



Mansoura University
Faculty of Pharmacy
Pharm D-Clinical Pharmacy Program



Course specification
2023- 2024

توصيف مقررات

برنامج الصيدلة الاكلينيكية لائحة فارم دي

للعام الجامعي 2024/2023



Mansoura University
Faculty of Pharmacy
Pharm D-Clinical Pharmacy Program



Course specification
2023- 2024

<u>المستوى الثانى</u>		
No	اسم المقرر	كود المقرر
1	Pharmaceutical Organic Chemistry-III	PC 305
2	Biochemistry I	PB302
3	Pharmacognosy II	PG 303
4	Pharmacy Legislation and practice ethics	PT 303
5	Physiology and pathophysiology	MD 303
6	Pharmaceutical dosage forms I	PT 304
7	Communication and presentation Skills	UR4
8	Basic Pharmacology	PO 301
9	General Microbiology and Immunology	PM 401
10	Instrumental Analysis	PC406
11	Pathology	MD 404
12	Pharmaceutical Dosage Forms-II	PT 405
13	Biochemistry II	PB 403



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بكالوريوس الصيدلة (فارم د - Pharm D)
Course Specification
Academic year: 2023/2024

Course name: Pharmaceutical Organic Chemistry-3	اسم المقرر : الكيمياء العضوية الصيدلانية-3
Academic Level: level 2	المستوى الأكاديمي الثاني :
Scientific department: Pharmaceutical Organic Chemistry	القسم العلمي : الكيمياء العضوية الصيدلانية
Head of Department: Prof. Dr. Shahenda Metwally EL-Messery	رئيس القسم : أ.د/ شاهنده الميسيري
Course Coordinator: Prof. Dr. Khalid B. Selim	منسق المقرر : أ.د/ خالد بشير سليم



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University	Mansoura
Faculty	Faculty of Pharmacy
Department offering the course	Pharmaceutical Organic Chemistry
Department supervising the course	Pharmaceutical Organic Chemistry
Program on which the course is given	Pharm D-Clinical Pharmacy Program
Academic Level	Second Level, first semester, 2023-2024
Date of course specification approval	9th September, 2023

A- Basic Information: Course data:

Course Title	Pharmaceutical Organic Chemistry-3
Course Code	PC 305
Prerequisite	Pharmaceutical Organic Chemistry-1
Teaching credit Hours: Lecture:	2
Practical:	1
Total Credit Hours	3

B- Professional Information:

1- Course Aims:

This course enables the students to:

- understand the basic principles of organic chemistry concerning structures, nomenclature, preparation, properties and reactions of different heterocyclic compounds.
- Gaining the basic aspects of structure elucidation of simple organic compounds.
- Recognizing the method of interpretation of spectroscopic data of different organic compounds.
- Acquire skills about laboratory techniques for separation of binary mixture and determining the physical constants and chemical reactions of the two unknown organic compounds of different classes, present in a mixture of two components
- Identify and perform practical synthesis of some organic compounds (one step synthesis).



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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
1.1.3	1.1.3.1	Combine and integrate knowledge from fundamental sciences to identify, design and prepare different synthetic heterocyclic pharmaceutical materials and their clinical applications.

Domain 2: professional and ethical practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Synthesize, identify and design synthetic pharmaceutical materials from different origins.
2.2.3	2.2.3.1	Show the ability to use lab equipment to identify and design synthetic processes for raw materials and finished pharmaceutical products..
2.5.3	2.5.3.1	Apply scientific principles of research and systematic approaches in the search for best available chemical pathways to identify organic compounds in a mixture and prepare organic compounds in good yield.

Domain 3: pharmaceutical care

Program K. element no.	Course K. element no.	Course K. element
3.2.1	3.2.1.1	Integrate the spectroscopic and pharmacological properties of drugs including proper synthesis and therapeutic uses.



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Domain 4: personal practice

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Apply effective time management skills for identifying different unknown organic compounds and reaction pathways.
4.1.3	4.1.3.1	Demonstrate creativity in applying entrepreneurial skills in chemical synthesis of different organic compounds and analyze their spectroscopic data.
4.3.2	4.3.2.1	Practice dependent learning to develop professional learning skills.

3- Course Contents

A) Theoretical part

Week No	Topics	Hours
1	Infrared Spectroscopy	2
2	Nuclear Magnetic Resonance Spectroscopy ($^1\text{H-NMR}$)	2
3	Nuclear Magnetic Resonance Spectroscopy ($^1\text{H-NMR}$ & $^{13}\text{C-NMR}$)	2
4	Mass Spectroscopy - Deduction of Chemical Structure Using Spectroscopic Data.	2
5	Nomenclature and classification	2
6	Five-Membered Heterocycles with one heteroatom: Pyrrole, Furan & Thiophen and their derivatives	2
7	Fused Five-Membered Heterocycles: indole & isoindole Five-Membered Heterocycles with two nitrogen atoms: Pyrazole & Imidazole and their derivatives	2
8	Five-Membered Heterocycles with two different heteroatoms: Oxazole & thiazole Benzo-fused Diazoles: benzimidazole	2
9	Six-Membered Heterocycles with one nitrogen atom: Pyridine and its derivatives Fused benzopyridines: Quinoline & isoquinoline and their derivatives	2
10	Six-Membered Heterocycles with two nitrogen atoms: Pyridazine, pyrimidine & pyrazine. Fused benzodiazines: phthalazine, quinazoline & quinoxaline	2



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	and their derivatives	
11	Protein	2
12	Continue proteins& introduction to carbohydrates	2
13	Continue carbohydrates & self-learning	2
14	Revision and quiz	2
15	Final Written and Oral Exam	--

B) Practical part

Week No	Topics	Hours
1	UV Spectroscopy	1
2	IR problems	1
3	H-NMR problems	1
4	¹³ C-NMR & MS problems	1
5	Applications on deducing chemical structure from spectral data	1
6	Lab problems, methods of purification	1
7	Ethyl acetate, synthesis & spectral analysis	1
8	Midterm exam	-
9	Azo dye, synthesis & spectral analysis	1
10	Nitrotoluene, synthesis & spectral analysis	1
11	Nitronaphthalene, synthesis & spectral analysis	1
12	Iodoform & Osazone, synthesis & spectral analysis	1
13	Osazone, Benzotriazole synthesis & spectral analysis	1
14	Practical exam	1



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4- Teaching and Learning Methods:

Teaching and Learning Methods		Week No.	K. elements to be addressed
4.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning <ul style="list-style-type: none">On line learning through my mans "Mansoura university" as recorded – video lecturesInter active discussion through My Mans	1-14	1.1.3.1, 2.2.1.1 2.2.3.1, 2.5.3.1 3.2.1.1,4.1.1.1
4.2	Self-learning	13	4.1.3.1, 4.3.2.1
4.3	Practical session using chemicals and laboratory equipment and/ or tutorials	1-14	1.1.3.1, 2.2.1.1 2.2.3.1, 2.5.3.1 3.2.1.1, 4.1.1.1 4.1.3.1, 4.3.2.1
4.4	Class Activity: Group discussion	4, 13	4.1.3.1, 4.3.2.1
4.5	Problem – based learning and brainstorming/ Research assignments	4,7,13	3.2.1.1



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5- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.3.1, 2.2.1.1, 2.2.3.1, 2.5.3.1, 4.1.1.1, 4.1.3.1
2-Practical exam applying OSPE	2.2.1.1, 2.2.3.1, 2.5.3.1, 3.2.1.1, 4.1.3.1, 4.3.2.1
3-Oral exam	1.1.3.1, 2.2.1.1, 2.2.3.1, 2.5.3.1, 4.1.1.1, 4.1.3.1
4- Periodical (Mid-term exam) / Course work	1.1.3.1, 2.2.1.1, 2.2.3.1, 2.5.3.1, 4.1.1.1, 4.1.3.1, 4.3.2.1

b- Assessment schedule:

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

c- Weighing of assessment:

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

6- Facilities required for teaching and learning.

-Class room	Data show- Computers, Internet.
- Laboratory facilities	Water baths, flames, glassware, condensers, filter papers chemical reagents, white Boards



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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	Practical Skill in Chemistry. By John RDean, Alan M. Jones, David Holmes, Rob Reed, Jonathan Weyers and Allan Jones. Pearson Education Limited	Book
4	Mc Murry, J. in organic chemistry, 8th ed. (2011), Brooks/Cole, London	Book
5	Vogel's Textbook of Practical Organic Chemistry (5th Edition), A.I. Vogel, A.R. Tatchell, B.S. Furnis, A.J. Hannaford, P.W.G. Smith	Book
6	Organic Chemistry, T. W. Graham Solomons, Craig B. Fryhle, Scott A. Snyder, 12 th Edition (2016).	Book
7.	http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg http://www.chemsink.com/reactions/ http://www.chem.qmul.ac.uk/iupac/	websites



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8-Matrix:

Matrix 1. Course contents and course key elements

A) Theoretical part:

Course contents	Course Key elements							
	Domain: 1	Domain: 2			Domain: 3	Domain: 4		
	1.1.3.1	2.2.1.1	2.2.3.1	2.5.3.1	3.2.1.1	4.1.1.1	4.1.1.2	4.1.1.2
Infrared Spectroscopy	√		√		√	√	√	√
Nuclear Magnetic Resonance Spectroscopy (¹ H-NMR)	√		√		√	√	√	√
Nuclear Magnetic Resonance Spectroscopy (¹ H-NMR & ¹³ C-NMR)	√		√		√	√	√	√
Mass Spectroscopy - Deduction of Chemical Structure Using Spectroscopic Data.	√		√		√	√	√	√
Nomenclature and classification	√		√		√	√	√	√
Five-Membered Heterocycles with one heteroatom: Pyrrole, Furan & Thiophen and their derivatives	√		√		√	√	√	√



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Fused Five-Membered Heterocycles: indole & isoindole			√		√	√	√	√
Five-Membered Heterocycles with two nitrogen atoms: Pyrazole & Imidazole and their derivatives	√							
Five-Membered Heterocycles with two different heteroatoms: Oxazole & thiazole	√		√		√	√	√	√
Benzo-fused Diazoles: benzimidazole								
Six-Membered Heterocycles with one nitrogen atom: Pyridine and its derivatives	√		√		√	√	√	√
Fused benzopyridines: Quinoline & isoquinoline and their derivatives								
Six-Membered Heterocycles with two nitrogen atoms: Pyridazine, pyrimidine & pyrazine.	√		√		√	√	√	√
Fused benzodiazines: phthalazine, quinazoline & quinoxaline and their derivatives								
Protein	√	√				√		
Continue proteins& introduction to carbohydrates	√	√				√		
Continue carbohydrates & self-learning	√		√			√	√	√

B) Practical part:



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Course contents	Course Key elements							
	Domain: 1	Domain: 2			Domain: 3	Domain: 4		
	1.1.3.1	2.2.1.1	2.2.3.1	2.5.3.1	3.2.1.1	4.1.1.1	4.1.1.2	4.3.2.1
UV Spectroscopy	√				√	√	√	√
IR problems	√				√	√	√	√
H-NMR problems	√				√	√	√	√
¹³ C-NMR & MS problems	√				√	√	√	√
Applications on deducing chemical structure from spectral data	√			√	√	√	√	√
Lab problems, methods of purification	√		√	√		√	√	√
Ethyl acetate, synthesis & spectral analysis	√	√	√			√	√	√
Azo dye, synthesis & spectral analysis	√	√	√			√	√	√
Nitrotoluene, synthesis & spectral analysis	√	√	√			√	√	√
Nitronaphthalene, synthesis & spectral analysis	√	√	√			√	√	√
Iodoform & Osazone, synthesis & spectral analysis	√	√	√			√	√	√
Osazone, Benzotriazole synthesis & spectral analysis	√	√	√			√	√	√



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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
Infrared Spectroscopy	√					√		√	√
Nuclear Magnetic Resonance Spectroscopy (¹ H-NMR)	√					√		√	√
Nuclear Magnetic Resonance Spectroscopy (¹ H-NMR & ¹³ C-NMR)	√					√		√	√
Mass Spectroscopy - Deduction of Chemical Structure Using Spectroscopic Data.	√					√		√	√
Nomenclature and classification	√							√	√
Five-Membered Heterocycles with one heteroatom: Pyrrole, Furan & Thiophen and their derivatives	√							√	√



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Fused Five-Membered Heterocycles: indole & isoindole Five-Membered Heterocycles with two nitrogen atoms: Pyrazole & Imidazole and their derivatives	√	√				√			√	√
Five-Membered Heterocycles with two different heteroatoms: Oxazole & thiazole Benzo-fused Diazoles: benzimidazole	√								√	√
Six-Membered Heterocycles with one nitrogen atom: Pyridine and its derivatives Fused benzopyridines: Quinoline & isoquinoline and their derivatives	√								√	√
Six-Membered Heterocycles with two nitrogen atoms: Pyridazine, pyrimidine & pyrazine. Fused benzodiazines: phthalazine, quinazoline & quinoxaline and their derivatives	√								√	√
Protein	√								√	√
Continue proteins & introduction to carbohydrates	√								√	√
Continue carbohydrates & self-learning	√	√				√			√	√

B) Practical part:



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Course Contents	Teaching and Learning methods					Assessment methods			
	Lecture	Hybrid learning	Comp. aided learning	Lab sessions	Self-learning	Course Work	Practical/Tutorial	Written	Oral
UV Spectroscopy		✓		✓			✓		
IR problems		✓		✓			✓		
H-NMR problems		✓		✓			✓		
¹³ C-NMR & MS problems		✓		✓			✓		
Applications on deducing chemical structure from spectral data		✓		✓			✓		
Lab problems, methods of purification		✓		✓			✓		
Ethyl acetate, synthesis & spectral analysis		✓		✓			✓		
Azo dye, synthesis & spectral analysis		✓		✓			✓		



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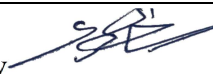
Nitrotoluene, synthesis & spectral analysis		√		√			√		
Nitronaphthalene, synthesis & spectral analysis		√		√			√		
Iodoform & Osazone, synthesis & spectral analysis		√		√			√		
Osazone, Benzotriazole synthesis & spectral analysis		√		√			√		



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Course Coordinator	Prof. Khalid B. Selim 
Head of Department	Prof. Dr. Shahenda Metwally Elmessery 

Approval Date: 10/9/2023



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بكالوريوس الصيدلة (فارم د - Pharm D)
Course Specification
Academic year: 2023/2024

Course name: Biochemistry-1	اسم المقرر: الكيمياء الحيوية-1
Academic Level: level two	المستوى الأكاديمي: المستوى الثاني
Scientific department: Biochemistry Dept.	القسم العلمي: الكيمياء الحيوية
Acting Head of Department: Dr. Noha M.H. Abdel-Rahman	قائم بعمل رئيس مجلس القسم: د. نهى منصور عبد الرحمن
Course Coordinator: Prof. Dr. Mamdouh M. El-Shishtawy	منسق المقرر: ممدوح محمد الششتاوي أ.د.



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University	Mansoura University
Faculty	Faculty of Pharmacy
Department offering the course	Biochemistry Department
Department supervising the course	Biochemistry Department
Program on which the course is given	Pharm D – Clinical Pharmacy Program
Academic Level	Second level, First semester, 2023-2024
Date of Department Council:	16 th September, 2023
Date of Faculty Council Approval:	20 th September, 2023

C- Basic Information: Course Data:

Course Title	Biochemistry-I
Course Code	PB302
Prerequisite	Registration
Teaching Hours/ week:	
Lecture:	2
Practical:	1
Total Credit Hours	3

D- Professional Information:

2- Course Aims:

- 1- To understand the chemical structure of different classes of biochemical compounds including Carbohydrates, proteins, lipids, and vitamins.
- 2- To learn the function of essential micro- and macromolecules, such as enzymes and co-enzymes in the human body.
- 3- To utilize the provided knowledge in biochemical field and apply it in advanced courses of Biochemistry.

3- Course key elements



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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)	Recall in-depth and breadth knowledge of chemistry of biological molecules.
(1.1.2)	(1.1.2.1)	Recognize appropriate pharmaceutical and medical terminology, abbreviations and symbols in pharmacy practice and biological sciences.
(1.1.3)	(1.1.3.1)	Illustrate the principles of fundamental sciences to handle and identify biological molecules.
(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 biochemical reactions in human body.
(1.1.6)	(1.1.6.1)	Describe relevant scientific literature and other scientific resources to make evidence-informed professional decisions.

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 biological macromolecules and, pharmaceutical materials from different origins.
(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.



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Domain 3: pharmaceutical care

Program K. element no.	Course K. element no.	Course K. element
(3.1.1)	(3.1.1.1)	Identify different biological macromolecules and micro-molecules and biochemical, metabolic, and immunological changes brought about by disease or concomitant drug therapy.

Domain 4: personal practice

Program K. element no.	Course K. element no.	Course K. element
(4.2.2)	(4.2.2.1)	Utilize advanced technologies and channels whenever possible to present relevant information.
(4.3.2)	(4.3.2.1)	Promote continuous professional development by practicing self and independent learning.

4- Course Contents

Week No.	Topics	Hours
1	Introduction, protein chemistry and functions	2
2	Function of amino acids, Biologically active peptides, and Protein structure	2
3	Protein turnover, Hemoglobin, and myoglobin, Hemoglobinopathies	2
4	Enzyme action – enzyme kinetics	1
	Inhibition and regulation of enzyme activity	1
5	Clinical correlations of enzymes	1
	Oxidative stress	1
6	Body defense mechanisms	2
7	Lipid chemistry	2
8	Physiologically important Lipids	2
9	Lipoprotein metabolism	2



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10	Fat-soluble vitamins	2
11	Carbohydrate chemistry	2
12	Water-soluble vitamins (Vit C, B1, B2)	2
13	Water-soluble vitamins (Other vit B) + self-learning (connective tissue)	2
14	Revision and quiz	2
15	Final written and oral exam	-

Week No.	Practical topics	hours
1	Carbohydrate chemistry - Monosaccharide (Glucose - Fructose)	1
2	Disaccharide (Maltose, lactose, and sucrose)	1
3	Polysaccharide (Starch - Dextrin)	1
4	General scheme for carbohydrate.	1
5	Protein Chemistry - Heat co-aggulable protein (Albumin)	1
6	Neutral protein (Peptone - Gelatin)	1
7	Alkaline protein (Metaprotein - Casein)	1
8	Midterm exam	-
9	Non-protein nitrogenous compounds (Urea).	1
10	Non-protein nitrogenous compounds (Sodium urate).	1
11	Scheme for simple liquid unknown identification.	1
12	Revision - Presentations	1
13	Revision - Presentations	1
14	Practical exam and Practical Sheet exam.	1



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4- Teaching and Learning Methods:

No	Teaching and Learning Methods	Week	Key elements to be addressed
4.1	Hybrid learning: a. Distance learning: Online learning through My mans "Mansoura university" b. Advanced lecture.	1-14	1.1.1.1 - 1.1.2.1 1.1.3.1 - 1.1.5.1 1.1.6.1 - 3.1.1.1
4.2	Practical sessions using Laboratory equipment, whiteboard, and Data show	1-14	2.2.1.1 - 2.3.1.1 2.3.2.1
4.3	Self-learning.	13	1.1.1.1 - 1.1.5.1 1.1.6.1 - 4.2.2.1 4.3.2.1
4.4	Presentation.	11 - 12	4.2.2.1 - 4.3.2.1



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5- Student Assessment:

d- Assessment Methods:

Assessment Methods	K elements to be assessed
1- Periodical (Mid-term exam)/Course work	1.1.1.1, 1.1.2.1, 1.1.5.1, 1.1.6.1, 4.2.2.1, 4.3.2.1
2- Practical exam	1.1.3.1, 2.2.1.1, 2.3.1.1, 2.3.2.1, 3.1.1.1
3- Final written exam	1.1.1.1, 1.1.2.1, 1.1.5.1, 1.1.6.1.
3- Oral exam	1.1.1.1, 1.1.2.1, 1.1.5.1, 1.1.6.1, 4.2.2.1, 4.3.2.1

b. Assessment schedule

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

c. Weighing of assessment

1	Periodical (Mid-term) examination + Course work	15%
2	Practical and tutorial examination	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.
- Laboratory facilities	Microscopes, equipment, tools.
- Library	Textbooks.



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6- Matrix of knowledge and skills of the course

Theoretical

Course contents	Outcomes										
	Domains / Key elements										
	Domain:1					Domain: 2			Domain: 3	Domain: 4	
	1.1.1.1	1.1.2.1	1.1.3.1	1.1.5.1	1.1.6.1	2.2.1.1	2.3.1.1	2.3.2.1	3.1.1.1	4.2.2.1	4.3.2
Introduction, protein chemistry and functions	✓	✓	✓			✓					
Function of amino acids, Biologically active peptides, and Protein structure	✓	✓	✓			✓					
Protein turnover, Hemoglobin, and myoglobin, Hemoglobinopathies	✓	✓		✓					✓		
Enzyme action – enzyme kinetics	✓	✓		✓					✓	✓	✓
Inhibition and regulation of enzyme activity			✓	✓	✓				✓	✓	
Clinical correlations of enzymes				✓	✓				✓		✓
Oxidative stress											
Body defense mechanisms	✓		✓	✓		✓			✓	✓	
Lipid chemistry, Neutral Fats	✓		✓			✓					
Physiologically important Lipids		✓	✓		✓				✓	✓	
Lipoprotein metabolism		✓			✓				✓	✓	✓
Fat-soluble vitamins									✓	✓	✓
Carbohydrates chemistry	✓		✓		✓				✓	✓	✓
Water-soluble vitamins (vit C, B1, B2)	✓		✓	✓					✓	✓	✓



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Water-soluble vitamins (Other vit B) + self learning	✓		✓		✓				✓	✓	✓
B. Practical part											
Carbohydrate chemistry - Monosaccharide (Glucose - Fructose)		✓	✓			✓	✓	✓	✓		
Disaccharide (Maltose, lactose, and sucrose)			✓	✓		✓	✓	✓		✓	✓
Polysaccharide (Starch - Dextrin)			✓			✓	✓	✓			✓
General scheme for carbohydrate.			✓	✓		✓	✓	✓		✓	✓
Protein Chemistry - Heat co-aggulable protein (Albumin)		✓	✓	✓		✓	✓	✓	✓	✓	
Neutral protein (Peptone - Gelatin)			✓			✓	✓	✓		✓	✓
Alkaline protein (Metaprotein - Casein)			✓	✓		✓	✓	✓			
Non-protein nitrogenous compounds (Urea).			✓			✓	✓	✓		✓	✓
Non-protein nitrogenous compounds (Sodium urate).			✓			✓	✓	✓		✓	✓
Scheme for simple liquid unknown identification.		✓	✓				✓	✓		✓	
Revision - Presentations			✓	✓						✓	✓
Revision - Presentations			✓	✓						✓	✓



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

Course contents	Teaching and learning methods.						Assessment methods				
	Advance lectures	Hybrid learning	Lab session	presentation	Case study	Self-learning	Course work	Corse Work mid-term Exam)	Practical	Written	Oral
Introduction, protein chemistry and functions	√	√					√	√		√	√
Function of amino acids, biologically active peptides, and Protein structure	√	√					√	√		√	√
Protein turnover, Hemoglobin, and myoglobin, Hemoglobinopathies	√	√					√	√		√	√
Enzyme action - enzyme kinetics. Inhibition and regulation of enzyme activity.	√	√					√	√		√	√
Clinical correlations of enzymes Oxidative stress	√	√					√	√		√	√
Body defense mechanisms	√	√						√		√	√
Lipid chemistry	√	√						√		√	√
Physiologically important Lipids	√	√								√	√
Lipoprotein metabolism	√	√								√	√
Fat-soluble vitamins	√	√								√	√
Carbohydrate chemistry	√	√		√						√	√
Water-soluble vitamins (Vit C, B1, B2)	√	√		√						√	√
Water-soluble vitamins (other Vit B) + self learning	√	√				√					
A.											
B. Practical part											
Carbohydrate chemistry - Monosaccharide (Glucose - Fructose)		√	√				√			√	
Disaccharide (Maltose, lactose, and sucrose)		√	√				√			√	
Polysaccharide (Starch - Dextrin)		√	√	√			√			√	
General scheme for carbohydrate.		√	√	√			√			√	



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Protein Chemistry - Heat co- aggluable protein (Albumin)		√	√	√			√		√		
Neutral protein (Peptone - Gelatin)		√	√	√			√		√		
Alkaline protein (Metaprotein - Casein)		√	√	√			√		√		
Non-protein nitrogenous compounds (Urea).		√	√	√			√		√		
Non-protein nitrogenous compounds (Sodium urate).		√	√	√			√		√		
Scheme for simple liquid unknown identification.		√	√	√			√		√		
Revision - Presentations		√	√	√			√		√		
Revision - Presentations		√	√	√			√		√		





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8- 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.	<u>Emine E. Abali</u> , <u>Susan D. Cline</u> , <u>David S. Franklin</u> , <u>Susan M. Viselli</u> . Lippincott Illustrated Reviews Series: Biochemistry. Philadelphia: Wolters Kluwer Health. North American Edition. 8 th edition. Apr 20, 2021.	Essential Book
4.	Clinical Chemistry, <u>William J. Marshall</u> , <u>Márta Lapsley</u> , <u>Andrew Day</u> . Elsevier Health Sciences, 8 th edition, Jun 21, 2016.	Essential Book
5.	https://www.futurelearn.com/courses/biochemistry https://www.ekb.eg	websites

Course Coordinator	Prof. Dr. Mamdouh El-Shishtawy
	
Acting Head of Department	Dr. Noha M.H. Abdel-Rahman
	

Date of course approval: 16/09/2023



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Course specification
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بكالوريوس الصيدلة الإكلينيكية (فارم دي – Pharm D)
Course Specification
Academic year: 2023/2024

Course name: Pharmacognosy-2 (PG 303)	اسم المقرر : عقاقير-2
Academic Level: level 2	المستوى الأكاديمي : الثاني
Scientific department: Pharmacognosy	القسم العلمي : العقاقير
Head of Department: Prof. Mahmoud Fahmy Elsebai	رئيس القسم : أ.د./ محمود فهمي السباعي
Course Coordinator: Dr. El-Sayed M. Marwan	منسق المقرر : د/ السيد مهدي مروان



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Course specification
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University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmacognosy
Department supervising the course	Pharmacognosy
Program on which the course is given	B. Pharm. (Clinical Pharmacy) (PharmD)
Academic Level	Level 2, First semester, 2023-2024
Date of course specification approval	06/09/2023

A. Basic Information: Course data:

Course Title	Pharmacognosy-2
Course Code	PG303
Prerequisite	PG202 (Pharmacognosy-1)
Teaching credit Hours: Lecture	2
: Practical	1
Total Credit Hours	3

B. Professional Information:

1. Course Aims:

This course includes studying of the drugs derived from medicinal fruits, herbs, subterranean organs, unorganized drugs and animal derived drugs as well as drugs derived from Algae and fungi. After completion of the course, the students should have the knowledge and skills to differentiate between previous organs and identify the active constituents, adulterants, precautions of their medicinal uses, side effects, contraindications and their presence in pharmaceutical Egyptian market.



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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 general Macroscopical and microscopical characters of given medicinal fruits, herbs, subterranean organs, or unorganized drugs.
(1.1.2)	(1.1.2.1)	Memorize the geographical and botanical origin of the studied plants such as, fruits, and herbs, subterranean organs, unorganized drugs, and animals.
(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 fruits, and herbs, subterranean organs, unorganized and animal drugs.
(1.1.4)	(1.1.4.1)	Recognize the main active constituents of the studied medicinal plant and animal parts as well as their medicinal uses.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
(2.2.1)	(2.2.1.1)	Analyze and evaluate the natural pharmaceutical materials from different origins as fruits, herbs, subterranean organs, unorganized and animals drugs.
(2.2.2)	(2.2.2.1)	Evaluate the incompatibilities and contraindications of a given medicinal items from plant and animal origin.
(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.



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Domain 4: personal practice:

Program K. element no.	Course K. element no.	Course K. element
(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 in the field of health care and medicinal plants regarding the studied topics.
(4.3.2)	(4.3.2.1)	Practice independent learning to promote continuous professional development.

- Course Contents:

A. Theoretical part

Week No.	Topics	Lecture credit Hours
1	Introduction of Medicinal fruits	2
2	Medicinal fruits such as Umbelliferous fruits (Fennel, Caraway, Anise, Coriander, <i>Ammi visnaga</i> , <i>Ammi majus</i>)	2
3	Medicinal fruits such as Capsicum, Colocynth, Senna, Bitter orange, Lemon peels.	2
4	Medicinal non-official fruits; Cumin, Dill, Hemlock, Black pepper, Cubebs, Star Anise, Milk Thistle.	2
5	Introduction of medicinal herbs, Medicinal herbs as Lobelia, Mentha, Thyme, Lavender	2
6	Medicinal herbs such as <i>Hyoscyamus</i> , Cannabis, Ergot, Catharanthus, Ephedra	2
7	Introduction of Medicinal subterranean organs, Medicinal subterranean organs as Male fern, Ginseng, Aconite, Althaea.	2
8	Medicinal subterranean organs such as Liquorice, Ginger, Curcuma, Galangal, Calumba.	2
9	Medicinal subterranean organs such as Rhubarb, Jalap, Squill, Rauwolfia, Krameria, Veratrum	2
10	Medicinal subterranean organs such as Hydrastis, Senega, Sarsaparilla, Ipecacuanha, Colchicum, Gentian, Valerian	2
11	Introduction of unorganized drugs, Medicinal unorganized drug such as gums, extracts, Resin, and resin combinations	2
12	Animal and Animal-derived drugs (Part I)	2
13	Animal and Animal-derived drugs (Part II), Self-learning discussion	2
14	Revision and quiz	2
15	Start of final and oral exam	-



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B. Practical part

Week No.	Practical Topics	Practical credit hours
1	Introduction of medicinal Fruits, Umbelliferous fruits, Medicinal Fruits such as Anise and Fennel	1
2	Umbelliferous fruits (<i>Coriander, Ammi visnaga, Ammi majus</i>)	1
3	Medicinal Fruits such as Capsicum, Colocynth fruit.	1
4	Medicinal herbs such as Hyosecyamus	1
5	Medicinal herbs such as Mentha and Thymus	1
6	First practical exam	1
7	Introduction to Subterranean organs, examination of powdered Liquorice	1
8	Mid term exam	-
9	Subterranean organs; Examination of powdered rhubarb, jalap (macro only)	1
10	Subterranean organs; ginger, curcuma, galangal	1
11	Medicinal unorganized drug such as gums (gum tragacanth and gum Arabic),	1
12	dried extracts (gelatin and agar-agar).	1
13	Resin and resin combinations such as colophony, myrrh, asafetida and Aloe.	1
14	Second practical exam applying OSPE	1

4- Teaching and Learning Methods:

	Teaching and Learning Methods	Week No.	K. elements to be assessed
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 • Inter active discussion through My Mans	1-14	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.4.1, 4.1.1.1, 4.2.1.1, 4.3.2.1
4.2	Self-learning	13	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.4.1, 2.2.2.1, 4.1.1.1, 4.3.2.1
4.3	Lab. sessions using chemicals and laboratory equipment (Microscopes and glass wares)	1-14	1.1.1.1, 1.1.2.1, 1.1.3.1, 1.1.4.1, 2.2.1.1, 2.2.2.1, 4.1.1.1
4.4	Problem solving: Group discussion offline and online.	1-11	4.1.1.1, 4.2.1.1
4.5	Case study	2, 6, 8	4.3.2.1



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5- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	(1.1.1.1), (1.1.2.1), (1.1.3.1), (2.2.1.1), (2.2.2.1)
2-Practical exam applying OSPE	(1.1.1.1), (1.1.4.1), (2.3.1.1)
3-Oral	(1.1.1.1), (1.1.2.1), (4.2.1.1)
4- Periodical (Mid-term exam) / Course work	(1.1.1.1), (1.1.2.1), (1.1.3.1)

b. Assessment schedule

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

c. Weighing of assessments

1	Periodical (Mid-term) exam / Course 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



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Introduction of Medicinal subterranean organs, Medicinal subterranean organs as Male fern, Ginseng, Aconite, Althaea	√	√	√	√	√	√	√	√		√
Medicinal subterranean organs such as Liquorice, Ginger, Curcuma, Galangal, Calumba		√			√				√	√
Medicinal subterranean organs such as Rhubarb, Jalap, Squill, Rauwolfia, Krameria, Veratrum	√		√	√	√	√	√	√	√	√
Medicinal subterranean organs such as Hydrastis, Senega, Sarsaparilla, Ipecacuanha, Colchicum, Gentian, Valerian	√	√	√	√		√	√	√	√	√



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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	2.3.4.1	4.1.1.1	4.2.1.1	4.3.2.1
Introduction of medicinal Fruits, Umbelliferous fruits, Medicinal Fruits such as Anise and Fennel	√	√	√	√			√	√		√
Umbelliferous fruits (Coriander, <i>Ammi visnaga</i> , <i>Ammi majus</i>)	√	√	√	√	√		√	√	√	√
Medicinal Fruits such as Capsicum, Colocynth fruit.	√	√	√	√			√	√	√	√
Medicinal herbs such as Hyoscyamus	√	√	√	√			√	√	√	√
Medicinal herbs such as Mentha and Thymus	√	√	√	√	√		√	√	√	√
First practical exam										
Introduction to Subterranean organs, examination of powdered Liquorice	√	√	√	√	√		√	√	√	√



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Subterranean organs; Examination of powdered rhubarb, jalap (macro only)	√	√	√	√	√		√	√	√	√
Subterranean organs; ginger, curcuma, galangal	√	√	√	√	√		√	√	√	√
Medicinal unorganized drug such as gums (gum tragacanth and gum Arabic), dried extracts (gelatin and agar-agar).	√	√	√	√	√		√	√	√	√
Resin and resin combinations such as colophony, myrrh, asafetida and Aloe.	√	√	√	√	√		√	√	√	√

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

A) Theoretical Part:

Course Contents	Teaching and Learning Methods				Assessment methods		
	Lecture	Problem solving	Case Study	Self-learning	Course Work	Written	Oral
Introduction of Medicinal fruits	√	√			√	√	√



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Medicinal fruits such as Umbelliferous fruits (Fennel, Caraway, Anise, Coriander, <i>Ammi visnaga</i> , <i>Ammi majus</i>)	√	√	√		√	√	√
Medicinal fruits such as Capsicum, Colocynth, Senna, Bitter orange, Lemon peels	√	√			√	√	√
Medicinal non-official fruits; Cumin, Dill, Hemlock, Black pepper, Cubebs, Star Anise, Milk Thistle.	√	√			√	√	√
Introduction of medicinal herbs, Medicinal herbs as Lobelia, Mentha, Thyme, Lavender	√	√			√	√	√
Medicinal herbs such as <i>Hyoscyamus</i> , Cannabis, Ergot, Catharanthus, Ephedra	√	√	√			√	√
Introduction of Medicinal subterranean organs, Medicinal subterranean organs as Male fern, Ginseng, Aconite, Althaea	√	√				√	√
Medicinal subterranean organs such as Liquorice, Ginger, Curcuma, Galangal, Calumba	√	√	√			√	√
Medicinal subterranean organs such as Rhubarb, Jalap, Squill, Rauwolfia, Krameria, Veratrum	√	√				√	√



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Medicinal subterranean organs such as Hydrastis, Senega, Sarsaparilla, Ipecacuanha, Colchicum, Gentian, Valerian	√	√				√	√
Introduction of unorganized drugs, Medicinal unorganized drug such as gums, extracts, Resin, and resin combinations	√	√				√	√
Animal and Animal-derived drugs (Part I)	√	√				√	√
Animal and Animal-derived drugs (Part II), Self-learning discussion	√	√		√		√	√

B) Practical part

Course Contents	Teaching and Learning Methods			Assessment methods
	Lab sessions	Problem solving	Case Study	Practical
Introduction of medicinal Fruits, Umbelliferous fruits, Medicinal Fruits such as Anise and Fennel	√	√		√
Umbelliferous fruits (Coriander, <i>Ammi visnaga</i> , <i>Ammi majus</i>)	√	√	√	√
Medicinal Fruits such as Capsicum, Colocynth fruit.	√	√		√
Medicinal herbs such as Hyoscyamus	√	√	√	√
Medicinal herbs such as Mentha and Thymus	√	√		√
First practical exam				√




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Introduction to Subterranean organs, examination of powdered Liquorice	√	√	√	√
Subterranean organs; Examination of powdered rhubarb, jalap (macro only)	√	√		√
Subterranean organs; ginger, curcuma, galangal	√	√		√
Medicinal unorganized drug such as gums (gum tragacanth and gum Arabic),	√	√		√
dried extracts (gelatin and agar-agar).	√	√		√
Resin and resin combinations such as colophony, myrrh, asafetida and Aloe.	√	√		√

Course Coordinator	Dr. El-Sayed M. Marwan
Head of Department	Prof. Mahmoud Fahmi Elsebai  2023/9/6



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Course specification
2023- 2024



بكالوريوس الصيدلة الإكلينيكية (فارم دي)
Pharm D-Clinical Pharmacy
Academic year: 2023/2024

Course name: Pharmacy Legislation and Practice ethics	اسم المقرر: التشريعات الصيدلانية
Academic Level: Second level	المستوى الأكاديمي: الثاني
Scientific department: Pharmaceutics	القسم العلمي: الصيدلانيات
Head of Department: Prof. Dr. Irhan Ibrahim Abu Hashim	رئيس القسم: أ.د/ ارهان ابراهيم أبو هاشم
Course Coordinator: Prof. Dr. Marwa Salah El-Din El-Dahhan	منسق المقرر: أ.د / مروه صلاح الدين الدهان



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Course specification
2023- 2024

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmaceutics
Department supervising the course	Pharmaceutics
Program on which the course is given	Bachelor of Pharmacy (Clinical Pharmacy- Pharm-D)
Academic Level	Second level, First Semester, 2023/2024
Date of course specification approval	September 2023

A. Basic Information: Course data:

Course Title	Pharmacy Legislation and Practice ethics
Course Code	PT 303
Prerequisite	-----
Teaching Credit Hours: Lecture	1
Practical	0
Total Credit Hours	1 (Credit H)

B. Professional Information:

1- Course Aims:

This course enables students to:

1. Gain comprehensive knowledge of the law that governs and affects the practice of pharmacy.
2. Know the legal principles for non-controlled and controlled prescriptions and OTC drug requirements.
3. Gain knowledge about how to open new pharmacies, medical stores, factories, scientific offices, medicine registration, pharmacies and medicine stores management.
4. Illustrate the pharmacist duties and responsibilities, pharmacist-patient relationship, patient's rights and ethical principles and moral rules.



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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 different types of pharmaceutical products.
	1.1.1.2	Recognize the law that governs the practice of pharmacy.

Domain 2: professional and ethical practice

Program K. element no.	Course K. element no.	Course K. element
2.1.1	2.1.1.1	Discriminate the legislations concerning pharmacy practice.
2.3.2	2.3.2.1	Classify different types of narcotic drugs as well as their dispensing and storage.
2.5.1	2.5.1.1	Coordinate guiding strategy to approve new emerging medicinal products according to national and international specifications.

Domain 4: personal practice

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Share decision-making activities with other team members and apply effective time management skills.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills

3- Course Contents

Week No.	Topics	Credit Hours
1	قانون مزاولة مهنة الصيدلة و التسجيل بنقابة الصيدالة	1
2	المؤسسات الصيدلانية	1
3	قواعد فتح المؤسسات الصيدلانية	1
4	أحكام خاصة لكل نوع من أنواع المؤسسات الصيدلانية	1
5	أنواع المستحضرات الصيدلانية.	1
6	أحكام عامه وعقوبات	1
7	التعريف بجداول المواد المخدرة و قواعد صرفها	1
8	مكافحة المخدرات واستعمالها والاتجار فيها	1
9	قيد و صرف الجواهر المخدرة	1
10	تنظيم تداول بعض المواد والمستحضرات الصيدلانية المؤثرة علي الحالة النفسية	1



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11	قانون التكليف	1
12	لائحة تقاليد المهنة (علاقة الصيدلي بالمريض "التعلم الذاتي")	1
13	قانون قمع الغش والتدليس	1
14	Revision and quiz	1
15	Final Written and Oral Exam	-

4- Teaching and Learning Methods:

Teaching and learning Methods		Weeks N o.	K. elements to be addressed
4.1	Advanced lecture including (group discussion)	1-14	1.1.1.1, 1.1.1.2, 2.1.1.1, 2.3.2.1, 4.1.2.1, 4.3.2.1, 2.5.1.1
4.3	Hybrid learning	7, 13	1.1.1.1, 1.1.1.2, 2.1.1.1, 2.3.2.1
4.4	Self-learning	12	4.1.2.1, 4.3.2.1

5- Student Assessment:

b- Assessment Methods:

1-Periodical (Mid-term exam)/ Course work	1.1.1.1, 1.1.1.2, 2.1.1.1, 2.3.2.1, 4.1.2.1, 4.3.2.1
2-Written exam	1.1.1.1, 1.1.1.2, 2.1.1.1, 2.3.2.1, 2.5.1.1

c- Assessment schedule

Assessment 1	Periodical (Mid-term exam) / Course work	7-9 th week
Assessment 3	Written	Start from 15 th week

d- Weighing of assessments

1	Periodical (Mid-term) exam / Course work	25%
2	Practical examination and tutorial	---
3	Final-term examination	75%
4	Oral examination	---
Total		100%



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وقواعد صرفها.								
مكافحة المخدرات واستعمالها والاتجار فيها				√	√		√	√
قيود وصرف الجواهر المخدرة				√			√	√
تنظيم تداول بعض المواد والمستحضرات الصيدلانية المؤثرة على الحالة النفسية	√			√	√		√	√
قانون التكليف		√		√			√	√
لائحة تقاليد المهنة (علاقة الصيدلي بالمريض "التعلم الذاتي")		√					√	√
قانون قمع الغش والتدليس	√			√			√	√

Matrix 2: Between course contents, learning methods and assessment

Course contents	Teaching and Learning Methods			Assessment methods	
	Advanced lecture	Hybrid learning	Self-learning	Course Work and mid-Written Exam	Exam
قانون مزاول مهنة الصيدلة والتسجيل بنقابة الصيدلانية.	√			√	√
المؤسسات الصيدلانية	√			√	√
قواعد فتح المؤسسات الصيدلانية	√			√	√
أحكام خاصة لكل نوع من أنواع المؤسسات الصيدلانية	√			√	√
أنواع المستحضرات الصيدلانية.	√				√
إحكام عامه وعقوبات	√				√
التعريف بجداول المواد المخدرة وقواعد صرفها.	√	√			√
مكافحة المخدرات واستعمالها والاتجار فيها	√				√
قيود وصرف الجواهر المخدرة	√				√
تنظيم تداول بعض المواد والمستحضرات الصيدلانية المؤثرة على الحالة النفسية	√				√
قانون التكليف	√				√
لائحة تقاليد المهنة (علاقة الصيدلي بالمريض "التعلم الذاتي")	√		√		√
قانون قمع الغش والتدليس	√	√			√



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Course Coordinator	Prof. Dr. Marwa Salah El-Din Mansour El-Dahhan
Head of Department	Prof. Dr. Irhan Ibrahim Abu Hashim

Date: 20/ 9/2023



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Course specification
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بكالوريوس الصيدلة (فارم د - Pharm D)
Pharm D-Clinical Pharmacy
Course Specification
Academic year: 2023/2024

Course name: 20- Physiology & Pathophysiology (MD 303)	اسم المقرر : فسيولوجي وباثوفسيولوجي
Academic Level: Level 2	المستوى الأكاديمي : الثاني
Scientific department: pharmacology & Toxicology	القسم العلمي : الادوية والسموم
Head of Department: Prof. Dr. Manar A. Nader	رئيس القسم : أ.د/ منار احمد نادر
Course Coordinator: Dr. Rania Ramadan Abdelaziz	منسق المقرر : د/ رانيا رمضان عبد العزيز



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University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmacology & toxicology
Department supervising the course	Pharmacology & toxicology
Program on which the course is given	B. Pharm. (Clinical Pharmacy) (Pharm-D)
Academic Level	Second level, First Semester, 2023/2024
Date of course specification approval	18/9/ 2023

A. Basic Information: Course data:

Course Title	Physiology & Pathophysiology
Course Code	MD 303
Prerequisite	Registration
Teaching credit Hours: Lecture	2
: Practical	1
Total Credit Hours	3

B. Professional Information:

1 .Course Aims:

This course enables the students to:

- Provide an in-depth study of human physiology and pathological processes and their effects on homeostasis, emphasis on interrelationships among organ systems in deviations from homeostasis
- Describe the etiology, physical signs and symptoms, prognosis as well as complications of commonly occurring diseases.



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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	Define information of biomedical and clinical sciences
1-1-5	1.1.5.1	Apply the principles and practice of fundamental sciences to solve problems related to human health and health systems
1-1-8	1.1.8.1	Use health informatics to improve the quality of care and optimize patient safety

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2-1-3	2.1.3.1	Establish and maintain appropriate professional boundaries and accept responsibility and accountability within healthcare team.
2-4-5	2-4-5-1	Specify and take appropriate action when signs, symptoms and risk factors related to medical or health problems that fall into the scope of practice of other health professionals are encountered.
2-5-4	2-5-4-1	Plan and design various types of clinical studies to optimize procedures of experimental drug research in hospitals and various health care setting

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3-1-1	3-1-1-1	Adjust a dosage routine for a patient based on the physiological and immunological changes brought about by disease
3-1-4	3-1-4-1	Utilize etiology, pathogenesis, laboratory diagnosis and clinical features to suggest the proper preventive strategies for various diseases.



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Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4-2-1	4.2.1.1	Usage of clear language, tone and non-verbal communication and writing skills when dealing with patients and other health team
4-2-2	4.2.2.1	Use artificial technology whenever possible to present relevant information.
4-3-2	4.3.2.1	Present principles of continuing professional development including assessing own learning needs and developing a plan to meet these needs.

3- Course Contents:

A) Theoretical Part

Week No.	Topics	Lecture credit Hours
1	Introduction	2
2	GIT system	2
3	Physiology of Cardiovascular system	2
4	Pathophysiology Cardiovascular system (arterial disease, blood pressure and ischemia)	2
5	Pathophysiology of Cardiovascular system (infarction, failure and arrhythmia)	2
6	Physiology of Endocrine system	2
7	Pathophysiology of Endocrine system (Diabetes, hypothyroidism and hyperthyroidism)	2
8	Renal system	2
9	Central Nervous system	2
10	Sympathetic nervous system	2
11	Parasympathetic nervous system	2
12	Blood system	2
13	Respiratory system (self-learning)	2
14	Revision and quiz	2
15	Final written and oral exam	--



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B) Practical part

Week No.	Practical Topics	Practical credit hours
1.	Transport across cell membranes	1
2.	Nutrient Assessment, BMR, and Body Composition	1
3.	Physiology of skeletal muscles	1
4.	Physiology of smooth muscles	1
5.	Physiology of the eye	1
6.	Human Electrocardiography	1
7	Gas exchange in blood	1
8	Midterm exam	-
9	Assessment of Human Blood Pressure	1
10	Blood and Blood groups	1
11	Erythrocyte Sedimentation Rate (ESR), Osmotic Properties of Red cells & Blood Hemolysis	1
12	Pregnancy tests	1
13	Student activity divided on all labs	1
14	Sheet and Practical exam	1



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4- Teaching and Learning Methods:

Teaching and learning Methods		Weeks No.	Key elements to be addressed
	Teaching and learning Methods:		
4.1	Advanced lectures: <ul style="list-style-type: none"> Lectures using Data show, power Point presentations Brain storming Group discussion 	1-14	1-1-1-1, 1-1-5-1, 1-1-8-12-1-3-1, 2-4-5-1, 2-5-4-1, 3-1-1-1, 3-1-4-1
4.2	Hybrid learning: <ul style="list-style-type: none"> On line learning through My mans "Mansoura university " 	1-13	-1-1-1, 1-1-5-1, 1-1-8-12-1-3-1, 2-4-5-1, 2-5-4-1, 3-1-1-1, 3-1-4-1
4.3	Self-learning	13	4-2-1-1, 4-2-2-1, 4-3-2-1
4.4	Practical session using data show and power point presentations	1-14	2-1-3-1, 2-4-5-1, 2-5-4-1, 3-1-1-1, 3-1-4-1
4.5	Collaborative learning: research project	4-8	1-1-1-1, 1-1-5-1, 1-1-8-12-1-3-1, 2-4-5-1, 2-5-4-1, 3-1-1-1, 3-1-4-1

5- Student Assessment:

e- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1-1-1-1, 1-1-5-1, 1-1-8-1, 2-1-3-1, 2-4-5-1, 2-5-4-1, 3-1-1-1, 3-1-4-1
2-Practical exam	1-1-1-1, 1-1-5-1, 1-1-8-1, 2-1-3-1, 2-4-5-1, 2-5-4-1, 4-2-1-1, 4-2-2-1, 4-3-2-1
3-Oral	1-1-1-1, 1-1-5-1, 1-1-8-1, 2-1-3-1, 2-4-5-1, 2-5-4-1, 4-2-1-1, 4-2-2-1, 4-3-2-1
4- Periodical (Mid-term exam) / Course work	1-1-1-1, 1-1-5-1, 1-1-8-1, 2-1-3-1, 2-4-5-1, 3-1-1-1, 3-1-4-1



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b. Assessment schedule

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

c. Weighing of assessments

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

6. Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
- Laboratory	chemicals - white board



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Course specification
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7- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Linda S. Costanzo. Physiology. Elsevier Saunders, 7th edition, 2021	Book
3.	Silbernagl S, Lang F. Color atlas of pathophysiology. Thieme, Germany 4 th ed. 2020.	Book
4.	Lazenby RB. Handbook of Pathophysiology. Wolters Kluwer/Lippincott Williams & Wilkins Health, Philadelphia USA, 7 th ed. 2022.	Book
5.	http://www.sciencedirect.com/ http://www.google scholar.com/ http://www.pubmed.com https://www.ekb.eg	websites



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

A) Theoretical part

Course contents / K. elements	Domain 1			Domain 2			Domain 3		Domain 4		
	1.1.1.1	1.1.5.1	1.1.8.1	2.1.3.1	2.4.5.1	2.5.4.1	3.1.1.1	3.1.4.1	4.2.1.1	4.2.2.1	4.3.2.1
Introduction	✓	✓	✓	✓	✓	✓	✓	✓			
GIT system	✓	✓	✓			✓	✓				
Physiology of Cardiovascular system	✓	✓	✓			✓	✓				
Pathophysiology Cardiovascular system (arterial disease, blood pressure and ischemia)	✓	✓	✓			✓		✓			
Pathophysiology of Cardiovascular system (infarction, failure and arrhythmia)	✓	✓	✓			✓		✓		✓	
Physiology of Endocrine system	✓	✓		✓	✓	✓	✓	✓	✓		
Pathophysiology of Endocrine system (Diabetes, hypothyroidism and hyperthyroidism)	✓	✓		✓	✓	✓	✓	✓	✓		
Renal system	✓	✓		✓	✓	✓	✓	✓	✓		



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Central Nervous system	✓	✓			✓	✓	✓		✓	✓			
Sympathetic nervous system	✓	✓			✓	✓	✓		✓	✓			
Parasympathetic nervous system	✓	✓			✓	✓	✓		✓	✓			
Blood system	✓	✓			✓	✓	✓		✓	✓			
Respiratory system (self-learning)	✓	✓			✓	✓	✓		✓	✓		✓	✓



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

A) Theoretical part:

Course Contents	Teaching and Learning methods					Assessment methods			
	Advanced Lecture	Hybrid leaning	Collaborative learning	Lab sessions	Self-learning	Corse Work	Practical/ Tutorial	Written	Oral
Introduction	✓					✓		✓	✓
GIT system	✓					✓		✓	✓
Physiology of Cardiovascular system	✓					✓		✓	✓
Pathophysiology Cardiovascular system (arterial disease, blood pressure and ischemia)	✓		✓			✓		✓	✓
Pathophysiology of Cardiovascular system (infarction, failure and arrhythmia)	✓		✓					✓	✓
Physiology of Endocrine system	✓	✓	✓					✓	✓



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Pathophysiology of Endocrine system (Diabetes, hypothyroidism and hyperthyroidism)	✓		✓					✓	✓
Renal system	✓		✓					✓	✓
Central Nervous system	✓							✓	✓
Sympathetic nervous system	✓							✓	✓
Parasympathetic nervous system	✓							✓	✓
Blood system	✓							✓	✓
Respiratory system (self-learning)	✓	✓			✓			✓	✓



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Course Contents	Teaching and Learning methods					Assessment methods			
	Advanced Lecture	Hybrid leaning	Collaborative learning	Lab sessions	Self-learning	Corse Work	Practical/ Tutorial	Written	Oral
Transport across cell membranes		✓		✓			✓		
Nutrient Assessment, BMR, and Body Composition		✓		✓			✓		
Physiology of skeletal muscles		✓		✓			✓		
Physiology of smooth muscles		✓	✓	✓			✓		
Physiology of the eye		✓	✓	✓			✓		
Human Electrocardiography		✓	✓	✓			✓		
Gas exchange in blood		✓	✓	✓			✓		



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Assessment of Human Blood Pressure		✓	✓	✓			✓		
Blood and Blood groups		✓		✓			✓		
Erythrocyte Sedimentation Rate (ESR), Osmotic Properties of Red cells & Blood Hemolysis		✓		✓			✓		
Pregnancy tests		✓		✓			✓		
Student activity divided on all labs		✓		✓			✓		

Course Coordinator	Dr. Rania Ramadan Abdelaziz
Head of Department	Prof. Dr. Manar A. Nader

Date:18/ 9 / 2023



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2023- 2024



Pharm D-Clinical Pharmacy

Course Specification

Academic year: 2023/2024

Course name: Pharmaceutical Dosage Forms I	اسم المقرر: مستحضرات صيدلانية 1
Academic Level: Second level	المستوى الأكاديمي: الثاني
Scientific department: Pharmaceutics	القسم العلمي: الصيدلانيات
Head of Department: Prof. Dr. Irhan Ibrahim Abu Hashim	رئيس القسم: أ.د/ إرهان إبراهيم أبو هاشم
Course Coordinator: Prof. Dr/ Osama Abd El-Azeem Soliman	منسق المقرر: أ.د/ اسامه عبد العظيم سليمان



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University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmaceutics
Department supervising the course	Pharmaceutics
Program on which the course is given	B. Pharm. (PharmD) (Clinical Pharmacy)
Academic Level	Second level, first semester, 2023-2024
Date of course specification approval	20 / 9 /2023

A. Basic Information: Course data:

Course Title	Pharmaceutical Dosage Forms I
Course Code	PT 304
Prerequisite	Physical Pharmacy
Teaching Hours: Lecture	2
Practical	1
Total Credit Hours	3

B. Professional Information:

1. Course Aims:

This course enables the students to:

- Orienting the students to basic principles of pharmaceutical calculations, formulations, compounding, preservation, and storage of different dosage forms
- Recognizing various methods used to prepare drugs in different dosage forms as oral preparations
- Knowing the different types of solutions and their route of administration



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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	List the basic principles of liquid formulations as drug delivery systems.
1.1.3	1.1.3.1	Recognize the pharmaceutical principles to design, and prepare dosage forms as; solutions, colloids, suspensions, and emulsions.
1.1.9	1.1.9.1	Solve and execute pharmaceutical and compounding calculations required to compound different liquid preparations.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.4	2.2.4.1	Specify basic principles for calculations and assessment procedures of all the processes of liquid dosage forms formulations.
2.2.5	2.2.5.1	Prepare and compound the different liquid dosage forms as; solutions, colloids, suspensions and emulsions.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Share decision-making activities with other team members and apply effective time management skills.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills



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3- Course Contents:

A) Theoretical part

Week No.	Theoretical Topics	Credit Hours
1	Pharmaceutical calculations Systems of Pharmaceutical Measurement	2
2	Pharmaceutical calculations Roman Numerals	2
3	Pharmaceutical Solutions Syrup, elixir	2
4	Pharmaceutical Solutions Solutions used in mouth , throat, and body cavities	2
5	Pharmaceutical suspensions Definition, stability	2
6	Pharmaceutical suspensions Preparation and characterization	2
7	Incompatibilities occurring during dispensing Physical / pharmaceutical incompatibility	2
8	Incompatibilities occurring during dispensing Chemical and Therapeutic incompatibilities	2
9	Emulsions Definition and types	2
10	Emulsions Preparation and applications	2
11	Colloids Definition and separation	2
12	Colloids Types and properties of colloidal systems	2
13	Prescription and Dose calculation (self-learning)	2
14	Revision and quiz	2
15	Final Written and Oral Exam	--



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B) Practical part

Week No.	Topics	Hours
1	General Laboratory Instructions	1
2	Pharmaceutical calculations	1
3	Preparation of Simple Mixtures (Internal solutions)	1
4	Preparation of external solutions	1
5	Preparation of non-aqueous solutions (elixir)	1
6	Preparation of suspension	1
7	Suspension containing Diffusible Solids	1
8	Midterm exam	-
9	Suspension Containing Indiffusible Solids	1
10	Preparation of Emulsion (Castor Oil Emulsion)	1
11	Preparation of Emulsion (Liquid Paraffin Emulsion)	1
12	Medicated emulsion	1
13	revision	1
14	Practical exam	1

4-Teaching and Learning Methods:

Teaching and learning Methods		Weeks No.	K. elements to be addressed
4.1	<u>Advanced Lectures</u> using Data show, power Point presentations <ul style="list-style-type: none"> Brainstorming problem solving 	1-14	1.1.1.1, 1.1.3.1, 1.1.9.1, 2.2.4.1,
4.2	<u>Hyperid learning</u> <ul style="list-style-type: none"> Online learning through my mans "Mansoura university" as recorded video lectures Interactive discussion through My Mans	1-13	1.1.1.1, 1.1.3.1, 1.1.9.1, 2.2.4.1, 2.2.5.1, 4.1.2.1, 4.3.2.1
4.3	<u>Practical session</u> using chemicals and laboratory equipment and/or tutorials	1-14	1.1.1.1, 1.1.3.1, 1.1.9.1, 2.2.4.1, 2.2.5.1
4.4	<u>Self-learning</u> , Class Activity Discussion	13	4.1.2.1, 4.3.2.1



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5- Student Assessment:

f- Assessment Methods:

Assessment Methods	Key elements to be assessed
1-Periodical (Mid-term exam / Course work)	1.1.1.1, 1.1.3.1, 1.1.9.1, 4.1.2.1, 4.3.2.1
2-Practical exam using OSPE	2.2.4.1, 2.2.5.1 4.1.2.1, 4.3.2.1
3- Written exam	1.1.1.1, 1.1.3.1, 1.1.9.1
4- Oral exam	1.1.1.1, 1.1.3.1, 1.1.9.1, 4.1.2.1, 4.3.2.1

g- Assessment schedule

Assessment 1	Mid-term/Course work	7-9 th week
Assessment 2	Practical, OSPE	14 th week
Assessment 3	Written exam	Start from 15 th week
Assessment 4	Oral exam	Start from 15 th week

h- Weighing of assessments

1	Periodical (Mid-term) exam / Course 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

Classroom	Data show- Computers, Internet, Platform
Laboratory facilities	Water baths, glassware, chemicals, electronic balance
Library	Books and Pharmacopoeia

7- List of References

No	Reference	Type
1.	Electronic book "Pharmaceutic-1" prepared by staff members.	Course notes
2.	"Aulton's Pharmaceutics: The design and manufacture of medicines" 6th Ed., Michael E. Aulton, Kevin M.G. Taylor, (2021).	Essential Book



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3.	"Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems" 10th Ed., Wolters Kluwer, <u>Loyd Allen</u> , <u>Howard C. Ansel</u> , Lippincott Williams and Wilkins, Philadelphia, (2013).	Essential Book
4.	"Remington's: The science and practice of pharmacy" 22nd Ed., Pharmaceutical Press, Lippincott Williams and Wilkins, Philadelphia, (2012).	Essential Book
5	http://www.sciencedirect.com http://www.google.com , http://www.pubmed.com https://www.ekb.eg	Website

8- Matrix

Matrix 1. Course content and course key elements

A. Theoretical part

Course contents	Outcomes Domains / Key elements						
	Domain 1			Domain 2		Domain 4	
	1.1.1.1	1.1.3.1	1.1.9.1	2.1.4.1	2.2.5.1	4.1.2.1	4.3.2.1
Pharmaceutical calculations Systems of Pharmaceutical Measurement			√	√			
Pharmaceutical calculations Roman Numerals			√	√			
Pharmaceutical Solutions Syrup, elixir	√	√			√		
Pharmaceutical Solutions Solutions used in mouth , throat, and body cavities	√	√			√		
Pharmaceutical suspensions Definition, stability	√	√	√	√	√		
Pharmaceutical suspensions Preparation and	√	√	√	√	√		



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characterization								
Incompatibilities occurring during dispensing Physical / pharmaceutical incompatibility	√	√						
Incompatibilities occurring during dispensing Chemical and Therapeutic incompatibilities	√	√						
Emulsions Definition and types	√	√	√		√	√		
Emulsions Preparation and applications	√	√	√		√	√		
Colloids Definition and separation	√	√						
Colloids Types and properties of colloidal systems	√	√						
Prescription types and Dose calculation (self-learning)			√		√		√	√

B. Practical part

Course contents	Outcomes Domains / Key elements						
	Domain 1			Domain 2		Domain 4	
	1.1.1.1	1.1.3.1	1.1.9.1	2.1.4.1	2.2.5.1	4.1.2.1	4.3.2.1
General Laboratory Instructions				√	√		
Pharmaceutical calculations			√	√	√		
Preparation of Simple Mixtures (Internal	√	√	√	√	√	√	√



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solutions)								
Preparation of external solutions	√	√	√		√	√	√	√
Preparation of non-aqueous solutions (elixir)	√	√	√		√	√	√	√
Preparation of suspension	√	√	√		√	√	√	√
Suspension containing Diffusible Solids	√	√	√		√	√	√	√
Suspension Containing Indiffusible Solids	√	√	√		√	√	√	√
Preparation of Emulsion (Castor Oil Emulsion)	√	√	√		√	√	√	√
Preparation of Emulsion (Liquid Paraffin Emulsion)	√	√	√		√	√	√	√
Medicated emulsion	√	√	√		√	√	√	√
revision	√	√	√		√	√	√	√

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

Theoretical course contents	Teaching and Learning Methods					Assessment methods			
	Advanced lecture	Hybrid leaning	Lab sessions	Problem solving	Self-learning	Corse Work	Practical	Written	Oral
Pharmaceutical calculations Systems of Pharmaceutical Measurement	√	√				√		√	√
Pharmaceutical calculations Roman Numerals	√	√				√		√	√
Pharmaceutical Solutions Syrup, elixir	√	√		√		√		√	√



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Pharmaceutical Solutions Solutions used in mouth , throat, and body cavities	√	√		√		√		√	√
Pharmaceutical suspensions Definition, stability	√	√		√		√		√	√
Pharmaceutical suspensions Preparation and characterization	√	√		√		√		√	√
Incompatibilities occurring during dispensing Physical / pharmaceutical incompatibility	√	√		√		√		√	√
Incompatibilities occurring during dispensing Chemical and Therapeutic incompatibilities	√	√		√		√		√	√
Emulsions Definition and types	√	√				√		√	√
Emulsions Preparation and applications	√	√		√		√		√	√
Colloids Definition and separation	√	√		√		√		√	√
Colloids Types and properties of colloidal systems	√	√		√		√		√	√
Prescription types and Dose calculation (self- learning)					√	√			

B- Practical part

Practical course contents	Teaching and Learning Methods				Assessment methods	
	Advanced lecture	Hybrid leaning Recorded videos	Lab sessions	Problem solving	Course Work	Practical
General Laboratory Instructions		√	√	√	√	√



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Pharmaceutical calculations		√	√	√	√	√
Preparation of Simple Mixtures (Internal solutions)		√	√	√	√	√
Preparation of external solutions		√	√	√	√	√
Preparation of non-aqueous solutions (elixir)		√	√	√	√	√
Preparation of suspension		√	√	√	√	√
Suspension containing Diffusible Solids		√	√	√	√	√
Suspension Containing Indiffusible Solids		√	√	√	√	√
Preparation of Emulsion (Castor Oil Emulsion)		√	√	√	√	√
Preparation of Emulsion (Liquid Paraffin Emulsion)		√	√	√	√	√
Medicated emulsion		√	√	√	√	√
revision		√	√	√	√	√

Course Coordinator	Prof. Dr. Osama Abd El-Azeem Soliman
Head of Department	Prof. Dr. Irhan Ibrahim Abu Hashim

Date: 20 /9/ 2023



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Course specification
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بكالوريوس الصيدلة الإكلينيكية فارم د – Pharm D

Course Specification

Academic year: 2022/2023

Course name: Communication and Presentation skills	اسم المقرر: مهارات التواصل والعرض
Academic Level: Level 2	المستوى الأكاديمي : الثاني
Scientific department: Clinical Pharmacy and Pharmacy Practice	القسم العلمي: الصيدلة الإكلينيكية والممارسة الصيدلانية
Head of Department: Assoc. Prof. Dr. Mohamed E. Shams	رئيس القسم: أ.د/ محمد الحسيني شمس
Course Coordinator: Dr. Ali Qoura	منسق المقرر: د. علي قورة



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Course specification
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University	Mansoura
Faculty	Pharmacy
Department offering the course	
Department supervising the course	Clinical Pharmacy and Pharmacy Practice
Program on which the course is given	B. Pharm. (PharmD) (Clinical Pharmacy)
Academic Level	Level 2, 1 st semester, 2023-2024
Date of course specification approval	7 th September 2023

1- Basic Information: Course data:

Course Title	Communication and Presentation skills
Course Code	UR4
Prerequisite	Registration
Credit Hours: Lecture	1
Tutorial	-
Total Credit Hours	1 (Credit H)

2- Course Aims:

In this course, the students are introduced to the principles of effective communication and presentation skills and practices. Communicating and integrating into the different health care teams to finally reflect on patient-centered practice and care. The course deals also with the different pharmaceutical settings and the required written, verbal and non-verbal communication skills. The course describes the different types of effective presentations, elements of each, and methods to prepare.



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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
1.1.6	1.1.6.1	Identify the different resources to use for making trusted evidence based clinical decisions.

Domain 2: professional and ethical practice

Program K. element no.	Course K. element no.	Course K. element
2.1.3	2.1.3.1	Adopt professional relations and communications with health care team members as drug specialists fully responsible for decisions regarding drug therapy problems.

Domain 3: Pharmaceutical care

Program K. element no.	Course K. element no.	Course K. element
3.2.5	3.2.5.1	Employ clinical knowledge and skills to individualize patient care plan, maximize safety and efficacy of the used drugs in collaboration with other health care team members.



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Domain 4: personal practice

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Work effectively in the healthcare team by sharing clinical experience and managing time efficiently.
4.1.2	4.1.2.1	Develop practices for rational drug use, monitoring and managing ADRs in collaboration with healthcare team members.
4.2.1	4.2.1.1	Implement proficient verbal and non-verbal communication and writing skills necessary for patient counseling and making decisions with the other healthcare team members.
4.2.2	4.2.2.1	Adopt advanced technology to create attractive and informative presentations.
4.3.1	4.3.1.1	Keep records for faced clinical problems and reached solutions to continuously develop pharmacy practice.
4.3.2	4.3.2.1	Practice continuous independent learning and regular updating of clinical information.



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4- Course Contents

Week No.	Lecture Topics	Lecture Credit Hours
1	Presentation Skills guide: What is a presentation, Key elements of a successful presentation, Different types of presentations	1
2	Structuring the presentation: organizing and gathering presentation materials	1
3	Structuring the presentation: writing the presentation, Managing the presentation	1
4	Pharmacists' effective communication with patients: importance of communication skills, main components of effective communication	1
5	Pharmacists' effective communication with healthcare team members: Improving communication	1
6	Oral presentation: tips for conducting oral presentations (dealing with speech anxiety)	1
7	Oral presentation: tips for conducting oral presentations (developing a personal style of presentation).	1
8	Effective presentations design and delivery: visual aids and supporting materials, use PowerPoint ® effectively	1
9	Confident and Effective Delivery of a Presentation: Common mistakes	1
10	Non-Verbal Communication: Why non-verbal communications are unique	1
11	Non-Verbal Communication: Elements of non-verbal communication	1
12	Communication: Interpersonal Communication.	1
13	Communication: One-way Communication (Self-learning)	1
14	Revision and quiz	1
15	Final theoretical exam	-



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5- Teaching and Learning Methods:

	Teaching & Learning methods	Week no.	K. elements to be addressed
5.1	Hybrid 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	Week 1-14	1.1.6.1, 2.1.3.1, 3.2.5.1,
5.2	Self-learning	Week 13	4.3.1.1, 4.3.2.1

5.3	Research Assignments	Week 1-13	4.3.1.1, 4.3.2.1
5.4	Class Activity Discussion / Brainstorming / problem solving	Week 1-13	4.1.1.1, 4.1.2.1, 4.2.1.1, 4.2.2.1

6- Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.6.1, 2.1.3.1, 3.2.5.1
2-Periodical (Mid-term exam) /Course work	1.1.6.1, 2.1.3.1, 3.2.5.1, 4.1.1.1, 4.1.2.1, 4.2.1.1, 4.2.2.1, 4.3.1.1, 4.3.2.1

b- Assessment schedule

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

c- Weighing of assessments

1	Periodical (Mid-term/ Course work)	25%
2	Final-term examination	75%
3	Other types of assessment	
Total		100%



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7- Facilities required for teaching and learning

Classroom	Data show- Computers, Internet, Platform
Library	Reference books

8- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos by staff member	Videos on platform
3.	World Health Organization. The Role of the Pharmacist in the Health Care System – Preparing the future pharmacist: curricular development. Report of a third WHO Consultative Group on the Role of the Pharmacist. 1997. Available from: http://apps.who.int/medicinedocs/pdf/s2214e/s2214e.pdf Accessed 31 July 2023. Egyptian knowledge bank website: https://www.ekb.eg/ . http://www.sciencedirect.com http://www.google scholar.com http://www.pubmed.com	Website



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9.1- Matrix 1 of knowledge and skills of the course

Course contents									
	Domain 1	Domain 2	Domain 3	Domain 4					
	1.1.6.1	2.1.3.1	3.2.5.1	4.1.1.1	4.1.2.1	4.2.1.1	4.2.2.1	4.3.1.1	4.3.2.1
Presentation Skills guide: What is a presentation, Key elements of a successful presentation, Different types of presentations	√								
Structuring the presentation: organizing and gathering presentation materials	√								
Structuring the presentation: writing the presentation, Managing the presentation									
Pharmacists' effective communication with patients: importance of communication skills, main components of effective communication		√	√	√	√	√			
Pharmacists' effective communication with healthcare team members: Improving communication		√	√	√	√	√			
Oral presentation: tips for conducting oral presentations (dealing with speech anxiety)	√						√	√	√
Oral presentation: tips for conducting oral presentations (developing a personal style of presentation).									
Effective presentations design and delivery: visual aids and supporting materials, use PowerPoint ® effectively	√						√	√	√



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Confident and Effective Delivery of a Presentation: Common mistakes	√							√	√	√
Non-Verbal Communication: Why non-verbal communications are unique		√	√		√	√	√			
Non-Verbal Communication: Elements of non-verbal communication		√	√		√	√	√			
Communication: Interpersonal Communication.		√	√		√	√	√			
Communication: One-way Communication (Self-learning)	√	√	√		√	√	√	√	√	√

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

Course Contents	Teaching and Learning Methods							Assessment methods			
	Lecture	Online lecture	Hybrid learning	Problem solving	Case Study	Lab sessions	Self-learning	Corse Work	Practical/Tutorial	Written	Oral
Presentation Skills guide: What is a presentation, Key elements of a successful presentation, Different types of presentations	√	√	√					√		√	√



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Structuring the presentation: organizing and gathering presentation materials	√	√	√					√		√	√
Structuring the presentation: writing the presentation, Managing the presentation	√	√	√					√		√	√
Pharmacists' effective communication with patients: importance of communication skills, main components of effective communication	√	√	√					√		√	√
Pharmacists' effective communication with healthcare team members: Improving communication	√	√	√					√		√	√
Oral presentation: tips for conducting oral presentations (dealing with speech anxiety)	√	√	√					√		√	√
Oral presentation: tips for conducting oral presentations (developing a personal style of presentation).	√	√	√							√	√



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Effective presentations design and delivery: visual aids and supporting materials, use PowerPoint ® effectively	√	√	√							√	√
Confident and Effective Delivery of a Presentation: Common mistakes	√	√	√							√	√
Non-Verbal Communication: Why non-verbal communications are unique	√	√	√							√	√
Non-Verbal Communication: Elements of non-verbal communication	√	√	√							√	√
Communication: Interpersonal Communication.	√	√	√							√	√
Communication: One-way Communication (Self-learning)	√	√	√				√			√	√



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Course specification
2023- 2024

Course Coordinator	Dr. Ali Quora
	<i>Ali qoura</i>
Head of Department	prof. Dr/ Mohamed Elhusseiny <i>Mohamed Elhusseiny</i> Date: 7/9/2023



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Course specification
2023- 2024



الإكلينيكية (فارم دي) بكالوريوس الصيدلة
Pharm D-Clinical Pharmacy
Course Specification
Academic year: 2023/2024

Course name:	اسم المقرر:اساسيات الفارماكولوجي
-Basic Pharmacology PO 301	
Academic Level: Level 2	المستوى الأكاديمي: الثاني
Scientific department: Pharmacology & Toxicology	القسم العلمي : الادويه والسموم
Head of Department:	رئيس القسم :
Prof. Dr. Manar A. Nader	أ.د/ منار احمد نادر
Course Coordinator:	منسق المقرر :



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University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmacology & Toxicology
Department supervising the course	Pharmacology & Toxicology
Program on which the course is given	B. Pharm. (Clinical Pharmacy) (Pharm-D)
Academic Level	Level 2, Second semester, 2023-2024
Date of course specification approval	18 th September 2023

A. Basic Information: Course data:

Course Title	Basic Pharmacology
Course Code	PO 301
Prerequisite	Registration
Teaching credit Hours: Lecture	2
: Practical	1
Total Credit Hours	3

B. Professional Information:

1. Course Aims:

- Provide knowledge and understanding of the basic principles of pharmacology (pharmacokinetics and pharmacodynamics).
- Introduce concepts of drug action at cell, tissue and system levels.
- Provide fundamental pharmacological knowledge of the principles of drug



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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	Define information of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences
1.1.4	1.1.4.1	List drugs' mechanism of action, therapeutic effects and evaluate their suitability, efficacy, and safety in individuals and populations.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.4.4	2.4.4.1	Recognize toxicity profiles of xenobiotics
2.4.5	2.4.5.1	Specify and take suitable action when signs, symptoms and risk factors that relate to medical or health problems are encountered.
2.5.2	2.5.2.1	Organize, deduce and evaluate applicable evidence-based information about a patient's health-related care needs.
2.6.3	2.6.3.1	Pertain pharmacoeconomic basics to enhance drug use and confirm achievement of intended therapeutics consequences.



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Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.1	3.1.1.1	Adjust a dosage routine for a patient based on the physiological, genetic, and immunological changes brought about by disease or concomitant drug use.
3.2.1	3.2.1.1	Incorporate principles of pharmacological aspects of drugs, as mode of action, therapeutic uses, proper dosage, unwanted effects and drug interactions.
3.2.4	3.2.4.1	Mention suitable data about toxicity of medicinal agents and other xenobiotics including possible sources, signs, symptoms and treatment options.
3.2.5	3.2.5.1	Provide education and counseling to patients, healthcare professionals and communities to achieve safe and cost-effective use of medicines

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Demonstrate decision-making activities with other pharmacy team members and non-pharmacy team members and apply effective time management skills.
4.2.1	4.2.1.1	Present clear language, pace, tone and non-verbal communication and writing skills when dealing with patients, other health team and communities.
4.3.2	4.3.2.1	Develop principles of continuing professional development including assessing own learning needs and developing a plan to meet these needs.



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3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	Introduction	2
2	Pharmacokinetics (absorption & distribution)	2
3	Pharmacokinetics (metabolism & excretion)	2
4	Pharmacokinetics (metabolism & excretion)	2
5	Pharmacodynamics (Dose-response curve)	2
6	Pharmacodynamics (Drug-Receptor Interactions)	2
7	Pharmacodynamics (types of drugs)	2
8	Pharmacodynamics (Adverse drug reaction)	2
9	Principles of drug interaction (Pharmacokinetics interaction)	2
10	Principles of drug interaction (Pharmacodynamics interaction)	2
11	Principles of drug interaction (Pharmacokinetics interaction)	2
12	Principles of drug interaction (Pharmacokinetics interaction)	2
13	Principles of drug interaction (Pharmacodynamics interaction)	2
14	Food drug interaction (self-learning)	2
15	Final theoretical exam	-
Week No.	Practical Topics	Practical credit hours
1.	Handling of animal & Route of administration	1
2.	Drug Metabolism	1
3.	Drug receptor application	1



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4.	Organ bath stimulation	1
5.	Determination of affinity constant using organ bath stimulation	1
6.	4-point assay	1
7	Drug interaction case study	1
8	Midterm exam	-
9	Drug interaction case study	1
10	Software application on drug interaction -1	1
11	Software application on drug interaction -2	1
12	Software application on drug interaction -3	1
13	Software application on drug interaction -4	1
13	Tutorial exam	1

4- Teaching and Learning Methods:

Teaching and Learning Method		Week number	K. elements to be addressed
4.1	Advanced lectures: <ul style="list-style-type: none"> Lectures using Data show, power Point presentations Brain storming Group discussion 	1-14	1.1.1.1, 1.1.4.1, 2.4.4.1, 2.4.5.1, 2.6.3.1
4.2	Hybrid learning <ul style="list-style-type: none"> Online learning through my Mans "Mansoura university " Interactive discussion through My Mans 	1-12	1.1.1.1, 1.1.4.1, 2.4.4.1, 2.4.5.1, 2.6.3.1
4.3	Self-learning	14	4.1.1.1, 4.2.1.1, 4.3.2.1
4.4	Practical classes provided with experimental animals for handling and demonstration of toxicities with data shows and white boards for data presentation	1-14	2.4.4.1, 2.4.5.1, 2.6.3.1, 3.1.1.1, 3.2.4.1, 3.2.5.1
4.5	Case study- problem solving	9-11	2.4.4.1, 2.4.5.1, 2.6.3.1, 3.1.1.1, 3.2.4.1, 3.2.5.1
4.6	Collaborative learning: research project	9-11	2.4.4.1, 2.4.5.1, 2.6.3.1, 3.1.1.1, 3.2.4.1, 3.2.5.1



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5- Student Assessment:

i- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1, 1.1.4.1, 2.4.4.1, 2.4.5.1, 2.6.3.1
2-Practical exam	1.1.1.1, 1.1.4.1, 2.4.4.1, 2.4.5.1, 2.6.3.1, 3.1.1.1, 3.2.4.1, 3.2.5.1, 4.1.1.1, 4.2.1.1, 4.3.2.1
3-Oral	1.1.1.1, 1.1.4.1, 2.4.4.1, 2.4.5.1, 2.6.3.1, 3.1.1.1, 3.2.4.1, 3.2.5.1, 4.1.1.1, 4.2.1.1, 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1, 1.1.4.1, 2.4.4.1, 2.4.5.1, 2.6.3.1, 3.1.1.1, 3.2.4.1, 3.2.5.1

b. Assessment schedule

Assessment 1	Periodical (Mid-term exam) / Course work	6 th - 9 th week
Assessment 2	Practical examination and tutorial	14 th week
Assessment 3	Written exam	Start from 15 th week
Assessment 4	Oral exam	Start from 15 th week

c. Weighing of assessments

1	Periodical (Mid-term) exam / Course 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	Data show- Computers - white board - Media- Sterile tools- chemical reagent- experimental animals



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7- List of References

No	Reference	Type
1.	Electronic book prepared by staff members.	Course notes
2.	Lippincott's Pharmacology; illustrated review; Karen Whalen. Wolters Kluwer; 8th edition (2022).	Book
3.	Basic & Clinical Pharmacology; Katzung B.G., & Vanderah T.W. (Eds.). McGraw Hill Lange; 15th edition (2021).	Book
4.	https://www.ncbi.nlm.nih.gov/books/NBK482426/ https://www.ekb.eg	websites



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

Course contents	Outcomes Domains / Key elements												
	Domain 1		Domain 2				Domain 3				Domain 4		
	1.1.1.1	1.1.4.1	2.4.4.1	2.4.5.1	2.5.2.1	2.6.3.1	3.1.1.1	3.2.1.1	3.2.4.1.	3.2.5.1	4.1.1.1	4.2.1.1	4.3.2.1
A)Theoretical part													
Introduction	√	√	√	√	√	√	√	√	√	√			
Pharmacokinetics (absorption & distribution)	√	√		√	√	√	√	√	√	√			
Pharmacokinetics (metabolism & excretion)	√	√		√	√	√	√	√	√	√			
Pharmacokinetics (metabolism & excretion)	√	√		√	√	√	√	√	√	√			
Pharmacodynamics (Dose-response curve)	√	√		√	√	√	√	√	√	√	√	√	√
Pharmacodynamics (Drug-Receptor Interactions)	√	√		√	√	√	√	√	√	√	√	√	√
Pharmacodynamics	√	√		√	√	√	√	√	√	√	√	√	√



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(types of drugs)														
Pharmacodynamics (Adverse drug reaction)	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Principles of drug interaction (Pharmacokinetics interaction)	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Principles of drug interaction (Pharmacodynamics interaction)	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Principles of drug interaction (Pharmacokinetics interaction)	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Principles of drug interaction (Pharmacokinetics interaction)	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Principles of drug interaction (Pharmacodynamics interaction)	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Food drug interaction (self-learning)	√	√	√	√	√	√	√	√	√	√	√	√	√	√



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Course contents	Outcomes Domains / Key elements												
	Domain 1		Domain 2				Domain 3				Domain 4		
	1.1.1.1	1.1.4.1	2.4.4.1	2.4.5.1	2.5.2.1	2.6.3.1	3.1.1.1	3.2.1.1	3.2.4.1.	3.2.5.1	4.1.1.1	4.2.1.1	4.3.2.1
B) Practical part													
Handling of animal &Route of administration	√	√		√	√	√	√	√	√	√			
Drug Metabolism	√	√	√	√	√	√	√	√	√	√			
Drug receptor application	√	√		√	√	√	√	√	√	√			
Organ bath stimulation	√	√		√	√	√	√	√	√	√			
Determination of affinity constant using organ bath stimulation	√	√		√	√	√	√	√	√	√	√	√	√
4-point assay	√	√		√	√	√	√	√	√	√	√	√	√
Drug interaction case study	√	√	√	√	√	√	√	√	√	√	√	√	√
Drug interaction case study	√	√	√	√	√	√	√	√	√	√	√	√	√
Software application on drug interaction	√	√		√	√	√	√	√	√	√	√	√	√



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Software application on drug interaction	√	√		√	√	√	√	√	√	√	√	√	√
Software application on drug interaction	√	√		√	√	√	√	√	√	√	√	√	√
Software application on drug interaction	√	√		√	√	√	√	√	√	√	√	√	√

9- Matrix between course content, method of learning and assessment:

A) Theoretical part:

Course contents	Teaching and learning methods						Assessment methods			
	Lectures	Hybrid	Lab sessions	Self-learning	Case study	Collaborative	Course work	Practical/tuto	Written	Oral
Introduction	✓						✓		✓	✓
Pharmacokinetics (absorption & distribution)	✓						✓		✓	✓
Pharmacokinetics (metabolism & excretion)	✓						✓		✓	✓
Pharmacokinetics (metabolism & excretion)	✓						✓		✓	✓
Pharmacodynamics (Dose-response curve)	✓	✓							✓	✓
Pharmacodynamics (Drug-Receptor Interactions)	✓								✓	✓
Pharmacodynamics (types of drugs)	✓								✓	✓
Pharmacodynamics (Adverse drug reaction)	✓	✓							✓	✓
Principles of drug interaction (Pharmacokinetics interaction)	✓					✓			✓	✓
Principles of drug interaction (Pharmacodynamics interaction)	✓					✓			✓	✓
Principles of drug interaction (Pharmacokinetics interaction)	✓	✓				✓			✓	✓
Principles of drug interaction (Pharmacokinetics interaction)	✓								✓	✓
Principles of drug interaction (Pharmacodynamics interaction)	✓								✓	✓
Food drug interaction (self-learning)	✓			✓					✓	✓

B) Practical part:

Course contents	Teaching and learning methods	Assessment method
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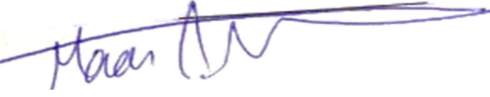


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	Advanced lectures	Hybrid learning	Lab sessions	Self-Learning	Case study	Collaborative Learning	Course work	Practical/tut	Written	Oral
Handling of animal & Route of administration		✓	✓					✓		
Drug Metabolism		✓	✓				✓	✓		
Drug receptor application		✓	✓				✓	✓		
Organ bath stimulation		✓	✓				✓	✓		
Determination of affinity constant using organ bath stimulation		✓	✓				✓	✓		
4-point assay		✓	✓				✓	✓		
Drug interaction case study		✓	✓				✓	✓		
Drug interaction case study		✓	✓				✓	✓		
Software application on drug interaction		✓	✓		✓	✓	✓	✓		
Software application on drug interaction		✓	✓		✓	✓	✓	✓		
Software application on drug interaction		✓	✓		✓	✓	✓	✓		
Software application on drug interaction		✓	✓				✓	✓		

Course Coordinator	
Head of Department	Prof. Dr. Manar A. Nader 

Date: 18 / 9 / 2023



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Course specification
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بكالوريوس الصيدلة الإكلينيكية (فارم د – Pharm D)
Course Specification
Academic year: 2023/2024

Course name: General Microbiology & Immunology	المقرر : الميكروبيولوجيا العامة و المناعة
Academic Level: level 2	المستوى الأكاديمي : الثاني
Scientific department: Microbiology & Immunology	القسم العلمي: الميكروبيولوجيا والمناعة
Head of Department: Prof. El Sayed E. Habib	رئيس القسم : أ.د/ السيد الشربيني حبيب
Course Coordinator: To be nominated	منسق المقرر : سيتم ترشيحه



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Course specification
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Faculty	Pharmacy
Department offering the course	Microbiology & Immunology
Department supervising the course	Microbiology & Immunology
Program on which the course is given	B. Pharm. (Clinical Pharmacy) (PharmD)
Academic Level	Second level, second semester, 2023-2024
Date of course specification approval	10 th September , 2023

A. Basic Information: Course data:

Course Title	General Microbiology & Immunology
Course Code	PM 401
Prerequisite	-
Teaching credit Hours: Lecture	2
: Practical	1
Total Credit Hours	3

B. Professional Information:

1. Course Aims:

This course enables the students to:

1. Differentiate between different microorganisms.
2. Identify the structure of bacteria their growth requirements and associated genetics.
3. Appreciate the basic principles of immunology and the function of the immune system including its role in disease control



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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	Identify different classes of microorganism, their structure, genetic material and growth requirements in addition to components of immune system.
1.1.2	1.1.2.1	Define different abbreviations and scientific expressions related to structure & growth of microorganisms, genetics and immune system.
1.1.5	1.1.5.1	Illustrate the defect in genetic material and its causes

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.5.2	2.5.2.1	Deduce the data of genetic analysis and proper immune system under normal and abnormal conditions.
2.5.3	2.5.3.1	Apply principles of genetics in studying new molecular techniques.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.3	3.1.3.1	Regulate microbial growth and conduct laboratory tests for the identification of different microorganisms
3.2.6	3.2.6.1	Manage the use of immunization therapy according to the health status.



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Domain 4: Personal practice

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Develop decision-making activities with other team members and apply effective time management skills.
4.3.2	4.3.2.1	Commit self-development and self-learning

3- Course Content:

A. Theoretical part

Week No.	Topics	Lecture credit Hours
1	Introduction and classification of microorganisms.	2
2	Bacterial structure (external structures)	2
3	Bacterial structure (internal structures)	2
4	Microbial growth requirements (nutritional & environmental)	2
5	DNA, RNA and replication of DNA	2
6	Transcription in prokaryotes	2
7	Translation and transferable genetic elements	2
8	Introduction to immunology	2
9	Innate immune response	2
10	Complement system	2
11	Fever as a primary immune response	2
12	Measurement of microbial growth	2
13	Direct methods for Identification of microorganisms	2
14	Indirect methods for Identification of microorganisms	2
15	Compensatory and alternative lecture	2



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16	Revision & Quiz	2
15	Start of Final written and oral exam	-

B. Practical part

Week No.	Practical Topics	Practical credit hours
1.	Microscope, shape & arrangement of bacteria	1
2.	Simple stain	1
3.	Differential stains (Characters and types)	1
4.	Gram stain (identification of unknown mixtures)	1
5.	Acid fast stain	1
6.	spore stain	1
7.	Streaking for isolation	1
8.	Midterm exam	
9.	Media	1
10.	Biochemical activity of bacteria	1
11.	Serological tests (Blood grouping)	1
12.	Serological tests (ELISA)	1
13.	Serological tests (Passive agglutination)	1
14.	Capsule stain	1
15.	Revision / activity	1
16.	Practical exam applying OSPE	-



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4- Teaching and Learning Methods:

Teaching and learning method		Week No.	K. elements to be addressed
5.1	Advanced lecture	1-16	1.1.1.1,1.1.2.1, 1.1.5.1, 2.5.2.1, 2.5.3.1, 3.1.3.1, 3.2.6.1, 4.1.1.1, 4.3.2.1
5.2	. Distance learning <ul style="list-style-type: none"> On line learning through my mans "Mansoura university "as recorded – video lectures Inter active discussion through My Mans 	1-16	1.1.1.1,1.1.2.1, 1.1.5.1, 2.5.2.1, 2.5.3.1, 3.1.3.1, 3.2.6.1,4.1.1.1, 4.3.2.1
5.3	Self-learning	6+10	4.1.1.1, 4.3.2.1
5.4	Practical session using chemicals and laboratory equipment and/ or tutorial	1-11	2.5.2.1, 2.5.3.1, 3.1.3.1, 3.2.6.1
5.5	Class Activity: Group discussion offline and online.	1-16	3.1.3.1, 3.2.6.1, 4.1.1.1, 4.3.2.1

5- Student Assessment:

-Assessment Methods:

Assessment Methods	K elements to be assessed
1- Periodical (Mid-term exam) / Course work	1.1.1.1,1.1.2.1, 1.1.5.1, 2.5.2.1, 2.5.3.1,
Practical exam applying OSPE	3.1.3.1, 3.2.6.1
3-Written exam	1.1.1.1,1.1.2.1, 1.1.5.1, 2.5.2.1, 2.5.3.1, 3.1.3.1, 3.2.6.1
4-Oral	1.1.1.1,1.1.2.1, 1.1.5.1, 2.5.2.1, 2.5.3.1, 3.1.3.1, 3.2.6.1, 4.1.1.1, 4.3.2.1



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- Assessment schedule

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

- Weighing of assessments

1	Periodical (Mid-term) exam / Course 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 rooms	Data show- Computers, Internet.
- Laboratory facilities	Microscopes- chemicals- glass wares- white board



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Course specification
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7- List of References

No	Reference	Type
1.	Course notes prepared by the department staff members	Course notes
2.	Parija, S. C. Textbook of microbiology and immunology . Springer, (2023).	Book
3.	Cappuccino, James G., and Chad T. Welsh. Microbiology: A laboratory manual . Pearson Education, 2017.	Book
4.	Kathleen, Talaro, and Barry Chess. Foundations in microbiology . 2018	Book
5.	Leboffe, Michael J., and Burton E. Pierce. Microbiology: Laboratory Theory and Application, Essentials . Morton Publishing Company, 2019	Book
6.	Abbas, Abul K., Andrew H. Lichtman, and Shiv Pillai. Basic Immunology E-Book: Functions and Disorders of the Immune System . Elsevier Health Sciences, 2019	Book
7.	http://www.pubmed.com https://081028e5q-1105-y-https-link-springer-com.mplbci.ekb.eg/referenceworkentry/10.1007/978-1-4419-6247-8_14219 https://081018e6i-1105-y-https-www-sciencedirect-com.mplbci.ekb.eg/science/article/pii/B9780123705198000031 https://0810e8e5c-1105-y-https-onlinelibrary-wiley-	Websites



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Matrix 1: Course content and course key elements:

Course contents	Course Key Elements								
	Domain 1			Domain 2		Domain 3		Domain 4	
	1.1.1.1	1.1.2.1	1.1.5.1	2.5.2.1	2.5.3.1	3.1.3.1	3.2.6.1	4.1.1.1	4.3.2.1
A) Theoretical part									
Introduction and classification of microorganisms.	√	√			√				
Bacterial structure (external parts)	√	√			√	√			
Bacterial structure (internal parts)									
Microbial growth requirements (nutritional & environmental)	√	√			√	√			
DNA, RNA and replication of DNA	√	√	√	√					
Transcription in prokaryotes	√	√	√	√					
Translation and transferable genetic elements	√	√	√	√					
Introduction to immunology	√	√		√	√		√	√	√
Innate immune response	√	√		√	√		√		
Complement system	√	√		√	√		√		
Fever as primary immune response	√	√		√	√		√		
Measurements of microbial growth	√	√		√	√		√		
Direct methods for Identification of microorganisms	√	√		√	√		√	√	√
Indirect methods for Identification of microorganisms	√	√		√	√		√	√	√



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Course contents	Course Key Elements									
	Domain 1			Domain 2		Domain 3		Domain 4		
	1.1.1.1	1.1.2.1	1.1.5.1	2.5.2.1	2.5.3.1	3.1.3.1	3.2.6.1	4.1.1.1	4.3.2.1	
B) Practical part										
Microscope, shape & arrangement of bacteria	√	√			√	√				
Simple stain	√	√				√				
Differential stains (Characters and types)	√	√				√		√	√	
Gram stain (identification of unknown mixtures)										
Acid fast stain and spore stain	√	√				√				
Streaking for isolation	√	√				√				
Media	√	√				√				
Biochemical activity of bacteria	√	√				√				
Serological tests (Blood grouping and ELISA)					√	√	√	√	√	√
Serological tests (Passive agglutination)					√	√	√	√	√	√
Capsule stain	√	√			√	√				
Revision	√	√			√	√	√	√	√	√



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Matrix 2: between course content, methods of learning and assessment

A) Theoretical part									
Course contents	Teaching and learning methods					Assessment methods			
	Advanced Lecture	Distance learning	Lab sessions	Group discussion	Self-learning	Course Work	Practical/Tutorial	Written	Oral
Introduction and classification of microorganisms.	√			√		√		√	√
Bacterial structure (external parts)	√			√		√		√	√
Bacterial structure (internal parts)	√			√		√		√	√
Microbial growth requirements (nutritional & environmental)	√			√		√		√	√
DNA, RNA and replication of DNA	√			√				√	√
Transcription in prokaryotes	√			√	√			√	√
Translation and transferable genetic elements	√	√		√				√	√
Introduction to immunology	√			√				√	√
Innate immune response	√			√				√	√
Complement system	√			√	√			√	√
Fever as primary immune response	√			√				√	√
Measurements of microbial growth	√			√				√	√
Direct methods of Identification of microorganisms	√	√		√				√	√
Indirect methods of Identification of microorganisms	√	√		√				√	√



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B) Practical part									
Course contents	Teaching and learning methods					Assessment methods			
	Lecture	Distance learning	Lab sessions	Group discussion	Self-learning	Course Work	Practical/Tutorial	Written	Oral
Microscope, shape & arrangement of bacteria		√	√	√			√		
Simple stain		√	√	√			√		
Differential stains (Characters and types)		√	√	√			√		
Gram stain (identification of unknown mixtures)									
Acid fast stain and spore stain		√	√	√			√		
Streaking for isolation		√	√	√			√		
Media		√	√	√			√		
Biochemical activity of bacteria		√	√	√			√		
Serological tests (Blood grouping and ELISA)		√	√	√			√		
Serological tests (Passive agglutination)		√	√	√			√		
Capsule stain		√	√	√			√		
Revision		√	√	√			√		

Course Coordinator	To be nominated
Head of Department	Prof. El Sayed E. Habib

Date: 10/9/2023



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بكالوريوس الصيدلة الإكلينيكية (فارم د – Pharm D)
Course Specification
Academic year: 2023/2024

Course name: Instrumental Analysis	اسم المقرر: تحليل الى
Academic Level: Level 2	المستوى الأكاديمي: الثاني
Scientific department: Pharmaceutical analytical chemistry	القسم العلمي: الكيمياء التحليلية الصيدلانية
Head of Department: Prof. Dr. jenny Jeehan Mohamed Ahmed Nasr	رئيس القسم: ا.د. جيني جيهان محمد أحمد نصر
Course Coordinator: Prof. Mohamed El-Sayed El-Metwally	منسق المقرر: ا.د. محمد السيد المتولي



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Course specification
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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	Pharm D-Clinical Pharmacy Program
Academic Level	Second level, Second semester, 2023-2024
Date of course specification approval	10/ 09 / 2023

Basic Information: Course data:

Course Title	Instrumental Analysis
Course Code	PC 406
Prerequisite	Pharmaceutical Analytical chemistry II (PC 203)
Credit Hours: Lecture	2
:Practical	1
Total Credit Hours	3 (Credit H)

Course Aims: This course enables the students to:

Recall the basic principles of the instrumental analysis methods such as spectrometric and chromatographic methods.

Cover the applications of these methods to pharmaceutical compounds and pharmaceutical formulations.



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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	Learn detailed knowledge of instrumental analysis techniques including spectrophotometry, spectrofluorimetry, and chromatography.
1.1.3	1.1.3.1	Apply the principles of instrumental analysis to analyze synthetic/natural pharmaceutical raw materials and finished products.

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 and quantify the different pharmaceutical products.
2.2.3	2.2.3.1	Indicate the ability to use the analytical instruments such as spectrophotometer, spectrofluorimeter, and chromatograph along with their operating software, to design analytical procedure for raw materials and finished products.
2.2.4	2.2.4.1	Apply the different methodologies of statistical analysis in the development and validation of spectrophotometric, spectrofluorimetric, and chromatographic methods for quality control and assurance.
2.3.1	2.3.1.1	Comprehend the standard procedures to handle, prepare and disposal the different samples for spectrophotometric, spectrofluorimetric, and chromatographic methods
2.3.2	2.3.2.1	Identify the best practices and adhere to high ethical, legal and safety standards for the analysis of biological and pharmaceutical materials/products via spectrophotometry, spectrofluorimetry, and chromatography.



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DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Conclude new knowledge and practices in the field of instrumental analysis independently and collaboratively.
4.2.2	4.2.2.1	Apply advanced technology whenever possible to present relevant information in the field of instrumental analysis of pharmaceuticals.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills.

4- Course Contents

Week No.	Theoretical Topics	Lecture credit Hours
1	Introduction of Spectrophotometry	2
2	Beer-Lambert's law	2
3	Application of spectrophotometry	2
4	Introduction and principle of Photoluminescence	2
5	Introduction to fluorescence	2
6	Pharmaceutical applications of fluorescence	2
7	Phosphorescence and pharmaceutical applications	2
8	Introduction to chromatography	2
9	Thin layer chromatography (TLC)	2
10	Paper chromatography	2
11	Column chromatography, HPLC	2
12	Gas chromatography (GC)	2
13	Applications of column chromatography + self-learning	2
14	Applications of column chromatography (Cont.)	2



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15	Compensatory & alternative lecture	2
16	Revision & quiz	2
17	Final written and Oral Exam	-
Week No.	Practical Topics	Practical credit hours
1.	Spectrophotometric determination of $KMnO_4$	1
2.	Spectrophotometric determination of pot. Chromate.	1
3.	Spectrophotometric determination of copper sulphate	1
4.	Spectrophotometric determination of ferric chloride	1
5.	Problems on Beer's lambert law	1
6.	Demonstration on fluorimetry	1
7.	Application on fluorimetry	1
8	Midterm exam	-
9	Paper chromatography	1
10	Thin Layer Chromatography (TLC)	1
11	Column Chromatography	1
12	Demonstration on HPLC	1
13	Application on HPLC	1
14	Prediction of Chromatogram	1
15	Revision / activity	1



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5-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.	1-16	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
4.2 Practical session using chemicals and laboratory equipment and/or tutorials	1-16	2.2.1.1, 2.2.3.1, 2.2.4.1, 2.3.1.1, 2.3.2.1, 4.1.2.1, 4.3.2.1
4.3 Self-learning	13	4.1.2.1 4.2.2.1, 4.3.2.1
4.4 Class Activity Discussion / Brainstorming / problem solving	1-14	4.1.2.1 , 4.2.2.1, 4.3.2.1

6- Student Assessment:

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 applying OSPE	2.2.1.1, 2.2.3.1, 2.2.4.1, 2.3.1.1, 2.3.2.1, 4.1.2.1, 4.3.2.1
3-Oral exam	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.4.1, 4.1.2.1
4- Periodical / Course work	1.1.1.1, 1.1.3.1, 2.2.1.1, 2.2.4.1.

. Assessment schedule

Assessment 1	Periodical exam / Course work	7th - 9th week
Assessment 2	Practical examination and tutorial	16th week
Assessment 3	Written exam	17th week
Assessment 4	Oral exam	17th week

Weighing of assessments



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

Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.
- Laboratory facilities	chemicals- glass wares- white board
Mansoura university platform	My mans



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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.	Fundamentals of Analytical Chemistry, Douglas A.; Skoog; Donald M.; West, F.James Holler; Stanely, R.Crouch, Belmont, CA, USA 9th ed. (2014).	Book
4.	Chemical analysis: modern instrumentation methods and techniques, F Rouessac, A Rouessac (2022) John Wiley & Son Ltd.	Book
5.	Instrumental Methods of Chemical Analysis, V. K. Ahluwalia, 1st Ed., New York (2023), https://doi.org/10.1007/978-3-031-38355-7 .	Book
6	Basics of Analytical Chemistry and Chemical Equilibria: A Quantitative Approach, BM Tissue (2023) John Wiley & Son Ltd.	Book
7	http://www.sciencedirect.com/ / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	websites



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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	1.1.3.1	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	4.3.2.1
Theoretical Topics										
Introduction of Spectrophotometry	√			√	√					
Beer-Lambert's law	√			√	√					
Application of spectrophotometry	√	√	√	√	√					
Introduction and principle of Photoluminescence	√			√	√					
Introduction to fluorescence	√			√	√					
Pharmaceutical applications of fluorescence	√	√	√	√	√			√	√	
Phosphorescence and	√	√	√	√	√			√	√	



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pharmaceutical applications										
Introduction to chromatography	√			√	√			√	√	
Thin layer chromatography (TLC)	√	√	√					√	√	
Paper chromatography	√	√	√	√	√			√		
Column chromatography HPLC	√				√			√	√	
Gas chromatography (GC)	√			√	√			√	√	
Applications of column chromatography + self-learning	√	√	√		√			√	√	√
Applications of column chromatography (Cont.)	√	√	√		√			√	√	√
Practical topics										
Spectrophotometric determination of KMnO ₄			√			√			√	√



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Spectrophotometric determination of pot. Chromate				√	√	√	√	√	√	√
Spectrophotometric determination of copper sulphate			√	√			√	√	√	√
Spectrophotometric determination of ferric chloride			√	√			√	√	√	√
Problems on Beer's lambert law			√	√			√	√	√	√
Demonstration on fluorimetry			√	√	√	√	√	√	√	√
Application on fluorimetry			√	√			√	√	√	√
Paper chromatography			√		√	√	√			√
Thin layer chromatography (TLC)			√	√	√			√	√	√
Column Chromatography			√	√			√	√	√	√



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Demonstration on HPLC			√			√			√	√
Application on HPLC			√	√	√	√	√	√	√	
Prediction of Chromatogram			√	√	√	√	√	√		√



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

Course Contents	Teaching and Learning Methods							Assessment methods				
	Lecture	Online interactive lecture	recorded video	Self-learning	Group discussion	Problem solving	Lab Session	Corse Work	Corse Work Periodical Exam	Practical- /sheet	Written	Oral
Introduction of Spectrophotometry	✓		✓					✓	✓		✓	✓
Beer-Lambert's law	✓	✓	✓		✓			✓	✓		✓	✓
Application of spectrophotometry	✓		✓		✓	✓		✓	✓		✓	✓
Introduction and principle of Photoluminescence	✓	✓	✓		✓			✓	✓		✓	✓
Introduction to fluorecence	✓		✓		✓	✓		✓			✓	✓
Pharmaceutical applications of fluorecence	✓		✓		✓						✓	✓
Phosphorescence and pharmaceutical applications	✓	✓	✓		✓	✓					✓	✓
Introduction to chromatography	✓		✓		✓						✓	✓



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Thin layer chromatography (TLC)	✓		✓		✓	✓					✓	✓
Paper chromatography	✓		✓			✓					✓	✓
Column chromatography, HPLC	✓		✓		✓				✓		✓	✓
Gas chromatography (GC)	✓		✓		✓				✓		✓	✓
Applications of column chromatography + self-learning	✓		✓	✓				✓		✓	✓	✓
Applications of column chromatography (Cont.)	✓		✓	✓				✓		✓	✓	✓



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

A) Practical Part:												
Course Contents	Teaching and Learning Methods							Assessment methods				
	Lecture	Online interactive	recorded video	Self-learning	Group	Problem solving	Lab Session	Course Work (presentation)	Course Work Periodical Exam	Practical- /sheet	Written	Oral
Spectrophotometric determination of $KMnO_4$			✓				✓			✓		
Spectrophotometric determination of pot. Chromate.			✓				✓			✓		
Spectrophotometric determination of copper sulphate			✓				✓			✓		
Spectrophotometric determination of ferric chloride			✓				✓			✓		
Problems on Beer's lambert law			✓				✓			✓		
Demonstration on fluorimetry			✓				✓			✓		
Application on fluorimetry			✓				✓			✓		
Paper chromatography			✓				✓			✓		
Thin Layer Chromatography (TLC)			✓				✓			✓		



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Column Chromatography			✓				✓			✓		
Demonstration on HPLC			✓				✓			✓		
Application on HPLC			✓				✓			✓		
Prediction of Chromatogram			✓				✓			✓		
Spectrophotometric determination of KMnO ₄			✓				✓			✓		

Course Coordinator	Prof. Dr. Mohammed Metwally
Head of Department	Prof. Dr. Jenny Jeehan Mohamed Ahmed Nasr

Date: 10/ 09 / 2023



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بكالوريوس الصيدلة الإكلينيكية (فارم د – Pharm D)
Course Specification
Academic year: 2023/2024

Course name: Pathology	اسم المقرر : باثولوجي
Academic Level: level two	الثاني : المستوى الأكاديمي
Scientific department: Pathology department, Faculty of Medicine	الباثولوجي, كلية قسم: القسم العلمي الطب
Head of supervision Department: Prof. El Sayed E. Habib	رئيس القسم المشرف: أ.د/ السيد الشربيني حبيب
Course Coordinator: To be nominated	منسق المقرر : سيتم ترشيحه



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Faculty	Pharmacy
Department offering the course	Pathology department (Faculty of Medicine)
Department supervising the course	Microbiology & Immunology
Program on which the course is given	B. Pharm. (Clinical Pharmacy) (PharmD)
Academic Level	Level two, second semester, 2023-2024
Date of course specification approval	10 th September , 2023

A. Basic Information: Course data:

Course Title	Pathology
Course Code	MD 404
Prerequisite	-
Teaching credit Hours: Lecture	2
: Practical	-
Total Credit Hours	2

B. Professional Information:

1. Course Aims:

On completion of the course, the student will be able to recognize different diseases with regard to pathologic terminology, pathogenesis, and diagnosis based on morphologic changes.

2- Course k. elements:

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



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Domain 1- Fundamental Knowledge

Program K. element no.	Course K. element no.	Course K. element
1.1.2	1.1.1.1	Define inflammation and its pathogenesis and classification with comparison between them.
	1.1.1.2	Define repair & identify its types. Enumerate complication and factors affecting repair.
1.1.4	1.1.4.1	Define & identify different disorders (cardiac and respiratory).
1.1.10	1.1.10.1	Identify and classify neoplastic conditions. Compare between benign and malignant tumors. Illustrate steps of carcinogenesis.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.1.2	2.1.2.1	Establish the best use of knowledge regarding patient health and associated ethical guidelines.
2.4.5	2.4.5.1	Evaluate medical conditions professionally with health care team members to manage and/or prevent diseases.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.4	3.1.4.1	Formulate a systemic approach for the laboratory diagnosis of common infectious clinical conditions and select the most appropriate tools.
3.2.5	3.2.5.1	Develop appropriate methods of infection control to limit infections and promote medical awareness



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Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.2.1	4.2.1.1	Use the correct medical terms related to different diseases when dealing with different members of the community.
4.3.2	4.3.2.1	Use different approaches to ensure ongoing professional development including self-learning and establishing a strategy to achieve this aim.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	Introduction to pathology	2
2	Adaptation, reversible and irreversible cell injury	2
3	Intracellular accumulation of different substances	2
4	Extracellular accumulation of different substances	2
5	Classification and pathogenesis of acute inflammation	2
6	Chronic inflammation	2
7	Pathology of repair	2
8	Pathology of different circulatory disorders	2
9	Introduction to neoplasia	2
10	Classification of neoplasia	2
11	Thrombosis and embolism	2
12	Cardiovascular disorders	2
13	Respiratory disorders	2
14	CNS disorders	2



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15	Compensatory & alternative lecture	2
16	Revision & quiz	2
17	final written and oral exams	-

4- Teaching and Learning Methods:

Teaching and Learning Method	Week No.	K. elements to be addressed
5.1 Computer aided learning: a. Advanced Lectures using Data show, PowerPoint presentations b. Distance learning <ul style="list-style-type: none">Online learning through my mans "Mansoura university "as recorded /video lectures.Interactive discussion through My Mans	1-16	1.1.1.1, 1.1.1.2, 1.1.4.1, 1.1.10.1, 2.1.2.1, 2.4.5.1,
5.2 Self-learning	13	1.1.1.1, 1.1.1.2, 1.1.4.1, 1.1.10.1, 2.1.2.1, 2.4.5.1, 3.1.4.1, 3.2.5.1, 4.2.1.1, 4.3.2.1
5.3 Class Activity: Group discussion offline and online.	1-16	3.1.4.1, 3.2.5.1, 4.2.1.1, 4.3.2.1
5.4 Problem – based learning and brainstorming	1-16	3.1.4.1, 3.2.5.1, 4.2.1.1, 4.3.2.1



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5- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1- Periodical (Mid-term exam)/ Course work	1.1.1.1, 1.1.1.2, 1.1.4.1, 1.1.10.1, 2.1.2.1, 2.4.5.1, 3.1.4.1, 3.2.5.1, 4.2.1.1, 4.3.2.1
2-Written exam	1.1.1.1, 1.1.1.2, 1.1.4.1, 1.1.10.1, 2.1.2.1, 2.4.5.1, 3.1.4.1, 3.2.5.1

b. Assessment schedule

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

c. Weighing of assessments

Assessment 1	Periodical (Mid-term exam)	25 %
Assessment 2	Final-term examination	75 %
Total		100 %

6- Facilities required for teaching and learning

Classroom	Data show, Computers, Internet.
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Course specification
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7- List of References

No.	Reference	type
1	Kumar, V., Abbas, A. K., & Aster, J. C. (2015). <i>Robbins and Cotran pathologic basis of disease</i> (Ninth edition.). Philadelphia, PA: Elsevier/Saunders.	Book
2	Lectures notes prepared by staff members	Course notes
3	https://www.ekb.eg	website



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Course specification
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Matrix 1: Course content and course key elements:

Course contents	Course Key Elements									
	Domain 1				Domain 2		Domain 3		Domain 4	
	1.1.1.1	1.1.1.2	1.1.4.1	1.1.10.1	2.1.2.1	2.4.5.1	3.1.4.1	3.2.5.1	4.2.1.1	4.3.2.1
Introduction to pathology	√	√	√				√			
Adaptation, reversible and irreversible cell injury	√	√	√	√			√			
Intracellular accumulation of different substances		√	√			√	√			
Extracellular accumulation of different substances		√	√	√			√			
Classification and pathogenesis of acute inflammation		√	√				√	√	√	√
Chronic inflammation	√	√	√		√		√		√	√
Pathology of repair		√	√		√	√	√		√	√
Pathology of different circulatory disorders		√	√				√		√	√
Introduction to neoplasia		√	√			√	√		√	√
Classification of neoplasia		√	√				√		√	√
Thrombosis and embolism	√	√	√	√	√	√	√	√	√	√



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Cardiovascular disorders		√	√				√		√	√
Respiratory disorders		√	√				√		√	√
CNS disorders		√	√				√		√	√



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Matrix 2: between course content, methods of learning and assessment

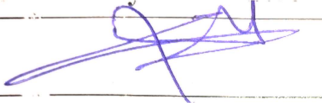
Course contents	Teaching and learning methods					Assessment methods	
	Advanced Lecture	Distance learning	Problem – based learning	Group discussion.	Self-learning	Course Work	Written
Introduction to pathology	√		√	√		√	√
Adaptation, reversible and irreversible cell injury	√		√	√		√	√
Intracellular accumulation of different substances	√		√	√		√	√
Extracellular accumulation of different substances	√		√	√		√	√
Classification and pathogenesis of acute inflammation	√		√	√			√
Chronic inflammation	√		√	√			√
Pathology of repair	√	√	√	√			√
Pathology of different circulatory disorders	√		√	√			√
Introduction to neoplasia	√		√	√			√
Classification of neoplasia	√		√	√			√
Thrombosis and embolism	√		√	√			√
Cardiovascular disorders	√		√	√			√
Respiratory disorders	√	√	√	√	√		√
CNS disorders	√	√	√	√	√		√



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Course Coordinator	To be nominated
Head of supervision Department	Prof. Dr. El Sayed E. Habib
	

Date: 10/9/2023



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الإكلينيكية (فارم دي) بكالوريوس الصيدلة
Pharm D-Clinical Pharmacy
Course Specification
Academic year: 2023/2024

Course name: Pharmaceutical Dosage Forms II	اسم المقرر: مستحضرات صيدلانية 2
Academic Level: Elective Course	المستوى الأكاديمي: مقرر اختياري
Scientific department: Pharmaceutics	القسم العلمي: الصيدلانيات
Head of Department: Prof. Dr. Irhan Ibrahim Abu Hashim	رئيس القسم: أ.د/ ارهان ابراهيم ابو هاشم
Course Coordinator: Prof. Dr. Osama Abd-Elazim Soliman	منسق المقرر: أ.د/ أسامة عبد العظيم سليمان



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Course specification
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University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmaceutics
Department supervising the course	Pharmaceutics
Program on which the course is given	Bachelor of Pharmacy (Clinical Pharmacy- Pharm-D)
Academic Level	Second level, Second Semester, 2022/2023
Date of course specification approval	20/9/2023

A. Basic Information: Course data:

Course Title	Pharmaceutical Dosage Forms II
Course Code	PT 405
Prerequisite	Physical Pharmacy
Teaching Hours: Lecture	2
Practical	1
Total Credit Hours	3 (Credit H)

B. Professional Information:

2- Course Aims:

- 2.1.** Orienting the students to basic principles of diffusion through membranes and different factors affecting percutaneous absorption.
- 2.2.** Recognizing different methods used to enhance the skin penetration.
- 2.3.** Knowing the composition of transdermal drug delivery systems.
- 2.4.** Prepare drugs in different semisolid dosage forms as; creams, ointment, gels and pasts



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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	List the basic principles of diffusion through the skin and transdermal drug delivery systems.
1.1.3	1.1.3.1	Integrate the preparation of different semisolid dosage forms as; creams, ointment, gels and pasts.
1.1.9	1.1.9.1	Recollect the knowledge about the different cosmetic products.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.2.4	2.2.4.1	Specify basic requirements for topical and transdermal drug delivery systems.
2.2.5	2.2.5.1	Prepare and compound the different semisolid dosage forms as; creams, ointment, gels, pasts, and different cosmetic products.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Share decision-making activities with other team members and communicate verbally in a scientific language.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills



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Course specification
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4- Course Contents

A. Theoretical part:

Week No.	Topics	Credit Hours
1	Anatomy and physiology of the skin	2
2	Topical and transdermal drug delivery systems	2
3	Diffusion through skin	2
4	Percutaneous absorption	2
5	Transdermal drug delivery systems (TDDSs)	2
6	Transdermal drug delivery systems (TDDSs)	2
7	Topical medication (creams, ointment,).	2
8	Cosmetics (Anti- perspirants and deodorants)	2
9	Cosmetics (Hair- care products, and lip makeup)	2
10	Cosmetics (Dentifrices, baby- care products)	2
11	Cosmetics (Perfumes and fragrances)	2
12	Topical medication gels	2
13	Topical medication pastes	2
14	Self-learning topic, discussion, and revision	2
15	Compensatory & alternative lecture	2
16	Revision & quiz	2
17	Final written and oral exams	

B. Practical part:

Week No.	Practical topics	Credit hours
1	Ointments (Whitfield's ointment)	1
2	Ointments (Sulphur ointment)	1
3	Cold creams	1
4	Brushless- shaving cream and brush- shaving cream	1
5	Beeswax- Borax cleansing cream and hand cream	1
6	Toothpastes	1
7	Cosmetics (Sunscreen cream and acne vulgaris cream)	1
8	Midterm exam	



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9	Cosmetics (Antidandruff cream)	1
10	Cosmetics (anti- diaper rash cream)	1
11	Cosmetics (Deodorant and antiperspirant cream)	1
12	Cosmetics (Liquid foundation)	1
13	Cosmetics (Lipstick)	1
14	Cosmetics (rouge blusher)	1
15	Revision & activity	1
16	Practical exam	-

Teaching and Learning Methods:

Teaching and learning methods		Weeks No.	K. elements to be addressed
4.1	<u>Advanced Lectures</u> using Data show, power Point presentations <ul style="list-style-type: none"> Brainstorming problem solving. 	1-16	1.1.1.1/1.1.3.1/1.1.9.1/2.2.1.1/ 2.2.4.1/ 2.2.5.1
4.2	Practical session using chemicals and laboratory equipment and/or tutorials	1-12	.1.1.1/1.1.3.1/1.1.9.1/2.2.1.1/ 2.2.4.1/ 2.2.5.1
4.3	<u>Hyperid learning</u> <ul style="list-style-type: none"> Online learning through my mans "Mansoura university" as recorded video lectures Interactive discussion through My Mans	1-16	1.1.1.1/1.1.3.1/1.1.9.1/2.2.1.1/ 2.2.4.1/ 2.2.5.1/ 4.1.2.1/ 4.3.2.1
4.4	Self-learning	14	/ 4.1.2.1/ 4.3.2.1

5- Student Assessment:

j- Assessment Methods:

1-Written exam	1.1.1.1 / 1.1.3.1/1.1.9.1/2.2.1.1/ 2.2.4.1/ 2.2.5.1
2-Practical exam applying OSPE	1.1.1.1/ 1.1.3.1/ 1.1.9.1/ 2.2.4.1/ 2.2.5.1
3-Oral exam	1.1.1.1/ 1.1.3.1/ 1.1.9.1/ 2.2.4.1/ 4.1.2.1/ 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1 / 1.1.3.1/1.1.9.1/2.2.5.1/ 4.1.2.1/ 2.3.2.1

k- Assessment schedule



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

Weighing of assessments

1	Mid-term 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

Classroom	Data show- Computers, Internet, Platform
Laboratory facilities	Water baths, glassware, chemicals, electronic balance
Library	Books and Pharmacopoeia

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
3.	"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
4.	Remington: The Science and Practice of Pharmacy, Adeboye Adejare, 22 nd Ed., Elsevier Science, Business & Economics, 2020, 1175 pages.	Essential Book
5.	"Aulton's Pharmaceutics: The design and manufacture of medicines" 6 th Ed., Michael E.Aulton, Kevin M.G. Taylor, (2021).	Essential Book
6.	http://www.sciencedirect.com/ http://www.google scholar.com/ http://www.pubmed.com https://www.ekb.eg	Websites



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Matrix 1. Course content and course key elements

B. Theoretical part

Course contents	Outcomes Domains / Key elements						
	Domain 1			Domain 2		Domain 4	
	1.1.1.1	1.1.3.1	1.1.9.1	2.2.4.1	2.2.5.1	4.1.2.1	4.3.2.1
Anatomy and physiology of the skin	√		√	√	√		
Topical and transdermal drug delivery systems	√	√		√	√		
Diffusion through skin	√		√	√			
Percutaneous absorption		√	√		√		
Transdermal drug delivery systems (TDDSs)	√			√	√		
Transdermal drug delivery systems (TDDSs)	√	√			√		
Topical medication (creams, ointment,).	√			√			
Cosmetics (Anti-perspirants and deodorants)	√	√	√	√	√		
Cosmetics (Hair-care products, and lip- makeup)	√	√	√	√	√		
Cosmetics (Dentifrices, baby-care products)	√	√	√	√	√		
Cosmetics (Perfumes and fragrances)	√		√		√		
Topical medication gels	√	√					
Topical medication pastes	√	√					



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

Theoretical course contents	Teaching and Learning Methods					Assessment methods			
	Lecture	Hyperid lecture	Lab sessions	Problem Solving	Self-learning	Corse Work	Practical	Written	Oral
Anatomy and physiology of the skin	√		√			√		√	√
Topical and transdermal drug delivery systems	√		√			√		√	√
Diffusion through skin	√		√			√		√	√
Percutaneous absorption	√		√			√		√	√
Transdermal drug delivery systems (TDDSs)	√		√			√		√	√
Transdermal drug delivery systems (TDDSs)	√		√			√		√	√
Topical medication (creams, ointment, gels and pasts).	√		√			√		√	√
Cosmetics (anti- perspirants and deodorants)	√		√			√		√	√
Cosmetics (hair- care products, and lip- makeup)	√		√			√		√	√
Cosmetics (dentifrices, baby- care products)	√		√			√		√	√
Cosmetics (Perfumes and fragrances)	√	√	√					√	√
Topical medication gels	√	√	√			√		√	√



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Topical medication pastes	√	√	√			√		√	√
Self-learning topic, discussion, and revision					√				

A. Practical part

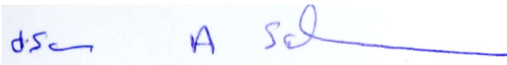

Practical course contents	Teaching and Learning Methods					Assessment methods			
	Lecture	Hybrid leaning Recorded videos	Lab sessions	Team-based learning	Self-learning	Course Work	Practical	Written	Oral
Ointments (Whitfield's ointment)		√	√	√		√	√		
Ointments (Sulphur ointment)		√	√	√		√	√		
Cold creams		√	√	√		√	√		
Brushless- shaving cream and brush- shaving cream		√	√	√		√	√		
Beeswax- Borax cleansing cream and hand cream		√	√	√		√	√		
Toothpastes		√	√	√		√	√		
Cosmetics (Sunscreen cream and acne vulgaris cream)		√	√	√		√	√		
Cosmetics (Antidandruff cream and anti- diaper rash cream)		√	√	√		√	√		
Cosmetics (deodorant and antiperspirant cream)		√	√	√		√	√		
Cosmetics (liquid foundation)		√	√	√		√	√		
Cosmetics (lipstick)		√	√	√		√	√		
Cosmetics (rouge blusher)		√	√	√		√	√		



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Course Coordinator	Prof. Dr. Osama Abd-Elazim Soliman
	
Head of Department	Prof. Dr. Irhan Ibrahim Abu Hashim
	

20/9/2023



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بكالوريوس الصيدلة الإكلينيكية (فارم دي)

Pharm D-Clinical Pharmacy

Course Specification

Academic year: 2023/2024

Course name: Biochemistry-II	اسم المقرر: كيمياء حيوية-2
Academic Level: Level 2	المستوى الأكاديمي: الثاني
Scientific department: Biochemistry	القسم العلمي: الكيمياء الحيوية
Head of Department: Ass. Prof. Noha M.H Abdel-Rahman	رئيس القسم: ا.م.د/ نهى منصور حسن عبدالرحمن
Course Coordinator:	منسق المقرر:



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University	Mansoura
Faculty	Pharmacy
Department offering the course	Biochemistry
Department supervising the course	Biochemistry
Program on which the course is given	Pharm D-Clinical Pharmacy Program
Academic Level	Second level, Second semester, 2023-2024
Date of course specification approval	16/9/2023

A-Basic Information: Course data:

Course Title	Biochemistry-II
Course Code	PB-403
Prerequisite	Biochemistry-I
Teaching Hours: Lecture	2
Practical	1
Total Credit Hours	3 (Credit H)

B. Professional Information:

1- Course Aims:

- 1- Understand the major metabolic pathways that take place in human body.
- 2- Learn the interrelationship between carbohydrates, lipid and protein metabolism.
- 3- Practice skills that are of value to future employment in some areas of biology.



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4- 2- Course Learning Outcomes (ILOs):

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 biomedical and clinical sciences.
1.1.5	1.1.5.1	List the different analytical techniques for assaying different biomarkers and define the principles of body function in health and diseases states; as well as the laboratory diagnosis, clinical features of different diseases.
1.1.6	1.1.6.1	Analyze and apply relevant scientific literature and other scientific resources to make evidence-informed professional decisions.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.3.1	2.3.1.1	Handle and dispose hazardous chemicals, biological samples safely.
2.3.2	2.3.2.1	Choose best practices and adhere to high ethical, legal and safety standards for management of biological and pharmaceutical materials/products.
2.4.1	2.4.1.1	Conduct proper procedures to discard any poisons to public.

DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. element
3.1.1	3.1.1.1	Handling laboratory glassware and machines for a patient based on knowledge of physiological, biochemical and metabolic changes brought about by disease or concomitant drug therapy.
3.1.3	3.1.3.1	Conduct laboratory tests and measuring biochemical parameters in different body fluids like urine and blood in order to identify of different types of diseases.



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3.1.4	3.1.4.1	Utilize etiology, epidemiology, pathogenesis, laboratory diagnosis, and clinical features to suggest the proper preventive strategies for various infections/diseases.
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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 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.



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5- Course Contents

A. Theoretical part:

Week No.	Topics	Credit Hours
1	Carbohydrates: introduction to metabolism, digestion and absorption of carbohydrates/ Glycolysis and Regulation of glycolysis.	2
2	Krebs's cycle and Glycogen metabolism.	2
3	HMP shunt and Uronic acid pathway, Monosaccharides interconversion and gluconeogenesis.	2
4	Digestion and absorption of lipids Neutral fat metabolism and B-oxidation.	2
5	Fatty acid synthesis, ketogenesis and ketolysis.	2
6	Phospholipids and Cholesterol and Sphingomyelins metabolism.	2
7	Nucleic acid metabolism and Protein metabolism	2
8	Protein digestion and absorption	2
9	General reactions of amino acids and urea cycle, Self-learning topic	2
10	Individual amino acids metabolism-1	2
11	Individual amino acids metabolism-2	2
12	The interrelationship between carbohydrates and lipid metabolism	2
13	The interrelationship between carbohydrates, lipid and protein metabolism-1.	2
14	The interrelationship between carbohydrates, lipid and protein metabolism-2. (continue)	2
15	Compensatory & alternative lecture	2
16	Revision & quiz	2
17	Final written and oral Exams	-



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B. Practical part:

Week No.	Practical topics	Credit hours
1	Chemical analysis for biological fluids; Urine analysis / Urine report	1
2	Chemical analysis for biological fluids; Urine analysis / Urine report	1
3	Urine report	1
4	Infection Control Principles/ Urine report activity	1
5	Colorimetric assay of Glucose in urine and serum/ Urine report activity	1
6	Colorimetric assay of Liver Function Tests (serum albumin level)/ Urine report activity	1
7	Colorimetric assay of Liver Function Tests (serum total protein level)/ Urine report activity	1
8	Midterm exam	-
9	Colorimetric assay of Renal Function Tests (creatinine) / Urine report activity	1
10	Colorimetric assay of Renal Function Tests (urea) / quiz	1
11	Colorimetric assay of Renal Function Tests (uric acid levels)	1
12	Colorimetric assay triglycerides level	
13	Colorimetric assay Cholesterol blood level	1
14	Colorimetric assay lipid profile	
15	Revision & activity	
16	Practical Exam (Unknown) applying OSPE/ OSCE	

6- Teaching and Learning Methods:

Teaching and learning Methods		Weeks No.	K. elements to be addressed
4.1	Lectures	1-16	1.1.1.1, 1.1.4.1, 2.4.3.1, 3.1.1.1
4.2	Practical sessions	1-16	1.1.5.1, 1.1.6, 2.1.2.1, 2.5.2.1, 3.1.3.1, 4.1.2.1



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4.3	Hybrid learning: a. Online learning through my mans "Mansoura university" as recorded video lectures b. Interactive discussion through My Mans.	1-16	1.1.1.1,1.1.5.1, 1.1.6.1, 3.1.1.1, 4.1.1.1, 4.1.2.1, 4.2.2.1, 4.3.1.1, 4.3.2.1
4.4	Practical work and tutorials	1-16	1.1.5.1, 1.1.6.1, 2.3.1.1, 2.4.1.1, 3.1.1.1, 3.1.4.1, 4.1.2.1, 4.2.2.1, 4.3.1.1, 4.3.2.1
4.5	Self-learning	9	1.1.1.1,1.1.5.1, 1.1.6.1, 4.1.2.1, 4.2.2.1, 4.3.1.1, 4.3.2.1
4.6	Case study	10, 11	1.1.1.1,1.1.5.1, 1.1.6.1, 4.1.2.1, 4.2.2.1, 4.3.1.1, 4.3.2.1
4.7	Problem based learning	4, 5, 6, 7	1.1.1.1,1.1.5.1, 1.1.6.1, 4.1.2.1, 4.2.2.1, 4.3.1.1, 4.3.2.1

Student Assessment:

a. Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1,1.1.5.1, 1.1.6.1, 2.4.1.1, 3.1.1.1, 3.1.3.1,3.1.4.1,4.1.2.1, 4.2.1.1, 4.2.2.1
2-Practical exam applying OSPE/ OSCE	1.1.5.1, 1.1.6.1, 2.4.1.1, 3.1.1.1, 3.1.3.1,3.1.4.1,4.1.2.1
3-Oral	1.1.1.1, 1.1.5.1, 2.1.2.1, 2.4.3.1, 2.5.2.1, 4.1.2.1, 4.2.2.1, 4.3.1.1
4- Periodical (Mid-term exam) / case study	1.1.1.1, 1.1.6.1, 2.3.1.1, 2.4.1.1, 3.1.1.1, 3.1.3.1,3.1.4.1,4.1.2.1, 4.2.1.1, 4.2.2.1

b. Assessment Schedule:

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

c. Weighing of assessments:

1	Periodical (Mid-term) exam / Course work	15%
2	Practical examination and tutorial	25%
3	Final-term examination	50%



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4	Oral examination	10%
Total		100%

6- Facilities required for teaching and learning

Classroom	Internet in the classroom
Laboratory facilities	Microscopes, equipment, tools
Library	Textbooks

7- List of References

No	Reference	Type
1.	Lippincott's Illustrated Reviews: Biochemistry. Pamela C. Champe, Richard A. Harvey, Denise R. Ferrier; 7 th edition-2017	Textbook
2.	Harper's Biochemistry. Robert K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell 31 st edition-2018	Textbook
3.	A Manual of Laboratory and Diagnostic Tests 10th. Frances Talaska Fischbach; Margaret Fischbach; 10 th edition-2017	Textbook
4.	https://08113nxew-1103-y-https-journals-sagepubcom.mplbci.ekb.eg/doi/pdf/10.1177/000456327100800111	Website(EKB)
5.	https://08113nxex-1103-y-https-journals-sagepubcom.mplbci.ekb.eg/doi/pdf/10.1177/000456327000700508	Website (EKB)



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Matrix 1. Course contents and course key elements

Course contents	Course Key Elements															
	Domain:1					Domain: 2			Domain: 3		Domain: 4					
	1.1.1.1	1.1.2.1	1.1.3.1	1.1.5.1	1.1.6.1	2.2.1.1	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	4.3.1.1
A) Theoretical part																
Carbohydrates: introduction to metabolism, digestion and absorption of carbohydrates / Glycolysis and Regulation of	✓	✓				✓			✓							



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glycolysis.																
Krebs's cycle and Glycogen metabolism.	✓		✓		✓	✓			✓							
HMP shunt and Uronic acid pathway, Monosaccharides interconversion and gluconeogenesis.	✓	✓				✓			✓							
Digestion and absorption of lipids Neutral fat metabolism and B-oxidation.		✓			✓	✓			✓					✓		✓



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Fatty acid synthesis, ketogenesis and ketolysis.				✓	✓	✓			✓		✓			✓		✓
Phospholipids and Cholesterol and Sphingomyelins metabolism.		✓		✓		✓			✓			✓	✓		✓	
Nucleic acid metabolism and Protein metabolism			✓	✓		✓			✓			✓		✓		✓



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Protein digestion and absorption, general reactions of amino acids and urea cycle.	✓	✓				✓			✓	✓			✓			✓
General reactions of amino acids and urea cycle, Self learning	✓			✓		✓			✓	✓		✓	✓	✓	✓	
Individual amino acids metabolism-1		✓			✓	✓			✓	✓		✓	✓	✓	✓	
Individual amino acids metabolism-2		✓			✓	✓			✓	✓		✓	✓			



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The interrelations hip between carbohydrates and lipid metabolism	✓		✓			✓		✓				✓		✓		
The interrelations hip between carbohydrates , lipid and protein metabolism- 1,2	✓		✓			✓		✓		✓		✓		✓		



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Course contents	Course Key Elements															
	Domain:1					Domain:2			Domain:3		Domain:4					
	1.1.1.1	1.1.2.1	1.1.3.1	1.1.5.1	1.1.6.1	2.2.1.1	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
B) Practical part																
Chemical analysis for biological fluids; Urine analysis / Urine report			✓	✓		✓	✓		✓							
Chemical analysis for biological fluids; Urine analysis / Urine report			✓			✓	✓		✓							
Urine report			✓	✓		✓	✓		✓		✓					
Infection		✓	✓	✓		✓	✓		✓		✓		✓	✓		✓



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Control Principles/ Urine report activity																
Colorimetric assay of Glucose in urine and serum/ Urine report activity			✓			✓	✓	✓	✓		✓		✓	✓	✓	✓
Colorimetric assay of Liver Function Tests (serum albumin and total protein levels)/ Urine report activity			✓	✓		✓	✓	✓	✓		✓			✓		✓
colorimetric assay of Renal Function Tests (creatinine) /		✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓



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Urine report activity																
colorimetric assay of Renal Function Tests (urea and uric acid levels), quiz			✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Colorimetric assay of triglycerides level		✓	✓	✓		✓	✓	✓	✓		✓	✓			✓	✓
Colorimetric assay Cholesterol level		✓	✓	✓		✓	✓	✓	✓		✓	✓			✓	✓
Colorimetric assay of lipid profile		✓	✓	✓		✓	✓	✓	✓		✓	✓			✓	✓



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

A) Theoretical Part:										
Course Contents	Teaching and Learning Methods						Assessment methods			
	Lecture	Hybrid learning	Lab sessions	Problem based learning	Case Study	Self-learning	Corse Work	Practical/Tutorial	Written	Oral
Carbohydrates: introduction to metabolism, digestion and absorption of carbohydrates/ Glycolysis and Regulation of glycolysis	√	√							√	√
Krebs's cycle and Glycogen metabolism	√	√							√	√



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HMP shunt and Uronic acid pathway, Monosaccharides interconversion and gluconeogenesis.	√	√							√	√
Digestion and absorption of lipids Neutral fat metabolism and B-oxidation.	√	√		√					√	√
Fatty acid synthesis, ketogenesis and ketolysis.	√	√		√			√		√	√
Phospholipids and Cholesterol and Sphingomyelins metabolism	√	√		√			√		√	√
Nucleic acid metabolism and Protein metabolism	√	√		√			√		√	√
Protein digestion and absorption	√	√					√		√	√
General reactions of amino acids and urea cycle, Self-learning topic	√	√				√			√	√
Individual amino acids metabolism-1	√	√			√				√	√



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Individual amino acids metabolism-2	√	√			√				√	√
The interrelationship between carbohydrates and lipid metabolism.	√	√							√	√
The interrelationship between carbohydrates, lipid and protein metabolism-1,2.	√	√							√	√



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B) Practical Part:										
Course Contents	Teaching and Learning Methods					Assessment methods				
	Lecture	Hybrid learning	Lab sessions	Problem based learning	Case Study	Self-learning	Corse Work	Practical/Tutoria I	Written	Oral
Chemical analysis for biological fluids; Urine analysis / Urine report			√					√	√	
Chemical analysis for biological fluids; Urine analysis / Urine report			√					√	√	
Urine report			√	√					√	
Infection Control Principles/ Urine report activity			√						√	
Colorimetric assay of Glucose in urine and serum/ Urine report activity			√		√				√	



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Colorimetric assay of Liver Function Tests (serum albumin and serum total protein level)/ Urine report activity			√		√				√	
Colorimetric assay of Renal Function Tests (creatinine) / Urine report activity			√		√				√	
Colorimetric assay of Renal Function Tests (urea) / quiz			√						√	
Colorimetric assay of Renal Function Tests (uric acid levels)			√						√	
Colorimetric assay of triglycerides level			√		√				√	
Colorimetric assay Cholesterol blood level			√		√				√	
Colorimetric assay lipid profile			√		√				√	

Course Coordinator

Head of Department

Date of Dept. Approval: 16/9/2023