	✔	✔
Cations: Analysis of Group IV Cations.	✔	✔	✔	✔	✔	✔	✔	✔	✔
Cations: Analysis of Group V Cations	✔	✔	✔	✔	✔	✔	✔	✔	✔
Cations: Analysis of Group VI Cations + revision.	✔	✔	✔	✔	✔	✔	✔	✔	✔

Matrix 2. Between course contents, methods of learning, and assessment

A) Theoretical part

Course Contents	Teaching and Learning methods						Assessment methods	
	Lecture	Recorded video	Comp. aided learning	Lab sessions	Problem solving	Self-learning	Written	Oral
Introduction to General Inorganic Chemistry.	✔		✔					
Le Chatelier's principle and the mole concept	✔	✔	✔		✔		✔	✔
Concentration units and stoichiometry of reactions.	✔	✔	✔		✔		✔	✔
Solution terminologies and amphoterism.	✔				✔		✔	✔
Reactions between ions.	✔	✔					✔	✔
Stability of metal complexes.		✔			✔	✔		
Introduction to chemical kinetics.	✔	✔	✔				✔	✔
The speed of reaction rate, types of reaction rate, and factors affecting reaction rate.	✔	✔	✔		✔		✔	✔
Order of reactions.	✔	✔			✔		✔	✔
Molecularity of reactions and theories of reaction rates.	✔	✔					✔	✔
Fundamentals of photochemistry.	✔	✔					✔	✔
Laws of photochemistry, photosensitized reactions, and photophysical processes.	✔	✔					✔	✔
Problems on photochemistry.	✔	✔			✔		✔	✔

B) Practical part:

Course Contents	Teaching and Learning methods				Assessment methods		
	Record video	Comp. aided learning	Lab sessions	Problem solving	Practical/Tutorial	Written	Oral
Introduction and Classification of Anions.		✔	✔				
Anions: Analysis of Carbonate Group.	✔		✔	✔	✔	✔	✔
Anions: Halide and phosphate Groups.	✔		✔		✔	✔	✔
Anions: Cyanogen Group.	✔		✔	✔	✔		
Anions: Nitrogen Group.	✔		✔	✔	✔		
Cations: General Introduction and Classification of Cations.	✔	✔	✔		✔		
Cations: Analysis of Group I and II Cations.	✔		✔	✔	✔	✔	✔
Cations: Analysis of Group II and III Cations.	✔		✔	✔	✔	✔	✔
Cations: Analysis of Group III Cations.	✔		✔	✔	✔	✔	✔
Cations: Analysis of Group IV Cations.	✔		✔	✔	✔	✔	✔
Cations: Analysis of Group V Cations	✔	✔	✔	✔	✔		
Cations: Analysis of Group VI Cations + revision.	✔	✔	✔	✔	✔		

Course Coordinator	**Prof.Dr Fatma AlZahraa Mohammed Ali**
Head of Department	**Prof.Dr. Jenny Jeehan Nasr**

Date: 10/9/2023

بكالوريوس الصيدلة (فارم د - Pharm D)

Course Specification

Academic year: 2023/2024

Course name: Pharmaceutical Organic Chemistry-1	**اسم المقرر :** **كيمياء عضوية صيدلية-1**
Academic Level: First Level	**المستوى الأكاديمي :** **الاول**
Scientific department: Pharmaceutical Organic Chemistry	**القسم العلمي :** **الكيمياء العضوية الصيدلية**
Head of Department: Prof. Shahenda M. El-messery.	**رئيس القسم :** **ا.د/ شاهنده متولي المسيري**
Course Coordinator: Prof. Khalid Bashir Selim.	**منسق المقرر:** **ا.د/ خالد بشير سليم**

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmaceutical Organic Chemistry
Program on which the course is given	Bachelor's Degree in Pharmacy - PharmD
Academic Level	First level, First semester, 2023/2024
Date of course specification approval	10/9/2023

B- Basic Information: Course data:

Course Title	Pharmaceutical Organic Chemistry-1
Course Code	PO111
Prerequisite	--
Teaching Hours/ week: Lecture:	2
Practical:	1
Total Credit Hours	3 (Credit H)

C- Professional Information:

2- Course Aims:

This course enables the students to:

- Gain an understanding of the basic principles of atomic structures.
- Have a good idea about the stereochemistry of the chiral organic compounds.
- Enable the student to understand the basics of the chemical reactions and their mechanisms.
- Recognize the chemical properties of organic compounds.
- Have a good idea about functional group transformation.

2- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements:

Domain 1: fundamental knowledge

Program Key element No.	Course Key element No.	Course Key Element
1.1.1	1.1.1.1	Recognize the principles of Pharmaceutical organic chemistry.
1.1.2	1.1.2.1	Adapt the use of appropriate pharmaceutical chemical terminology, abbreviations and symbols related to organic and stereochemistry.
1.1.3	1.1.3.1	Utilize the rules of fundamental organic chemistry to handle, identify, prepare and analyze synthetic starting materials and final products.
1.1.7	1.1.7.1	Analyze and interpret stereochemistry techniques that may be applicable to pharmaceutical industry.

Domain 2: professional and ethical practice

Program Key element No.	Course Key element No.	Course Key Element
2.2.1	2.2.1.1	Identify, prepare and purify pharmaceutical organic materials from different sources.
2.2.3	2.2.3.1	Utilize lab tools and equipment carefully to Identify simple organiccompounds.
2.5.3	2.5.3.1	Record data and write different practical chemical reports

Domain 4: personal practice

Program Key element No.	Course Key element No.	Course Key Element
4.1.1	4.1.1.1	Show the ability to operate in team works and conduct time managementskills.

Course Contents Theoretical part

Week No.	Topics	Hours
1	Atoms and bonding	2
2	Intermolecular forces and electronic displacements factors	2
3	Stability of carbon intermediate, acidity and basicity concepts.	2
4	Alkanes and cycloalkanes; nomenclatures and properties	2
5	Alkanes and cycloalkanes; reactions	2
6	Alkenes and cycloalkenes, nomenclatures; properties and reactions	2
7	Alkynes and polyenes, nomenclatures; properties and reactions	2
8	Alkyl halides: nomenclatures; properties and reactions	2
9	Alkyl halides: Substitution and Elimination	2
10	Stereochemistry: Constitutional and conformational Isomers	2
11	Stereochemistry: Relative and absolute configuration	2
12	Stereochemistry: Diastereoisomers	2
13	Stereochemistry: optical resolution of racemic Mixture (self-learning)	2
14	Revision and quiz	2
15	Final Written and Oral Exam	--

C Practical part

Week No.	Topics	Hours
1	Safety Measurements	1
2	Physical characters	1
3	Solubility	1
4	Sodalime on cold	1
5	Sodalime on hot	1
6	Na_2CO_3 of non-acidic compounds	1
7	Na2CO3 of strong acidic compounds	1
8	Midterm exam	--

9	**FeCl3 by oxidation**	**1**
10	**$FeCl_3$ by salt formation**	**1**
11	**Element test**	**1**
12	General scheme of organic sample	1
13	General scheme of organic sample (revision)	1
14	**Practical exam**	1

7- Teaching and Learning Methods:

Teaching and learning Methods		Weeks No.	Key elements to be addressed
4.1	**Computer aided learning:** **a. Lectures using Data show, power Point presentations** **b. Distance learning** • **Online learning through my mans "Mansoura university" as recorded videolectures.** **Interactive discussion through My Mans.**	**1-14**	**1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.7.1**
4.1	**Practical session using chemicals and laboratory equipment**	**1-14**	**2.2.1.1, 2.2.3.1 2.5.3.1**
4.2	**Self-learning**	**13**	**1.1.1.1, 4.1.1.1**
4.3	**Class Activity Discussion / Brainstorming / problem solving**	**6,13**	**4.1.1.1**

8- Student Assessment:

d- Assessment Methods:

Assessment Methods	Key elements to be assessed
1- Periodical (Mid-term exam / Course work)	**1.1.1.1, 1.1.2.1, 2.5.3.1**
2- Practical exam using OSPE	**1.1.3.1, 2.2.1.1, 2.2.3.1, 2.5.3.1, 4.1.1.1**
3- Written exam	**1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.7.1.**
4- Oral exam	**1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.7.1, 4.1.1.1**

e- Assessment schedule: Weighing of assessment:

1	**Periodical (Mid-term/ Course work)**	**15%**	**7-9th week**
2	**Practical exam**	**25%**	**14th week**
3	**Written exam**	**50%**	**15th week**
4	**Oral exam**	**10%**	**15th week**
Total		**100%**	

9- Facilities required for teaching and learning.

- Classroom	Data show, computers, internet, molecular chemical models and animation files.
- Laboratory facilities	Chemicals- glass wares- white board and tools.
- Library	Books and websites for self-learning

10- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Solomons, G.T., Fryhle, C.B., Snyder, S.A. Organic Chemistry. Ed. 12th, John Wiley & Sons, Global edition, 2017.	Essential Book
3.	Carey, F.A., Giuliano, R.M., Allison, N., Bane, S. Organic Chemistry. Ed. 11th, New York, NY: McGraw-Hill, 2020.	Recommended Book
4.	Engel, R.G., Pavia, D.L., Lampman, G. M., Kriz, G.S. A microscale approach to organic laboratory techniques. Ed. 6th, Boston, MA: Cengage Learning, 2018.	Recommended Book
5.	Structure and Reactivity; an Introduction to Organic Chemistry Book a : Structure and Bonding by Brian P. Coppola. Paperback, Published 2022 by Macmillan Learning	Recommended Book
6.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	Website

8-Matrix:Matrix 1. Course contents and course key elements

A) Theoretical part:

Course contents	Course Key elements							
	Domain: 1				Domain: 2			Domain: 4
	1.1.1.1	1.1.2.1	1.1.3.1	1.1.7.1	2.2.1.1	2.2.3.1	2.5.3.1	4.1.1.1
Atoms and bonding	√	√						
Intermolecular forces and electronic displacements factors	√	√						
Stability of carbon intermediate, acidity and basicity concepts.	√	√						
Alkanes and cycloalkanes; nomenclatures and properties	√	√	√		√	√		
Alkanes and cycloalkanes; reactions	√	√	√		√	√		
Alkenes and cycloalkenes, nomenclatures; properties and reactions	√	√	√					√
Alkynes and polyenes, nomenclatures; properties and reactions	√	√				√		√
Alkyl halides: nomenclatures; properties and reactions	√		√		√		√	√
Alkyl halides: Substitution and Elimination	√		√		√		√	√
Stereochemistry: Constitutional and conformational Isomers	√		√	√	√			√
Stereochemistry: Relative and absolute configuration	√		√	√	√			√
Stereochemistry: Diastereoisomers	√	√	√	√	√	√		√
Stereochemistry: optical resolution of racemic Mixture (self-learning)	√	√	√	√	√	√		√

B) Practical part:

Course contents	Course Key elements							
	Domain: 1				Domain: 2			Domain: 4
	1.1.1.1	1.1.2.1	1.1.3.1	1.1.7.1	2.2.1.1	2.2.3.1	2.5.3.1	4.1.1.1
Safety Measurements						√		
Physical characters	√		√	√	√	√	√	
Solubility	√		√	√	√	√	√	
Sodalime on cold	√		√	√	√	√	√	
Sodalime on hot	√		√	√	√	√	√	√
Na_2CO_3 of non-acidic compounds	√		√	√	√	√	√	√
Na2CO3 of strong acidic compounds	√		√	√	√	√	√	√
FeCl3 by oxidation	√		√	√	√	√	√	√
$FeCl_3$ by salt formation	√		√	√	√	√	√	√
Element test	√		√	√	√	√	√	√
General scheme of organic sample	√		√	√	√	√	√	√

Matrix 2. Between course contents, methods of learning, and assessment

A) Theoretical part:

Course Contents	Teaching and Learning methods					Assessment methods			
	Lecture	Hybrid leaning	Comp. aided learning	Lab sessions	Self-learning	Corse Work	Practical/ Tutorial	Written	Oral
Atoms and bonding	√	√	√			√		√	√
Intermolecular forces and Electronic displacements factors	√	√	√			√		√	√
Stability of carbon intermediate, acidity and basicity concepts.	√	√	√			√		√	√
Alkanes and cycloalkanes; nomenclatures and properties	√	√	√			√		√	√
Alkanes and cycloalkanes; reactions	√	√	√					√	√

Alkenes and cycloalkenes, nomenclatures; properties and reactions	√	√	√					√	√
Alkynes and polyenes, nomenclatures; properties and reactions	√	√	√					√	√
Alkyl halides: nomenclatures; properties and reactions	√	√	√					√	√
Alkyl halides: Substitution and Elimination	√	√	√					√	√
Stereochemistry: Constitutional and conformational Isomers	√	√	√					√	√
Stereochemistry: Relative and absolute configuration	√	√	√					√	√
Stereochemistry: Diastereoisomers	√	√	√					√	√
Stereochemistry: optical resolution of racemic Mixture (self-learning)					√				

B) Practical part:

Course Contents	**Teaching and Learning methods**					**Assessment methods**			
	Lecture	**Hybrid learning**	**Comp. aided learning**	**Lab sessions**	**Self-learning**	**Corse Work**	**Practical/Tutorial**	**Written**	**Oral**
Safety Measurements		√	√	√			√		
Physical characters		√	√	√			√		
Solubility		√	√	√			√		
Sodalime on cold		√	√	√			√		
Sodalime on hot		√	√	√			√		
Na_2CO_3 of non-acidic compounds		√	√	√		√			

Na2CO3 of strong acidic compounds		√	√	√			√		
FeCl3 by oxidation		√	√	√			√		
$FeCl_3$ by salt formation		√	√	√			√		
Element test		√	√	√			√		
General scheme of organic sample		√	√	√			√		

Course Coordinator	**Prof. Khalid Bashir Selim.**
Head of Department	**Prof. Shahenda M. El-Messery.**

Approval Date: 10/9/2023

بكالوريوس الصيدلة (فارم د – Pharm D)

Course Specification

Academic year: 2023/2024

Course name: Pharmacy Orientation	**اسم المقرر: توجيه صيدلي**
Academic Level: Level 1	**المستوى الأكاديمي: الأول**
Scientific department: Pharmaceutics	**القسم العلمي: الصيدلانيات**
Head of Department: **Prof. Dr. Irhan Ibrahim Abu Hashim**	**رئيس القسم:** **أ.د/ ارهان ابراهيم أبوهاشم**
Course Coordinator: **Assoc. Prof. Dr. Mariza Fouad Farag Boughdady**	**منسق المقرر:** **أ.م.د/ ماريزا فؤاد فرج بغدادي**

University	**Mansoura**
Faculty	**Pharmacy**
Department offering the course	**Pharmaceutics**
Department supervising the course	**Pharmaceutics**
Program on which the course is given	**Bachelor in Pharmacy -Pharm D**
Academic Level	**First level, First semester. 2023/2024**
Date of course specification approval	**September 2023**

A. Basic Information: Course data:

Course Title	**Pharmacy Orientation**
Course Code	**PT 111**
Prerequisite	**-----**
Teaching Credit Hours: Lecture	**1**
Teaching Credit Hours: Practical/ tutorial	**0**
Total Credit Hours	**1 (Credit H)**

B. Professional Information:

3- Course Aims:

This course enables the students to:

1. Identify the different aspects of pharmacy profession and development of pharmacy as well as the expressions commonly used in pharmacy practice.
2. Recognize different pharmaceutical dosage forms and routes of drug administration.
3. Be acquainted with different dispensing procedure and factors affecting drug dosage as well as prescriptions and medication orders.
4. Categorize drugs according to their different sources.
5. Be aware of the history of pharmacy in different civilizations.

4- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Recollect the different knowledge about the pharmaceutical sciences.
1.1.2	1.1.2.1	Interpret the appropriate pharmaceutical abbreviations and symbols used in different prescriptions.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.1.1	2.1.1.1	Assess the legal professional requirements to practice for individuals and healthcare team.
	2.1.1.2	Demonstrate the principles of ethics and protect the privacy of the patient.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.2.1	3.2.1.1	Interpret the principles of proper dosage forms and different routes of administration.
3.2.5	3.2.5.1	Summarize education to help the patients to use OTC preparations.

Domain 4: Personal Practice

Program K. element no.	Course K. element no.	Course K. element
4.2.1	4.2.1.1	Use communication through clear language in dealing with others.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills

Course Contents

Week No.	Topics	Credit Hours
1	**Mission of Pharmacy** - Evolution of the pharmacist's role - Pharmaceutical sciences.	1
2	**The Pharmacy Career** - Role of pharmacists in society	1
3	**The Pharmacy Career** - Where do Pharmacists work?	1
4	**Factors Affecting Drug Dosage** - Preformulation, physicochemical properties - Stability analysis.	1
5	**General Dispensing Procedures** - What is Dispensing? - Where does dispensing takes place? - What do you need to have a standard dispensing process?	1
6	**Routes of drug administration**	1
7	**The Prescription** - The prescription forms - Handling of the prescription	1
8	**The Prescription** - Methods for calculating the dose for child or infant	1
9	**Pharmaceutical Dosage Forms** Soild dosage forms, liquid preparations.	1
10	**Pharmaceutical Dosage Forms** Topical, rectal and parenteral dosage forms.	1
11	**Classification of Medications** - Opioid drugs (self-learning).	1
12	**Source of Drugs** - Plant sources - Animal sources (self-learning).	1
13	**تاريخ الصيدلة**	1
14	**Revision and quiz**	1
15	**Final written and oral exam**	-

Teaching and Learning Methods:

Teaching and learning Methods		Weeks No.	K. elements to be addressed
4.1	Advanced lecture / Brainstorming	1-14	1.1.1.1, 1.1.2.1, 2.1.1.1, 2.1.1.2 3.2.1.1, 3.2.5.1, 4.2.1.1
4.2	Hybrid Learning: Online learning through my Mans platform "Mansoura university" • Recorded video lectures	1-14	1.1.1.1, 1.1.2.1, 2.1.1.1, 2.1.1.2 3.2.1.1, 3.2.5.1, 4.2.1.1
4.3	Self-learning	11 - 12	4.2.1.1, 4.3.2.1
4.4	Formative Assignments	3-8	1.1.1.1, 1.1.2.1, 2.1.1.1

5- Student Assessment:

a- Assessment Methods:

1- Periodical (Mid-term exam) / Course work	1.1.1.1, 1.1.2.1, 2.1.1.1, 2.1.1.2 3.2.1.1, 3.2.5.1, 4.2.1.1, 4.3.2.1
2-Written exam	1.1.1.1, 1.1.2.1, 2.1.1.1, 2.1.1.2, 3.2.1.1, 3.2.5.1

b- Assessment schedule

Assessment 1	Periodical (Mid-term exam) / Course work	7- 9th week
Assessment 2	Written exam	15th week

c- Weighing of assessments

1	Periodical (Mid-term) exam / Course work	25%
2	Final-term written examination	75%
Total		100%

6- Facilities required for teaching and learning

Classroom	Data show- Computers, Internet, Platform
Library	Books and Pharmacopoeia

7- List of References

No	Reference	Type
1.	Electronic book prepared by teaching staff members.	Course notes
2.	TRAN, P. H. L. & TRAN, T. T. D. Dosage form designs for the controlled drug release of solid dispersions. International Journal of Pharmaceutics, 581, 119274, (2020).	Article

3.	Remington. The Science and Practice of Pharmacy, 23rd Ed. Edited by: Adeboye Adejare, Published by Elsevier Inc, DOI https://doi.org/10.1016/C2018-0-04991-9 (2020).	Essential Book
4.	RUIZ, M. E. & SCIOLI MONTOTO, S. Routes of Drug Administration. In: TALEVI, A. & QUIROGA, P. A. M. (eds.) ADME Processes in Pharmaceutical Sciences: Dosage, Design, and	Essential Book
4.	https://www.slideshare.net/ParasuramanParasuraman/factors-affecting-drug-action-251753122 https://nida.nih.gov/research-topics/prescription-medicines https://www.ekb.eg	Websites

8- Matrix:

Matrix 1. Course content and course key element

Course contents	Course Key elements							
	Domain: 1		Domain: 2		Domain: 3		Domain: 4	
	1.1.1.1	1.1.2.1	2.1.1.1	2.1.1.2	3.2.1.1	3.2.5.1	4.2.1.1	4.3.2.1
Mission of Pharmacy	✓						✓	
The Pharmacy Career			✓	✓		✓	✓	
The Pharmacy Career Where do Pharmacists work?			✓	✓		✓	✓	
Factors Affecting Drug Dosage					✓		✓	
General Dispensing Procedures						✓	✓	
Routes of drug administration					✓		✓	
The Prescription		✓		✓		✓	✓	
Methods for calculating the dose for child or infant		✓					✓	
Pharmaceutical Dosage Forms					✓		✓	
Pharmaceutical Dosage Forms					✓		✓	
Classification of Medications and (self-learning).						✓	✓	✓
Source of Drugs and (self-learning).						✓	✓	✓
تاريخ الصيدلة	✓		✓	✓			✓	

Matrix 2. Between course contents, methods of learning and assessment

Course contents	Teaching and Learning Methods				Assessment methods	
	Advanced lecture	Hybrid learning	Self-learning	Problem Solving	Course Work and mid-term Exam	Written Exam
Mission of Pharmacy	✓	✓			✓	✓
The Pharmacy Career	✓	✓			✓	✓
The Pharmacy Career Where do Pharmacists work?	✓	✓			✓	✓
Factors Affecting Drug Dosage	✓	✓			✓	✓
General Dispensing Procedures	✓	✓				✓
Routes of drug administration	✓	✓				✓
The Prescription	✓	✓				✓
Methods for calculating the dose for child or infant	✓	✓		✓		✓
Pharmaceutical Dosage Forms	✓	✓				✓
Pharmaceutical Dosage Forms	✓	✓				✓
Classification of Medications and (self-learning).	✓	✓	✓			✓
Source of Drugs and (self-learning).	✓	✓	✓			✓
تاريخ الصيدلة	✓	✓				✓

Course Coordinator	Dr. Mariza Fouad Farag Boughdady
Head of Department	Prof. Dr. Irhan Ibrahim Abu Hashim

Date: 20 /9/2023

بكالوريوس الصيدلة (فارم دى- **Pharm D)**

Course Specification

Academic year: 2023/2024

Course name: Medicinal Plants	اسم المقرر : علم النبات الطبي
Academic Level: level 1	المستوى الأكاديمي : الأول
Scientific department: Pharmacognosy	القسم العلمي : العقاقير
Head of Department: **Prof. Dr. Mahmoud F. Elsebai**	رئيس القسم: ا.د/ محمود فهمي السباعي
Course Coordinator: **Prof. Dr. Mahmoud F. Elsebai**	منسق المقرر : ا.د/ محمود فهمي السباعي

University	**Mansoura**
Faculty	**Pharmacy**
Department offering the course	**Pharmacognosy**
Department supervising the course	**Pharmacognosy**
Program on which the course is given	**Bachelors in Pharmacy- Pharm D**
Academic Level	**Level 1, first semester, 2023-2024**
Date of course specification approval	**06/09/2023**

A. Basic Information: Course data:

Course Title	Medicinal Plants
Course Code	PG 111
Prerequisite	…
Teaching credit Hours: Lecture	2
Teaching Credit Hours: Practical/ tutorial	1
Total Credit Hours	3

B. Professional Information:

1. Course Aims:

1- The course affords students the principles to understand the plant classifications, physiology and identification of different plants on the cellular, tissues and entire levels.

2- In this course, the student will study importance of natural products, preparation of natural products-derived drugs including collection, storage, preservation, and adulteration, in addition to the basic concept of pharmacognosy.

2- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Clarify the principles of plant anatomy, plant taxonomy, physiology and plant secondary metabolites.
1.1.3	1.1.3.1	Outline the principles of fundamental plant botany, and the concepts of pharmacognosy to handle and identify natural drugs in pharmaceuticals.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Utilize the appropriate microscopic and taxonomical features to identify and standardize natural drugs.
2.3.1	2.3.1.1	Handling and identification of natural drugs.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.1	**4.1.1.1**	**Share decision-making activities with other team members and apply effective time management skills.**
4.2.1	**4.2.1.1**	**Communicate effectively in a scientific language by verbal and written means.**
4.3.2	**4.3.2.1**	**Practice self-learning to improve professional skills.**

3- Course Contents

Week No.	Topics	Lecture credit Hours
2	Taxonomy: brief presentation of medicinal fungi and lower plants	2
3	Taxonomy: Some important plant families (from medicinal point of view).	2
4	Dusting powders (such as Starch, lycopodium, kamala, kieselguhr, talc, kaolin, precipitated chalk, sulphur).	2
5	Plant cell structure and function (Anatomy of plant cell and ergastic cell content)	2
6	Plant tissues: (Meristematic, dermal, ground and supporting tissues)	2
7	Plant tissues: (Vascular and secretory tissues)	2
8	Anatomical features of some plant organs: (leaf, root and stem)	2
9	Secondary growth/ thickening	2
10	Introduction to Pharmacognosy - Definitions (Crude drug, pharmacopeia, …. etc.) - History of Pharmacognosy - Production of crude drugs ○ Cultivation (wild plants, cultivated, advantages, disadvantages, …. etc.) ○ Collection (time, preparation… etc.) ○ Drying (natural, artificial, … etc.)	2
11	- Storage of drugs (deterioration, factors, …. etc.) - Adulteration (types, ….) - Evaluation of crude drugs (organoleptic, microscopic, biological, …. etc.)	2

12	**Chemistry of crude drugs** (Gums/mucilage, Resins, Tannins, Volatile oils, Alkaloids, Glycosides, … etc.)	2
13	**Plant physiology**	2
14	**Revision and quiz**	2
15	**Final written and oral exam**	-
Week No.	**Practical topics**	**Practical credit hours**
1.	**How to use the microscope.**	1
2.	**Taxonomy of medicinally important monocot Plant Families.**	1
3.	**Taxonomy of medicinally important dicot Plant Families.**	1
4.	**Dusting powders.**	1
5.	Plant cells (Onion cell)	1
6.	Ergastic cell substances (starch, Al. grains & fixed oils).	1
7.	**Dermal tissue (stomata and trichome)**	1
8.	**Midterm exam**	-
9.	**Ground and supporting tissues (pw. Cinnamon)**	1
10.	**Vascular tissue (T.S in pith)**	1
11.	**Leaf anatomy (T.S in Eucalyptus)**	1
12.	**Stem anatomy (T.S in basil stem)**	1
13.	**Root anatomy (T.S in radish root)**	1
14.	**Practical exam**	1

4- Teaching and learning Methods:

	Teaching and learning Methods	Weeks	K. elements to be addressed
4.1	Developed lectures	1-14	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.3.1.1, 4.2.1.1, 4.3.2.1
4.2	Self-learning	13	1.1.1.1, 1.1.3.1, 2.2.1.1
4.3	Practical work and tutorials	1-14	2.2.1.1, 2.3.1.1, 4.1.1.1
4.4	Hybrid learning	3-6, 8-10	1.1.1.1, 1.1.3.1, 2.2.1.1., 4.2.1.1
4.5	العروض التوضيحية Demos	1-13	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.3.1.1, 4.2.1.1, 4.3.2.1

5 Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.1.1, 1.1.3.1
2-Practical exam applying OSPE	2.2.1.1, 2.3.1.1
3-Oral	1.1.1.1, 1.1.3.1, 2.2.1.1., 4.2.1.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1, 1.1.3.1, 2.2.1.1, 4.1.1.1

b. Assessment schedule

Assessment 1	Periodical (Mid-term exam) / Course work	7th -9th week
Assessment 2	Practical examination	14th week
Assessment 3	Written exam	15th week
Assessment 4	Oral exam	15th week

c. Weighing of assessments

1	Periodical (Mid-term) exam / Course work	15%
2	Practical examination and tutorial	25%
3	Final term written examination	50%
4	Oral examination	10%
Total		100%

6- Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
- Laboratory facilities	Microscopes- chemicals- glass wares- white board
- Library	Books

7- List of References

No	Reference	Type
1.	Electronic book prepared by staff members.	Course notes
2.	Recorded videos prepared by stuff members	Videos on platform
3.	Goodwin, T. W., Mercer E. I., Monograph on Wild Medicinal Plants In Egypt (Pharmacopoeial Plants), Egyptian Drug Authority (EDA), 2021.	Monograph
4.	Richard Crang, Sheila Lyons-Sobaski, Robert Wise, Plant Anatomy; A Concept-Based Approach to the Structure of Seed Plants, Springer, 2018.	Book

5.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg https://www.encyclopedia.com/social-sciences/applied-and-social-sciences-magazines/plant-anatomy.	**websites**

8- Matrix

a- Matrix 1 between course content and key element

Course contents / K. elements	Domain 1			Domain 2			Domain 4		
	1.1.1.1	1.1.3.1		2.2.1.1	2.3.1.1		4.1.1.1	4.2.1.1	4.3.2.1
Taxonomy **Kingdom Monera, Kingdom Protista, Kingdom Fungi** **Basis of classification of plant kingdom,** **Some important plant families (from medicinal point of view)**	√	√		√			√	√	
Dusting powders (Starch, lycopodium, kamala, kieselguhr, talc, kaolin, precipitated chalk, sulphur)	√	√		√			√	√	
Plant cell structure and function **(Anatomy of plant cell and Ergastic cell content)**	√	√		√			√	√	
Plant tissues: **(Meristematic, dermal, ground, supporting, vascular and secretory tissues)**	√	√		√			√	√	
Anatomical features of some plant organs: (leaf, root and	√			√			√	√	

stem) and secondary thickening									
Introduction to Pharmacognosy and plant phsiology	√			√				√	√
How to use the microscope.	√	√		√	√		√	√	
Taxonomy of medicinally important Plant Families.	√	√		√	√		√	√	
Dusting powders.									
Plant cell and ergastic cell substances (starch, Al. grain & fixed oils)	√	√		√	√		√	√	
Plant tissues: (dermal, ground, supportinvascular tissues)	√	√		√	√		√	√	
Anatomical features of some plant organs: (leaf, root and stem)	√	√		√	√		√	√	

b. Matrix 2 between course contents, learning methods and assessment

A) Theoretical Part:

Course Contents	Assessment methods						Assessment methods				
	Lecture	Online lecture	Problem solving	Case Study	العروض التوضيحية Demos	Self-learning	Course Work	Course Work (mid-term Exam)	Practical	Written	Oral
Taxonomy	√				√		√	√		√	√
Dusting powders	√				√		√	√		√	√
Plant cell structure and function (Anatomy of plant cell and Ergastic cell content)	√				√		√	√		√	√
Plant tissues	√	√			√		√	√		√	√

Anatomical features of some plant organs: (leaf, root and stem) and secondary thickening	√				√		√			√	√
Introduction to Pharmacognosy	√				√		√			√	√
Plant physiology		√			√	√				√	√

B) Practical Part:

Course Contents	Teaching and Learning Methods						Assessment methods			
	Lecture	Online lecture	Lab sessions	Problem solving	العروض التوضيحية Demos	Self-learning	Course Work	Sheet	Practical exam	Oral
How to use the microscope			√		√			√	√	
Taxonomy of medicinally important Plant Families			√		√			√	√	
Dusting powders.			√		√			√	√	
plant cells (Onion cell) and ergastic cell substances (starch, Al. grains & fixed oils)			√		√			√	√	

Dermal tissue (stomata and trichome)			√		√			√	√	
Ground tissue (pw. Cinnamon)			√		√			√	√	
Vascular tissue (T.S in pith)			√		√			√	√	
Leaf anatomy (T.S in Eucalyptus)			√		√			√	√	
Stem and root anatomy (T.S in basil stem and radish root)			√		√			√	√	

Course Coordinator	Prof. Dr. Mahmoud Fahmi El-Sebai
Head of Department	Prof. Dr. Mahmoud Fahmi El-Sebai

Date: 6/9/ 2023

بكالوريوس الصيدلة (فارم د – Pharm D)

Course Specification

Academic year: 2023/2024

Course name: Medical Terminology	**اسم المقرر: المصطلحات الطبية**
Academic Level: 1st level	**المستوى الأكاديمي: المستوى الأول**
Scientific department: **Clinical Pharmacy and Pharmacy Practice**	**القسم العلمي:** **الصيدلة الإكلينيكية والممارسة الصيدلية**
Head of Department: **Dr. Mohamed Elhousseiny Elsebeay Shams**	**رئيس القسم:** **أ.د/ محمد الحسينى السبيعى شمس**
Course Coordinator: **Noha Osama Mansour**	**منسق المقرر:** **د./ نهى أسامه منصور**

Mansoura University

Faculty of Pharmacy

Pharm D Program

Course specification

2023- 2024

University	**Mansoura**
Faculty	**Pharmacy**
Department offering the course	**Clinical Pharmacy and Pharmacy Practice**
Program on which the course is given	**Bachelors in pharmacy (Pharm D bylaw)**
Academic Level	**1st level**
Date of course specification approval	**7th September 2023**

9- Basic Information: Course data

Course Title	Medical Terminology
Course Code	PP 111
Prerequisite	Registration
Teaching Hours: Lecture	1 hour
Practical/tutorial	……
Total Credit Hours	1 Credit Hour

2- Course Aims:

This course enables the students to gain an understanding of basic elements, rules of building and analyzing medical terms. In addition, common abbreviations applicable to each system will be interpreted.

3- Course k. elements

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- fundamental knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Interpret key medical words related to physiological and pathological conditions.
1.1.2	1.1.2.1	Recognize the medical terminology, abbreviations and symbols related to pharmacy practice.

Domain 4: personal practice

Program K. element no.	Course K. element no.	Course K. element
4.3.2	4.3.2.1	Retrieve the meaning of any medical terms needed for professional practice.

4- course contents

Week No.	Topics	Hours
1.	Introduction to medical terminology	1
2.	Suffixes	1
3.	Prefixes	1
4.	Medical terms related to body structures	1
5.	Medical terms related to diseases	1
6.	Medical terms related to diagnosis and treatment	1
7.	Medical terms related to drugs	1
8.	Medical terms related to digestive system: structure, suffixes and prefixes	1
9.	Medical terms related to digestive system: disease and drugs	1

10.	Medical terms related to endocrine system: pituitary gland	1
11.	Medical terms related to endocrine system: thyroid, parathyroid	1
12.	Medical terms related to respiratory system: disease and drugs	1
13.	Medical terms related to respiratory system: structure, suffixes and prefixes	1
14.	Medical terms related to cardiovascular systems (self-learning) and revision	1
15	Written exam	

5- Teaching and Learning Methods:

5	Teaching and Learning Methods	Weeks	K. elements to be addressed
5.1	Computer aided learning: a. Online learning through My mans "Mansoura university "as recorded – video lectures b. Inter active discussion through My Mans c. Advanced lectures using Power point (PPT) presentations and incorporating group discussion	 7, 14 1-6,8-13	1.1.1.1 1.1.2.1
5.2	Formative assignments	8-11	4.3.2.1
5.3	Self-learning	14	4.3.2.1

6- Student Assessment:

Assessment Methods:

1-Written exam	1.1.2.1, 4.3.2.1
2- Periodicals	1.1.1.1, 1.1.2.1

Assessment schedule

Assessment 1	Periodicals	7-9 th week
Assessment 2	Written	Starting from 15th week

Weighing of assessments

1	Periodicals	25 %
2	Final-term examination	75 %
Total		100%

7. Facilities requird for teaching and learning.

Classroom	Data show- Computers, Internet, Platform
Library	Books

8-List of References

No	Reference	Type
1-	Electronic book prepared by staff members	Course notes
2-	Recorded videos prepared by stuff members	Videos on platform
3- 2.	Ann Ehrich and Carol L. Schroeder, Delmar Thomson. Medical Terminology for Health Professions. 5th edition, 2004	Essential Book
4- 3.	Dorland's illustrated medical dictionary, 30th edition, Saunders, 2003	Supplementary Textbooks
5-	https://www.ekb.eg/.	Websites

9- Matrix of knowledge and skills of the course

Course content	Outcomes Domains/key elements	
	Domain 1	Domain 4
	1.1.1.1	4.3.2.1
Introduction to medical terminology	√	√
Suffixes	√	√
Prefixes	√	√
Medical terms related to body structures	√	√
Medical terms related to diseases	√	√
Medical terms related to diagnosis and treatment	√	√
Medical terms related to drugs	√	√

Medical terms related to digestive system: structure, suffixes and prefixes	√	√
Medical terms related to digestive system: disease and drugs	√	√
Medical terms related to endocrine system: pituitary gland	√	√
Medical terms related to endocrine system: thyroid, parathyroid	√	√
Medical terms related to respiratory system: disease and drugs	√	√
Medical terms related to respiratory system: structure, suffixes and prefixes	√	√
Medical terms related to cardiovascular systems (self-learning)	√	√

Matrix 2. Between course contents, methods of learning and assessment

Theoretical Part:									
Course Contents	**Teaching and Learning Methods**					**Assessment methods**			
	Lecture	**Online lecture**	**Lab sessions**	**Group discussion**	**Self-learning**	**Corse Work**	**Practical/Tutorial**	**Written**	**Oral**
Introduction to medical terminology	√					√		√	
Suffixes	√					√		√	
Prefixes	√			√		√		√	
Medical terms related to body structures	√			√		√		√	

Medical terms related to diseases	√			√				√	
Medical terms related to diagnosis and treatment	√			√				√	
Medical terms related to drugs	√			√				√	
Medical terms related to digestive system: structure, suffixes and prefixes	√	√		√				√	
Medical terms related to digestive system: disease and drugs	√			√				√	
Medical terms related to endocrine system: pituitary gland	√			√				√	
Medical terms related to endocrine system: thyroid, parathyroid	√			√				√	
Medical Terms Related to Drugs	√			√				√	
Medical terms related to respiratory system: structure, suffixes and prefixes	√			√				√	
Medical terms related to cardiovascular systems		√		√	√			√	

Course Coordinator	**Dr. Noha Osama Mansour**
	Noha Osama
Head of Department	**Professor/ Mohamed ElHousseny Elsebeay Shams**
	Mohamed Shams

Date: 7th September 2023

بكالوريوس الصيدلة (فارم دي – Pharm D)

Course Specification

Academic year: 2023/2024

Course name: Information Technology	**اسم المقرر : تكنولوجيا المعلومات**
Academic Level: level 1	**المستوى الأكاديمي : الاول**
Scientific department: Pharmaceutical analytical chemistry	**القسم العلمي: الكيمياء التحليلية الصيدلية**
Head of Department: **Prof. Dr. jenny Jeehan Mohamed Ahmed Nasr**	**رئيس القسم :** **ا.د/جيني جيهان محمد أحمد نصر**
Course Coordinator: **Ass. Prof. Dr. Mahmoud Mohamed Saafan**	**منسق المقرر :** **ا.م.د/ محمود محمد سعفان السيد**

Mansoura University

Faculty of Pharmacy

Pharm D Program

Course specification

2023- 2024

University	**Mansoura**
Faculty	**Pharmacy**
Department offering the course	**Pharmaceutical analytical chemistry**
Department supervising the course	**Pharmaceutical analytical chemistry**
Program on which the course is given	**Bachelor in Pharmacy-Pharm D**
Academic Level	**First level, first semester, 2023-2024**
Date of course specification approval	**10/9/2023**

A. Basic information: course data:

Course title	Information technology
Course code	Uri
Prerequisite	Registration
Teaching credit Hours: Lecture	1
: Practical	1
Total credit hours	2 (credit h)

B. Professional Information:

1 .Course Aims:

This course enables the students to:

1- Basic concepts of computer and information technology, Introduction to computer programming.

2- Computer networks and essential IOT.

2- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1: fundamental knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	**1.1.1.1**	Learn more about information technology and how it can be applied in administrative aspects in pharmacy.
1.1.6	**1.1.6.1**	Search for scientific literature on the internet to reach evidence based approach.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.3	**2.2.3.1**	Use different software with in-depth knowledge.
2.5.3	**2.5.3.1**	Learn how to search scholarly investigations and use systematic ways in the search for best available evidence.

Domain 4: personal practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	**4.1.2.1**	Collect information and analyze data, identify problems and present solutions with other team members in the health care system.
4.2.2	**4.2.2.1**	Apply advanced technologies and channels whenever possible to present relevant information
4.3.2	**4.3.2.1**	Encourage practicing self and independent learning.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	**Basic concepts of computer and information technology**	1
2	**Algorisms and flowcharting fundamentals**	1

3	**Introduction to computer programming**	1
4	**Selection statements in computer**	1
5	**For statement in computer**	1
6	**While statements in computer**	1
7	**Do-While statement in computer**	1
8	**Computer networks introduction**	1
9	**Applications of Computer networks**	1
10	**Inherent IoT**	1
11	**Applications of IoT in Pharmaceutical Manufacturing**	1
12	**Some computer applications (self-learning)**	1
13	**Application of Blockchain towards Pharmaceutical Industry**	1
14	**Revision and quiz**	**----**
15	**Final written and oral exam**	**----**
Week No.	**Practical topics**	**Practical credit hours**
1.	**Basic concepts of computer and information technology**	1
2.	**Algorisms and flowcharting fundamentals**	1
3.	**Introduction to computer programming**	1
4.	**Selection statements in computer**	1
5.	**For statement in computer**	1
6.	**While statements in computer**	1
7	**Do-While statement in computer**	1
8	**Midterm exam**	**-**

9.	**Computer networks introduction**	1
10	**Applications of Computer networks**	1
11	**Inherent IoT**	1
12	**Applications of IoT in Pharmaceutical Manufacturing part 1**	1
13	**Applications of IoT in Pharmaceutical Manufacturing part 2**	1
14	**Sheet and Practical exam**	1

4- Teaching and Learning Methods:

Teaching and learning Methods		**Weeks No.**	**K. elements to be addressed**
4.1	**Computer aided learning:** **a. Lectures using Data show, power Point presentations** **b. Distance learning** • **Online learning through my mans "Mansoura university" as recorded video lectures** • **Interactive discussion through My Mans.**	**1-14**	**1.1.1.1, 1.1.6.1, 2.2.3.1, 2.5.3.1. 4.1.2.1, 4.2.2.1., 4.3.2.1**
4.2	**Practical session using chemicals and laboratory equipment and/or tutorials**	**1-14**	**1.1.1.1, 1.1.6.1, 2.2.3.1, 2.5.3.1. 4.1.2.1, 4.2.2.1**
4.3	**Self-learning**	**12**	**2.2.3.1, 4.1.2.1, 4.3.2.1**
4.4	**Class Activity Discussion / Brainstorming / problem solving**	**1-13**	**2.2.3.1, 2.5.3.1. 4.1.2.1, 4.2.2.1., 4.3.2.1**

4- Student Assessmnt:

d- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1, 1.1.6.1, 2.2.3.1, 2.5.3.1
2-Practical applying OSPE	1.1.1.1, 1.1.6.1, 2.2.3.1, 2.5.3.1. 4.1.2.1, 4.2.2.1
3- Periodical exam / Course work	1.1.1.1, 1.1.6.1, 2.2.3.1, 2.5.3.1. 4.1.2.1, 4.2.2.1.

b. Assessment schedule

Assessment 1	Periodical exam / Course work	7-9th week
Assessment 2	Practical examination and tutorial	14th week
Assessment 3	Written exam	15th week

c. Weighing of assessments

1	Periodical exam / Course work	15%
2	Practical examination and tutorial	25%
3	Final-term written examination	60%
Total		100%

6- Facilities required for teaching and learning

-Class room	Data show - Computers - Internet.
-laboratories	White board - Data show - Computers

7- Matrix of course content versus course k. elements:

Course contents / K. elements	Domain 1		Domain 2		Domain 4		
	1.1.1.1	1.1.6.1	2.2.3.1	2.5.3.1	4.1.2.1	4.2.2.1	4.3.2.1
Basic concepts of computer and information technology	✓	✓	✓	✓	✓		
Algorisms and flowcharting fundamentals	✓			✓	✓		
Introduction to computer programming	✓	✓	✓			✓	
Selection statements in computer	✓		✓	✓		✓	
For statement in computer	✓	✓				✓	
While statements in computer	✓	✓					
Do-While statement in computer	✓	✓	✓			✓	
Computer networks introduction	✓			✓		✓	
Applications of Computer networks	✓				✓		
Inherent IoT					✓	✓	
Applications of IoT in Pharmaceutical Manufacturing					✓	✓	✓
Some computer applications (self-learning)			✓		✓		✓
Application of Blockchain towards Pharmaceutical Industry					✓	✓	✓
Basic concepts of computer and information technology	✓	✓	✓	✓	✓		
Algorisms and flowcharting fundamentals	✓			✓	✓		
Introduction to computer programming	✓	✓	✓			✓	
Selection statements in computer	✓		✓	✓		✓	
For statement in computer	✓	✓				✓	
While statements in computer	✓	✓					

Do-While statement in computer	✓	✓		✓				✓	
Computer networks introduction	✓				✓			✓	
Applications of Computer networks	✓						✓		
Inherent IoT							✓	✓	
Applications of IoT in Pharmaceutical Manufacturing							✓	✓	✓

8- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	**Course notes**
2.	Recorded videos prepared by stuff members	**Videos on platform**
3.	Modern C Quick Syntax Reference (2019)	**Book**
4.	Interne infrastructure: Network, web service and cloud computing (2018)	**Book**
5.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com http://www.kbe.eg	**websites**

B) Theoretical Part:

Course Contents	Teaching and Learning Methods							Assessment methods			
	Lecture	Online interactive discussion	Record video	Group discussion	Lab sessions	Problem solving	Self-learning	Periodical Exam	Practical/Tutorial	Written	Oral
Basic concepts of computer and information technology	√	√	√	√		√		√		√	√
Algorisms and flowcharting fundamentals	√	√	√	√		√		√		√	√
Introduction to computer programming	√	√	√	√		√		√		√	√
Selection statements in computer	√	√	√	√				√		√	√
For statement in computer	√	√	√	√		√		√		√	√
While statements in computer	√	√	√	√		√		√		√	√
Do-While statement in computer	√	√	√	√		√				√	√
Computer networks introduction	√	√	√	√		√				√	√
Applications of Computer networks	√	√	√	√						√	√
Inherent IoT	√	√	√	√		√				√	√
Applications of IoT in Pharmaceutical Manufacturing	√	√	√	√		√				√	√

Some computer applications (self-learning)	√	√	√	√		√	√			√	√
Application of Blockchain towards Pharmaceutical Industry	√	√	√	√		√				√	√

B) Practical Part:

Course Contents	**Teaching and Learning Methods**							**Assessment methods**			
	Lecture	**Online interactive discussion**	**Record video**	**Group discussion**	**Lab sessions**	**Problem solving**	**Self-learning**	**Periodical Exam**	**Practical/Tutorial**	**Written**	**Oral**
Basic concepts of computer and information technology		√	√	√	√	√			√		
Algorisms and flowcharting fundamentals		√	√	√	√	√			√		
Introduction to computer programming		√	√	√	√	√			√		
Selection statements in computer		√	√	√	√				√		
For statement in computer		√	√	√	√	√			√		
While statements in computer		√	√	√	√	√			√		
Do-While statement in computer		√	√	√	√	√			√		
Computer networks introduction		√	√	√	√	√			√		
Applications of Computer networks		√	√	√	√	√			√		

Inherent IoT		√	√	√	√	√			√		
Applications of IoT in Pharmaceutical Manufacturing		√	√	√	√	√			√		

Course Coordinator	**Ass. Prof. Dr. Mahmoud Mohamed Saafan**
Head of Department	**Prof. Dr. jenny Jeehan Mohamed Ahmed Nasr**

Date: 10/ 9/ 2023

بكالوريوس الصيدلة (فارم د – Pharm D)

Course Specification

Academic year: 2023/2024

Course name: Mathematics	اسم المقرر : الرياضيات
Academic Level: Level 1	المستوى الأكاديمي :الاول
Scientific department: Pharmacology and Toxicology	القسم العلمي : الأدوية والسموم
Head of Department: **Prof Dr Manar A Nader**	رئيس القسم : ا.د/ منار احمد نادر
Course Coordinator: Dr. Mohamed Elgamal	منسق المقرر : د/ محمد الجمل

University	**Mansoura**
Faculty	**Pharmacy**
Department offering the course	**Pharmacology and Toxicology**
Department supervising the course	**Pharmacology and Toxicology**
Program on which the course is given	**Bachelor in Pharmacy- Pharm D**
Academic Level	**Level one, first semester, 2022/2023**
Date of course specification approval	**7th September 2022**

A. Basic information: course data:

Course Title	Mathematics
Course Code	NP111
Prerequisite	——
Teaching credit Hours: Lecture	1
Teaching Credit Hours: Practical/ tutorial	——
Total Credit Hours	1

B. Professional Information:

1. Course Aims:

This course is designed to introduce students to:

- Functions and graphs, limits and continuity, differentiation, exponential, logarithmic, and trigonometric functions.
- Integration, basic differential equations, functions of several variables and problems related to them, probability and random variables, and hypothesis testing.

2- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- fundamental knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Demonstrate understanding of knowledge of basic mathematics.
1.1.5	1.1.5.1	Use information from fundamental mathematics to solve therapeutic calculations.
1.1.9	1.1.9.1	Carry out specific calculations to help solving pharmaceutical related problems.

Domain 2: Professional and Ethical Practice:

Program K. element no.	Course K. element no.	Course K. element
2.2.4	2.2.4.1	Mastering calculations to be used in the future prospects in pharmacy practice.

Domain 4: personal practice:

Program K. element no.	Course K. element no.	Course K. element
4.2.1	4.2.1.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities.
4.2.2	4.2.2.1	Use contemporary technologies and media to demonstrate effective presentation skills.
4.3.2	4.3.2.1	Encourage practicing self and independent learning.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	Differentiation	1
2	Differentiation	1
3	Differentiation	1
4	Functions and Domain	1

5	Functions and Domain	1
6	Functions and Domain	1
7	Logarithmic functions	1
8	Logarithmic functions	1
9	Logarithmic functions	1
10	Integration	1
11	Integration	1
12	Integration	1
13	Integration	1
14	Revision and quiz	1
15	**Final written exam**	-

4- Teaching and learning Methods:

	Teaching and learning Methods:	**Week .No**	**K. elements to be addressed**
4.1	Hybrid learning a. Lectures using Data show, power Point presentations b. Distance learning ● On line learning through my mans "Mansoura university "as recorded – video lectures ● Inter active discussion through My Mans	6,13	1.1.1, 1.1.5.1, 1.1.9.1, 2.2.4.1
4.2	Self-learning	13	4.2.1.1, 4.2.2.1, 4.3.2.1
4.3	Class Activity	8-12	1.1.1, 1.1.5.1, 1.1.9.1, 2.2.4.1, 4.2.1.1, 4.2.2.1, 4.3.2.1
4.4	Advanced lectures	1-12	1.1.1, 1.1.5.1, 1.1.9.1, 2.2.4.1, 4.2.1.1, 4.2.2.1, 4.3.2.1

5- Student Assessment:

a- Assessment Methods:

Assessment Methods	K. elements to be assessed
1-Written exam	1.1.1, 1.1.5.1, 1.1.9.1, 2.2.4.1, 4.2.1.1, 4.2.2.1, 4.3.2.1
2- Midterm exam	1.1.1, 1.1.5.1, 1.1.9.1, 2.2.4.1, 4.2.1.1, 4.2.2.1, 4.3.2.1

b- Assessment schedule:

Assessment 1	**Mid-term**	7^{th} -9^{th} week
Assessment 2	**Written**	15^{th} week

Weighting of assessments:

1.	**Mid-term examination**	25 %
2.	**Final-term examination**	75 %
Total		100 %

6- Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.

7- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	**Course notes**
2.	Recorded videos prepared by stuff members	**Videos on platform**
3.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	**Websites**

8- Matrix

A. Matrix of course content versus course k. elements:

Course contents / K. elements	Domain 1				Domain 2		Domain 4		
	1.1.1.1	1.1.5.1	1.1.9.1		2.2.4.1		4.1.2.1	4.2.2.1	4.3.2.1
Differentiation	✔	✔	✔		✔		✔	✔	
Functions and Domain		✔	✔				✔	✔	
Logarithmic functions		✔	✔				✔	✔	
Integration		✔	✔				✔	✔	

B. Matrix between course contents, methods of learning and assessment:

A) Theoretical Part:

Course Contents		Teaching and Learning Methods					Assessment methods		
		Advanced lecture	Hybrid learning	Self-learning	Class activity		Course Work (midterm)	Written	Oral
Differentiation		√	√				√	√	
Differentiation		√	√				√	√	
Differentiation		√	√				√	√	
Functions and Domain		√	√				√	√	
Functions and Domain		√	√					√	
Functions and Domain		√	√					√	
Logarithmic functions		√	√					√	
Logarithmic functions		√	√		√			√	
Logarithmic functions		√	√		√			√	
Integration		√	√		√			√	
Integration		√	√		√			√	

Integration		√	√		√			√	
Integration			√	√				√	

Course Coordinator	**Dr. Mohamed Elgamal**
Head of Department	**Prof Dr Manar A Nader**

Date: 7 / 9 / 2022

Course specification
2023- 2024
Pharm D Program
Faculty of Pharmacy
Mansoura University

بكالوريوس الصيدلة(فارم د –Pharm D)

Course Specification

Academic year: 2023/2024

Course name: Social issues	اسم المقرر: قضايا مجتمعية
Academic Level: Level 1	المستوى الأكاديمي: الأول
Supervision: Vice dean of education and student's affair	الإشراف: وكيل الكلية لشئون التعليم والطلاب **ا.د/ رشا محمد فتحى بروه**

Course specification
2023- 2024
Pharm D Program
Faculty of Pharmacy
Mansoura University

University	Mansoura
Program on which the course is given	**Bachelor's in pharmacy -Pharm D**
Academic Level	First Level, Second semester, 2023-2024
Date of course specification approval	**Sep 2023**

1- Basic Information: Course data:

Course Title	**Social issues**
Course Code	**UNVSl01**
Prerequisite	**Registration**
Teaching Hours: Lecture	1
Practical	--
Total Credit Hours	**1 (Credit H)**

2- Course Aims:

This course will provide an overview of how sociological concepts and approaches can be applied to the study of the causes and consequences of various social issues in contemporary society. Topics may include overpopulation, human rights, illiteracy, belonging, citizenship youth and society relationship, poverty, crime, violence, social isolation, urban decay, changes in the family, consumerism, and health disparities.

3- Course Learning Outcomes

Upon completing the course, the student will be able to dominate the following key elements.

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.1	**1.1.1.1**	Recognize the structural, systemic factors which affect the quality of life of persons of different ages, gender, social class, sexual orientation, disability, and racial/ethnic backgrounds.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.1	**2.1.1.1**	Evaluate explanations given by structural-functionalism, conflict, and symbolic interactionist perspectives concerning causes and consequences of social problems related to deviance, inequality, social institutions, and modernization.
2.1.2	**2.1.2.1**	Assess and describe social problems resulting from modernization, such as urbanization, population growth, environmental issues, changes in science and technology, and international conflict.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.3.1	**4.3.1.1**	Apply effective time management skills.
4.3.2	**4.3.2.1**	Practice self-learning to improve professional skills.
	4.3.2.2	Apply different strategies for adult learning to achieve illiteracy.

4- Course Contents

Week No.	Topics	Credit Hours
1-2	المشكلات المترتبة على الزيادة السكانية.	2
3-4	حقوق الإنسان.	2
5-6	الشفافية ومكافحة الفساد.	2
7-8	سماحة الأديان	2
9-10	آداب الحوار مع الاخر	2
11-12	التربية الإعلامية الرقمية	2
13-14	التنمية المستدامة والتحول الأخضر	2
15	Compensatory/ alternative lecture	1
16	Revision/quiz	1
17	Final written exam	-

5- Teaching and Learning Methods:

	Teaching and Learning Methods	Week	K. elements to be addressed
5.1	Developed lecture	1-16	1.1.1.1, 2.1.1.1, 2.1.2.1, 4.3.1.1, 4.3.2.1, 4.3.2.2
5.2	Hybrid learning	1-16	1.1.1.1, 2.1.1.1, 2.1.2.1, 4.3.1.1, 4.3.2.1, 4.3.2.2
5.3	Self-learning	1-16	1.1.1.1, 2.1.1.1, 2.1.2.1, 4.3.1.1, 4.3.2.1, 4.3.2.2

6- Student Assessment:

a- Assessment Methods:

1- عملي ميداني	**1.1.1.1, 2.1.1.1, 2.1.2.1, 4.3.1.1, 4.3.2.1, 4.3.2.2**
2- **Written exam**	**1.1.1.1, 2.1.1.1, 2.1.2.1, 4.3.1.1, 4.3.2.1, 4.3.2.2**

b- Assessment schedule

Assessment 1	عملي ميداني	1-16 weeks
Assessment 2	**Written**	17th week

c- Weighing of assessments

1	عملي ميداني	% 50
2	**Final-term examination**	% 50
Total		% 100

7- Facilities required for teaching and learning

Library	Books

Websites	http://www.ekb.eg http://www.google.com

8- Matrix of knowledge and skills of the course

Course contents	Outcomes Domains / Key elements								
	Domain 1		Domain 2			Domain 4			
	1.1.1.1		2.1.1.1	2.1.2.1		4.3.1.1	4.3.2.1	4.3.2.2	
المشكلات المترتبة على الزيادة السكانية.				√		√	√		
حقوق الإنسان.	√					√	√		
الشفافية ومكافحة الفساد.	√					√	√		
سماحة الأديان			√			√	√		
آداب الحوار مع الاخر			√			√	√		
التربية الإعلامية الرقمية						√	√	√	
التنمية المستدامة والتحول الأخضر						√	√	√	

9- List of References

No	Reference	Type
1.	http://www.ekb.eg http://www.google.com	Websites

Supervision:	**Vice dean of education and student's affair**
Course Coordinator	**Dr. Rasha Fathy Barwa**

Date: 9 /2023

بكالوريوس الصيدلة

(Pharm D – فارم د)

Course Specification

Academic year: 2023/2024

Course name: Pharmaceutical analytical chemistry 2	**اسم المقرر : كيمياء تحليلية صيدلية 2**
Academic Level: First	**المستوى الأكاديمي : الأول(فارم د)**
Scientific department: Pharmaceutical analytical chemistry	**القسم العلمي : الكيمياء التحليلية الصيدلية**
Head of Department: Prof. Dr. Jenny Jeehan Mohammed Nasr	**رئيس القسم : أ.د. جيني جيهان محمد نصر**
Course Coordinator: **Prof. Dr. Amina Mohammed El-Brashy**	**منسق المقرر : أ.د/ أمينة محمد البراشي**

University	**Mansoura**
Faculty	**Pharmacy**
Department offering the course	**Pharmaceutical analytical chemistry**
Department supervising the course	**Pharmaceutical analytical chemistry**
Program on which the course is given	**Bachelor in Pharmacy - Pharm D**
Academic Level	**First**
Date of course specification approval	**10/9/2023**

A-Basic Information: Course data:

Course Title	**Pharmaceutical analytical chemistry 2**
Course Code	**PA 122**
Prerequisite	**Registration**
Teaching Hours: Lecture	**2**
Teaching Credit Hours: Practical/ tutorial	**1**
Total Credit Hours	**3**

B-Professional Information:

Course Aims:

This course enables the students to:

1- **provide the basic concepts of quantitative chemical methods of analysis, including acid-base titration, non-aqueous titration, complexometric, precipitation titration**
2- **cover the application of these methods to pharmaceutical compounds.**

2- Course K. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- fundamental knowledge:

Program K. elements no	Course K. elements no	Course K. elements
(1.1.1)	(1.1.1.1)	Clarify the theory and principles of acid-base, non-aqueous, complexometric and precipitation methods of analysis.
(1.1.3)	(1.1.3.1)	Combine the principles of different analytical techniques for the estimation of chemicals and pharmaceutical compounds.

Domain 2: Professional and Ethical Practice:

Program K. elements no	Course K. elements	Course K. elements
(2.2.1)	(2.2.1.1)	Select and apply different analytical methods to analyze pharmaceutical materials
(2.2.3)	(2.2.3.1)	Demonstrate the principles of various analytical instruments used for the analysis of different raw materials and water resources.
(2.2.4)	(2.2.4.1)	Explain the principles of pharmaceutical calculations and their applications to pharmaceutical analysis.
(2.3.1)	(2.3.1.1)	Apply proper handling and disposal of chemical compounds.
(2.3.2)	(2.3.2.1)	Choose best practices and adhere to high ethical and safety standards for management of chemical compounds.

Domain 4: personal practice:

Program K. elements no	Course K. elements no	Course K. elements
(4.1.1)	(4.1.1.1)	Share decision-making activities with other pharmacy team members and nonpharmacy team members and apply effective time management skills.
(4.1.2)	(4.1.2.1)	Retrieve and analyze information to solve problems, and work individually or effectively in a team.
(4.2.2)	(4.2.2.1)	Apply artificial technology whenever possible to present relevant information.
(4.3.1)	(4.3.1.1)	Implement self-assessment to improve personal competencies.
(4.3.2)	(4.3.2.1)	Practice self-learning needed to improve professional skills

3- Course Contents:

Week No.	Topics	Hours
1	Acid- Base titrations; introduction, theory of acids and bases,	2
2	pH value and its significance, pH of different solutions, buffers,	2
3	Acid- base indicators, problems, types of acid- base titrations	2
4	Acid-base titration curves	2
5	Applications of acid- Base titration.	2
6	Non aqueous titrations.	2

7	**Application of Non aqueous titrations + self-learning.**	**2**
8	**Precipitation titration; introduction, solubility product constant (Ksp), factors affecting solubility of PPT, precipitation titration curve**	**2**
9	**Methods of precipitation titration and application.**	**2**
10	**Complexometric titration; introduction, EDTA titration, metallochromic indicators.**	**2**
11	**EDTA titration curve, types of EDTA titrations.**	**2**
12	**EDTA selectivity, analysis of mixtures of metal ions.**	**2**
13	**Analysis of metal mixtures**	**2**
14	**Analysis of metal mixtures (continued)**	**2**
15	**Compensatory and alternative lecture**	**2**
16	**Revision /quiz**	**2**
17	**Final Written and Oral Exam**	**--**
Week No.	**Practical topics**	**hours**
1	**Handling rules.**	**1**
2	**Determination of HCl.**	**1**
3	**Determination of NH_4Cl (Back titration)**	**1**
4	**Determination of (NH_4Cl & HCl) mixture**	**1**
5	**Determination of Na_2CO_3 / NaOH mixture.** **Determination of Na_2CO_3 / $NaHCO_3$ mixture.**	**1**
6	**Determination of phosphoric acid.**	**1**

7	**Determination of borax** **Determination of acetylsalicylic acid**	**1**
8	**Midterm**	**-**
9	**Determination of Acetic acid and hydrochloric acid mixture** **Demonstration in Biphasic titration**	**1**
10	**Complexometric determination of Ca^{2+}, Mg^{2+}**	**1**
11	**Determination of Ca^{2+} /Mg^{2+} mixture** **Determination of potash alum Al^{3+}**	**1**
12	**Determination of NaCl (Mohr's method).**	**1**
13	**Determination of NaBr (Volhard's method)**	**1**
14	**Determination of NaCl (Volhard's method)**	**1**
15	**Revision/activity**	**1**
15	**Practical Exam**	**1**

4- Teaching and Learning Methods:

NO.	Teaching and Learning Methods:	Week	K. elements to be addressed
4.1	**Computer aided learning:** **a. Lectures using Data show, power Point presentations** **b. Distance learning** **Online learning through my mans "Mansoura university "as recorded – video lectures**	**1-16**	**1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1, 4.1.2.1**

	Inter active discussion through My Mans		
4.2	**Self-learning**	**7**	**(4.3.2.1)**
4.3	**Practical session using chemicals and laboratory equipment and/ or tutorials**	**1-16**	**(1.1.1.1)** **(1.1.3.1)**
4.4	**Class Activity: Group discussion offline and online**	**5**	**(4.1.2.1)** **(4.1.1.1)**
4.5	**Problem – based learning and brainstorming**	**1,2**	**(4.1.2.1)** **(4.3.1.1)**

5- Student Assessment:

a-Assessment Methods:

Assessment Methods	K elements to be assessed
1- Periodical exam / Course work	**1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1,2.3.2.1, 2.2.4.1, 4.1.2.1,4.3.1.1, 4.3.2.1**
2-Practical exam applying OSPE	**2.2.4.1, 2.3.1.1, 4.1.2.1, 4.2.2.1, 4.3.2.1**
3-Written exam	**1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1, 4.1.2.1**
4-Oral	**1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.3.1, 2.2.4.1, 4.3.1.1, 4.1.2.1**

B-Assessment schedule

Assessment 1	**Periodical exam**	**7-9th week**
Assessment 2	**Practical**	**16th week**
Assessment 3	**Written**	**17th week**
Assessment 4	**Oral**	**17th week**

c-Weighing of assessments

1	Periodical examination	15%
2	Practical examination & Semester work	25%
3	Final-term examination	50%
4	Oral examination	10%
Total		100%

6- Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
- Laboratory facilities	Microscopes- chemicals- glass wares- white board

7- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos prepared by stuff members	Videos on platform
3.	Pharmaceutical Analytical Chemistry, Quantitative Analysis, Amer, M.M. Faculty of Pharmacy, Cairo University	Essential Book
4.	Fundamentals of Analytical Chemistry, Douglas A.; Skoog; Donald M., West, F. James Holler,Stanely, R.Crouch Thomson, Australia , 9th Edition (2013).	Essential Book
5.	Quantitative Chemical Analysis, Daniel C. Books Harris, 8th ed., W.H. Freeman and Company, New York (2011)	Essential Book

6.	**Vogel's Textbook of Quantitative Chemical Analysis, J. Mendham, M.A, MSc, C. Chem, M. RSC, 6th ed., India (2004)**	**Supplementary Textbooks**
7.	**http://www.sciencedirect.com /** **http://www.google scholar.com /** **http://www.pubmed.com** **https://www.ekb.eg**	**Websites**

8- Matrix:

Matrix 1. course content versus course k. elements:

Course contents / K. elements	Domain 1			Domain 2				
	1.1.1.1	1.1.3.1		2.2.1.1	2.2.3.1	2.2.4.1	2.3.1.1	2.3.2.1
Acid- Base titrations; introduction, theory of acids and bases.	✔	✔						
pH value and its significance, pH of different solutions, buffers.				✔	✔			
Acid- base indicators, problems, types of acid- base titrations.								
Acid-base titration curves.				✔	✔	✔	✔	
Applications of acid- Base titration.				✔	✔	✔	✔	
Non aqueous titrations	✔	✔						
Application of Non aqueous titrations + self-learning.	✔			✔				
Precipitation titration; introduction, solubility product constant (Ksp), factors affecting solubility of PPT, precipitation titration curve								
Methods of precipitation titration and application.					✔	✔	✔	
Complexometric titration; introduction, EDTA titration,	✔	✔						

metallochromic indicators.								
EDTA titration curve, types of EDTA titrations.	✔			✔	✔	✔	✔	
EDTA selectivity, analysis of mixtures of metal ions.	✔			✔				
Analysis of metal mixtures	✔			✔				
Analysis of metal mixtures (continued)	✔			✔				
B) Practical topics								
Handling rules.							✔	✔
Determination of HCl.								
Determination of NH_4Cl (Back titration) **Determination of (NH_4Cl & HCl) mixture**	✔	✔		✔	✔	✔		
Determination of Na_2CO_3 / NaOH mixture. **Determination of Na_2CO_3 / $NaHCO_3$ mixture.**		✔			✔	✔	✔	✔
Determination of phosphoric acid.		✔			✔			
Determination of borax **Determination of acetylsalicylic acid**					✔	✔		
Determination of Acetic acid and				✓	✓	✔	✔	

hydrochloric acid mixture **Demonstration in Biphasic titration**								
Complexometric determination of Ca^{2+}, Mg^{2+}					✔	✔		
Determination of Ca^{2+} /Mg^{2+} mixture **Determination of potash alum Al^{3+}**						✔	✔	
Determination of NaCl (Mohr's method).	✔	✔		✔		✔	✔	✔
Determination of NaBr (Volhard's method)	✔	✔		✔	✔		✔	✔
Determination of NaCl (Volhard's method) + Revision	✔	✔		✔	✔		✔	✔

Course contents / K. elements		Domain 4				
		4.1.1.1	4.1.2.1	4.2.2.1	4.3.1.1	4.3.2.1
Acid- Base titrations; introduction, theory of acids and bases,						
pH value and its significance, pH of different solutions, buffers.						
Acid- base indicators, problems, types of acid- base titrations.						
Acid-base titration curves.						
Applications of acid- Base titration.						
Non aqueous titrations						
Application of Non aqueous titrations + self-learning.						✔
Precipitation titration; introduction, solubility product constant (Ksp), factors affecting solubility of PPT, precipitation titration curve		✔	✔	✔		
Methods of precipitation titration and application.		✔	✔	✔		
Complexometric titration; introduction, EDTA titration, metallochromic indicators.		✔	✔	✔		
EDTA titration curve, types of EDTA titrations.		✔	✔	✔		✔
EDTA selectivity, analysis of mixtures of metal ions.		✔	✔	✔	✔	✔
Analysis of metal mixtures.		✔	✔	✔	✔	✔

Analysis of metal mixtures (continued)		✔	✔	✔	✔	✔
B) Practical topics						
Handling rules.						
Determination of HCl.						
Determination of NH_4Cl (Back titration) **Determination of (NH_4Cl & HCl) mixture**						
Determination of Na_2CO_3 / NaOH mixture. **Determination of Na_2CO_3 / $NaHCO_3$ mixture.**						
Determination of phosphoric acid.						
Determination of borax **Determination of acetylsalicylic acid**		✔	✔	✔	✔	✔
Determination of Acetic acid and hydrochloric acid mixture **Demonstration in Biphasic titration**		✔	✔			
Complexometric determination of Ca^{2+}, Mg^{2+}		✔	✔			
Determination of Ca^{2+} /Mg^{2+} mixture **Determination of potash alum Al^{3+}**		✔	✔			
Determination of NaCl (Mohr's method).		✔	✔			
Determination of NaBr (Volhard's method)		✔	✔			
Determination of NaCl (Volhard's method) + Revision		✔	✔			

Matrix 2. Between course contents, methods of learning and assessment

A) Theoretical Part:											
Course Contents	Teaching and Learning Methods								Assessment Methods		
	Lecture	Online interactive discussion	Record video	Group discussion	Lab sessions	Problem solving	Quiz	Self-learning	Practical/Tutorial	Written	Oral
Acid- Base titrations; introduction, theory of acids and bases.	√	√	√	√	√					√	√
pH value and its significance, pH of different solutions, buffers.	√	√	√	√	√		√			√	√
Acid- base indicators, problems, types of acid-base titrations.	√	√	√	√	√	√	√			√	√

Acid-base titration curves.	√	√	√	√	√	√	√			√	√
Applications of acid- Base titration.	√	√	√	√	√	√	√			√	√
Non aqueous titrations.	√		√	√						√	√
Application of Non aqueous titrations + self-learning.	√		√	√			√	√		√	√
Precipitation titration; introduction, solubility product constant (Ksp), factors affecting solubility of PPT, precipitation titration curve	√		√	√			√			√	√
Methods of precipitation titration and application.	√	√	√	√	√	√	√			√	√

Complexometric titration; introduction, EDTA titration, metallochromic indicators.	√		√	√					√	√
EDTA titration curve, types of EDTA titrations.	√		√	√	√		√		√	√
EDTA selectivity, analysis of mixtures of metal ions.	√		√	√	√		√		√	√	√
Analysis of metal mixtures	√	√	√	√	√	√	√		√	√	√
Analysis of metal mixtures (continued)	√	√	√	√	√	√	√		√	√	√

B) Practical Part:

Course Contents	Teaching and Learning Methods	Assessment methods

	B) Lecture	C) Online interactive discussion	D) Record video	E) Group discussion	F) Lab sessions	G) Problem solving	H) Quiz	I) Practical/Tutorial	J) Written	K) Oral
Handling rules.	√	√	√	√	√		√	√	√	√
Determination of HCl.	√	√	√	√	√		√	√	√	√
Determination of NH_4Cl (Back titration) **Determination of (NH_4Cl & HCl) mixture**	√	√	√	√	√	√	√	√	√	√
Determination of Na_2CO_3 / NaOH mixture. **Determination of Na_2CO_3 / $NaHCO_3$ mixture.**	√	√	√	√	√	√	√	√	√	√
Determination of phosphoric acid.	√	√	√	√	√	√	√	√	√	√
Determination of borax **Determination of acetylsalicylic acid**	√	√	√	√	√	√	√	√	√	√
Determination of Acetic acid and hydrochloric acid mixture **Demonstration in Biphasic titration**	√	√	√	√	√	√	√	√	√	√
Complexometric determination of Ca^{2+}, Mg^{2+}	√	√	√	√	√	√	√	√	√	√

Determination of Ca^{2+} /Mg^{2+} mixture **Determination of potash alum Al^{3+}**	√	√	√	√	√	√	√	√	√	√
Determination of NaCl (Mohr's method).	√	√	√	√	√	√	√	√	√	√
Determination of NaBr (Volhard's method)	√	√	√	√	√	√	√	√	√	√
Determination of NaCl (Volhard's method) + Revision	√	√	√	√	√	√	√	√	√	√

Course Coordinator	**Prof. Dr. Amina Mohammed El-Brashy**
Head of Department	**Prof. Dr. jenny Jeehan Mohamed Ahmed Nasr**

Approval Date: 10/9/2023

(Pharm D - فارم د)

بكالوريوس الصيدلة

Course Specification

Academic year: 2023/2024

Course name: **Pharmaceutical Organic Chemistry (2)** **PO122**	**اسم المقرر :** **الكيمياء العضوية الصيدلية (2)**
Academic Level: First Level	**المستوى الأكاديمي : الاول**
Scientific department: **Pharmaceutical Organic Chemistry**	**القسم العلمي :** **الكيمياء العضوية الصيدلية**
Head of Department: **Prof. Shahenda Metwally El-Messery**	**رئيس القسم :** **أ.د/ شاهنده متولي المسيري**
Course Coordinator: Prof. Hassan Eissa	**منسق المقرر: أ.د/ حسن عيسي**

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmaceutical Organic Chemistry
Program on which the course is given	Bachelor's Degree in Pharmacy - PharmD
Academic Level	First level, Second semester, 2023/2024
Date of course specification approval	10/09/2023

D- Basic Information: Course data:

Course Title	Pharmaceutical Organic Chemistry (2)
Course Code	PO122
Prerequisite	---
Teaching Hours/ week: Lecture:	2
Practical:	1
Total Credit Hours	3

E- Professional Information:

10- Course Aims:

This course enables the students to:

- **Provide students with the proper understanding of the chemical characteristics of different classes of organic compounds including nomenclature, methods of preparations, and reactions.**
- **Have a good idea about the chemical synthesis of different classes of organic compounds and their chemical transformation.**
- **Recognize the basics of the chemistry of biologically active molecules e.g. alcohols, amines, peptides, and proteins**.

2- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements:

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Outline the basic principles of pharmaceutical organic chemistry including nomenclature, physical and chemical properties, synthesis, and reactions of different classes of organic compounds.
1.1.3	1.1.3.1	Utilize the basics of organic chemistry to handle, identify, design, and prepare synthetic pharmaceutical intermediates and final products.
	1.1.3.2	Relate specific structural features of organic functional groups to possible synthesis, identification, and physicochemical properties

Domain 2: professional and ethical practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Identify different functional groups of organic compounds by performing suitable physicochemical identification tests.
2.2.3	2.2.3.1	Handle effectively and safely chemicals and equipment used for identification, synthesis, disposal of organic compounds.
2.5.3	2.5.3.1	Record data and write different practical and scientific chemical reports.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Work effectively independently and/or in a team.

11- Course Contents

B) Theoretical part

Week No.	Topics	Hours
1	Aromaticity and its concepts	2
2	Electrophilic aromatic substitution	2
3	Polynuclear aromatic hydrocarbons	2
4	Alcohols and Phenols (Self-Learning activity)	2
5	Thiols	2
6	Ethers	2
7	Epoxides	2
8	Aldehydes	2
9	Ketones	2
10	Carboxylic acids	2
11	Carboxylic acids Derivatives	2
12	Nitrogenous compounds (Nitro compounds and Amines)	2
13	Nitrogenous compounds (Diazonium salts)	2
14	Nitrogenous compounds (Amino acids)	2
15	Compensatory and alternative lecture	2
16	Revision and quiz	2
17	**Final Written and Oral Exam**	--

C) Practical part

Week No.	Topics	Hours
1	Identification of Aromatic HCs	1
2	Identification of Alcohols	1
3	Identification of Phenols	1
4	Identification of Aldehydes	1
5	Identification of Ketones	1

6	Identification of Aliphatic carboxylic acids and their salts	1
7	Identification of Aromatic carboxylic acids and their salts	1
8	Midterm exam	-
9	Identification of Esters	1
10	Identification of Amides and Imides	1
11	Identification of Aromatic amines	1
12	Identification of Aniline salts and anilides	1
13	Final Identification Scheme	1
14	Final Identification Scheme conti	1
15	Revision / activity	1
16	**Practical exam**	1

12- Teaching and Learning Methods:

Teaching and learning Methods		**Weeks**	**K. elements to be addressed**
4.1	**Lectures using data show**	**1-16**	**1.1.1.1 1.1.3.1 1.1.3.2**
4.1	**Computer aided learning: Interactive discussion through My Mans.**	**1-15**	**1.1.1.1 1.1.3.1 1.1.3.2**
4.2	**Practical session using chemicals and laboratory equipment**	**1-15**	**2.2.1.1 2.2.3.1 2.5.3.1**
4.3	**Self-learning**	**4**	**1.1.3.1 4.1.1.1**

13- Student Assessment:

e- Assessment Methods:

Assessment Methods	K elements to be assessed
1- Periodical (Mid-term exam / Course work)	**1.1.1.1, 1.1.3.1, 1.1.3.2, 2.2.1.1, 2.2.3.1, 2.5.3.1, 4.1.1.1.**
2-Practical exam using OSPE	**1.1.3.1, 2.2.1.1, 2.2.3.1, 2.5.3.1, 4.1.1.1.**
3- Written exam	**1.1.1.1, 1.1.3.1, 1.1.3.2, 2.2.1.1, 2.5.3.1**
4- Oral	**1.1.1.1, 1.1.3.1, 1.1.3.2.**

f- Assessment schedule:

Assessment 1	**Mid-term exam / Course work**	**7-9th week**
Assessment 2	**Practical exam using OSPE**	**16th week**
Assessment 3	**Written exam**	**Start from 17th week**
Assessment 4	**Oral exam**	**Start from 17th week**

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1	Periodical (Mid-term) exam / Course work	15%
2	Practical exam	25%
3	Final term written exam	50%
4	Oral examination	10%
Total		100%

14- Facilities required for teaching and learning.

- Classroom	Wi-Fi connections and molecular organic chemistry 3D models.
- Laboratory facilities	Projectors, chemicals, and glass wares.

15- List of References

No	Reference	Type
1.	Electronic course notes prepared by the department staff members	Course notes
2.	Solomons, G.T., Fryhle, C.B., Snyder, S.A. *Organic Chemistry*. Ed. 12th, John Wiley & Sons, Global edition, 2017.	Essential Book
3.	Carey, F.A., Giuliano, R.M., Allison, N., Bane, S. *Organic Chemistry*. Ed. 11th, New York, NY: McGraw-Hill, 2020.	Recommended Book
4.	McMurry, J.E. *Organic chemistry*. Ed. 9th, Australia: Cengage Learning, 2019.	Recommended Book
5.	Engel, R. G., Pavia, D. L., Lampman, G. M., Kriz, G. S. *A microscale approach to organic laboratory techniques*. Ed. 6th, Boston, MA: Cengage Learning, 2018.	Recommended Book
6.	▪ Egyptian Knowledge Bank: https://www.ekb.eg/web/guest/home ▪ Science Direct: https://www.sciencedirect.com ▪ Google Scholar: https://scholar.google.com ▪ Master Organic Chemistry: https://www.masterorganicchemistry.com	Website

8-Matrix:

Matrix 1. Course contents and course key elements

A) Theoretical part:

Course contents	Course Key elements						
	Domain: 1			Domain: 2			Domain: 4
	1.1.1.1	1.1.3.1	1.1.3.2	2.2.1.1	2.2.3.1	2.5.3.1	4.1.1.1
Aromaticity and its concepts	√	√	√				
Electrophilic aromatic substitution	√	√	√				
Polynuclear aromatic hydrocarbons	√	√	√	√	√	√	
Alcohols and Phenols + Self-Learning activity	√	√	√	√	√	√	
Thiols	√	√	√	√	√	√	√
Ethers	√	√	√	√	√	√	√
Epoxides	√	√	√	√	√	√	√
Aldehydes	√	√	√	√	√	√	√
Ketones	√	√	√	√	√	√	√
Carboxylic acids	√	√	√	√	√	√	√
Carboxylic acids Derivatives	√	√	√	√	√	√	√
Nitrogenous compounds (Nitro compounds	√	√	√	√	√	√	√

and Amines)							
Nitrogenous compounds (Diazonium salts)	√	√	√	√	√	√	√
Nitrogenous compounds (Amino acids)	√	√	√	√	√	√	√

B) Practical part:

Course contents	**Course Key elements**						
	Domain: 1			Domain: 2			Domain: 4
	1.1.1.1	**1.1.3.1**	**1.1.3.2**	**2.2.1.1**	**2.2.3.1**	**2.5.3.1**	**4.1.1.1**
Identification of Aromatic HCs				√	√	√	
Identification of Alcohols				√	√	√	
Identification of Phenols				√	√	√	
Identification of Aldehydes and Ketones				√	√	√	
Identification of Aliphatic carboxylic acids and their salts				√	√	√	√
Identification of Aromatic carboxylic acids and their salts				√	√	√	√
Identification of Esters				√	√	√	√
Identification of Amides and Imides				√	√	√	√
Identification of Aromatic amines				√	√	√	√

Identification of Aniline salts and Anilides				√	√	√	√
Final Identification Scheme and Revision 1				√	√	√	√
Final Identification Scheme and Revision 2				√	√	√	√

Matrix 2. Between course contents, methods of learning and assessment

A) Theoretical part:

Course Contents	**Teaching and Learning Methods**				**Assessment methods**			
	Lecture	Comp. aided learning	Lab sessions	Self-learning	Corse Work	Practical/Tutorial	Written	Oral
Aromaticity and its concepts	√	√			√		√	√
Electrophilic aromatic substitution	√	√			√		√	√
Polynuclear aromatic hydrocarbons	√	√			√		√	√
Alcohols and Phenols + Self-Learning activity	√	√		√	√		√	√
Thiols	√	√					√	√
Ethers	√	√					√	√
Epoxides	√	√					√	√
Aldehydes	√	√					√	√
Ketones	√	√					√	√
Carboxylic acids	√	√					√	√

Carboxylic acids Derivatives	√	√					√	√
Nitrogenous compounds (Nitro compounds and Amines)	√	√					√	√
Nitrogenous compounds (Diazonium salts)	√	√					√	√
Nitrogenous compounds (Amino acids)	√	√					√	√

B) Practical part:

Course Contents	Teaching and Learning Methods				Assessment methods			
	Lecture	Comp. aided learning	Lab sessions	Self-learning	Corse Work	Practical/Tutorial	Written	Oral
Identification of Aromatic HCs			√			√		
Identification of Alcohols			√			√		
Identification of Phenols			√			√		
Identification of Aldehydes and Ketones			√			√		
Identification of Aliphatic carboxylic acids and their salts			√			√		
Identification of Aromatic carboxylic acids and their salts			√			√		
Identification of Esters			√			√		
Identification of Amides and Imides			√			√		
Identification of Aromatic amines			√			√		

Identification of Aniline salts and Anilides			√			√		
Final Identification Scheme and Revision 1			√			√		
Final Identification Scheme and Revision 2			√			√		

Approval Date: 10/09/2023

Course Coordinator	**Prof. Hassan Eissa**
Head of Department	**Prof. Shahenda M. El-Messery**

(Pharm D - فارم د)

بكالوريوس الصيدلة

Course Specification

Academic year: 2023/2024

Course name: Cell biology	**اسم المقرر: بيولوجيا الخلية**
Academic Level: First level	**المستوى الأكاديمي: الأول**
Scientific department: Biochemistry	**القسم العلمي: الكيمياء الحيوية**
Head of Department: **Dr. Noha M.H. Abdel- Rahman**	**رئيس القسم: د/ نهى منصور حسن عبدالرحمن**
Course Coordinator: **Ass. Prof. Yousra El far**	**منسق المقرر:** **أ.م.د/ يسرا الفار**

University	**Mansoura**
Faculty	**Pharmacy**
Department offering the course	**Biochemistry**
Department supervising the course	**Biochemistry**
Program on which the course is given	**Bachelor in Pharmacy –Pharm D**
Academic Level	**Level one, Second Semester, 2023-2024**
Date of course specification approval	**16/9/2023**

Basic Information: Course data:

Course Title	Cell biology
Course Code	PB 121
Prerequisite	-
Teaching Hours/ week: Lecture	1
Teaching Credit Hours: Tutorial	1
Total Credit Hours	2

B. Professional Information:

1- Course Aims:

1. To provide comprehensive coverage of cell biology and subcellular organisms.

2. To learn the interrelationship between cell cycle, apoptosis, and cancer.

3. To study the cell signaling mechanisms.

4. To equip students with skills those are both of value to future employment in some areas of biology.

Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- Fundamental Knowledge

Program Key elements no.	Course Key elements no.	Course Key elements
(1.1.1)	(1.1.1.1)	Recall in-depth and breadth knowledge of biochemical and clinical sciences.
(1.1.2)	(1.1.2.1)	Recognize appropriate pharmaceutical and medical terminology, abbreviations and symbols in pharmacy practice
(1.1.5)	(1.1.5.1)	Identify and apply the principles, practice and critical understanding of fundamental sciences to solve problems related to human health and health systems.

Domain 2: Professional and Ethical Practice

Program Key elements no.	Course Key elements no.	Course Key elements
(2.3.1)	(2.3.1.1)	Select, and apply appropriate methods and procedures and resources for handling and disposal of synthetic/natural materials and biological items used in pharmacy.
(2.3.2)	(2.3.2.1)	Conduct best practices and adhere to high ethical, legal and safety standards for management of biological and pharmaceutical materials/products.

Domain 3: Pharmaceutical Care

Program Key elements no.	Course Key elements no.	Course Key elements
(3.1.1)	(3.1.1.1)	Identify different cell types and cell components and physiological, genetic, biochemical, metabolic and immunological changes brought about by disease or concomitant drug therapy.

(3.1.4)	**(3.1.4.1)**	**Illustrate the characters, epidemiology, pathogenesis, and clinical features of infections/diseases and cancers and their treatment, prevention and nutritional care.**

Domain 4: Personal Practice:

Program Key elements no.	Course Key elements no.	Course Key elements
(4.1.1)	**(4.1.1.1)**	**Share decision-making activities with other with other pharmacy team members and non-pharmacy team members and apply effective time management skills.**
(4.1.2)	**(4.1.2.1)**	**Collect information and analyze data, identify problems and present solutions, participate independently and collaboratively with other team members in the healthcare system.**
(4.2.1)	**(4.2.1.1)**	**Use clear language, pace, tone and non-verbal communication and writing skills when dealing with patients, other health team and communities.**
(4.2.2)	**(4.2.2.1)**	**Utilize advanced technologies and channels whenever possible to present relevant information.**
(4.3.1)	**(4.3.1.1)**	**Conduct self-evaluation strategies to manage and improve professional of pharmacy.**
(4.3.2)	**(4.3.2.1)**	**Promote continuous professional development by practicing self and independent learning.**

3- Course Contents:

Week No.	Topics	Credit Hours
1	**Mission and Vision of the Biochemistry Department** **Course Aims & Course Objectives** **Cell Biology** **Levels of Biological Organization**	**1**
2	**Subcellular Structures (Organelles)**	**1**
3	**Macromolecules- DNA-RNA**	**1**

4	**Gene expression and regulation**	**1**
5	**Biological membranes**	**1**
6	**Cell cycle**	**1**
7	**Cell cycle and Control**	**1**
8	**Apoptosis**	**1**
9	**Cell signaling**	**1**
10	**Cell communication**	**1**
11	**Cancer Cell**	**1**
12	**Stem cell biology**	**1**
13	**Cell motility- part 1**	**1**
14	**Cell motility- part 2**	**1**
15	**Compensatory and alternative lecture**	**1**
16	**Revision and quiz**	**1**
17	**Start of Final written and oral exam**	**-**
Week No.	**Practical/Tutorial topics**	**Practical credit hours**
1	**Microscopes: Types, parts, and specifications**	**1**
2	**Study of prokaryotic and Eukaryotic cells**	**1**
3	**Study of Plant and animal cells**	**1**
4	**Units, Amounts, Concentrations**	**1**
5	**Sub-Cellular Fractionation & Sub-cellular Fraction identification**	**1**
6	**Cell nucleus and Types of white blood cells**	**1**
7	**Antigen, Antibody and Blood grouping**	**1**
8	**Midterm exam**	**-**
9	**Types of blood cells (Red blood cells)**	**1**
10	**Types of blood cells (white blood cells)**	**1**
11	**Enzymes part 1**	**1**
12	Enzymes part 2	1
13	Study of cellular reproduction (mitosis)	1
14	Study of cellular reproduction (meiosis)	1
15	Revision and activity	1
16	Practical Exam (OSPE)	1

4- Teaching and learning Methods:

No	Teaching and Learning Methods	Week	K. elements to be addressed
4.1	Advanced lecture	1-16	1.1.1.1, 1.1.2.1, 1.1.5.1, 3.1.1.1, 3.1.4.1
4.2	Hybrid learning: On line learning through My mans "Mansoura university "	1-16	1.1.1.1, 1.1.2.1, 1.1.5.1, 3.1.1.1, 3.1.4.1, 4.1.2.1
4.3	Practical works and tutorials	1-15	1.1.5.1, 2.3.1.1, 2.3.2.1, 3.1.1.1, 4.1.1.1
4.4	Self-learning	13	4.1.1.1, 4.1.2.1, 4.3.1.1, 4.3.2.1
4.5	Presentation	2-8	4.3.1.1, 4.3.2.1

5- Student Assessment:

Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	**1.1.1.1, 1.1.2.1, 1.1.5.1**
2-Tutorial exam (OSPE)	**1.1.5.1, 2.3.1.1, 2.3.2.1, 4.1.1.1, 4.3.1.1, 4.3.2.1**
3-Oral exam	**1.1.1.1, 3.1.1.1, 3.1.4.1, 4.2.1.1**
4- Periodical (Mid-term exam) / Course work	**1.1.1.1, 1.1.2.1, 3.1.1.1, 4.1.1.1, 4.1.2.1, 4.3.1.1, 4.3.2.1**

Assessment schedule

Assessment 1	**Periodical (Mid-term exam) / Course work**	**7-9th week**
Assessment 2	**Tutorial exam**	**16th week**
Assessment 3	**Written exam**	**Starting from 17th week**
Assessment 4	**Oral exam**	**Starting from 17th week**

Weighing of assessments

1	**Periodical (Mid-term) exam / Course work**	**15%**
2	**Tutorial exam**	**25%**
3	**Final-term written examination**	**50%**

4	**Oral examination**	**10%**
Total		**100%**

6- Facilities required for teaching and learning

Classroom	**Data show- Computers, Internet, Platform**
Laboratory facilities	**Water baths, glassware, tools, microscopes**
Library	**Reference books**

7- List of References

No	Reference	Type
1.	**Electronic book prepared by staff members**	**Course notes**
2.	**Recorded videos prepared by stuff members**	**Videos on platform**
3.	**Molecular cell biology, by By Harvey Lodish, Arnold Berk, Chris A. Kaiser, Monty Krieger, Anthony Bretscher, Hidde Ploegh, Angelika Amon and Kelsey C. Martin, 8th edition, 2016.**	**Book**
4.	**Campbell Biology, byJane B. Reece, Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, Robert B. Jackson, 10th edition, 2019.**	**Book**
5.	**https://www.sciencedirect.com/science/article/pii/B9780128196410001572 http://usir.salford.ac.uk/id/eprint/2245/?template=banner https://pubmed.ncbi.nlm.nih.gov/1752361/ https://www.ekb.eg**	**websites**

8- Matrix 1. course content versus course k. elements:

Course contents	Outcomes Domains / Key elements												
	Domain: 1			Domain: 2		Domain 3		Domain: 4					
	1.1.1.1	1.1.2.1	1.1.5.1	2.3.1.1	2.3.2.1	3.1.1.1	3.1.4.1	4.1.1.1	4.1.2.1	4.2.1.1	4.2.2.1	4.3.1.1	4.3.2.1
Theoretical Part													
Mission &Vision of Biochemistry Department Course Aims &Objectives Cell Biology Cell Theory Levels of Biological Organization Subcellular Structures (Organelles)	√	√		√		√							
Macromolecules- DNA-RNA	√	√			√	√							

Gene expression and regulation	√		√	√	√	√							
Biological Membranes		√	√	√	√	√							
Cell cycle and Control	√		√		√	√	√						
Apoptosis	√		√	√		√	√	√			√		
Cell signaling and cell communication		√		√	√	√	√			√			√
Cancer Cell		√		√	√	√	√			√			√
Stem cell biology and cell motility	√			√	√		√			√		√	√
Tutorial part													
Microscopes: Types, parts, and specifications		√	√	√	√	√							
Study of	√		√	√	√	√	√						

prokaryotic, Eukaryotic, Plant and animal cells													
Units, Amounts, Concentrations	√		√	√	√	√	√						
Sub-Cellular Fractionation & Sub-cellular Fraction identification	√		√		√	√	√						
Cell nucleus and Types of white blood cells	√		√	√	√	√			√	√			
Antigen, Antibody and Blood grouping		√	√	√	√	√	√	√			√		
Types of blood cells (Red blood cells)	√		√	√	√	√	√		√			√	
Enzymes		√		√	√	√	√			√	√		

Study of cellular reproduction			√	√	√	√			√			√	
Revision	√		√	√	√	√			√	√	√	√	

Matrix 2. course contents, methods of learning and assessment

Theoretical Part									
Course contents	Teaching and learning methods					Assessment methods			
	Advance lectures	Hybrid leaning	Lab session	Self-learning	presentation	Corse Work	Practical	Written	Oral
Mission and Vision of the Biochemistry Department Course Aims & Course Objectives Cell Biology Levels of Biological Organization	√	√				√		√	√
Subcellular Structures (Organelles)	√	√				√		√	√
Macromolecules-DNA-RNA	√	√				√		√	√
Gene expression and regulation	√	√				√		√	√
Biological membranes	√	√				√		√	√
Cell cycle	√	√						√	√
Cell cycle and Control	√	√						√	√
Apoptosis	√	√						√	√
Cell signaling	√	√						√	√
Cell communication	√	√						√	√
Cancer Cell	√	√						√	√
Stem cell biology	√	√						√	√
Cell motility	√	√		√				√	√

part1									
Cell motility part2	√	√						√	√
Tutorial part									
Microscopes: Types, parts, and specifications			√				√		
Study of prokaryotic and Eukaryotic cells			√		√		√		
Study of Plant and animal cells			√		√		√		
Units, Amounts, Concentrations			√		√		√		
Sub-Cellular Fractionation & Sub-cellular Fraction identification			√		√		√		
Cell nucleus and Types of white blood cells			√		√		√		
Antigen, Antibody and Blood grouping			√		√		√		
Types of blood cells (Red blood cells)			√		√		√		
Enzymes			√				√		
Study of cellular reproduction (mitosis)			√				√		
Study of cellular reproduction (meiosis)			√				√		
Revision			√				√		

Course Coordinator	**Ass. Prof. Yousra El far**
	
Head of Department	**Dr. Noha M.H. Abdel- Rahman**
	

Date: 16/9/2023

بكالوريوس الصيدلة

(Pharm D– فارم د)

Course Specification

Academic year: 2023/2024

Course name: Anatomy & Histology	**اسم المقرر :التشريح وعلم الخلية**
Academic Level: Level 1	**المستوى الأكاديمي : الاول**
Scientific department: Pharmacology and Toxicology	**القسم العلمي : الأدوية والسموم**
Head of Department: **Prof Dr Manar A Nader**	**رئيس القسم :** **ا.د/ منار احمد نادر**
Course Coordinator: **Prof. Dr. Ghalia Mahfouz**	**منسق المقرر :** **أ. د/ غالية محفوظ**

University	**Mansoura**
Faculty	**Pharmacy**
Department offering the course	**Pharmacology and Toxicology**
Department supervising the course	**Pharmacology and Toxicology**
Program on which the course is given	**Bachelor in Pharmacy- Pharm D**
Academic Level	**Level 1, second semester, 2023/2024**
Date of course specification approval	**2023/9/18**

A. Basic Information: Course data:

Course Title	**Anatomy & Histology**
Course Code	**MD121**
Prerequisite	**Registration**
Teaching credit Hours: Lecture	**2**
Teaching Credit Hours: Practical/ tutorial	**1**
Total Credit Hours	**3**

B. Professional Information:

1. Course Aims:

Course description

Histology: Studying microscopic features of various tissues (epithelial, connective, cartilage, bone, muscular, and nervous tissue), heart& blood vessels. In addition to studying the practical points of identification of each tissue type.

Anatomy: Introduction to skeletal, muscular, and articular systems, fascia, nervous, cardiovascular, and lymphatic systems, digestive, respiratory, and urogenital systems, endocrine glands. Cytology: blood, liver, spleen, lung, kidney, lymph node, cardiac muscle, aorta, stomach, and intestine.

2- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- fundamental knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Realize knowledge of pharmaceutical, biomedical, administrative and clinical sciences
1.1.2	1.1.2.1	Utilize the proper pharmaceutical and medical terminology in pharmacy practice and recall names of drug.
1.1.4	1.1.4.1	List the mode of the action of drugs and their therapeutic effects as well as evaluate their suitability, efficacy and safety in individuals and populations.
1.1.5	1.1.5.1	List the principles and critical understanding of fundamental sciences to solve problems related to human health and health systems

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.3.1	2.3.1.1	Use suitable methods for disposal of natural or synthetic materials, biological and biotechnology-based items used in pharmacy
2.5.3	2.5.3.1	Use scientific principles of research and utilize systematic studies in the research

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.1	3.1.1.1	Apply a dosage regimen for a patient on the basis of physiological and immunological changes made by disease.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.3.2	4.3.2.1	Practice independent learning needed for continuous professional development.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	Introduction to human anatomy	2
2	Anatomy of skeletal and articular systems	2
3	Anatomy of skeletal and articular systems	2
4	Anatomy of digestive system	2
5	Anatomy of respiratory system	2
6	Anatomy of nervous system& cardiovascular	2
7	Histology of Epithelium &Connective tissue	2
8	Histology of Epithelium &Connective tissue	2
9	Histology of bone and Cartilage	2

10	Histology of muscular tissue	2
11	Histology of nervous tissue	2
12	Histology of cardiovascular system,	2
13	Digestive, respiratory and endocrine systems	2
14	Digestive, respiratory and endocrine systems, Self-learning	2
15	Compensatory and alternative lecture	2
16	Revision and quiz	2
Starting from 17	Final written and oral exam	-
Week No.	Practical topics	Practical credit hours
1.	Anatomy of skeletal and articular systems	1
2.	Anatomy of skeletal and articular systems	1
3.	Anatomy of digestive system	1
4.	Anatomy of respiratory system	1
5.	Anatomy of cardiovascular	1
6.	Anatomy of nervous system	1
7.	Types of epithelium &Connective tissues	1
8.	Midterm exam	-
9.	Types of epithelium &Connective tissues	1
10.	Types of bones (Compact & cancellous and types of cartilage (Hyaline, elastic &fibrocartilage)	1

11.	Types of muscular tissues (skeletal muscle , cardiac & smooth muscle)	1
12	Types of muscular tissues (skeletal muscle , cardiac & smooth muscle)	1
13	Anatomy of renal sytem	1
14	Anatomy of the liver	1
15	Revision and activity	1
16	Sheet / and Practical exam	-

4- Teaching and learning Methods:

Teaching and Learning Method		Week number	K. elements to be addressed
4.1	Advanced lectures: Lectures using Data show, power Point presentations Brain storming Group discussion	1-16	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.5.1, 2.3.1.1, 2.5.3.1, 3.1.1.1, 4.3.2.1
4.2	Hybrid learning Online learning through my Mans "Mansoura university " Interactive discussion through My Mans	1-16	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.5.1, 2.3.1.1, 2.5.3.1, 3.1.1.1, 4.3.2.1
4.3	Self-learning	14	4.3.2.1
4.5	Practical classes	1-16	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.5.1, 2.3.1.1, 2.5.3.1, 3.1.1.1, 4.3.2.1
5.5	Collaborative learning: research project	2-11	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.5.1, 2.3.1.1, 2.5.3.1, 3.1.1.1, 4.3.2.1

5- Student Assessment:

Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.5.1, 2.3.1.1, 2.5.3.1, 3.1.1.1
2-practical exam applying OSPE	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.5.1, 2.3.1.1, 2.5.3.1, 3.1.1.1, 4.3.2.1
3-Oral	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.5.1, 2.3.1.1, 2.5.3.1, 3.1.1.1, 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.5.1, 2.3.1.1, 2.5.3.1, 3.1.1.1, 4.3.2.1

b. Assessment schedule

Assessment 1	Periodical (Mid-term exam) / Course work	7th – 9th week
Assessment 2	Practical examination and tutorial	16th week
Assessment 3	Written exam	Starting from 17th week
Assessment 4	Oral exam	Starting from 17th week

c. Weighing of assessments

1	Periodical (Mid-term) exam / Course work	15%
2	Practical examination and tutorial	25%
3	Final-term written examination	50%
4	Oral examination	10%
Total		100%

6- Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
- Laboratory facilities	Microscopes- chemicals- glass wares- white board

7- List of References

No	Reference	Type
1.	**Electronic book prepared by staff members**	**Course notes**
2.	**Recorded videos prepared by staff members**	**Videos on platform**
3.	**Junqueira LC, Carneiro J: Basic Histology. Text andAtlas, 11th edition (2005), LANGE Mc Graw Hill, Chapter: 8, PP: 73-92.**	**Book**
4.	**Young B, Heath JW: WHEATER´s Functional Histology. A Text and Colour Atlas (2001). Churchill Livingstone.**	**Book**
5.	**Cunningham's anatomy. Gray's anatomy**	**Book**
6.	**http://www.sciencedirect.com /** **http://www.google scholar.com /** **http://www.pubmed.com** **https://www.ekb.eg**	**Websites**

8- Matrix of course content versus course k. elements:

Theoretical Part

Course contents / K. elements	Domain 1					Domain 3			Domain 3		Domain 4
	1.1.1.1	1.1.2.1	1.1.4.1	1.1.5.1		2.3.1.1	2.5.3.1		3.1.1.1		4.3.2.1
Introduction to human anatomy	√	√	√	√		√	√		√		
Anatomy of skeletal and articular systems	√	√	√	√		√	√		√		
Anatomy of skeletal and articular systems	√	√	√	√		√	√		√		
Anatomy of digestive system	√	√	√	√		√	√		√		
Anatomy of respiratory system	√	√	√	√		√	√		√		
Anatomy of nervous system& cardiovascular	√	√	√	√		√	√		√		
Histology of Epithelium &Connective tissue	√	√	√	√		√	√		√		√
Histology of Epithelium &Connective tissue	√	√	√	√		√	√		√		√
Histology of bone and Cartilage	√	√	√	√		√	√		√		√

Histology of muscular tissue	√	√	√	√		√	√		√		√
Histology of nervous tissue	√	√	√	√		√	√		√		√
Histology of cardiovascular system, Self-learning	√	√	√	√		√	√		√		√
Digestive, respiratory and endocrine systems	√	√	√	√		√	√		√		√
Digestive, respiratory and endocrine systems	√	√	√	√		√	√		√		√

Practical Part

Course contents /	Domain 1					Domain 3			Domain 3		Domain 4
K. elements	1.1.1.1	1.1.2.1	1.1.4.1	1.1.5.1		2.3.1.1	2.5.3.1		3.1.1.1		4.3.2.1
Anatomy of skeletal and articular systems	√	√	√	√		√	√		√		
Anatomy of skeletal and articular systems	√	√	√	√		√	√		√		

Anatomy of digestive system	√	√	√	√		√	√		√		
Anatomy of respiratory system	√	√	√	√		√	√		√		
Anatomy of cardiovascular	√	√	√	√		√	√		√		
Anatomy of nervous system	√	√	√	√		√	√		√		
Types of epithelium &Connective tissues	√	√	√	√		√	√		√		√
Types of epithelium &Connective tissues	√	√	√	√		√	√		√		√
Types of bones (Compact & cancellous and types of cartilage (Hyaline, elastic &fibrocartilage)	√	√	√	√		√	√		√		√
Types of muscular tissues (skeletal muscle , cardiac & smooth muscle)	√	√	√	√		√	√		√		√
Types of muscular tissues (skeletal muscle , cardiac & smooth muscle)	√	√	√	√		√	√		√		√
Anatomy of renal sytem	√	√	√	√		√	√		√		√
Anatomy of the liver	√	√	√	√		√	√		√		√

9- Matrix between course contents, methods of learning and assessment

A) Theoretical Part:

Course Contents	Teaching and Learning Methods						Assessment methods			
	Advanced Lecture	**Hybrid learning**	**Practical session**	**Collaborative learning**	**Self-learning**		**Course Work**	**Practical/Tutorial**	**Written**	**Oral**
Introduction to human anatomy	√						√		√	√
Anatomy of skeletal and articular systems	√						√		√	√
Anatomy of skeletal and articular systems	√						√		√	√
Anatomy of digestive system	√						√		√	√
Anatomy of respiratory system	√								√	√
Anatomy of nervous system& cardiovascular	√	√							√	√
Histology of Epithelium &Connective tissue	√								√	√
Histology of Epithelium &Connective tissue	√								√	√
Histology of bone and Cartilage	√								√	√
Histology of muscular tissue	√								√	√
Histology of nervous tissue	√								√	√
Histology of cardiovascular system, Self-learning	√								√	√

Digestive, respiratory and endocrine systems	√	√				√			√	√
Digestive, respiratory and endocrine systems	√	√				√			√	√

B) Tutorial Part:

Course Contents	Teaching and Learning Methods						Assessment methods			
	Advanced Lecture	Hybrid learning	Practical session	Collaborative learning: research project	Self-learning		Course Work	Practical/Tutorial	Written	Oral
Anatomy of skeletal and articular systems		√	√					√		
Anatomy of skeletal and articular systems		√	√	√			√	√		
Anatomy of digestive system		√	√	√			√	√		
Anatomy of respiratory system		√	√	√			√	√		
Anatomy of cardiovascular		√	√	√			√	√		
Anatomy of nervous system		√	√	√			√	√		
Types of epithelium &Connective tissues		√	√	√			√	√		
Types of epithelium &Connective tissues		√	√	√			√	√		

Types of bones (Compact & cancellous and types of cartilage (Hyaline, elastic &fibrocartilage)		√	√	√			√	√		
Types of muscular tissues (skeletal muscle , cardiac & smooth muscle)		√	√	√			√	√		
Types of muscular tissues (skeletal muscle , cardiac & smooth muscle)		√	√	√			√	√		
Anatomy of renal sytem		√	√				√	√		
Anatomy of the liver		√	√				√	√		

Course Coordinator	**Prof. Dr. Ghalia Mahfouz**
Head of Department	**Prof Dr Manar A Nader**

Date:18 /9 / 2023

(Pharm D - فارم د)

بكالوريوس الصيدلة

Course Specification

Academic year: 2023/2024

Course name: Physical pharmacy	اسم المقرر: الصيدلة الطبيعية
Academic Level: Level 1	المستوى الأكاديمي: الأول
Scientific department: Pharmaceutics	القسم العلمي: الصيدلانيات
Head of Department: **Prof. Dr. Irhan Ibrahim Abu Hashim**	رئيس القسم: أ.د/ إرهان إبراهيم أبوهاشم
Course Coordinator: **Prof. Dr. Khairy Elsayed Gabr Gabr**	منسق المقرر: أ.د/ خيري السيد جبر جبر

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmaceutics
Department supervising the course	Pharmaceutics
Program on which the course is given	**Bachelor in Pharmacy -Pharm D by law**
Academic Level	First level, second semester, 2023-2024
Date of course specification approval	September 2023

A- Basic Information: Course data:

Course Title	Physical Pharmacy
Course Code	PT 122
Prerequisite	**No**
Teaching Hours: Lecture	**2**
Practical	**1**
Total Credit Hours	**3 (Credit H)**

B. Professional Information:

1-Course Aims:

1. Providing students with knowledge of the basic principles of physicochemical properties essential for the design and formulation of pharmaceutical products.
2. Studying the fundamental concepts of Binding forces, states of matter and phase equilibrium.
3. Knowing the main principles of solubility, dissolution, colligative properties, and partition coefficient.
4. Recognizing surface and interfacial phenomena, surface-active agents, adsorption and its application in pharmacy and rheological behavior of dosage forms.

2- Course Learning Outcomes

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- fundamental knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Recognize the physical properties of various substances used in pharmaceutical and administrative sciences such as interfaces in pharmacy, solubility, and the colligative properties of solutions.
	1.1.1.2	Describe different type of flow of liquids and the methods applied for viscosity determination.
1.1.9	1.1.9.1	Describe and measure the physical parameters as surface tension, interfacial tension, viscosity, Hydrophilic-Lipophilic Balance (HLB), Colligative properties, and partition coefficient

Domain 2: professional and ethical practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Design, identify and analyze physically the different pharmaceutical materials.

Domain 4: personal practice

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Retrieve and critically analyze information, identify, and solve problems, and work autonomously and effectively in a team.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills

3-Course Contents

Week No.	Lecture topics	Lecture credit hours
1	**Surface and Interfacial phenomena** • **Introduction.** • **Surface and interfacial tensions.**	2
2	**Surface and Interfacial phenomena** • **Adsorption at Liquid Interfaces.**	2
3	**Surface and Interfacial phenomena** • **Adsorption at solid interfaces.**	2
4	**States of Matter** • **Binding forces between molecules.** • **The gaseous state of matter.**	2
5	**States of Matter** • **The liquid state of matter.** • **The solid and the crystalline state of matter.** • **The liquid crystalline state of matter.**	2
6	**States of Matter** • **Phase equilibria and the phase rule.**	2
7	**Rheology** • **Introduction.** • **Newtonian Systems and Non-Newtonian systems**	2
8	**Rheology** • **Thixotropy** • **Determination of rheologic properties.** • **Applications of rheology in pharmacy.**	2
9	**Solutions and Solubility** • **Solvent and solute.** • **Types of solutions.** • **Ideal and real solutions.**	2
10	**Solutions and Solubility** • **Solubility.** • **Types of solutions in liquid solvents.**	2
11	**Colligative properties and distribution phenomena.**	2
12	**Diffusion.**	2
13	**Dissolution.** • **(self-learning topic: USP dissolution Apparatus).**	2
14	**Distribution phenomena**	2
15	**Compensatory and alternative lecture**	2
16	**Revision and quiz**	2
17	**Final exam**	

Week No.	Practical topics	Practical credit hours
1	Determination of the relative surface tension of surfactant by stalagmometer.	1
2	Determination of the critical micelle concentration (CMC).	1
3	Micellar Solubilization.	1
4	Problems on Surface tension and spreading coefficient.	1
5	Problems on Adsorption	1
6	Adsorption of oxalic acid (OA) from aqueous solution by activated charcoal.	1
7	Adsorption of oxalic acid from aqueous solution by talc powder	1
8	Midterm exam	-
9	Determination of relative viscosity by Oswald viscometer	1
10	Determination of an average molecular weight of polymer by the viscosity method.	1
11	Problems on rheology.	1
12	Phase equilibria in two-component systems	1
13	Phase equilibria in three-component systems	1
14	Phase equilibria in three-component systems cont.	1
15	Revision and activity	1
16	**Practical Exam**	

4- Teaching and Learning Methods:

No	Teaching and learning Methods	Weeks	K. elements to be addressed
4.1	**Advanced lecture (brain storming)**	1-16	1.1.1.1, 1.1.1.2, 1.1.9.1, 2.2.1.1, 4.1.2.1
4.2	**Computer aided learning:** a. Lectures using Data show, power Point presentations b. Hybrid learning ● Online learning through my mans "Mansoura university" as recorded video lectures ● Online learning through my mans "Mansoura university" as recorded video of practical session Interactive discussion through My Mans.	1-16	1.1.1.1, 1.1.1.2, 1.1.9.1, 2.2.1.1

4.3	**Practical session using chemicals and laboratory equipment**	**1-16**	**1.1.1.1, 1.1.1.2, 1.1.9.1, 2.2.1.1, 4.1.2.1**
4.4	**Self-learning**	**13**	**4.1.2.1, 4.3.2.1**
4.5	**Collaborative learning: Research Project (Presentation)**	**13**	**1.1.1.1, 2.2.1.1, 4.1.2.1**

6- Student Assessment:

a- Assessment Methods:

1-Periodical (Mid-term exam) / Course work	1.1.1.1/ 1.1.9.1 / 2.2.1.1
2-Practical exam using OSPE	1.1.1.2 / 1.1.9.1 / 2.2.1.1 / 4.1.2.1
3-Written exam	1.1.1.1/ 1.1.1.2 / 1.1.9.1 / 2.2.1.1
4-Oral	1.1.1.1/ 1.1.1.2 / 1.1.9.1 / 2.2.1.1 / 4.1.2.1/4.3.2.1

b- Assessment schedule

Assessment 1	**Periodical (Mid-term exam)/Course work**	7-9th week
Assessment 2	**Practical applying OSPE**	16th week
Assessment 3	**Written**	Start from 17th week
Assessment 4	**Oral**	Start from 17th week
Other assessment		

c- Weighing of assessments

1	**Periodical (Mid-term exam)/Course work**	15%
2	**Practical examination & tutorial**	25%
3	**Final-term examination**	50%
4	**Oral examination**	10%
Total		100%

6- Facilities required for teaching and learning

Classroom	Data show- Computers, sound system-Internet, Platform
Laboratory facilities	Glassware, chemicals, electronic balance
Library	Books and Pharmacopoeia

7- List of books and references

No	Reference	Type
1.	Electronic book “Physical Pharmacy” prepared by staff members.	eBook

2.	"Martin Physical Pharmacy and Pharmaceutical Sciences" 7th Ed., Patrick J. Sinko, Lippincott Williams and Wilkins, Philadelphia (2016).	Essential Book
3.	Applied Physical Pharmacy, 2nd, Ed. Mansoor M. Amiji, Thomas J. Cook and W. Cary Mobley, McGraw-Hill Education, New York, Chicago, San Francisco, Athens, London, Madrid, Mexico City, Milan, New Delhi Singapore Sydney Toronto (2014).	Essential Book
4.	"Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems" 10th Ed., Wolters Kluwer, Loyd Allen, Howard C. Ansel, Lippincott Williams and Wilkins, Philadelphia, (2013).	Essential Book
5.	"Remington's: The science and practice of pharmacy" 22nd Ed., Pharmaceutical Press, Lippincott Williams and Wilkins, Philadelphia, (2012).	Essential Book
6.	"Aulton's Pharmaceutics: The design and manufacture of medicines" 6th ed, Ed., Kevin M.G and Michael E. Aulton, Elsevier (2022).	Essential Book
7.	http://www.sciencedirect.com / http://www.google.com / http://www.pubmed.com https://www.ekb.eg	Websites

8- Matrix of knowledge and skills of the course

Course contents	**Outcomes Domains / Key elements**							
	Domain 1				**Domain 2**		**Domain 4**	
	1.1.1.1	**1.1.1.2**	**1.1.9.1**		**2.2.1.1**		**4.1.2.1**	**4.3.2.1**
a. Theoretical Part								
Surface and Interfacial phenomena • **Introduction.** • **Surface and interfacial tensions.**	√		√		√			
Surface and Interfacial phenomena • **Adsorption at Liquid Interfaces.**	√		√		√			
Surface and Interfacial phenomena • **Adsorption at solid interfaces.**	√		√		√			
States of Matter • **Binding forces between molecules.** • **The gaseous state of matter.**					√			

States of Matter • **The liquid state of matter.** • **The solid and the crystalline state of matter.** • **The liquid crystalline state of matter.**					√			
States of Matter • **Phase equilibria and the phase rule.**					√			
Rheology • **Introduction.** • **Newtonian Systems and Non-Newtonian systems**		√	√		√			
Rheology • **Thixotropy** • **Determination of rheologic properties.** • **Applications of rheology in pharmacy.**		√	√		√			
Solutions and Solubility • **Solvent and solute.** • **Types of solutions.** • **Ideal and real solutions.**	√				√		√	
Solutions and Solubility • **Solubility.** • **Types of solutions in liquid solvents.**	√				√		√	
Colligative properties	√		√		√		√	
Diffusion.			√		√		√	
Dissolution. • **(self-learning topic: USP dissolution Apparatus).**			√		√			√
Distribution phenomena	√		√		√		√	
b. Practical Part								
Determination of the relative surface tension of surfactant by stalagmometer.	√		√		√			
Determination of the critical micelle concentration (CMC).	√		√		√			
Micellar Solubilization.	√		√		√			
Problems on Surface tension and spreading coefficient.							√	

Problems on Adsorption							√	
Adsorption of oxalic acid (OA) from aqueous solution by activated charcoal.	√		√		√		√	
Adsorption of oxalic acid from aqueous solution by talc powder	√		√		√		√	
Determination of relative viscosity by Oswald viscometer		√	√		√		√	
Determination of an average molecular weight of polymer by the viscosity method.		√	√		√		√	
Problems on rheology.							√	
Phase equilibria in two-component systems	√				√		√	
Phase equilibria in three-component systems	√				√		√	

9- Matrix between course contents and methods of learning and assessment

A. Theoretical Part

Course Content	Teaching and learning methods				Assessment methods		
	Advanced lecture	Distance learning	Self-learning	Collaborative learning:	Periodical/Course work	Written	Oral
Surface and Interfacial phenomena • **Introduction.** • **Surface and interfacial tensions.**	√				√	√	√
Surface and Interfacial phenomena • **Adsorption at Liquid Interfaces.**	√				√	√	√
Surface and Interfacial phenomena • **Adsorption at solid interfaces.**	√				√	√	√
States of Matter • **Binding forces between molecules.**	√				√	√	√

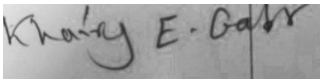
Course Content	Teaching and learning methods				Assessment methods		
	Advanced lecture	Distance learning	Self-learning	Collaborative learning:	Periodical/Course work	Written	Oral
• The gaseous state of matter.							
States of Matter • The liquid state of matter. • The solid and the crystalline state of matter. • The liquid crystalline state of matter.	√					√	√
States of Matter • Phase equilibria and the phase rule.	√					√	√
Rheology • Introduction. • Newtonian Systems and Non-Newtonian systems	√	√				√	√
Rheology • Thixotropy • Determination of rheologic properties. • Applications of rheology in pharmacy.	√					√	√
Solutions and Solubility • Solvent and solute. • Types of solutions. • Ideal and real solutions.	√					√	√
Solutions and Solubility • Solubility. • Types of solutions in liquid solvents.	√					√	√
Colligative properties	√					√	√
Diffusion.	√					√	√

Course Content	Teaching and learning methods				Assessment methods		
	Advanced lecture	Distance learning	Self-learning	Collaborative learning:	Periodical/Course work	Written	Oral
Dissolution. • **(self-learning topic: USP dissolution Apparatus).**			√	√		√	√
Distriubution phenomena	√					√	√

B. Practical Part

Course Content	Teaching and learning methods		Assessment methods	
	Distance learning	Practical works and tutorials	Periodical / Course work	Practical
Determination of the relative surface tension of surfactant by stalagmometer.	√	√	√	√
Determination of the critical micelle concentration (CMC).	√	√	√	√
Micellar Solubilization.	√	√	√	√
Problems on Surface tension and spreading coefficient.	√	√	√	√
Problems on Adsorption	√	√		√
Adsorption of oxalic acid (OA) from aqueous solution by activated charcoal.	√	√		√
Adsorption of oxalic acid from aqueous solution by talc powder	√	√		√
Determination of relative viscosity by Oswald viscometer	√	√		√
Determination of an average molecular weight of polymer by the viscosity method.	√	√		√
Problems on rheology.	√	√		√
Phase equilibria in two-component systems.	√	√		√

Phase equilibria in two-component systems	√	√		√

Course Coordinator	**Prof. Dr. Khairy Elsayed Gabr Gabr**
	
Head of Department	**Prof. Dr. Irhan Ibrahim Abu Hashim**
	

Date: 20/ 9 / 2023

بكالوريوس الصيدلة (فارم د – Pharm D)

Course Specification

Academic year: 2023/2024

Course name: Pharmacognosy -1	**اسم المقرر: عقاقير-1**
Academic Level: First	**المستوى الأكاديمي : الاول**
Scientific department: Pharmacognosy	**القسم العلمي : العقاقير**
Head of Department: **Prof. Dr. Mahmoud F. Elsebai**	**رئيس القسم : أ. د./ محمود فهمي السباعي**
Course Coordinator: **Prof. Dr. Elsayed Shaker Mansour**	**منسق المقرر : ا. د. السيد شاكر منصور**

University	**Mansoura**
Faculty	**Pharmacy**
Department offering the course	**Pharmacognosy**
Department supervising the course	**Pharmacognosy department**
Program on which the course is given	**Bachelor in pharmacy - Pharm D**
Academic Level	**Level 1, Second semester, 2023/2024**
Date of course specification approval	**6/9/2023**

A. Basic Information: Course data:

Course Title	**Pharmacognosy-1**
Course Code	**PG122**
Prerequisite	**Registration**
Teaching Hours/ week: Lecture	**2**
Teaching Credit Hours: Practical/ tutorial	**1**
Total Credit Hours	**3**

B. Professional Information:

1 . Course Aims:

This course enables the students to:

1. Upon completion of the course, the student will be able to learn the basic of pharmacognosy, different plant parts leaves, barks and flowers containing active constituents.

2. The student will be able to differentiate between different leaves and flowers morphologically and microscopically.

3. Medicinal uses of some plants and active constituents

.2- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements.

Domain 1- Fundamental Knowledge

Program K. element no	Course K. element no	Course K. elements
1.1.1	1.1.1.1	Outline the basic knowledge of macroscopical and microscopical characters of some medicinal leaves, flowers, barks and seeds.
1.1.2	1.1.2.1	List the appropriate geographical and botanical origin of the studied medicinal plants
1.1.3	1.1.3.1	Identify the principles of physical, chemical and microscopical characters in preparation of medicines and herbal mixtures from different plant organs as leaves, flowers, barks and seeds.
1.1.4	1.1.4.1	Illustrate main active constituents of the studied medicinal plants as well as their therapeutic effects and safety

Domain 2: Professional and Ethical Practice

Program K. element no	Course K. element no	Course K. elements
2.2.1	2.2.1.1	Analyze and evaluate the natural pharmaceutical materials from different origins as leaves, flowers, barks and seeds.
2.2.2	2.2.2.1	Conduct principles of quality control guidelines related to pharmaceutical industry of the herbal products from different sources in addition to possible interactions with some synthetic prescribed medications.
2.3.1	2.3.1.1	Utilize the appropriate methods to identify the active constituents of the target plants, their purity in pharmaceutical preparations as well as their handling and disposal.

Domain 4: Personal Practice:

Program K. element no	Course K. element no	Course K. elements
(4.1.1)	(4.1.1.1)	Work effectively in a team and demonstrate time management ability
(4.2.1)	(4.2.1.1)	Communicate effectively in a scientific language by verbal and written means regarding in the field of health care and medicinal plants regarding the studied topics.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	**Introduction to pharmacognosy, Leaves of Senna and Digitalis.** "Origin, active constituent, powder examination, and transverse section"	2
2.	**Leaves of Guajava, Eucalyptus and Rosemary.** "Transverse section, isolated elements, and medicinal use"	2
3.	**Leaves of Hyoscyamus, Datura and Belladonna.** "Origin, common active constituents and use, surface preparation and powder examination".	2
4.	**Introduction of the flower, Flowers of Chamomile and Santonica.** "Flower definition and structure, longitudinal section, isolated elements and use".	2
5.	**Flowers of Calendula, sunflower and Hibiscus.** "Origin, key elements, use and active constituents".	2
6.	**Flowers of Rose, Saffron and Safflower.** "Origin, active constituents and powder examination".	2
7.	**Flowers of Pyrethrum, clove and Tilia.** "Origin, active constituents and powder examination"	2
8.	**Introduction of Bark, Barks of Cinnamon and Cassia.** "Definition and composition of bark, Transverse section and powder examination"	2
9.	**Barks of Cinchona, Cascara, Frangula, Salix, Pomegranate, Wild cherry and quillaia.** "Origin, active constituents, medicinal use and powder examination.	2
10.	**Medicinal wood and Gall.** "Transverse, tangential longitudinal and radial longitudinal sections of wood,	2

	Origin of gall and their medicinal uses".	
11.	**Seeds.** (**self-learning**) "Definition and composition of seed, types of seeds and ovule".	2
12	**Seeds of Fenugreek and, Black Mustard.**	2
13	**Seeds of Cardamom and Nutmeg**	2
14	**Seeds of Linseed and Nux-vomica.**	2
15	**Compensatory and alternative lecture**	2
16	**Revision and quiz**	2
17	**Final written and oral exam**	--

Week No.	**Practical topics**	**Practical credit hours**
1.	**Senna, Guajava and Digitalis.** "Transverse section, isolated elements, active constituents and medicinal use"	1
2.	**Solanaceous leaves (Datura, Belladonna, Hyoscyamus).** "Origin, common active constituents and use, surface preparation and powder examination".	1
3.	**Mentha, Thymus, Rosemary.** " Origin, Transverse section, isolated elements, and medicinal use".	1
4.	**Clove, hibiscus.** Origin, active constituents, pharmacological use and powder examination".	1
5.	**Calendula, Santonica, Chamomile, Pyrethrum.** "Origin, key elements, use and active constituents".	1
6.	**Cinchona, Cassia and Cinnamon.** "Definition and composition of bark, Transverse section and powder examination"	1
7	**Quassia, Gall.** "Transverse, tangential longitudinal and radial longitudinal sections of wood, Origin of gall and their medicinal uses".	1
8	**Midterm exam**	-
9.	Seeds. "Definition and composition of seed, types of seeds and ovule".	1
10.	**Seeds of Fenugreek and, Black Mustard.**	1
11	**Seeds of Cardamom.**	1

12	**Seeds of Nutmeg.**	1
13	**Seeds of Linseed.**	1
14	**Seeds of Nux-vomica.**	1
15	**Revision and activity**	1
16	**Sheet exam / Practical exam** (OSPE)	-

4- Teaching and Learning Methods:

	Teaching and Learning Methods	Week No.	**K. elements to be addressed**
5.1	Lectures using Power point (PPT) presentations and whiteboard	1-16	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.4.1, 2.2.1.1, 2.2.2.1, 2.2.4.1, 4.1.1.1, 4.2.1.1
5.2	Computer aided learning: a. Online learning through my mans "Mansoura university "as recorded – video lectures b. Inter active discussion through My Mans	1-16	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.4.1, 2.2.1.1, 2.2.2.1, 2.2.4.1, 4.1.1.1, 4.2.1.1
5.3	Self-learning	12	1.1.1.1, 1.1.2.1, 1.1.3.1
5.4	Group discussion	3-6, 9-11	1.1.1.1, 1.1.2.1 1.1.3.1, 1.1.4.1
5.5	Practical session using laboratory equipment	1-11	1.1.3.2, 2.2.1.1, 2.3.1.1, 2.2.2.1, 4.2.1.1.

5- Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.4.1, 2.2.1.1, 2.2.2.1, 2.2.4.1
2-Practical exam applying OSPE	1.1.3.2, 2.2.1.1, 2.3.1.1, 2.2.2.1, 4.2.1.1.
3-Oral	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.4.1, 2.2.1.1., 2.3.1.1, 4.2.1.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1,1.1.2.1 1.1.3.1, 1.1.4.1, 2.2.1.1, 2.3.1.1, 2.2.2.1

c. Assessment schedule

Assessment 1	Mid-term	7-9th week
Assessment 2	Practical	16th week
Assessment 3	Written	Start from 17th week
Assessment 4	Oral	Start from 17th week

c. Weighing of assessments

1	Mid-term examination & Semester work	15%
2	Practical examination and tutorial	25%
3	Final-term examination	50%
4	Oral examination	10%
Total		100%

6-Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
- Laboratory facilities	Microscopes- chemicals- glass wares- white board

7- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	**Course notes**
2.	Recorded videos prepared by stuff members	**Videos on platform**
3.	Evans, W.C "Trease and Evans". "Pharmacognosy" 16th edition, Saunders Ltd, 2009	**Textbook**
4.	Amer, M.M., Maatooq, G.T., Marzouk, A.M., Baraka, H.N., Illustrated Botany, Amer printiing press (2009)	**Textbook**
5.	Berg, L., Introductory Botany, Plants, People and the Environment, Thomson Higher Education, USA (2008)	**Textbook**
6.	T.E. "Text Book of Pharmacognosy" 17th edition, CBS Publisher and Distributors, India, 2014	**Textbook**

7.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	**websites**

8-Matrix 1. Course contents and course key elements

Course contents	Course Key Elements								
	Domain: 1				Domain: 2			Domain: 4	
	1.1.1.1	**1.1.2.1**	**1.1.3.1**	**1.1.4.1**	**2.2.1.1**	**2.2.2.1**	**2.2.4.1**	**4.1.1.1**	**4.2.1.1**
A) Theoretical part									
Introduction to pharmacognosy, Leaves of Senna and Digitalis. "Origin, active constituent, powder examination, and transverse section"		√			√		√		
Leaves of Guajava, Eucalyptus and Rosemary. "Transverse section, isolated elements, and medicinal use" **Leaves of Hyoscyamus, Datura and Belladonna.** "Origin, common active constituents and use, surface preparation and powder examination".	√		√	√	√	√			
Introduction of the flower, Flowers of		√			√		√		

Chamomile and Santonica. "Flower definition and structure, longitudinal section, isolated elements and use".									
Flowers of Calendula, sunflower and Hibiscus. "Origin, key elements, use and active constituents**".** **Flowers of Rose, Saffron and Safflower.** "Origin, active constituents and powder examination**".** **Flowers of Pyrethrum, clove and Tilia.** "Origin, active constituents and powder examination"	√		√	√	√	√		√	
Introduction of Bark, Barks of Cinnamon and		√			√		√		√

Cassia. "Definition and composition of bark, Transverse section and powder examination"									
Barks of Cinchona, Cascara, Frangula, Salix, Pomegranate, Wild cherry and quillaia. "Origin, active constituents, medicinal use and powder examination.	√		√	√	√	√		√	√
Medicinal wood and Gall. "Transverse, tangential longitudinal and radial longitudinal sections of wood, Origin of gall and their medicinal uses".	√		√	√	√	√		√	√
Seeds. (self-learning) "Definition and composition of seed, types of seeds and ovule".		√			√		√		√
Seeds of Fenugreek, Black Mustard and Cardamom. Seeds of Nutmeg, Linseed and Nux-vomica.	√	√	√		√	√	√	√	

Course contents	Course Key Elements								
	Domain: 1				Domain: 2			Domain: 4	
	1.1.1.1	1.1.2.1	1.1.3.1	1.1.4.1	2.2.1.1	2.2.2.1	2.2.4.1	4.1.1.1	4.2.1.1
B) Practical part									
Senna, Guajava and Digitalis. "Transverse section, isolated elements, active constituents and medicinal use"		√			√		√		
Solanaceous leaves (Datura, Belladonna, Hyoscyamus). "Origin, common active constituents and use, surface preparation and powder examination".	√		√	√	√	√			
Mentha, Thymus, Rosemary. " Origin, Transverse section, isolated elements, and medicinal use".		√			√		√		
Clove, hibiscus. Origin, active constituents, pharmacological use and powder	√		√	√	√	√		√	

examination".									
Calendula, Santonica, Chamomile, Pyrethrum. "Origin, key elements, use and active constituents".		√			√		√		√
Cinchona, Cassia and Cinnamon. "Definition and composition of bark, Transverse section and powder examination"	√		√	√	√	√		√	√
Quassia, Gall. "Transverse, tangential longitudinal and radial longitudinal sections of wood, Origin of gall and their medicinal uses".	√		√	√	√	√		√	√
Seeds. "Definition and composition of seed, types of seeds and ovule".		√			√		√		√
Seeds of Fenugreek, Black Mustard and Cardamom.		√			√		√		√
Seeds of Nutmeg, Linseed and Nux-vomica.		√			√		√		√
Revision	√		√	√	√	√		√	√

9-Matrix 2. between course contents, methods of learning and assessment

A) Theoretical Part:										
Course Contents	**Teaching and Learning Methods**						**Assessment methods**			
	Lecture	Online lecture	Lab sessions	Problem solving	Case Study	Self-learning	Corse Work	Practical/Tutorial	Written	Oral
Introduction to pharmacognosy, Leaves of Senna and Digitalis. "Origin, active constituent, powder examination, and transverse section"	√		√				√		√	√
Leaves of Guajava, Eucalyptus and Rosemary. "Transverse section, isolated elements, and medicinal use" **Leaves of Hyoscyamus, Datura and Belladonna.** "Origin, common active constituents and use, surface preparation and powder examination**".**	√		√				√		√	√
Introduction of the flower, Flowers of Chamomile and Santonica. "Flower definition and structure, longitudinal section, isolated elements and use".	√		√						√	√
Flowers of Calendula, sunflower and Hibiscus.	√		√				√		√	√

"Origin, key elements, use and active constituents". **Flowers of Rose, Saffron and Safflower.** "Origin, active constituents and powder examination". **Flowers of Pyrethrum, clove and Tilia.** "Origin, active constituents and powder examination"										
Introduction of Bark, Barks of Cinnamon and Cassia. "Definition and composition of bark, Transverse section and powder examination"	√		√						√	√
Barks of Cinchona, Cascara, Frangula, Salix, Pomegranate, Wild cherry and quillaia. "Origin, active constituents, medicinal use and powder examination.	√		√						√	√
Medicinal wood and Gall. "Transverse, tangential longitudinal and radial longitudinal sections of wood, Origin of gall and their medicinal uses".	√		√						√	√
Seeds. (self-learning) "Definition and composition of seed, types of seeds and ovule".	√		√			√			√	√
Seeds of Fenugreek, Black Mustard and Cardamom. Seeds of Nutmeg, Linseed and Nux-vomica.	√		√						√	√

B) Practical Part:

Course Contents	Teaching and Learning Methods						Assessment methods			
	Lecture	Online lecture	Lab sessions	Problem solving	Case Study	Self-learning	Corse Work	Practical/Tutorial	Written	Oral
Senna, Guajava and Digitalis. "Transverse section, isolated elements, active constituents and medicinal use"			√					√		
Solanaceous leaves (Datura, Belladonna, Hyoscyamus). "Origin, common active constituents and use, surface preparation and powder examination".			√					√		
Mentha, Thymus, Rosemary. " Origin, Transverse section, isolated elements, and medicinal use".			√					√		
Clove, hibiscus. Origin, active constituents, pharmacological use and powder examination".			√					√		
Calendula, Santonica, Chamomile, Pyrethrum. "Origin, key elements, use and active constituents".			√					√		
Cinchona, Cassia and Cinnamon. "Definition and composition of bark, Transverse section			√					√		

and powder examination"										
Quassia, Gall. "Transverse, tangential longitudinal and radial longitudinal sections of wood, Origin of gall and their medicinal uses".			√					√		
Seeds. "Definition and composition of seed, types of seeds and ovule".			√					√		
Seeds of Fenugreek, Black Mustard and Cardamom.			√					√		
Seeds of Nutmeg, Linseed and Nux-vomica.			√					√		
Revision			√					√		

Course Coordinator	**Prof. Dr. Elsayed Shaker Mansour**
	
Head of Department	**Prof. Dr. Mahmoud F. Elsebai** 

Date: 6 / 9 / 2023

بكالوريوس الصيدلة (فارم د – Pharm D)

Course Specification

Academic year: 2023/2024

Course name: Psychology	**اسم المقرر** : علم النفس
Academic Level: first level	**المستوى الأكاديمي:** الأول
Department supervising the course: biochemistry	**القسم المشرف علي التوصيف :** الكيمياء الحيويه
Acting Head of Department: Dr. Noha M.H. Abdel-Rahman	**قائم بعمل رئيس مجلس القسم:** د. نهى منصورحسن عبد الرحمن
Course Coordinator: Prof. Dr. Mohamed Elwasify	**منسق المقرر :** أ.م.د/ محمد الوصيفي

University	Mansoura
Faculty	Pharmacy
Department offering the course	biochemistry
Department supervising the course	biochemistry
Program on which the course is given	Bachelor in Pharmacy-Pharm D
Academic Level	Level first, second semester, 2023/2024
Date of course specification approval	16/9/2023

A. Basic Information: Course data:

Course Title	Psychology
Course Code	UR123
Prerequisite	-
Teaching credit Hours: Lecture	1
Teaching Credit Hours: Practical/ tutorial	-
Total Credit Hours	1

B. Professional Information:

1. Course Aims:

This course enables the students to:

- Understand different principles, theories and vocabulary of psychology as a science.
- Know with basic concepts of social psychology, medical sociology and interpersonal communication which relate to the pharmacy practice system that involves patients, pharmacists, physicians, nurses and other health care professionals.
- Know Psychophysics of Perception

2- Course k. elements:

Upon completing the course, the student will be able to dominate the following key elements

Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.1	1.1.1.1	Recognize in-depth and breadth knowledge of pharmaceutical, biomedical, nutritional, social, behavioral, administrative, and clinical sciences.
1.1.6	1.1.6.1	Access, retrieve, critically analyze and apply relevant scientific literature and other scientific resources including s to make evidence-informed professional decisions.
1.1.8	1.1.8.1	Use health informatics to improve the quality of health and nutritional care, manageresources and optimize patient safety and understand metabolic disorders.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.3.2	**4.3.2.1**	**Promote continuous professional development by practicing self and independent learning.**

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	Perception	1
2	Intelligence	1
3	Communication skills	1
4	Attention	1
5	Memory pharmacy	1
6	Motivation	1
7	Stress	1

8	Sleep	1
9	Learning	1
10	Personality	1
11	Development	1
12	Language acquisition	1
13	Social psychology- part1	1
14	Social psychology- part2	1
15	Compensatory and alternative lecture	1
16	Revision and quiz	1
17	**Start of Final written exam**	-

4- Teaching and learning Methods:

No	Teaching and learning Methods	Week	K. elements to beaddressed
4.1	Advanced lecture	1-16	1.1.1.1, 1.1.6.1, 1.1.8.1
4.2	Hybrid learning	1-16	1.1.1.1, 1.1.6.1, 1.1.8.1, 4.3.2.1
4.3	Self-learning	13	1.1.1.1, 4.3.2.1
4.4	Case study	8,9	1.1.8.1
4.5	Problem – based learning	6,7	1.1.1.1, 4.3.2.1

5- Student Assessment:

h- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1, 1.1.6.1,1.1.8.1
2- Periodical (Mid-term exam) / Course work	1.1.1.1, 4.3.2.1

b. Assessment schedule

Assessment 1	Periodical (Mid-term exam) / Course work	7-9th week
Assessment 2	Written exam	Start from 17th week

c. Weighing of assessments

1	Periodical (Mid-term) exam / Course work	25%
2	Final-term written examination	75%
Total		100%

6-Facilities required for teaching and learning

-Class room	**Data show- Computers, Internet.**
Library	**Reference books** **Benson, N., Ginsburg, J., Grand, V., Lazyan, M., & Weeks, M. (2012). The psychology book: Big ideas simply explained. Gabal.**

7- List of References

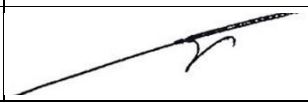
No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos prepared by staff members	Videos on platform
3.	https://www.ekb.eg	Websites

8- Matrix 1. course content versus course k. elements:

Course contents / K. elements	Domain 1					Domain 4
	1.1.1.1	1.1.6.1	1.1.8.1			4.3.2.1
Perception	✓	✓				
Intelligence			✓			
Communication skills	✓					
Attention			✓			
Memory pharmacy		✓				
Motivation Stress	✓					✓
Sleep Learning	✓	✓	✓			
Personality Development	✓					
Language acquisition		✓	✓			
Social psychology	✓					✓

Matrix 2. course contents, methods of learning, and assessment

Course contents	Teaching and learning methods					Assessment methods			
	Advance lectures	Hybrid leaning	Self-learning	Case study	Problem – based learning	Corse Work	Practical	Written	Oral
Perception	√	√				√		√	
Intelligence	√	√				√		√	
Communication skills	√	√				√		√	
Attention	√	√				√		√	
Memory pharmacy	√	√				√		√	
Motivation	√	√			√	√		√	
Stress	√	√			√	√		√	
Sleep	√	√		√				√	
Learning	√	√		√				√	
Personality	√	√						√	
Development	√	√						√	
Language acquisition	√	√						√	
Social psychology part1	√	√	√					√	
Social psychology part2	√	√						√	

Course Coordinator	Prof. Dr. Mohamed Elwasify
Acting Head of Department	Dr. Noha M.H. Abdel-Rahman
	

Date: 16/9/2023

بكالوريوس الصيدلة (فارم د – **Pharm D**)

Course Specification

Academic year: 2023/2024

Course name: **Communication and Presentation Skills.**	**اسم المقرر:** **مهارات التواصل والتقديم**
Academic Level: 1**st level**	**المستوى الأكاديمي :المستوى الاول**
Scientific department: Clinical Pharmacy and Pharmacy Practice	**القسم العلمي:** **الصيدلة الإكلينيكية والممارسة الصيدلية**
Head of Department: **Prof. Dr. Mohamed El-husseiny Shams**	**رئيس القسم: أ.د/ محمد الحسيني شمس**
Course Coordinator: **Dr. Mona M. Eltamalawy**	**منسق المقرر :** **د/ منى محمد الطملاوي**

University	**Mansoura**
Faculty	**Pharmacy**
Department offering the course	**Clinical Pharmacy and Pharmacy Practice**
Department supervising the course	**Clinical Pharmacy and Pharmacy Practice**
Program on which the course is given	**Bachelor in Pharmacy-Pharm D by law**
Academic Level	**2023-2024First level, second semester,**
Date of course specification approval	**7th September 2023**

1- Basic Information: Course data:

Course Title	**Communication and Presentation skills**
Course Code	**UR 124**
Prerequisite	**-**
Teaching Hours: Lecture	**1**
Practical	**0**
Total Credit Hours	**1(Credit H)**

2-Course Aims:

The course aims to:

1. **Transfer necessary communicaion skills both oral and written to pharmacy students.**
2. **Improve presentation skills of pharmacy students.**
3. **Enhance inter- and intra-professional collaboration and communication with health care providers and patients.**

3- Course Key Elements

Upon completing the course, the student will be able to dominate the following key elements

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.2.	1.1.2.1	Identify major processes of communication.
	1.1.2.2	Illustrate different strategies of communication.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.3	2.1.3.1	Conduct rules of good presentation and communication with other members in healthcare team while, respecting the boundaries and responsibilities of others.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Work in team and perform proper managerial, peer review tasks.
4.2.1	4.2.1.1	Communicate verbally, and non-verbally with health care professionals, patients, and publics.

Course Contents

Theoretical part:

Week No.	Topics	Hours
1	Basic concepts in human communication	1
2	Major Processes of Communication	1
3	Interpersonal communication skills	1
4	Communication Strategies	1
5	Non-verbal communication	1
6	A short guide to Presentation skills	1
7	Top characteristics of Oral Presentation	1
8	Top characteristics of Oral Presentation (cont.)	1
9	Communication of Pharmacists and Patients (self-learning)	1
10	Effective presentation design	1
11	Effective presentation design (cont.)	1
12	Effective presentation delivery	1
13	Tips for making oral Presentation part 1	1
14	Tips for making oral Presentation part 2	1
15	Compensatory and alternative lecture	1
16	Revision and quiz	1
17	Final Theoretical Exam	--

4- Teaching and Learning Methods:

	Teaching and Learning Methods	Weeks	K. elements to be addressed
5.1	**Computer aided learning:** **a. Lectures using Data show, power Point presentations** **b. Distance learning** ● **Online learning through my mans "Mansoura university "as recorded – video lectures** ● **Inter active discussion through My Mans**	**1-16**	**1.1.2.1/ 1.1.2.2/ 2.1.3.1**
5.2	**Self-learning**	**9**	**4.1.1.1/ 4.2.1.1**
5.3	**Class Activity: Group discussion offline and online.**	**9**	**4.1.1.1/ 4.2.1.1**
5.4	**Problem–based learning and brainstorming**	**9**	**4.1.1.1/ 4.2.1.1**

6- Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.2.1, 1.1.2.2, 2.1.3.1, 4.1.1.1, 4.2.1.1
2- Periodical (Mid-term exam) / Course work	1.1.2.1, 1.1.2.2, 2.1.3.1, 4.1.1.1, 4.2.1.1

b- Assessment schedule

Assessment 1	**Periodical/Mid-term**	7-9th week
Assessment 2	**Written**	Starting from 17th week

c- Weighing of assessments

1	**Mid-term examination / Class work**	25%
2	**Final-term examination**	75%
Total		100%

7- Facilities required for teaching and learning

Classroom	Data show- Computers, Internet, Platform
Library	Books and mobile applications

8- Matrix of knowledge and skills of the course

Course contents	Course Key Elements				
	Domain: 1		Domain: 2	Domain: 4	
	1.1.2.1	1.1.2.2	2.1.3.1	4.1.1.1	4.2.1.1
Theoretical part					
Basic concepts in human communication	√	√	√	√	
Major Processes of Communication	√	√	√	√	
Interpersonal communication skills	√	√	√	√	
Communication Strategies	√	√	√	√	
Non-verbal communication	√	√	√	√	
A short guide to Presentation skills			√	√	
Top characteristics of Oral Presentation			√	√	
Top characteristics of Oral Presentation (cont.)			√	√	
Communication of Pharmacists and Patients			√	√	√
Effective presentation design			√	√	

Effective presentation design			√	√	
Effective presentation delivery			√	√	
Tips for making oral Presentation part 1			√	√	
Tips for making oral Presentation part 2			√	√	

Matrix 2. between course contents, methods of learning and assessment

Theoretical Part:										
Course Contents	**Teaching and Learning Methods**						**Assessment methods**			
	Lecture	Online lecture	Lab sessions	Problem solving	Case Study	Self-learning	Corse Work	Practical/Tutorial	Written	Oral
Basic concepts in human communication	√						√		√	
Major Processes of Communication	√						√		√	
Interpersonal communication skills	√						√		√	
Communication Strategies	√						√		√	

Non-verbal communication	√								√	
A short guide to Presentation skills	√								√	
Top characteristics of Oral Presentation	√								√	
Top characteristics of Oral Presentation (cont.)	√								√	
Communication of Pharmacists and Patients	√			√		√			√	
Effective presentation design	√								√	
Effective presentation design	√								√	
Effective presentation delivery	√								√	
Tips for making oral Presentation part 1	√								√	
Tips for making oral Presentation part 2	√								√	

9- List of References

No	Reference	Type
1.	**Lecture notes prepared by teaching by professors**	Course notes
2.	**Recorded videos prepared by stuff members**	**Videos on platform**
3.	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	websites

Course Coordinator	**Dr. Mona El-tamalawy**
	Dr. Mona El-tamalawy
Head of Department	**Prof. Dr. Mohamed El-husseiny Shams** **Dr. Mohamed El-husseiny Shams** *M.Shams*

Date: 7 /9 /2023