Level 4

Semester (7)

Course Title	Course code
Medicinal chemistry-I	PC 709
Radiopharmaceuticals	PT 708
Clinical pharmacy -I	PP 702
Hospital pharmacy	PP 703
Controlled drug delivery system	PT 710
Clinical microbiology	PM 704
Pharmaceutical Biotechnology	PM 703
Pharmacology-III	PO 703

Semester (8)

Course Title	Course code
Medicinal chemistry-II	PC 810
Clinical pharmacy -II	PP 805
Management of Oncological Disease	PP 805
Biopharmaceutics and pharmacokinetics	PT 809
Clinical biochemistry	PB 803
Drug marketing	PP 806
Public health and preventive medicine	MD 810

Mansoura University
Faculty of Pharmacy
Clinical Pharmacy Program

Course specification
2023- 2024
Credit hours program
(modified and unified by law)

بكالوريوس الصيدلة الإكلينيكية (لائحه جديده ومعدله)

Course Specification

Academic year: 2023/2024

Course Name: Medicinal Chemistry 1	**اسم المقرر: كيمياء دوائية 1**
Academic Level: Level 4	**المستوى الأكاديمي: الرابع**
Scientific Department: Medicinal Chemistry	**القسم العلمي: الكيمياء الدوائية**
Head of Department: **Prof. Dr. Mohammed Ahmed Ahmed Mostafa**	**رئيس القسم:** **أ.د/ محمد أحمد أحمد مصطفى**
Course Coordinator: **Prof. Dr. Mohammed Ahmed Ahmed Mostafa**	**منسق المقرر:** **أ.د/ محمد أحمد أحمد مصطفى**

University	Mansoura
Faculty	Pharmacy
Department offering the course	Medicinal Chemistry
Department supervising the course	Medicinal Chemistry
Program on which the course is given	**B. Pharm. (credit hours) (modified and unified by law)**
Academic Level	Fourth level, first semester, 2023-2024
Date of course specification approval	06/09/2023

1- Basic Information: Course data:

Course Title	**Medicinal Chemistry 1**
Course Code	**PC 709**
Prerequisite	**Pharmaceutical Organic Chemistry 2**
Teaching Hours: Lecture	**2**
Practical	**1**
Total Credit Hours	**3**

2- Course Aims:

This course enables the students to:

Medicinal chemistry I course aims to demonstrate the fundamental physicochemical properties affecting drug activity and metabolic fate of these drugs in relation to their chemical structure. Additionally, important medicinal chemistry aspects of chemotherapeutic agents, including essential chemical features, mode of action and therapeutic utilities are to be covered. The practical part of the course enables the students to visualize in silico drug structures and discuss certain case studies related to drugs used in therapy that are covered in the theoretical part.

3- Course k. elements:

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

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.1	**1.1.1.1**	Recognize in depth and breadth the basic principles of medicinal chemistry course as a part of applied pharmaceutical sciences in pharmacy curriculum.
1.1.2	**1.1.2.1**	Use non-proprietary names (scientific names) of drugs in professional practice.
1.1.4	**1.1.4.1**	Explain the molecular mode of action of dugs of different classes.
1.1.6	**1.1.6.1**	Apply medicinal chemistry principles to make informed decisions on drug use.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.3.2	**2.3.2.1**	Choose the proper procedure to handle chemotherapeutic agents.
2.4.3	**2.4.3.1**	Use principles of medicinal chemistry to contribute to decision-making processes to solve drug- related problems.

DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. element
3.2.1	**3.2.1.1**	Integrate fundamentals of medicinal chemistry of drugs including mode of action, therapeutic uses and untoward side effects.
3.2.5.	**3.2.5.1**	Use principles of medicinal chemistry to provide education and councelling to support patients and community about their care plan.
3.2.6	**3.2.6.1**	Develop public awareness on rational use of drugs, drug abuse and misuse.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.2	**4.1.2.1**	Participate independently and collaboratively in delivery of health services related to pharmacy practice.
4.2.1	**4.2.1.1**	Communicate verbally and nonverbally including software tools with patient other health care team and communities.
4.3.2	**4.3.2.1**	Participate in continuous professional development activities to update and advance learning needs.

4- Course Contents

Week No.	Topics	Credit Hours
1	The Physicochemical properties and drug action	2
2	Drug biotransformation	2
3	Antibiotics that inhibit cell wall synthesis : Penicillins	2
4	Antibiotics that inhibit cell wall synthesis : Cephalosporins	2
5	Sulfonamides	2
6	Cancer chemotherapy-Part I	2
7	Cancer chemotherapy-Part II	2
8	Antifungal agents	2
9	Antiviral Agents	2
10	Aminoglycosides	2
11	Quinolone antibacterial	2
12	Antimycobacterial agents	2
13	Tetracyclines (self-learning)	2
14	Revision and quiz	2
15	**Final written and oral exam**	-
Week No.	**Practical topics**	**Practical Credit hours**

1	Chemdraw Software: different tool bars	1
2	Chemdraw Software: draw chemical structures	1
3	Chemdraw Software: display characters of compounds	1
4	Chemdraw Software: predict and calculate proton and carbon NMR spectra	1
5	Chemdraw exam	1
6	Physicochemical properties tutorial-1	1
7	Physicochemical properties tutorial-2	1
8	Mid-Term Exam	-
9	Case Study: tetracyclines	1
10	Case Study: aminoglycosides	1
11	Case Study: penicillins	1
12	Case Study: anticancer agents-Part I	1
13	Case Study: anticancer agents-Part II	1
14	Practical Exam	1

5- Teaching and Learning Methods:

	Teaching method	Week no.
5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning • On line learning through My Mans "Mansoura university "as recorded – video lectures • Inter active discussion through My Mans	1-6 & 8-14
5.2	Self-learning	12
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials	1-6 & 8-14
5.4	Class Activity: Group discussion offline and online.	12
5.5	Problem – based learning and brainstorming	1-6 & 8-14
5.6	Research assignments	12
5.7	Role play	13

6- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.6.1, 2.3.2.1, 2.4.3.1, 4.1.2.1, 4.2.1.1, 4.3.2.1
2-Practical exam	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.6.1, 2.4.3.1, 3.2.1.1, 3.2.5.1, 3.2.6.1, 4.1.2.1, 4.2.1.1, 4.3.2.1
3-Oral	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.6.1, 2.4.3.1, 4.1.2.1, 4.2.1.1, 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.6.1, 2.4.3.1, 4.1.2.1, 4.2.1.1, 4.3.2.1

b- Assessment schedule

Assessment 1	**Periodical (Mid-term exam) / course work**	8th week
Assessment 2	**Practical examination and tutorial**	14th week
Assessment 3	**Written exam**	15th week
Assessment 4	**Oral exam**	15th week

c- Weighing of assessments

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

7- Facilities required for teaching and learning

Classroom	Data show, Computers, Internet, Platform
Laboratory facilities	Computer software (ChemBioOffice)
Library	Books

8- Matrix of knowledge and skills of the course

Study Week	Course contents	Outcomes Domains / Key elements												
		Domain 1				Domain 2		Domain 3			Domain 4			
		1.1.1	1.1.2	1.1.4	1.1.6	2.3.2	2.4.3	3.2.1	3.2.5	3.2.6	4.1.2	4.2.1	4.3.2
1	The physicochemical properties and drug action	√			√		√						
2	Drug biotransformation	√			√		√						
3-4	Antibiotics that inhibit cell wall synthesis	√	√	√	√	√	√	√	√	√			
5	Sulfonamides	√	√	√	√	√	√	√	√	√			
6	Cancer chemotherapy	√	√	√	√	√	√	√	√	√			
8	Antifungal agents	√	√	√	√	√	√	√	√	√			
9	Antiviral Agents	√	√	√	√	√	√	√	√	√			
10	Aminoglycosides	√	√	√	√	√	√	√	√	√			
11	Quinolone antibacterial	√	√	√	√	√	√	√	√	√			
12	Antimycobacterial agents	√	√	√	√	√	√	√	√	√			
13-14	Tetracyclines (self-learning)	√	√	√	√	√	√	√	√	√			
1-6 & 8-14	**Practical topics:** Chemdraw Software: different tool bars, draw chemical structures, display characters of compounds, predict and calculate proton and carbon NMR spectra, Physicochemical properties tutorial-1and -2, Case Study:	√	√	√	√	√	√	√	√	√	√	√	√

	tetracyclines, aminoglycosides, penicillins, anticancers															

9- List of References

No	Reference	Type
1	Electronic book "Medicinal Chemistry-2" prepared by staff members	Course notes
2	Recorded videos prepared by stuff members	**Videos on platform**
3	"**Foye's Principles of Medicinal Chemistry**", *8th Edition*, (David A. Williams, Thomas L. Lemke & William O. Foye, Editors), Lippincott Williams & Wilkins, 2017.	Essential Book
4	"**Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry**" *12th Edition*, (J. H. Block and J. M. Beale Jr, Editors), Lippincott Williams & Wilkins, Philadelphia, PA, 2011.	Essential Book
5	"**An Introduction to Medicinal Chemistry**", *6th Revised Edition*, (Graham L. Patrick), Oxford University Press, USA, 2017.	Essential Book
6	"**Fundamentals of Medicinal Chemistry**", *Kindle Edition*, (Gareth Thomas), Wiley-Blackwell, 2013.	Essential Book
7	http://www.sciencedirect.com/ http://www.google.com / http://www.pubmed.com / http://www.ekb.eg	Websites

Course Coordinator	**Prof. Dr. Mohammed Ahmed Ahmed Mostafa**
Head of Department	**Prof. Dr. Mohammed Ahmed Ahmed Mostafa**

Date:

Modified Bylawبكالوريوس الصيدلة الإكلينيكية (لائحة معدلة –)

Course Specification

Academic year: 2023-2024

Course name: Radiopharmaceuticals (PT 708)	اسم المقرر:المستحضرات المشعة
Academic Level: Level 4	المستوى الأكاديمي: الرابع
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. Osama Abd-El Azeem Soliman**	:منسق المقرر أ.د / أسامة عبد العظيم سليمان

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmaceutics
Department supervising the course	Pharmaceutics
Program on which the course is given	**B. Pharm (Clinical Pharmacy- Modified and unified bylaw)**
Academic Level	**Level Four, First Semester, 2023-2024**
Date of course specification approval	**20/9/2023**

1- Basic Information: Course data:

Course Title	**Radiopharmaceuticals**
Course Code	**PT 708**
Prerequisite	**Registration**
Teaching Credit Hours: Lecture	**1**
Practical	**0**
Total Credit Hours	**1 (Credit H)**

2- Course Aims:

1. Orienting the students to the clinical effect of radioactive pharmaceutical products, i.e., using the most effective radionuclide for the scanning, diagnosis, and treatment of the diseases.
2. Gain good knowledge about preparation and handling of the radiopharmaceutical products.

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**	State the different applications of radiation and radioactive compounds in medical diagnosis
	1.1.1.2	List the different methods of preparation, quality control of radioactive compounds and different examples of radiopharmaceuticals.
	1.1.1.3	Recall the different methods of dose calculation and unit utility.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.3.1	**2.3.1.1**	Solve problems related to; the decay of radioactive compounds and equipment used to produce radionuclides.
	2.3.1.2	Choose the most suitable types of radioactive compounds and their applications (diagnosis, therapy, industry).

DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. element
3.2.6	3.2.6.1	Apply the suitable dosing system required for radioactive compounds.
	3.2.6.2	Evaluate the quality controls of the prepared radiopharmaceuticals.

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

4- Course Contents

Week No.	Topics	Credit Hours
1	Introduction about radiopharmaceutical.	1
2	Preparation of radiopharmaceuticals.	1
3	Quality control of radiopharmaceuticals.	1
4	Generators and equipment used to produce radionuclides	1
5	The application of radiation medical diagnosis.	1
6	The application of radiation in therapy-part 1	1
7	The application of radiation in therapy-part 2	1
8	The application of radiation in industry (**Mid-Term Exam)**	1
9	Rationale for dose calculation and unit utility-part 1	1
10	Rationale for dose calculation and unit utility-part 2	1

11	Official examples of radiopharmaceuticals.	1
12	Non-Official examples of radiopharmaceuticals.	1
13	Discussion of self-learning	1
14	Revision	1
15	**Final written exam**	-

5- Teaching and Learning Methods:

	Teaching and Learning Methods	Week no.
5.1	**Computer aided learning:** **a. Online learning through My mans "Mansoura university "as recorded – video lectures** **b. Interactive discussion through My Mans platform** **c. Power point (PPT) presentations**	**Week 1-14**
5.2	**Self-learning**	**Week 13**
5.3	**Formative Assignments**	**Week 9**
5.4	**Class Activity Discussion**	**Week 11-14**

6- Student Assessment:

b- Assessment Methods:

1-Periodical (Mid-term exam)/ Course work	**1.1.1.1, 1.1.1.3, 2.3.1.1, 3.2.6.1, 4.1.2.1, 4.3.2.1**
2-Written exam	**1.1.1.1, 1.1.1.2, 1.1.1.3, 2.3.1.1, 2.3.1.2, 3.2.6.1, 3.2.6.2**

c- Assessment schedule

Assessment 1	**Mid-term**	8th week
Assessment 2	**Written**	15th week

d- Weighing of assessments

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

7- Facilities required for teaching and learning

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

8- Matrix of knowledge and skills of the course

Study Week	Course contents	Outcomes / Domains / Key elements									
		Domain 1			Domain 2		Domain 3		Domain 4		
		1.1.1.1	1.1.1.2	1.1.1.3	2.3.1.1	2.3.1.2	3.2.6.1	3.2.6.2	4.1.2.1	4.3.2.1	
1	Introduction about radiopharmaceutical.	√				√			√	√	
2	Preparation of radiopharmaceuticals.		√					√			

3	Quality control of radiopharmaceuticals.												
4	Generators and equipment used to produce radionuclides		√			√							
5	The application of radiation medical diagnosis.	√	√				√					√	√
6	The application of radiation in therapy-part 1	√	√				√					√	√
7	The application of radiation in therapy-part 2	√		√		√			√				
8	The application of radiation in industry (**Mid-Term Exam)**	√	√				√					√	√
9	Rationale for dose calculation and unit utility-part 1			√		√			√				
10	Rationale for dose calculation and unit utility-part 2			√		√			√				
11	Official examples of radiopharmaceuticals.		√				√					√	√
12	Non-Official examples of radiopharmaceuticals.												
13	Discussion of self-learning	√	√				√					√	√
14	Revision	√	√	√		√	√		√	√		√	√

9- List of References

No	Reference	Type
1.	Electronic theoretical notes prepared by teaching staff members.	Course notes

2.	Handbook of radiopharmaceutical, Radiochemistry and application, 1st Ed, Michael J. Welch & Carol S, Redvanly. (2008).	Essential Book
3.	Radiopharmaceuticals in Nuclear Pharmacy & Nuclear Medicine, 2nd Ed, Richard J. Kowalsky. (2007).	Essential Book
4.	http://www.ekb.eg https://www.who.int/medicines/publications/pharmacopoeia/Radgenmono.	Websites

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

Date: 20/9/2023

Course specification

2023-2024

Clinical Pharmacy Program

Faculty of Pharmacy

Mansoura University

بكالوريوس الصيدلة الإكلينيكية

(Unified & Modified by law– لائحة موحدة و معدلة**)**

Course Specification Academic year: 2023-2024

Course name: Clinical Pharmacy-1	**اسم المقرر:** صيدلة اكلينيكية-1
Academic Level: Level 4	المستوى الأكاديمي: الرابع
Scientific department: Clinical Pharmacy and Pharmacy Practice	**القسم العلمي:** الصيدلة الإكلينيكية والممارسة الصيدلية
Head of Department: **Dr. Mohammed Elhusseiny Shams**	**رئيس القسم:** أ.د/ محمد الحسيني شمس
Course Coordinator: **Dr. Moetaza Mahmoud Hassab**	**منسق المقرر:** أ.م.د/ معتزة محمود حسب السيد

University	Mansoura
Faculty	Pharmacy
Department offering the course	Clinical Pharmacy and Pharmacy Practice
Department supervising the course	Clinical Pharmacy and Pharmacy Practice
Program on which the course is given	**B. Pharm. (Unified & Modified by law) (Clinical Pharmacy)**
Academic Level	Fourth level, first semester, 2023-2024
Date of course specification approval	7-9-2023

Course specification

2023-2024

Clinical Pharmacy Program

Faculty of Pharmacy

Mansoura University

1- Basic Information: Course data:

Course Title	**Clinical Pharmacy-1**
Course Code	**PP 702**
Prerequisite	**Pharmacology 1**
Credit Hours: Lecture	**2**
Tutorial	**1**
Total Credit Hours	**3 (Credit H)**

2- Course Aims:

1. Scoping of clinical pharmacy and its objectives
2. Understanding the concept of clinical pharmacy and the role of clinical pharmacist
3. Providing patient care that optimizes the use of medication and promotes health
4. Maximizing the clinical effect of medicines, i.e. using the most effective treatment for each type of patient

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
1.1.4	**1.1.4.1**	Describe the appropriateness, effectiveness, and safety of different medications in specific individuals and populations to optimize patients' outcomes.
1.1.5	**1.1.5.1**	Recall the principles of basic pharmaceutical sciences to solve drug related problems in certain case scenarios.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.1	2.1.1.1	Conduct pharmaceutical care plans for specific clinical cases according to the patients' needs and history.
2.4.3	2.4.3.1	Evaluate drug-related problems and adapt pharmaceutical care plans that consider actions and decisions taken for patient management.

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 regimen based on the disease and drug history to optimize medication use.
3.2.2	3.2.2.1	Optimize drug use with respect to the principles of clinical pharmacy practice.
3.2.5	3.2.5.1	Collaborate with other healthcare professionals and manage the patient care plan as needed. Consult the healthcare team about the rational drug use

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.2.1	4.2.1.1	Use verbal and non-verbal communication skills when dealing with patients and health professionals.
4.3.2	4.3.2.1	Practice self-learning to improve professional skills

4- Course Contents

Week No.	Lecture Topics	Lecture Credit Hours
1	**Introduction of clinical pharmacy.** *(Prescription monitoring, prescribing advice to medical and nursing staff, medication errors and adverse drug reaction reporting, medication history-taking and medicines reconciliation, medicines formularies)*	2
2	**Patient medical history** *(Presenting complaint, History of presenting complaint Past medical history, Drug history, Family history, Social and personal history, Systems review)*	2
3	**Patient Management approach** *(Patient education and counselling, pharmacokinetics and therapeutic drug level monitoring. personalised medicine)*	2
4	**Clinical problem solving** *Managing interactions (St John's Wort, hyperkalaemia, ibuprofen, and warfarin), advising how to use lamotrigine, choosing antibiotic therapy, drug-induced hypercalcaemia, clopidogrel for percutaneous coronary intervention, managing therapy by ciprofloxacin)*	2
5	**Dermatological Disorder** *Tinea Pedis, Tinea Cruris & Tinea Unguium*	2
6	**Upper Respiratory Tract Infections** *Acute Otitis Media (AOM)*	2
7	**Upper Respiratory Tract Infections** *Acute Pharyngitis*	2
8	Urinary Tract Infection *Upper UTI (Pyelonephritis), Lower UTI*	2
9	Peptic Ulcer Disease *Symptoms, diagnosis, and treatments* **(self-learning)**	2
10	**Clinical problem solving.** *Managing interactions (St John's Wort, hyperkalaemia, ibuprofen, and warfarin), advising how to use lamotrigine, choosing antibiotic therapy, drug-induced hypercalcaemia, clopidogrel for percutaneous coronary intervention, managing therapy by ciprofloxacin)*	2
11	Asthma *Symptoms, diagnosis, and treatments*	2
12	Management of common drug over dosage.	2

	(Acetaminophen-induced hepatotoxicity, digixon toxicity, valproic acid toxicity, diamorphine poisoning)	
13	Cardiovascular Disorders in Clinical Pharmacy *(hypertension, heart failure)*	2
14	Cardiovascular Disorders in Clinical Pharmacy 2 *(arrhythmias)*	2
15	Starting of final Theoretical and oral exam	-
Week No.	**Tutorial topics**	**Credit hours**
1	Patient Presentation / Adverse Drug Reactions Reporting	1
2	Case study: Type-I Diabetes Mellitus	1
3	Case study: Managing interactions(St John's Wort, hyperkalaemia, ibuprofen, and warfarin)	1
4	Case study: Dermatological Disorder Tinea Pedis, Tinea Cruris & Tinea Unguium	1
5	Case study: Upper Respiratory Tract Infections Acute Otitis Media (AOM)	1
6	Case study: Upper Respiratory Tract Infections Acute Pharyngitis	-
7	Case study: Urinary Tract Infection	1
8	**Periodical (midterm)exam**	1
9	Case study: Peptic Ulcer Disease **(Group project)**	1
10	Case study: Managing interactions	1
11	Case study: Asthma	1
12	Case study: Management of acetaminophen toxicity	1
13	Case study: Management of digoxin toxicity	1
14	Tutorial exam	-

5- Teaching and Learning Methods:

5.1	Computer aided learning: a. Online learning through My mans "Mansoura university "as recorded – video lectures b. Inter active discussion through My Mans c. Power point (PPT) presentations	Week 1-14
5.2	Tutorial sessions using patient case studies	Week 1-13
5.3	Self-learning	Week 9
5.4	Formative Assignments	Week 1-13
5.5	Class Activity Discussion / brainstorming / problem solving / role play.	Week 1-13

6- Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.4.1, 1.1.5.1, 2.1.1.1, 2.4.3.1, 3.1.1.1, 3.2.2.1, 3.2.5.1
2-Tutorial exam	1.1.5.1, 2.1.1.1, 3.1.1.1, 4.2.1.1, 4.3.2.1
3-Oral	1.1.4.1, 1.1.5.1, 2.1.1.1, 2.4.3.1, 3.1.1.1, 3.2.2.1, 3.2.5.1, 4.2.1.1
4- Formative Assessment	1.1.4.1, 1.1.5.1, 2.1.1.1, 2.4.3.1, 3.1.1.1, 3.2.2.1, 3.2.5.1, 4.3.2.1

b- Assessment schedule

Assessment 1	**Periodical(midterm)**	8th week
Assessment 2	**Tutorial**	14h week
Assessment 3	**Written**	Starting in 15th week
Assessment 4	**Oral**	Starting in 15th week

c- Weighing of assessments

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

7- Facilities required for teaching and learning

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

8-Matrix of knowledge and skills of the course

Course contents	Outcomes Domains / Key elements								
	Domain 1		Domain 2		Domain 3			Domain 4	
	1.1.4.1	1.1.5.1	2.1.1.1	2.4.3.1	3.1.1.1	3.2.2.1	3.2.5.1	4.2.1.1	4.3.2.1
Introduction of clinical pharmacy.						√			
Patient medical history					√	√			
Patient Management approach	√	√		√	√		√		
Clinical problem solving	√	√	√		√		√		
Dermatological Disorder			√				√		
Upper Respiratory Tract Infections: *Acute Otitis Media (AOM)*			√				√		
Upper Respiratory Tract Infections:*Acute Pharyngitis*			√				√		
Urinary Tract Infection	√					√			
Peptic Ulcer Disease **(self-learning)**				√			√		√
Clinical problem solving.				√			√		
Asthma				√			√		
Management of common drug over dosage.	√								

Course contents	Outcomes Domains / Key elements								
	Domain 1		Domain 2		Domain 3			Domain 4	
	1.1.4.1	1.1.5.1	2.1.1.1	2.4.3.1	3.1.1.1	3.2.2.1	3.2.5.1	4.2.1.1	4.3.2.1
Cardiovascular Disorders in Clinical Pharmacy *(hypertension, heart failure)*				√			√		
Cardiovascular Disorders in Clinical Pharmacy 2 *(arrhythmias)*				√			√		
Revision	√	√	√	√	√	√	√		
Tutorial topics									
Patient Presentation / Adverse Drug Reactions Reporting		√	√		√	√		√	√
Case study: Type-I Diabetes Mellitus		√	√		√	√		√	√
Case study: Managing interactions (St John's Wort, hyperkalaemia, ibuprofen, and warfarin)		√	√		√	√		√	√
Case study: Dermatological Disorder Tinea Pedis, Tinea Cruris & Tinea Unguium		√	√		√	√		√	√
Case study: Upper Respiratory Tract Infections Acute Otitis		√	√		√	√		√	√

Course contents	Outcomes Domains / Key elements								
	Domain 1		Domain 2		Domain 3			Domain 4	
	1.1.4.1	1.1.5.1	2.1.1.1	2.4.3.1	3.1.1.1	3.2.2.1	3.2.5.1	4.2.1.1	4.3.2.1
Media (AOM)									
Case study: Upper Respiratory Tract Infections Acute Pharyngitis		√	√		√	√		√	√
Case study: Urinary Tract Infection		√	√		√	√		√	√
Periodical (midterm)exam									
Case study: Peptic Ulcer Disease **(Group project)**		√	√		√	√		√	√
Case study: Managing interactions		√	√		√	√		√	√
Case study: Asthma		√	√		√	√		√	√
Case study: Management of acetaminophen toxicity		√	√		√	√		√	√
Case study: Management of digoxin toxicity		√	√		√	√		√	√

List of References

No	Reference	Type
1.	Lecture notes prepared by teaching staff	Course notes
2.	Clinical Pharmacy and Therapeutics by Roger Walker and Catherine Whittlesea, 2022.	Essential Book
3.	Stokley's drug interaction, 11th Ed, by Karen Baxter (2016).	Essential Book
4.	Pharmacotherapy. Handbook. Seventh Edition. Barbara G. Wells, PharmD, FASHP, FCCP, BCPP.	Essential Book
5.	Lexicomp, Dynamed Plus , Pubmed and BMJ best practice http://www.pubmed.com https://www.ekb.eg/.	Websites

Course Coordinator	**Dr. Moetaza Mahmoud Hassab**
Head of Department	**Dr. Mohamed Elhusseiny Shams**

Date: 7-9-2023

Course specification

2023/2024

Clinical Pharmacy Program

Faculty of Pharmacy

Mansoura University

بكالوريوس الصيدلة الإكلينيكية (لائحة معدلة –**Modified Bylaw)**

Course Specification

Academic year: 2023-2024

Course name: Hospital pharmacy	**اسم المقرر:**صيدلة المستشفيات
Academic Level: Level 4	**المستوى الأكاديمي** :الرابع
Scientific department: Clinical pharmacy and pharmacy practice	**القسم العلمي:** الصيدلة الاكلينيكية والممارسة الصيدلية
Head of Department: Prof. Dr. Mohamed Elhusseiny Shams	**رئيس القسم:** ا.د/ محمد الحسيني شمس
Course Coordinator: Dr. Noha O. Mansour	**منسق المقرر:** د/ نهي اسامة منصور

University	Mansoura
Faculty	Pharmacy
Department offering the course	Clinical pharmacy and pharmacy practice
Department supervising the course	Clinical pharmacy and pharmacy practice
Program on which the course is given	**B. Pharm. (Modified Bylaw) (Clinical Pharmacy)**
Academic Level	**Level 4, First semester, 2023- 2024**
Date of course specification approval	7/9/2023

A. Basic Information: Course data:

Course Title	**Hospital pharmacy**
Course Code	**PP 703**
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:

- State the hospital pharmacy facilities and services.
- Promote handling of cytotoxic drugs and risk management.
- Maximize the clinical effect of drugs, i.e., using the most effective treatment for either inpatient or outpatient.

- Minimize the risk of treatment-induced adverse events, i.e., monitoring the therapy course and the patient's compliance with therapy.

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 t no.	Course K. element
1.1.1	1.1.1.1	Describe the primary information about the hospital, functional organization of hospital pharmacy and hospital formulary.
1.1.4	1.1.4.1	Identify the patient counseling and safety, risk management and handling of cytotoxic drugs.
	1.1.4.2	Define rational medication use, patient's medication record, and I. V. admixtures and incompatibilities

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element t no.	Course K. element
2.1.1	2.1.1.1	Apply the information needed to give the patients better services.
2.3.1	2.3.1.1	Identify the different type of packing and labeling and intravenous admixtures.
	2.3.1.2	Explain the method of handling cytotoxic drugs.

Domain 4: Personal Practice:

Program K. element no.	Course K. element t no.	Course K. element
4.1.2	4.1.2.1	Retrieve and evaluate information, solve problems, and work effectively in a team.

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 natural pharmaceutical preparations regarding the studied topics.
4.3.2	4.3.2.1	Practice independent learning to promote continuous professional development.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	**Introduction and IV admixture**	2
2	**- Hospital classification and functions** **- Method of administration**	2
3	**- Hospital pharmacy** **- Incompatibilities 1**	2
4	**- Division of hospital pharmacy** **- Incompatibilities 2**	2
5	**- Inpatient pharmacy** **- Incompatibilities 3**	2
6	**- Outpatient pharmacy**	2
7	**- Total parenteral nutrition**	2
8	**- Medication record**	2
9	**- Rational drug use** **- Hospital formulary**	2
10	**- Handling of cytotoxic drug** **- Patent counseling and safety**	2
11	**- Therapeutic drug monitoring** **- Risk management**	2
12	**-Drug Distribution Systems in Hospitals** **(self learning)**	2

	-- Pharmacy and therapeutic committee	
13	**-Quality Assurance in Hospital Pharmacy Practice**	2
14	**Revision and quiz**	2
15	**Starting of final written and oral exam**	-
Week No.	**Practical topics**	**Practical credit hours**
1.	OTC drugs + Antacids	1
2.	Anthelmintic and Anti-diarrheal products	1
3.	Laxative products and Antiemetic products	1
4.	Common cold	1
5.	Asthma products	1
6.	Sleep aid, Sedative	1
7.	Otic products	1
8.	**Mid-term exam**	1
9.	Dental products	1
10.	Acne products	1
11.	Ophthalmic products	1
12.	Topical anti-infective products	1
13.	Revision and activity	1
14	**Practical exam**	-

4-Teaching and Learning Methods:

	Teaching and Learning Methods	**Week no.**
1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning ● Online learning through My mans "Mansoura university "as recorded – video lectures	1-14

	• Interactive discussion through My Mans Platform	
2	Self-learning	12
3	Practical session using chemicals and laboratory equipment and/ or tutorials	1-7 9-13
4	Class Activity: Group discussion offline and online.	1-3
5	Problem – based learning and brainstorming	8-9

5- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1, 1.1.4.1, 1.1.4.2, 2.1.1.1, 2.3.1.1, 2.3.1.2, 4.3.2.1
2-Practical exam	2.1.1.1, 2.3.1.1, 2.3.1.2, 4.2.1.1, 4.1.2.1
3-Oral	1.1.1.1, 1.1.4.1, 1.1.4.2, 2.1.1.1, 2.3.1.1, 2.3.1.2., 4.2.1.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1, 1.1.4.1, 1.1.4.2, 2.1.1.1, 2.3.1.1, 2.3.1.2., 4.2.1.1

b. Assessment schedule

Assessment 1	Course work (periodical)	6-9th week
Assessment 2	Practical examination and tutorial	14th week
Assessment 3	Written exam	Starting 15th week
Assessment 4	Oral exam	Starting 15th week

c. Weighing of assessments

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

6- Facilities required for teaching and learning

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

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

Course contents	Domain 1			Domain 2			Domain 4		
	1.1.1.1	1.1.4.1	1.1.4.2	2.1.1.1	2.3.1.1	2.3.1.1	4.1.2.1	4.2.1.1	4.3.2.1
- Introduction and IV admixture	✓		✓	✓	✓		✓	✓	✓
- Hospital classification and functions - Method of administration	✓			✓	✓		✓	✓	✓
- Hospital pharmacy - Incompatibilities 1	✓		✓	✓			✓	✓	✓
- Division of hospital pharmacy - Incompatibilities 2	✓		✓	✓			✓	✓	✓
- Inpatient pharmacy - Incompatibilities 3	✓		✓	✓			✓	✓	✓
- Outpatient pharmacy - Total parenteral nutrition	✓	✓	✓	✓	✓		✓	✓	✓
Midterm									
- Medication record	✓		✓	✓			✓	✓	✓

- Pharmacy and therapeutic committee											
- Rational drug use **- Hospital formulary**	✓	✓	✓		✓				✓	✓	✓
- Handling of cytotoxic drug **- Patent counseling and safety**		✓	✓		✓	✓	✓		✓	✓	✓
- Therapeutic drug monitoring **- Risk management**		✓	✓		✓		✓		✓	✓	✓
- Drug Distribution Systems in Hospitals	✓		✓		✓	✓			✓	✓	✓
Practical topics:											
●OTC drugs + Antacids ●Anthelmintic and Anti-diarrheal products ●Laxative products and Antiemetic products ●Common cold ●Asthma products ●Sleep aid, Sedative ●Otic products									✓	✓	✓

● Dental products ● Acne and Topical anti-infective products ● Ophthalmic products											

8- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	**Course notes**
2.	Recorded videos prepared by stuff members	**Videos on platform**
3.	Hospital Pharmacy by Martin Stephens (2003)	**Book**
4.	Best Practices for Hospital & Health-system Pharmacy: 2004-2005 by Bruce Hawkins (2004).	**Book**
5.	Pharmacotherapy, 6th edition, Joseph T. DiPiro, (2006).	**Book**
6.	http://www.sciencedirect.com http://www.google scholar.com http://www.pubmed.com https://www.ekb.eg http://www.mcc.ac.UK/pharmweb http://www.druginfonet.com	**websites**

Course Coordinator	**Dr. Noha Osama Mansoura**
Head of Department	**Prof. Dr. Mohamed Elhusseiny Shams**

Date: 7-9-2023

Modified Bylawبكالوريوس الصيدلة الإكلينيكية (لائحة معدلة –)

Course Specification

Academic year: 2023-2024

Course name: Controlled Drug Delivery System	اسم المقرر: أنظمة دواء محكم
Academic Level: Level 4	المستوى الأكاديمي: الرابع
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. Hassan M. El sabbagh**	منسق المقرر: أ.د /حسن محمد الصبـــاغ

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

1- Basic Information: Course data:

Course Title	**Controlled Drug Delivery Systems**
Course Code	**PT 710**
Prerequisite	**Pharmaceutical dosage forms II**
Teaching Credit Hours: Lecture	**2**
Practical	**0**
Total Credit Hours	**2 (Credit H)**

2- Course Aims:

1. Orienting the students to the advanced approaches to control drug diffusion rates from dosage forms.
2. Recognizing different types of advanced drug delivery systems.
3. Knowing applications of different advanced drug delivery systems.

3- Course Learning Outcomes

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

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.1	**1.1.1.1**	Recognize the properties of different pharmaceutical dosage forms showing advanced delivery including novel drug delivery systems
	1.1.1.2	Outline the fundamental differences between the conventional and controlled drug delivery systems
	1.1.1.3	Conclude the design principles of different drug delivery systems aiming to control the drug delivery rate.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.6.1	**2.6.1.1**	Develop formulations of safe and effective medicines
	2.6.1.2	Compare some novel drug delivery systems with the conventional ones
	2.6.1.3	Interpret possible causes of patients non-compliance that may occur during treatment

DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. element
3.2.6	**3.2.6.1**	Illustrate the fundamental clinical considerations of oral-modified dosage forms and transdermal drug delivery systems
	3.2.6.2	Analyze the skills of deciding the alternative and more effective therapy of some chronic diseases such as diabetes and cancer

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.2	**4.1.2.1**	Communicate clearly by verbal and written means with patients and other health care professionals.
4.3.2	**4.3.2.1**	Promote critical thinking, problem-solving, decision-making, and time managing capabilities.

4- Course Contents

Week No.	Topics	Credit Hours
1	Modified oral drug delivery systems	2
2	Modified oral drug delivery systems	2
3	Skin structure, skin permeability, in-vitro, and in-vivo evaluation of drug diffusion	2
4	Long acting parenterals: Liposomes (structure, preparation, evaluation, applications, and challenges)	2
5	Transdermal patches: design and objectives	2
6	Transdermal patches: types	2
7	Transdermal patches: advantages and disadvantages	2
8	Long acting parenterals: insulin injections and implants introduction (**Mid-term)**	2
9	Extensive examples of transdermal drug delivery systems and clinical considerations	2
10	Implants for insulin delivery, contraception, and chemotherapy	2
11	Mucoadhesive drug delivery systems	2
12	Ion-exchange resins as drug delivery carriers	2
13	Discussion of self learning topic	2
14	Revision	2

16	**Final written and oral exam**	**-**

5- Teaching and Learning Methods:

	Teaching and Learning Method	**Week no.**
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 Platform	1-14
2	Self-learning	13
3	Problem – based learning and brainstorming	8-9
4	Research assignments	12
5	Role play	11

6- Student Assessment:

a- Assessment Methods:

1-Periodical (Mid-term exam)/ Course work	**1.1.1.1, 1.1.1.3, 2.6.1.1, 3.2.6.1, 4.1.2.1, 4.3.2.1**
2-Written exam	**1.1.1.1, 1.1.1.2, 1.1.1.3, 2.6.1.1, 2.6.1.2, 3.2.6.1, 3.2.6.2,**

b- Assessment schedule

Assessment 1	**Periodical (Mid-term exam) / Course work**	**8th week**
Assessment 2	**Written exam**	**16th week**
Assessment 3	**Oral exam**	**16th week**

c- Weighing of assessments

1	**Periodical (Mid-term) exam / Course work**	**20%**
2	**Practical examination and tutorial**	**-----**
3	**Final-term examination**	**65%**
4	**Oral examination**	**15%**
Total		**100%**

7-Facilities required for teaching and learning

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

8- Matrix of knowledge and skills of the course

Study Week	Course contents	Outcomes Domains / Key elements									
		Domain 1			Domain 2		Domain 3			Domain 4	
		1.1.1.1	1.1.1.2	1.1.1.3	2.6.1.1	2.6.1.2	3.2.6.1	3.2.6.2		4.1.2.1	4.3.2.1
1	Modified oral drug delivery systems	√				√				√	√
2	Modified oral drug delivery systems		√					√			
3	Skin structure, skin permeability, in-vitro, and in-vivo evaluation of drug diffusion		√		√						
4	Long acting parenterals: Liposomes (structure,	√			√				√	√	√

	preparation, evaluation, applications, and challenges)												
5	Transdermal patches: design and objectives	√	√				√					√	√
6	Transdermal patches: types	√	√				√					√	√
7	Transdermal patches: advantages and disadvantages	√		√		√			√				
8	Long acting parenterals: insulin injections and implants introduction	√	√				√					√	√
9	Extensive examples of transdermal drug delivery systems and clinical considerations			√		√			√				
10	Implants for insulin delivery, contraception, and chemotherapy		√				√					√	√
11	Mucoadhesive drug delivery systems	√	√				√					√	√
12	Ion-exchange resins as drug delivery carriers	√	√	√		√	√		√	√		√	√
13	Discussion of self learning topic		√			√				√			√
14	Revision	√	√	√		√	√		√	√		√	√

9- List of References

No	Reference	Type
1.	Electronic theoretical notes prepared by teaching staff members.	Course notes
2.	"Remington's: The science and practice of pharmacy" 23rd Ed., Pharmaceutical Press, Lippincott Williams and Wilkins, Philadelphia, (2020).	Essential Book

3.	Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems ninth edition, Allen L. V. et. al., Lippincott Williams and Wilkins, Philadelphia, (2011)	Essential Book
4.	Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems ninth edition, Allen L. V. et. al., Lippincott Williams and Wilkins, Philadelphia, (2011)	Essential Book
5.	http://www.sciencedirect.com http://www.google scholar.com http://www.pubmed.com https://www.ekb.eg	Websites

Course Coordinator	Prof. Dr. Hassan Mohamed Elsabbagh
	
Head of Department	**Prof. Dr. Irhan Ibrahim Abu Hashim**
	

Date: 20/9/2023

Fourth level

Course specification of Clinical Microbiology

University: Mansoura
Faculty : Pharmacy
Department : Microbiology and Immunology
Course title: Clinical Microbiology
Course code: PM 704

Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
Academic Level	Level Four , First semester, 2023-2024
Date of course specification approval	10/9/2023

A-Basic Information : Course data :

Course title:	Clinical Microbiology	**Code:** PM *704*	
Specialization:	Medical		
Prerequisite:			
Teaching credit hours:	**Lecture:** 2	**Practical:**1	
Total number of units: (credit hours)	3		

B- Professional Information

1- Course Aims:

On completion of the course, the student will be able to describe the common microbial pathogens and the mechanisms of pathogenesis, describe the clinical manifestation of disease and diagnose disease based on clinical laboratory data, describe the method of transmission of infectious diseases and control measures and discuss the treatment of disease.

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 most common bacteria and fungi of medical importance.
1.1.2	**1.1.2.1**	Define terms related to medical microbiology.
1.1.5	**1.1.5.1**	Describe and discuss the common infectious diseases caused by bacteria and fungi as pathogenesis, clinical pictures, complications.
1.1.6	**1.1.6.1**	Outline principle of treatment and prevention and control of common bacterial and fungal diseases.
1.1.7	**1.1.7.1**	Recognize the scientific basis of the conventional and up-to-date diagnostic procedures needed to carry out accurate diagnosis of bacterial and fungal and

		immunological diseases with emphasis on their prioritization in management plans.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.4.3	2.4.3.1	Integrate the most important signs and symptoms of important bacterial and fungal diseases and the laboratory test findings into a meaningful diagnostic significance (using case study)
	2.4.3.2	Express systemic thinking and personal judgment for differential diagnosis with prioritization of the common possibilities for each bacterial and fungal diseases
	2.4.3.3	Express systemic thinking and personal judgment for differential diagnosis of the immunological diseases and disorders.

Domain 3: Pharmaceutical care

Program K. element no.	Course K. element no.	Course K. element
3.1.3	3.1.3.1	Record the growth on different media and perform laboratory tests for identification of the causative agents of infectious diseases
3.1.4	3.1.4.1	Record the common diseases caused by bacteria and fungi of medical interest as regards etiology, pathogenesis, clinical features and methods of combat.
	3.1.4.2	Outline the characters, laboratory diagnosis and treatment of immunological diseases and disorders.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Share decision-making activities with other team members and apply effective time management skills.
4.2.1	4.2.1.1	Use clear language and communication when dealing with patients and other health team and communities

3- Contents:-

Week No	Topics	Lecture credit hours	Practical / Tutorial credit hours
1	Pathogenesis of bacterial infection and virulence factors	2	
2	Staphylococci	2	
3	Streptococci	2	
4	Gram-positive aerobic rods	2	

5	Gram-positive anaerobic rods	2	
6	Gram-negative cocci (Nisseria) Fasidious bacteria (Brucella, Bordetella, Hemophilus),	2	
7	Gram-negative rods (Enterobacteriaceae family	2	
8	Other Gram negative rods: *Helicobacter sp., Vibrio sp., Pseudomonas sp., legionella*	2	
9	Lacking cellwall: Mycoplasma Obligate intracellular: Rickettsia, Chlamydia, coxiella	2	
10	Rigid cell wall (Mycobacterium) Spirochetes	2	
11	Fungal infections	2	
12	Viral infections: DNA viral diseases	2	
13	Viral infections: RNA viral diseases	2	
14	Revision and quiz	2	
15	**Final written & oral exams**	-	
Week No	**Practical Topics**	**Lecture credit hours**	**Practical credit hours**
1	Introduction, Differential media		1
2	Staphylococci identification		1
3	Streptococci identification		1
4	*Bacillus cereus* identification		1
5	*E. coli* identification		1
6	Klebsiella identification		1
7	Proteus identification		1
8	**Mid-term Exam**		
9	*Pseudomonas* identification		1
10	Shigella and Salmonella identification		1
11	Fungi identification		1
12	Viral infections identification		1
13	Revision		1
14	**Practical exam**		-

4- Teaching and learning Methods:

Teaching and learning method	
5.1	**Computer aided learning:** **a. Lectures using Data show, power Point presentations** **b. Distance learning** • **On line learning through my mans "Mansoura university "as recorded – video lectures** **Inter active discussion through My Mans**
5.2	**Class Activity: Group discussion offline and online.**
5.3	**Practical session using laboratory equipment (Microscopes and glass wares)**
5.4	**Research assignments**
5.5	**Case study**
5.6	**Self-learning**

5- Student Assessment:

a- Assessment methods:

1- Periodical (Mid-term exam)	(1.1.1.1), (1.1.2.1), (1.1.5.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (2.4.3.1), (2.4.3.2), (2.4.3.3), (3.1.4.1), (3.1.4.2),(4.2.1.1)
2-Practical exam	(1.1.1.1), (1.1.2.1), (1.1.5.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (2.4.3.1), (2.4.3.2), (2.4.3.3), (3.1.4.1), (3.1.4.2),(4.2.1.1)
3-Written exam	(1.1.1.1), (1.1.2.1), (1.1.5.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (2.4.3.1), (2.4.3.2), (2.4.3.3), (3.1.4.1), (3.1.4.2)
4-Oral	(1.1.1.1), (1.1.2.1), (1.1.5.1), (1.1.5.2), (1.1.6.1), (1.1.7.1), (2.4.3.1), (2.4.3.2), (2.4.3.3), (3.1.4.1), (3.1.4.2), ,(4.2.1.1)

b- Assessment schedule

Assessment 1	Mid-term	8th week
Assessment 2	Practical	14th week
Assessment 3	Written	15th week
Assessment 3	Oral	15th week

c- Weighting of assessments

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

6- Matrix of course content versus course K. element

Week No.	Course contents / K. elements	Domain : 1					Domain 2			Domain 3			Domain: 4	
		1.1.1.1	1.1.2.1	1.1.5.1	1.1.6.1	1.1.7.1	2.4.3.1	2.4.3.2	2.4.3.3	3.1.3.1	3.1.4.1	3.1.4.2	4.1.1.1	4.1.2.1
1	Pathogenesis of bacterial infection and virulence factors	√	√											√
2	Staphylococci			√	√	√	√	√		√	√		√	√
3	Streptococci			√	√	√	√	√		√	√		√	√
4	Gram-positive aerobic rods			√	√	√	√	√		√	√		√	√
5	Gram-positive anaerobic rods			√	√	√	√	√		√	√		√	√
6	Gram-negative cocci (Nisseria) Fasidious bacteria (Brucella, Bordetella, Hemophilus),			√	√	√	√			√	√		√	√
7	Gram-negative rods (Enterobacteriaceae family			√	√	√	√			√	√		√	√
8	Other Gram negative rods: *Helicobacter sp., Vibrio sp., Pseudomonas sp., legionella*			√	√	√	√	√		√	√		√	√
9	Lacking cellwall: Mycoplasma Obligate intracellular: Rickettsia, Chlamydia, coxiella			√	√	√	√			√	√		√	√
10	Rigid cell wall (Mycobacterium)					√			√	√	√	√	√	√

	Spirochetes																
11	Fungal infections			√	√	√		√				√	√			√	√
12	Viral infections: DNA viral diseases			√	√	√		√				√	√			√	√
	Viral infections: RNA viral diseases			√	√	√		√				√	√			√	√
13	Revision and quiz	√	√	√	√	√		√	√	√		√	√	√		√	√
	Practical topics																
1	Introduction, Differential media	√	√	√													
2	Staphylococci identification			√	√	√		√	√	√		√	√	√		√	√
3	Streptococci identification			√	√	√		√	√	√		√	√	√		√	√
4	*Bacillus cereus* identification			√	√	√		√	√	√		√	√	√		√	√
5	*E. coli* identification			√	√	√		√	√	√		√	√	√		√	√
6	Klebsiella identification			√	√	√		√	√	√		√	√	√		√	√
7	Proteus identification			√	√	√		√	√	√		√	√	√		√	√
9	*Pseudomonas* identification			√	√	√		√	√	√		√	√	√		√	√
10	Shigella and Salmonella identification			√	√	√		√	√	√		√	√	√		√	√
11	Fungi identification			√	√	√		√	√	√		√	√	√		√	√
12	Viral infections identification			√	√	√		√	√	√		√	√	√		√	√
13	Revision	√	√	√		√	√	√		√	√	√		√	√	√	√

7- List of References

No.	Reference	type
1	Salyers, A. A., Whitt, D. D., & Whitt, D. D. (2011). Bacterial pathogenesis: a molecular approach . Washington, DC: ASM press.	Book
2	Brooks, G.F.; Carroll, K. C.; Butel, J.S.; Morse, S. A. (2007): Jawetz, Melnick and Adelberg's Medical Microbiology. 24th ed. McGraw-Hill.	Book
3	Levinson, W. (2014). Review of medical microbiology and immunology. , 9th edition. McGraw-Hill Education.	Book
4	Surinder Kumar (2016): Essentials of Microbiology. First Edition. Jaypee Brothers Medical Publishers	eBook
5.	Levinson, W. (2014). Review of Medical microbiology & immunology Thirteenth Edition	eBook
6.	Sherris & Ryan,s (2022): Medical microbiology. Eighteenth edotion, McGraw Hill	eBook
7.	http://www.sciencedirect.com / http://www.google.com / http://www.pubmed.com Centers for Disease Control and Prevention. https://0810fd8j4-1104-y-https-www-clinicalkey-com.mplbci.ekb.eg/#!/content/3-s2.0-B9780323673204000523 https://0810ed95d-1104-y-https-onlinelibrary-wiley-com.mplbci.ekb.eg/doi/chapterepub/10.1002/9781119998648.ch15 https://0810fd8jd-1104-y-https-www-clinicalkey-com.mplbci.ekb.eg/service/content/pdf/watermarked/3-s2.0-B9780323930383002318.pdf?locale=en_US&searchIndex= https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4600970/	Websites

Course Coordinator	**Prof. Dr. Rasha Barwa**
	
Head of department	**Prof. Dr. EL-Sayed E. Habib**
	

Date: 10/9/2023

Fourth Level

Course Specification: Pharmaceutical Biotechnology

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Microbiology and Immunology
Course title: Pharmaceutical Biotechnology
Course code: PM703

Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
Academic Level	Level four, First semester, 2023-2024
Date of course specification approval	10/9/2023

A. Basic Information: Course data:

Course title:	Pharmaceutical biotechnology	**Code:** PM 703
Specialization:	Pharmaceutical sciences	
Prerequisite:	General Microbiology and Immunology	
Teaching credit Hours:	Lecture: 2	**Practical:** : 1
Total Number of units: (credit hours)	3 **hours**	

B. Professional Information:

1- Course Aims:

At the end of the course the student should:	
1.	Orienting the students to use microorganisms in the production of valuable substances
2.	Recognizing different types of fermentation process and production of pharmaceutical products
3.	Knowing applications of genetic engineering and gene therapy

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 the importance of biotechnology and its uses

1.1.2	1.1.2.1	Identify terms related to genetic engineering and bioremediation
	1.1.2.2	Differentiate between different types of fermentation processes
1.1.3	1.1.3.1	Recognize the use of microorganisms in the production of important pharmaceutical products
1.1.7	1.1.7.1	Identify the basics of gene therapy and its uses in treatment of monogenic and polygenic disorders
	1.1.7.2	Illustrate the use of genetic engineering in production of some drugs

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.2.1	2.2.1.1	Manipulate suitable methods for the production of fermented products
2.2.2	2.2.2.1	Analyze how to encode and transfer regions of the genetic material of the microorganisms and its use in the synthesis of important proteins
2.2.3	2.2.3.1	Differentiate between DNA manipulation techniques

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.2.3	3.2.3.1	Determine the use of monoclonal antibodies in the treatment of cancer
	3.2.3.2	Investigate gene therapy and its use in treatment of some diseases

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Retrieve and evaluate information, solve problems and work effectively in a team
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 pharmaceutical preparations regarding the studied topics

4.2.2	4.2.2.1	Use information technology tools to retrieve clinical laboratory data from different sources to improve professional competencies
4.3.2	4.3.2.1	Practice independent learning to promote continuous professional development

3- Course Contents:

Week No	Topics	Lecture credit hours	Practical / Tutorial credit hours
1	Genetic engineering and its applications	2	
2	Recombinantn DNA technology	2	
3	Manipulation of living organisms to produce new products	2	
4	DNA manipulation techniques (southern, northern blots and microarray)	2	
5	Western blot	2	
6	Monoclonal antibodies	2	
7	Gene therapy and its applications	2	
8	Introduction to Biotechnology and Media composition	2	
9	Fermentation system	2	
10	Solid State fermentation (SSF)	2	
11	Products of Fermentation Process	2	
12	Application of Fermentation Process I	2	
13	Application of Fermentation Process II Bioremediation and its application	2	
14	Revision and quiz	2	
15	**Final written and oral exam**	-	
Week No	**Practical Topics**	**Lecture credit hours**	**Practical credit hours**
1	Isolation of soil bacteria		1
2	Identification and Examination of soil micro-organisms		1
3	Antimicrobial spectrum of Streptomyces		1
4	Mutation		1
5	Polymerase Chain Reaction(PCR)		1
6	Agarose gel electrophoresis		1
7	Recombinant DNA technology		1

8	**Mid-term Exam**		-
9	SDS-PAGE		1
10	Western blot		1
11	Northern blot		1
12	southern blot		1
13	**Revision**		1
14	**Practical exam**		-

4- Teaching and Learning Methods:

Teaching and learning method	
5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning • On line learning through my mans "Mansoura university "as recorded – video lectures • Inter active discussion through My Mans
5.2	Self-learning
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials
5.4	Class Activity: Group discussion offline and online.
5.5	Problem – based learning and brainstorming
5.6	Research assignments

5- Student Assessment:

a. Assessment methods

Assessment Methods	K elements to be assessed
1- Periodical (Mid-term exam)	1.1.1.1, 1.1.2.1, 1.1.2.2, 1.1.3.1, 1.1.7.2, 2.2.1.1, 2.2.2.1, 3.2.3.1, 4.2.1.1, 4.3.2.1
2-Practical exam	1.1.2.1, 1.1.3.1, 1.1.7.2, 2.2.2.1, 2.2.3.1, 3.2.3.1, 3.2.3.2, 4.2.1.1, 4.3.2.1
3-Written exam	1.1.1.1, 1.1.2.1, 1.1.2.2, 1.1.3.1, 1.1.7.1, 1.1.7.2, 2.2.1.1, 2.2.2.1, 2.2.3.1, 3.2.3.1, 3.2.3.2
4-Oral	1.1.1.1, 1.1.2.2, 1.1.3.1, 1.1.7.1, 1.1.7.2, 2.2.1.1, 2.2.3.1, 3.2.3.1, 3.2.3.2, 4.2.1.1

b. Assessment schedule

Assessment 1	Mid-term	8th week
Assessment 2	Practical	14th week
Assessment 3	Written	15th week
Assessment 4	Oral	15th week

c. Weighting of assessments

1.	Mid-term examination	10 %
2.	Practical examination and semester work	25 %
3.	Oral examination	15 %
4.	Final-written examination	50 %
Total		100 %

7- Matrix of course content versus course K. element

Week No.	Course contents / K. elements	Domain 1						Domain 2			Domain 3		Domain 4			
		1.1.1.1	1.1.2.1	1.1.2.2	1.1.3.1	1.17.1	1.1.7.2	2.2.1.1	2.2.2.1	2.2.3.1	3.2.3.1	3.2.3.2	4.1.2.1	4.2.1.1	4.2.2.1	4.3.2.1
1	Genetic engineering and its applications	✓	✓					✓					✓	✓		
2	Recombinantn DNA technology			✓				✓						✓		
3	Manipulation of living organisms to produce new products				✓			✓						✓		✓
4	DNA manipulation techniques (southern, northern blots and microarray)				✓			✓						✓		✓
5	Western blot		✓				✓		✓					✓	✓	✓
6	Monoclonal antibodies						✓				✓			✓		✓

7	Gene therapy and its applications															
8	Introduction to Biotechnology and Media composition		✓							✓					✓	
9	Fermentation system					✓						✓		✓		
10	Solid State fermentation (SSF)		✓											✓		
11	Products of Fermentation Process	✓	✓													
12	Application of Fermentation Process I									✓					✓	✓
13	Application of Fermentation Process II Bioremediation and its application									✓					✓	✓

14	Revision and quiz	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Practical topics																
1	Isolation of soil bacteria	✓							✓					✓	✓	✓
2	Identification and Examination of soil micro-organisms				✓		✓		✓					✓	✓	✓
3	Antimicrobial spectrum of Streptomyces				✓		✓		✓					✓	✓	✓
4	Mutation									✓				✓	✓	✓
5	Polymerase Chain Reaction(PCR)		✓								✓			✓	✓	✓
6	Agarose gel electrophoresis													✓	✓	✓
7	Recombinant DNA technology		✓				✓			✓	✓			✓	✓	✓
9	SDS-PAGE		✓				✓							✓	✓	✓
10	Western blot		✓				✓							✓	✓	✓
11	Northern blot		✓				✓							✓	✓	✓
12	southern blot		✓				✓							✓	✓	✓

13	**Revision**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

8- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	**Course notes**
2.	Recorded videos prepared by stuff members	**Videos on platform**
3	Sue Carson, Heather Miller, Melissa Srougi, D. Scott Witherow (2019) Molecular Biology Techniques, A Classroom Laboratory Manual, 4th Edition, Academic Press	**Book**
4.	Walsh, G. (2013). Pharmaceutical Biotechnology: Concepts and Applications. E book	**Book**
5.	Adair, J. R., Bickerstaff, G. F., Bugeja, V. C., Cartwright, E. J., Chaplin, M. F., Elles, R., Fussenegger, M. (2009). Molecular biology and biotechnology. Cambridge: Royal Society of Chemistry.	**Book**
6.	http://www.ms-biotech.wisc.edu/biotech-websites.cfm	**websites**
7.	https://www.ekb.eg	**websites**

Course Coordinator	**Prof. Dr. Mona Shaaban**
	Mona Shaaban
Head of Department	**Prof. Dr. El-Sayed E. Habib**

Date: 10/9/2023

المستوى الرابع

Course Specification: Pharmacology 3

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Pharmacology & Toxicology
Course title: Pharmacology 3
Course code: PO 703

Program on which the course is given	B. Pharm (Modified and unified bylaw of Clinical Pharmacy Program)
Academic Level	Level 4, First semester, 2023/2024
Date of course specification approval	18/ 9/ 2023

1. Basic Information: Course data:

Course title:	Pharmacology 3	**Code:** PO 703
Specialization:	Medical sciences	
Prerequisite:	Pharmacology 1	
Teaching credit Hours:	**Lecture:** 2	**Practical:** 1
Total Number of units: (credit hours)	3 **hours**	

2. Course Aims:

At the end of the course the student should be able to describe mechanism of action, biological effects, and therapeutic applications of CNS-acting agents, anti-inflammatory agents, chemotherapeutic agents, and hormonal agents.

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
1.1.4	**1.1.4.1**	List the mechanism of action of drugs, therapeutic effects and evaluate their suitability, efficacy and safety in individuals.

Domain 2: Professional and Ethical Practice

Program K.	Course K.	Course K. element

element no.	element no.	
2.4.3	2.4.3.1	Evaluate pharmaceutical care plans to manage numerous disorders with reference to their particulate health problems and special considerations.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.4	3.1.4.1	Point out the pathogenesis, treatment and prevention of infections/diseases and their treatment and prevention.
3.2.6	3.2.6.1	Provide public awareness on rational use of drugs

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Demonstrate the creation of knowledge or practices in the field of pharmacy and participate independently and collaboratively in the delivery of health services
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.

4- Course Contents:

Week No	Topics	Lecture credit hours
1	Anxiolytics drugs	2
2	Sedative and hypnotic	2
3	Antiparkinsonian drugs	2
4	Antipsychotic and antiepileptic drugs	2
5	Antibacterial drugs	2
6	Antibacterial drugs	2
7	Antibacterial drugs	2
8	Drugs for diabetes mellitus	2
9	Adrenal steroids and related drugs	2

10	Thyroid drugs	2
11	Antifungal drugs	2
12	Antiviral drugs	2
13	Anti- depressant drugs (self-learning)	2
14	Revision/quiz	2
15	Final written and oral exam	
Week No	**Practical Topics**	**Practical credit hours**
1	Hypnotics	1
2	Antiparkinsonism drugs	1
3	Analgesics	1
4	Antiepileptic drugs	1
5	Antipsychotic Drugs	1
6	Case study (Antibacterial drugs)	1
7	Case study (Antifungal drugs)	1
8	Mid-term Exam	-
9	Case study (Antiviral drugs)	1
10	Case study (Thyroid diseases)	1
11	Case study (Diabetes)	1
12	Case study (Adrenal diseases)	1
13	Case study (Anti-depressant)	1
14	Practical Exam	1

5- Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning • On line learning through my mans "Mansoura university "as recorded – video lectures • Inter active discussion through My Mans
5.2	Self-learning
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials
5.4	Class Activity: Group discussion offline and online.

6- Student Assessment:

Assessment methods

1. Mid Term exam	**1.1.4.1, 2.1.7.1, 2.4.3.1**
2. Practical exam	**1.1.4.1, 2.1.7.1, 2.4.3.1, 3.1.4.1, 3.2.6.1, 3.2.1.1, 4.1.2.1, 4.3.2.1**
3. Final Written exam	**1.1.4.1, 2.1.7.1, 2.4.3.1, 3.1.4.1, 3.2.6.1, 3.2.1.1**
4. Oral exam	**1.1.4.1, 2.1.7.1, 2.4.3.1, 4.3.2.1**

b. Assessment schedule

Assessment 1	Mid-term	8th week
Assessment 2	Practical	14th week
Assessment 3	Written	15th week
Assessment 3	Oral	15th week

c. Weighting of assessments

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

7- Facilities required for teaching and learning

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

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

Study Week	Course contents	Outcomes Domains / Key elements					
		Domain 1	Domain 2	Domain 3		Domain 4	
		1.1.4.1	2.4.3.1	3.1.4.1	3.2.6.1	4.1.2.1	4.3.2.1
1	Anxiolytics drugs	√	√	√	√		
2	Sedative and hypnotic	√	√	√	√		
3	Antiparkinsonian drugs	√	√	√	√		
4	Antipsychotic and antiepileptic drugs	√	√	√	√		
5	Antibacterial drugs	√	√	√	√	√	√
6	Antibacterial drugs	√	√	√	√	√	√
7	Antibacterial drugs	√	√	√	√	√	√
8	Drugs for diabetes mellitus	√	√	√	√	√	√
9	Adrenal steroids and related drugs	√	√	√	√	√	√
10	Thyroid drugs	√	√	√	√	√	√
11	Antifungal drugs	√	√	√	√	√	√
12	Antiviral drugs	√	√	√	√	√	√
13	Anti- depressant drugs (self-learning)	√	√	√	√	√	√
	Practical topics						

1	Hypnotics	√	√		√	√		
2	Antiparkinsonism drugs	√	√		√	√		
3	Analgesics	√	√		√	√		
4	Antiepileptic drugs	√	√		√	√		
5	Antipsychotic Drugs	√	√		√	√	√	√
6	Case study (Antibacterial drugs)	√	√		√	√	√	√
7	Case study (Antifungal drugs)	√	√		√	√	√	√
9	Case study (Antiviral drugs)	√	√		√	√	√	√
10	Case study (Thyroid diseases)	√	√		√	√	√	√
11	Case study (Diabetes)	√	√		√	√	√	√
12	Case study (Adrenal diseases)	√	√		√	√	√	√
13	Case study (Anti-depressant)	√	√		√	√	√	√

9- List of References

No	Reference	Type
1.	Katzung B, Kruidering-Hall M, Tuan RL, Vander TW, Trevor A (2021). Katzung and Trevor's Pharmacology Examination and Board Review 13th edition Publisher: McGraw Hill Lange	Reference textbook
2.	Ritter J, Flower R, Henderson G, Loke YK, MacEwan D, Rang H (2020) Rang and Dale's pharmacology 9th edition Publisher: Elsevier	Reference textbook
3.	Whalen K, Panavelil TA (2014) Lippincott Illustrated Reviews: Pharmacology, 6th Edition Philadelphia: Lippincott Williams & Wilkins	Reference textbook
4.	Rollins D, Blumenthal D (2021), Workbook and case book for Goodman and Gilman's pharmacological basis of therapeutics 12th edition Publisher: McGraw Hill Lange	Reference textbook
5	Electronic book prepared by staff members	Course notes
6	ACCP guidelines (https://www.accp.com/)	Internet sources
7	Egyptian Knowledge Bank (https://www.ekb.eg/)	Internet sources

Course Coordinator	**Prof. Dr. Ghada M Suddek**
Head of Department	**Prof. Dr. Manar Ahmed Nader**

Date: 18/9/ 2023

Mansoura University
Faculty of Pharmacy

Course specification
2023- 2024
Credit hours program
(modified and unified by law)

بكالوريوس الصيدلة الإكلينيكية (لائحه جديده ومعدله)

Course Specification

Academic year: 2023/2024

Course name: Medicinal Chemistry-II	اسم المقرر: كيمياء دوائية-2
Academic Level: Level 4	المستوى الأكاديمي: الرابع
Scientific department: Medicinal Chemistry	القسم العلمي: الكيمياء الدوائية
Head of Department: Prof. Dr. Mohamed Ahmed Ahmed Mostafa	رئيس القسم: أ.د/ محمد أحمد أحمد مصطفى
Course Coordinator: Prof. Dr. Hussein Ibrahim El-subbagh	منسق المقرر: أ.د. حسين ابراهيم الصباغ

University	Mansoura
Faculty	Pharmacy
Department offering the course	Medicinal Chemistry
Department supervising the course	Medicinal Chemistry
Program on which the course is given	**B. Pharm. (credit hours) (modified and unified by law)**
Academic Level	Fourth level, second semester, 2023-2024
Date of course specification approval	06/09/2023

1- Basic Information: Course data:

Course Title	**Medicinal Chemistry-II**
Course Code	**PC 810**
Prerequisite	**Medicinal Chemistry-I**
Teaching Hours: Lecture	**2**
Practical	**1**
Total Credit Hours	**3**

2- Course Aims:

This course enables the students to:

Medicinal chemistry II course is a continuation of studying medicinal chemistry aspects of other classes of drugs not covered in the medicinal chemistry course I, including drugs acting on central nervous system, cardiovascular drugs, steroidal hormones and analgesics. The practical part of the course provides the students with advanced in silico studies of drugs, in addition to discussion of certain case studies related to drugs covered in the theoretical part.

3- Course k. elements:

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

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

Program K. element no.	Course K. element no.	Course K. element
1.1.1	**1.1.1.1**	Recognize in depth and breadth the basic principles of medicinal chemistry course as a part of applied pharmaceutical sciences in pharmacy curriculum.
1.1.2	**1.1.2.1**	Use non-proprietary names (scientific names) of drugs in professional practice.
1.1.4	**1.1.4.1**	Explain the molecular mode of action of dugs of different classes.
1.1.6	**1.1.6.1**	Apply medicinal chemistry principles to make informed decisions on drug use.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.4.3	**2.4.3.1**	Use principles of medicinal chemistry to contribute to decision-making processes to solve drug- related problems.

DOMAIN 3: PHARMACEUTICAL CARE

Program K. element no.	Course K. element no.	Course K. element
3.2.1	**3.2.1.1**	Integrate fundamentals of medicinal chemistry of drugs including mode of action, therapeutic uses and untoward side effects.
3.2.5	**3.2.5.1**	Use principles of medicinal chemistry to provide education and counseling to support patients and community about their care plan.
3.2.6	**3.2.6.1**	Develop public awareness on rational use of drugs, drug abuse and misuse.

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Participate independently and collaboratively in delivery of health services related to pharmacy practice.
4.2.1	4.2.1.1	Communicate verbally and nonverbally including software tools with patient other health care team and communities.
4.3.2	4.3.2.1	Participate in continuous professional development activities to update and advance self-learning needs.

4- Course Contents

Week No.	Topics	Credit Hours
1	Drugs affecting CVS: antihypertensives	2
2	Drugs affecting CVS: Diuretics	2
3	Drugs affecting CVS: antianginal	2
4	Drugs affecting CVS: anti-hyperlipidimics	2
5	Drugs affecting CVS: anticoagulants	2
6	Drugs affecting CNS: CNS stimulants-Part I	2
7	Drugs affecting CNS: CNS stimulants-Part II	2
8	Drugs affecting CNS: Benzodiazepines, barbiturates	2
9	Narcotic analgesics	2
10	Non-steroidal anti-inflammatory drugs-Part I	2
11	Non-steroidal anti-inflammatory drugs-Part II	2
12	Male sex hormones	2
13	Female sex hormones	2
14	Glucocorticoids, Antipsychotics (self-learning)	2
16	Final written and oral exams	-
Week No.	**Practical topics**	**Practical Credit hours**

1	Case study (NSAIDs)	**1**
2	Case study (opioid analgesics)	**1**
3	Case study (hormones)	**1**
4	Case study (CNS depressants)	**1**
5	Case study (antipsychotics)-Part I	**1**
6	Case study (antipsychotics)-Part II	**1**
7	Case study exam	**1**
8	**Mid-term Exam**	**-**
9	Chem3D: drawing structures	**1**
10	Chem3D: color, display mode and chembiodraw window	**1**
11	Chem3D: energy minimization and charges calculation	**1**
12	Chem3D: overlay structures	**1**
13	Chem3D: structures' surfaces mapping	**1**
14	Chem3D: structures' surfaces visualization	**1**
15	Practical Exam	**1**

5- Teaching and Learning Methods:

	Teaching method	Week no.
5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning • On line learning through My Mans "Mansoura university "as recorded – video lectures • Inter active discussion through My Mans	1-6 & 8-14
5.2	Self-learning	12
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials	1-6 & 8-14
5.4	Class Activity: Group discussion offline and online.	12
5.5	Problem – based learning and brainstorming	1-6 & 8-14
5.6	Research assignments	12
5.7	Role play	13

6- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.6.1, 2.4.3.1, 4.1.2.1, 4.2.1.1, 4.3.2.1
2-Practical exam	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.6.1, 2.4.3.1, 3.2.1.1, 3.2.5.1, 3.2.6.1, 4.1.2.1, 4.2.1.1, 4.3.2.1
3-Oral	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.6.1, 2.4.3.1, 4.1.2.1, 4.2.1.1, 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.6.1, 2.4.3.1, 4.1.2.1, 4.2.1.1, 4.3.2.1

b- Assessment schedule

Assessment 1	**Periodical (Mid-term exam) / course work**	8th week
Assessment 2	**Practical examination and tutorial**	15th week
Assessment 3	**Written exam**	16th week
ssessment 4	**Oral exam**	16th week

c- Weighing of assessments

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

7- Facilities required for teaching and learning

Classroom	Data show, Computers, Internet, Platform
Laboratory facilities	Computer software (ChemBioOffice)
Library	Books

8- Matrix of knowledge and skills of the course

Study Week	Course contents	Outcomes Domains / Key elements											
		Domain 1				Domain 2	Domain 3			Domain 4			
		1.1.1.1	1.1.2.1	1.1.4.1	1.1.6.1	2.4.3.1	3.2.1.1	3.2.5.1	3.2.6.1	4.1.2.1	4.2.1.1	4.3.2.1
1-5	Drugs affecting CVS: antihypertensive, Diuretics, antianginal, anti-hyperlipidimics, anticoagulants	√									√	
6	Drugs affecting CNS: CNS stimulants-Part I				√	√	√	√				√
7	Drugs affecting CNS: CNS stimulants-Part II									√		
8	Drugs affecting CNS: Benzodiazepines, barbiturates		√					√			√	
9	Narcotic analgesics		√	√		√			√		√	
10	Non-steroidal anti-inflammatory drugs-Part I		√			√	√					√
11	Non-steroidal anti-inflammatory drugs-Part II		√			√	√					√
12	Male sex hormones		√			√	√					√
13	Female sex hormones		√			√	√					√

14	**Glucocorticoids, Antipsychotics (self-learning)**		√				√		√							√
1-14	**Practical topics: Case study (NSAIDs, opioid analgesics, hormones, CNS depressants, antipsychotics), Chem3D: drawing structures, color, display mode and chembiodraw window, energy minimization and charges calculation, overlay structures, structures' surfaces**			√	√					√	√			√		

9- List of References

No	Reference	Type
1	Electronic book “Medicinal Chemistry-2” prepared by staff members	Course notes
2	Recorded videos prepared by stuff members	**Videos on platform**
3	"Foye’s Principles of Medicinal Chemistry", 7th edition, (David A. Williams, Thomas L. Lemke & William O. Foye, Editors), Lippincott Williams & Wilkins, 2012	Book
4	"Wilson and Gisvold’s Textbook of Organic Medicinal and Pharmaceutical Chemistry" 12th Edition, (J. H. Block and J. M. Beale Jr, Editors), Lippincott Williams & Wilkins, Philadelphia, PA, 2011	Book
5	Graham L. Patrick; "An Introduction to Medicinal Chemistry" Oxford University Press, USA; 6th edition, 2017	Book
6	http://www.sciencedirect.com/ http://www.google.com / http://www.pubmed.com / http://www.ekb.eg	Websites

Course Coordinator	**Prof. Dr. Hussein Ibrahim El-subbagh**
Head of Department	**Prof. Dr. Mohamed Ahmed Ahmed Mostafa**

Date:

Course specification

2023-2024

Clinical Pharmacy Program

Faculty of Pharmacy

Mansoura University

بكالوريوس الصيدلة الإكلينيكية (لائحة موحدة و معدلة –

(Unified & Modified by law

Course Specification

Academic year: 2023-2024

Course name: **Clinical Pharmacy-2**	اسم المقرر: صيدلة إكلينيكية-2
Academic Level: **Level 4**	المستوى الأكاديمي: الرابع
Scientific department: **Clinical Pharmacy and Pharmacy Practice**	القسم العلمي: الصيدلة الإكلينيكية والممارسة الصيدلية
Head of Department: **Prof.Dr. Mohammed Elhusseiny Shams**	رئيس القسم: أ.د/ محمد الحسيني شمس
Course Coordinator: **Dr. Noha Osama Mansour**	منسق المقرر: د/ نهى أسامة منصور

University	Mansoura
Faculty	Pharmacy
Department offering the course	Clinical Pharmacy and Pharmacy Practice
Department supervising the course	Clinical Pharmacy and Pharmacy Practice
Program on which the course is given	**B. Pharm. (Unified & Modified by law) (Clinical Pharmacy)**
Academic Level	Fourth level, second semester, 2022-2023
Date of course specification approval	7-9-2023

1- Basic Information: Course data:

Course Title	**Clinical Pharmacy II**
Course Code	**PP-804**
Prerequisite	**Clinical Pharmacy 1**
Credit Hours: Lecture	**2**
Tutorial	**1**
Total Credit Hours	**3 (Credit H)**

2- Course Aims:

The aim of course is to familiarize the student with the basis of evidence based clinical pharmacy practice in management of CNS and endocrine disorders. The course also aims to develop principles of patient-centered pharmacotherapy of general psychiatric and endocrine disorders.

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
1.1.4	**1.1.4.1**	Describe the appropriateness, effectiveness, and safety of different medications in specific individuals and populations to optimize patients' outcomes.
1.1.5	**1.1.5.1**	Recall the principles of basic pharmaceutical sciences to solve drug related problems in certain case scenarios.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
2.1.1	**2.1.1.1**	Conduct pharmaceutical care plans for specific clinical cases according to the patients' needs and history.
2.4.3	**2.4.3.1**	Evaluate drug-related problems and adapt pharmaceutical care plans that consider actions and decisions taken for patient management.

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 regimen based on the disease and drug history to optimize medication use.
3.2.2	**3.2.2.1**	Optimize drug use with respect to the principles of clinical pharmacy practice.
3.2.5	**3.2.5.1**	Collaborate with other healthcare professionals and manage the patient care plan as needed. Consult the healthcare team about the rational drug use

DOMAIN 4: PERSONAL PRACTICE

Program K. element no.	Course K. element no.	Course K. element
4.2.1	**4.2.1.1**	Use verbal and non-verbal communication skills when dealing with patients and health professionals.
4.3.2	**4.3.2.1**	Practice self-learning to improve professional skills

4- Course Contents

Week No.	Lecture Topics	Lecture Credit Hours
1	**Evaluation of Psychiatric Illness**	2
2	**Schizophrenia**	2
3	**Mania**	2
4	**Depression**	2
5	**Anxiety**	2
6	**Parkinson's Disease**	2
7	**Bipolar Disorder**	2
8	**Attention deficit and hyperactive disorders (ADHD)**	2
9-10	**Diabetes Type 1 &2**	4
11	**Thyroid disorders**	2
12	**Obesity** **Polycystic Ovarian Syndrome (self-learning)**	2
13	**Substance Use Disorders**	2
14	**Sleep Disorders (Self-learning)**	2
15	**Revision and quiz**	2
16	Starting final theoretical and oral exam	-

Week No.	Tutorial topics	Credit hours
1	Evaluation of Psychiatric Illness	1
2	Case study: Schizophrenia	1
3	Case study: Mania and Bipolar Disorder	1
4	Case study: Depression	1
5	Case study: Anxiety	1
6	Case study: Parkinson's Disease	1
7	Case study: Attention deficit and hyperactive disorders	1
8	Midterm exam	1
9-10	Case studies: Diabetes	2
11	Case study: Thyroid Disorder	1
12	Case study: Substance use disorders	1
13	**Case study:** Obesity	1
14	**Case study:** Polycystic ovarian Syndrome	1
15	Tutorial exam	-

5- Teaching and Learning Methods:

5.1	Computer aided learning: a. Online learning through My mans "Mansoura university "as recorded – video lectures b. Inter active discussion through My Mans c. Power point (PPT) presentations	Week 1-15
5.2	Tutorial sessions using patient case studies	Week 1-14
5.3	Self-learning	Week 12,14
5.4	Formative Assignments	Week 1-15
5.5	Class Activity Discussion / brainstorming / problem solving / role play.	Week 1-15

6- Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.4.1, 1.1.5.1, 2.1.1.1, 2.4.3.1, 3.1.1.1, 3.2.2.1, 3.2.5.1
2-Tutorial exam	1.1.5.1, 2.1.1.1, 3.1.1.1, 4.2.1.1, 4.3.2.1
3-Oral	1.1.4.1, 1.1.5.1, 2.1.1.1, 2.4.3.1, 3.1.1.1, 3.2.2.1, 3.2.5.1, 4.2.1.1
4-Formative Assessment	1.1.4.1, 1.1.5.1, 2.1.1.1, 2.4.3.1, 3.1.1.1, 3.2.2.1, 3.2.5.1, 4.3.2.1

b- Assessment schedule

Assessment 1	**Periodical (midterm)**	8th week
Assessment 2	**Tutorial**	15th week
Assessment 3	**Written**	16th week
Assessment 4	**Oral**	16th week

c- Weighing of assessments

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

7- Facilities required for teaching and learning

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

8- Matrix of knowledge and skills of the course

Course contents	Outcomes Domains / Key elements								
	Domain 1		Domain 2		Domain 3			Domain 4	
	1.1.4.1	1.1.5.1	2.1.1.1	2.4.3.1	3.1.1.1	3.2.2.1	3.2.5.1	4.2.1.1	4.3.2.1
Evaluation of Psychiatric Illness						√			
Schizophrenia					√	√			
Mania	√	√		√	√		√		
Depression	√	√	√		√		√		
Anxiety			√				√		
Parkinson's Disease			√				√		
Bipolar Disorder									
Attention deficit and hyperactive disorders (ADHD)	√					√			
Diabetes Type 1 &2				√			√		
Thyroid disorders				√			√		
Obesity **Polycystic Ovarian Syndrome (self-learning)**				√			√		√

Course contents	Outcomes Domains / Key elements								
	Domain 1		Domain 2		Domain 3			Domain 4	
	1.1.4.1	1.1.5.1	2.1.1.1	2.4.3.1	3.1.1.1	3.2.2.1	3.2.5.1	4.2.1.1	4.3.2.1
Substance Use Disorders				√			√		√
Sleep Disorders (Self-learning)	√	√	√	√	√	√	√		
Revision and quiz	√	√	√	√	√	√	√		
Tutorial topics • Evaluation of Psychiatric Illness • Case study: Schizophrenia • Case study: Mania and Bipolar Disorder • Case study: Depression • Case study: Anxiety • Case study: Parkinson's Disease • Case study: Attention deficit and hyperactive disorders • Midterm exam • Case studies: Diabetes • Case study: Thyroid Disorder • Case study: Substance use disorders		√	√		√	√		√	√

Course contents	Outcomes Domains / Key elements								
	Domain 1		Domain 2		Domain 3			Domain 4	
	1.1.4.1	1.1.5.1	2.1.1.1	2.4.3.1	3.1.1.1	3.2.2.1	3.2.5.1	4.2.1.1	4.3.2.1
• Case study: Obesity • Case study: Polycystic ovarian Syndrome									

9- List of References

No	Reference	Type
1.	Lecture notes prepared by teaching staff	Course notes
2.	Clinical Pharmacy and Therapeutics by Roger Walker and Catherine Whittlesea, 2022.	Essential Book
3.	A Pathophysiologic Approach, Eleventh Edition By: Joseph T. DiPiro, Gary C. Yee, L. Michael Posey, Stuart T. Haines, Thomas D. Nolin Published: June 2020 ISBN: 978126011681623.	Essential Book
4.	Stokley's drug interaction, 11th Ed, by Karen Baxter (2016).	Essential Book
5.	Lexicomp, Dynamed Plus , Pubmed and BMJ best practice http://www.pubmed.com https://www.ekb.eg/.	Websites

Course Coordinator	**Dr. Noha Osama Mansour**
Head of Department	**Dr. Mohamed Elhusseiny Shams**

Date: 7-9-2023

Course specification

2023-2024

Clinical Pharmacy Program

Faculty of Pharmacy

Mansoura University

بكالوريوس الصيدلة الإكلينيكية
(لائحة موحدة و معدلة –
(Unified & modified by law
Course Specification)

Academic year: 2023-2024

Course name: Management of Oncological diseases (PP 805)	**اسم المقرر:** أمراض الأورام
Academic Level: Level 4	**المستوى الأكاديمي:** الرابع
Scientific department: Clinical Pharmacy and Pharmacy Practice	**القسم العلمي:** الصيدلة الإكلينيكية والممارسة الصيدلية
Head of Department: **Prof. Dr. Mohamed E. Shams**	**رئيس القسم:** أ.د/ محمد الحسيني شمس
Course Coordinator: **Dr. Moetaza Mahmoud Hassab**	**منسق المقرر:** أ.م.د/ معتزة محمود حسب

University	Mansoura
Faculty	Pharmacy
Department offering the course	Clinical Pharmacy and Pharmacy Practice
Department supervising the course	Clinical Pharmacy and Pharmacy Practice
Program on which the course is given	**B. Pharm. (Unified and modified bylaw) (Clinical Pharmacy)**
Academic Level	Fourth level, second semester, 2023-2024
Date of course specification approval	7/9/2023

1- Basic Information: Course data:

Course Title	**Oncology**
Course Code	**PP 805**
Prerequisite	**Pathology & Pharmacology II**
Credit Hours: Lecture	**2**
Tutorial	**1**
Total Credit Hours	**3 (Credit H)**

2- Course Aims:

- Introduction to the different types of tumors (solid and hematological malignancies) and their staging
- Each type of malignancy will be addressed with respect to diagnosis and prognosis, treatment options and expected outcomes
- For chemotherapy, students will learn the toxic effects of chemotherapy and how to modify the chemotherapeutic regimens as clinical pharmacists to minimize adverse effects as much as possible.
- Regarding radiotherapy, students will be introduced to the various types of isotopes, their application in different malignancies and how to handle these isotopes safely in the work environment.

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**	Describe the risk factors, clinical presentation, relevant laboratory investigation in relation to updated treatment guidelines of different oncological diseases.
1.1.4	**1.1.4.1**	Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.
1.1.6	**1.1.6.1**	Recognize different scientific resources to make 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**	Construct a pharmaceutical patient care plan for management of oncological diseases

DOMAIN 3: Pharmaceutical care

Program K. element no.	Course K. element no.	Course K. element
3.1.1	3.1.1.1	Interpret monitoring parameters of patient's response and therapeutic agents to manage drug therapy problems effectively.
3.2.1	3.2.1.1	Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions.
3.2.4	3.2.4.1	Educate patients about goals of therapy, monitoring of response and the possible side effects of the care plan.
3.2.5	3.2.5.1	Counsel and educate patients to rationalize management of oncological diseases.

DOMAIN 4: Personal Practice

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Contribute with health care team in formulary management activities related to chemotherapy and radiotherapy
4.3.2	4.3.2.1	Practice self-learning to improve professional skills

4- Course Contents

Week No.	Lecture Topics	Lecture Credit Hours
1	**Introduction:** cell cycle, cell biology, basics of oncology, pathophysiology, staging	2
2	**Cancer pathophysiology and staging**	2
3	**Acute leukemias:** Definition, Types, Diagnosis and Assessment, Treatment	2
4	**Chronic leukemias:** Definition, Types, Diagnosis and Assessment, Treatment	2
5	**Breast cancer:** Definition, Types, Diagnosis and Assessment.	2
6	**Treatment of breast cancer**	
7	**Gynecologic Malignancies:** Definition, Types, Diagnosis and Assessment, Treatment	2

8	**Bone Marrow Transplantation:** Definition, Indications,	2
9	**Complications of bone Marrow Transplantation**	2
10	**Lung cancer:** Definition, Types, Diagnosis, risk factors**(self-learning)**	2
11	**Lung cancer: assessment and treatment**	2
12	**Supportive care in oncology:** Antiemetics	2
13	**Supportive care in oncology:** Pain Management	2
14	**Chemotherapy induced toxicities**	2
15	**Revision and quiz**	2
16	**Starting Final written and oral exam**	-
Week No.	**Tutorial topics**	**Credit hours**
1	**Introduction**	1
2	**Cancer TNM staging**	1
3	**Acute leukemias: case study**	1
4	**Chronic leukemias: case study**	1
5	**Breast cancer:** case study	1
6	**Treatment options of breast cancer**	1
7	**Gynecologic Malignancies: case study**	1
8	**Mid- term exam**	-
9	**Bone Marrow Transplantation:** Definition, Indications,	1
10	**Complications of bone Marrow Transplantation**	1
11	**Lung cancer: case presentation**	1
12	**Supportive care in oncology:** Antiemetics	1
13	**Supportive care in oncology:** pain managment	1
14	**Chemotherapy induced toxicities**	
15	**Sheet / and Tutorial exam**	-

5- Teaching and Learning Methods:

5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning ● Online learning through my mans "Mansoura university "as recorded – video lectures	Week 1-14

	• Inter active discussion through My Mans	
5.2	Self-learning	Week 10
5.3	Practical session using tutorials	Week 1-13
5.4	Class Activity: Group discussion offline and online.	Week 1-14
5.5	Problem – based learning and brainstorming	Week 1-14
5.7	Role play	Week 10

6- Student Assessment:

a- Assessment Methods:

1-Written exam	1.1.1.1, 1.1.4.1, 1.1.6.1, 4.3.2.1
2-Tutorial exam	2.1.3.1, 3.1.1.1, 3.2.1.1, 3.2.4.1, 3.2.5.1, 4.1.1.1, 4.3.2.1
3-Oral	1.1.1.1, 1.1.4.1, 1.1.6.1, 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.1.1, 1.1.4.1, 1.1.6.1

b- Assessment schedule

Assessment 1	Periodical (Mid-term exam)	8th week
Assessment 2	Practical examination using tutorial	15th week
Assessment 3	Written exam	Starting in 16th week
Assessment 4	Oral exam	Starting in 16th week

c- Weighing of assessments

1	Periodical (Mid-term) exam	10%
2	Practical examination using tutorial	25%
3	Final-term examination	50%
4	Oral examination	15%
Total		100%

7- Facilities required for teaching and learning

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

Matrix of knowledge and skills of the course:

Study Week No.	Course contents	Outcomes Domains / Key elements											
		Domain 1				Domain 2		Domain 3					Domain 4	
		1.1.1.1	1.1.6.1	1.1.4.1		2.1.3.1		3.1.1.1	3.2.1.1	3.2.4.1	3.2.5.1		4.1.1.1	4.3.2.1
1	**Introduction:** cell cycle, cell biology, basics of oncology, pathophysiology, staging	√												
2	**Cancer pathophysiology and staging**	√												
3	**Acute leukemias:** Definition, Types, Diagnosis and Assessment, Treatment	√	√	√										
4	**Chronic leukemias:** Definition, Types, Diagnosis and Assessment, Treatment	√	√	√										
5	**Breast cancer:** Definition, Types, Diagnosis and Assessment.	√	√	√										
6	**Treatment of breast cancer**	√	√	√										
7	**Gynecologic Malignancies:** Definition, Types, Diagnosis and Assessment, Treatment	√	√	√										
8	**Bone Marrow Transplantation:** Definition, Indications,	√	√	√										
9	**Complications of bone Marrow Transplantation**	√	√	√										√
10	**Lung cancer:** Definition, Types, Diagnosis, risk factors**(self-learning)**	√	√	√										
11	**Lung cancer: assessment and**	√	√	√										√

	treatment													
12	**Supportive care in oncology:** Antiemetics	√	√	√										
13	**Supportive care in oncology:** Pain Management	√	√	√										
14	**Revision**	√	√	√										
15	**Chemotherapy induced toxicities**	√	√	√										
Tutorial topics														
1	**Introduction**					√		√	√	√	√		√	√
2	**Cancer TNM staging**					√		√	√	√	√		√	√
3	**Acute leukemias: case study**					√		√	√	√	√		√	√
4	**Chronic leukemias: case study**					√		√	√	√	√		√	√
5	**Breast cancer:** case study					√		√	√	√	√		√	√
6	**Treatment options of breast cancer**					√		√	√	√	√		√	√
7	**Gynecologic Malignancies: case study**					√		√	√	√	√		√	√
8	**Mid- term exam**													
9	**Bone Marrow Transplantation:** Definition, Indications,					√		√	√	√	√		√	√
10	**Complications of bone Marrow Transplantation**					√		√	√	√	√		√	√
11	**Lung cancer: case presentation**					√		√	√	√	√		√	√

12	**Supportive care in oncology:** Antiemetics					√		√	√	√	√		√	√
13	**Supportive care in oncology:** pain management					√		√	√	√	√		√	√
14	**Chemotherapy induced toxicities**					√		√	√	√	√		√	√

List of References

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos prepared by stuff members	Videos on platform
3.	A Pathophysiologic Approach, Eleventh Edition By: Joseph T. DiPiro, Gary C. Yee, L. Michael Posey, Stuart T. Haines, Thomas D. Nolin Published: June 2020 ISBN: 978126011681623.	Essential Book
4.	http://www.nccn.org/guidelines/category_1 http://www.sciencedirect.com / https://scholar.google.com/ http://www.pubmed.com https://www.ekb.eg	Websites

Course Coordinator	**Dr. Moetaza Mahmoud Hassab**
Head of Department	**Prof. Dr. Mohamed E. Shams** **Approval date 7/9/2023**

Modified Bylaw بكالوريوس الصيدلة الإكلينيكية (لائحة معدلة –)

Course Specification

Academic year: 2023-2024

Course name: Biopharmaceutics and Pharmacokinetics	اسم المقرر: الصيدلة الحيوية وحركية الدواء
Academic Level: Level 4	الرابع : المستوى الأكاديمي
Scientific department: Pharmaceutics	الصيدلانيات : القسم العلمي
Head of Department: Prof. Dr. Irhan Ibrahim Abu Hashim	**:** رئيس القسم ا.د/ إرهان إبراهيم أبو هاشم
Course Coordinator: Pro. Dr. Thanaa Mohamed Borg	**:** منسق المقرر ا.د/ ثناء محمد السعيد برج

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

A. Basic Information: Course data:

Course Title	Biopharmaceutics and Pharmacokinetics
Course Code	PT 809
Prerequisite	Pharmaceutical dosage forms I
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 principle of biopharmaceutics and pharmacokinetics.

- Solve problems related to the pharmacokinetic parameters (including AUC, half-life, total clearance, volume of distribution).
- Know the principles of pharmacokinetic (including absorption, distribution, metabolism, and elimination) and drug-drug interactions.
- Gain some knowledge about the basis of selection, a particular drug preparation, route of administration and evaluation of bioavailability of dugs products.

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
1.1.7	1.1.7.1	Define the biopharmaceutical topics such as: drug absorption, distribution, metabolism, excretion.
	1.1.7.2	Identify the various factors affecting the bioavailability of drugs such as; physiological, physicochemical, and formulation-related factors and describe a route of administration with a dosage regimen that gives appropriate response.
	1.1.7.3	Recognize pharmacokinetic parameters from data obtained for drugs administered via the intravascular and extravascular routes.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.3.2	2.3.2.1	Conduct the dose adjustment principles for patients with hepatic or renal insufficiency.
	2.3.2.2	Select the most suitable dosage form of a drug that gives the highest bioavailability based on the properties of the drug and excipients.
2.5.1	2.5.1.1	Determine the different pharmacokinetic parameters from the supplied biological data.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.1	3.1.1.1	Adjust the dosage regimen based on the calculation of the pharmacokinetic parameters.
	3.1.1.2	Utilize the available pharmacokinetic data to improve the quality of patient's life

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	4.1.2.1	Retrieve and evaluate information, solve problems, and work effectively in a team.
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 natural pharmaceutical preparations regarding the studied topics.
4.3.2	4.3.2.1	Practice independent learning to promote continuous professional development.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	**Introduction to biopharmaceutics and pharmacokinetics definitions**	2
2	**Pharmacokinetic parameters and sites of drug administration**	2
3	**Pharmacokinetics of oral route**	2
4	**Pharmacokinetics of IV infusion**	2
5	**Multiple dosing and factors affecting drug absorption**	2

6	**Bioavailability (definition, types and assessment)**	2
7	**Drug absorption mechanisms-1**	2
8	**Drug absorption mechanisms-2 (Mid-term exam)**	2
9	**Factors affecting drug absorption (physico-chemical, formulation &physiological factors)**	2
10	**Drug distribution and drug metabolism**	2
11	**Discussion of self learning topic**	2
12	**Drug elimination (renal & extrarenal)**	2
13	**Compartment models (one & two compartments)**	2
14	**Revision**	2
16	**Final written and oral exam**	2
Week No.	**Practical topics**	**Practical credit hours**
1.	**Mathematical Fundamentals in pharmacokinetics and Calculation of AUC (Trapezoid rule)**	1
2.	**Rates and orders of Reactions**	1
3.	**One-Compartment Open Model: Intravenous Bolus Administration-1**	1
4.	**One-Compartment Open Model: Intravenous Bolus Administration-2**	**1**
5.	**Bioavailability**	1
6.	**Calculation of Elimination rate constant (K): using urine data** **Urinary excretion rate method**	1

7.	**Calculation of Elimination rate constant (K): using urine data** **Sigma-minus method**	1
8.	**Mid-term exam**	-
9.	**Determination of absorption rate constant ka**	1
10.	**Multiple Dosing of IV bolus injection**	1
11.	**IV infusion**	1
12.	**Noyes-Whitney equation**	1
13	**Henderson-Hasselbalch equation**	1
14	**Revision**	1
15	**Practical exam**	-

4- Teaching and Learning Methods:

	Teaching and Learning Method	**Week no.**
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 Platform	1-14
2	Self-learning	11
3	Practical tutorials and student presentation seminars	1-7 9-14

4	Class Activity: Group discussion offline and online.	1-3
5	Problem – based learning and brainstorming	8-9
6	Research assignments	12

5- Student Assessment:

d- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.7.1, 1.1.7.2, 1.1.7.3, 2.3.2.1, 2.3.2.2, 2.5.1.1, 3.1.1.1, 3.1.1.2
2-Practical exam	2.3.2.1, 2.3.2.2, 2.5.1.1, 3.1.1.1, 3.1.1.2, 4.1.2.1, 4.2.1.1, 4.3.2.1
3-Oral	2.3.2.1, 2.3.2.2, 2.5.1.1, 3.1.1.1, 3.1.1.2, 4.1.2.1, 4.2.1.1, 4.3.2.1
4- Periodical (Mid-term exam) / Course work	1.1.7.1, 1.1.7.2, 1.1.7.3, 2.3.2.1, 2.3.2.2, 2.5.1.1

b. Assessment schedule

Assessment 1	Periodical (Mid-term exam) / Course work	8th week
Assessment 2	Practical examination and tutorial	15th week
Assessment 3	Written exam	16th week
Assessment 4	Oral exam	16th week

c. Weighing of assessments

1	Periodical (Mid-term) exam / Course work	10%
2	Practical examination and tutorial	25%

3	Final-term examination	50%
4	Oral examination	15%
Total		100%

6- Facilities required for teaching and learning

-Class room	Data show- Computers, Internet.

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

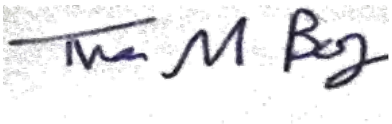
Week No.	Course contents / K. elements	Domain 1			Domain 2			Domain 3		Domain 4		
		1.1.7.1	1.1.7.2	1.1.7.3	2.3.2.1	2.3.2.2	2.5.1.1	3.1.1.1	3.1.1.2	4.1.2.1	4.2.1.1	4.3.2.1
1	Introduction to biopharmaceutics and pharmacokinetics definitions	✓	✓		✓	✓	✓	✓	✓	✓	✓	
2	Pharmacokinetic parameters and sites of drug administration	✓	✓		✓	✓	✓	✓	✓	✓	✓	
3	Pharmacokinetics of oral route	✓	✓		✓	✓	✓	✓	✓	✓	✓	
4	Pharmacokinetics of IV infusion	✓		✓	✓	✓		✓	✓	✓	✓	
5	Multiple dosing and factors affecting drug absorption	✓		✓	✓	✓		✓	✓	✓	✓	
6	Bioavailability (definition, types and assessment)	✓		✓	✓	✓		✓	✓	✓	✓	
7	Drug absorption mechanisms-1	✓		✓	✓	✓		✓	✓	✓	✓	
8	Drug absorption mechanisms-2 (Mid-term exam)	✓	✓	✓		✓	✓			✓	✓	✓

9	**Factors affecting drug absorption (physico-chemical, formulation &physiological factors)**	✓	✓	✓			✓	✓					✓	✓	✓
10	**Drug distribution and drug metabolism**	✓	✓	✓			✓	✓					✓	✓	✓
11	**Discussion of self learning topic**	✓		✓		✓		✓		✓	✓		✓	✓	✓
12	**Drug elimination (renal & extrarenal)**	✓	✓	✓		✓	✓			✓			✓		✓
13	**Compartment models (one & two compartments)**	✓	✓	✓		✓	✓			✓			✓		✓
14	**Revision**	✓	✓	✓		✓	✓			✓			✓		✓
1-7 **9-14**	● Practical topics ● Mathematical Fundamentals in pharmacokinetics and Calculation of AUC (Trapezoid rule) ● Rates and orders of Reactions ● Intravenous Bolus Administration ● Bioavailability ● Urinary excretion rate method ● Determination of absorption rate constant ka												✓		✓

	● Multiple Dosing of IV bolus injection ● IV infusion ● Noyes-Whitney equation ● Henderson-Hasselbalch equation														

8- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	Course notes
2.	Recorded videos prepared by stuff members	Videos on platform
3.	Applied Biopharmaceutics and Pharmacokinetics, 8th Ed., Leon Shargel, Susanna Wu-Pong, Andrew Yu, ed., McGraw Hill Professional (2022).	Book
5.	Basic pharmacokinetics, 2nd Ed., Mohsen A Hedaya ed., Pharmaceutical Press (2012)	Book
6.	http://www.sciencedirect.com http://www.google scholar.com http://www.pubmed.com https://www.ekb.eg	websites

Course Coordinator	Pro. Dr. Thanaa Mohamed Borg
	
Head of Department	Prof. Dr. Irhan Ibrahim Abu Hashim
	

Date: 20/9/2023

بكالوريوس الصيدلة الاكلينيكية

Course Specification

Academic year: 2023/2024

Course name: Clinical Biochemistry	**اسم المقرر :** كيمياء حيويه اكلينيكية
Academic Level:5	**المستوى الأكاديمي :**الرابع
Scientific department: Biochemistry	**القسم العلمي :** الكيمياء الحيوية
Head of Department: Dr. Noha M.H. Abdel- Rahman	**رئيس القسم :** د/ نهى منصور حسن عبدالرحمن
Course Coordinator:	**منسق المقرر :**

University	Mansoura
Faculty	Pharmacy
Department offering the course	Biochemistry
Department supervising the course	Biochemistry
Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
Academic Level	Forth Level, Semester two, 2023-2024
Date of course specification approval	16/9/2023

A. Basic Information: Course data:

Course Title	Clinical Biochemistry
Course Code	**PB 803**
Prerequisite	Biochemistry 2
Teaching credit Hours: Lecture	2
Practical	1
Total Credit Hours	3(Credit H)

B. Professional Information:

1 .Course Aims:

This course enables the students to:

1 Develop the ability to select chemical investigation those are appropriate to the diagnosis of disease and for the management of treatments.
2 Understand the diagnostic value of plasma non-functional enzymes.
3 Study the functional state of: Liver, Kidney, Heart, Bone and GIT, in health and disease
4 Study the Inborn Errors of Metabolism of Carbohydrates, Protein, Amino acids and Lipids
5 Understand Tumor Markers.
6 Study the disorders of Collagen and Plasma Proteins.
7 Maintain a responsible and critical attitude in the use of the diagnostic services provided by Clinical Biochemistry and Laboratory based specialists

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 the fundamental basis of pharmaceutical, medical, social and behavioral sciences as well as management of different health conditions.
1.1.2	**1.1.2.1**	Utilize important pharmaceutical and medical terminology, abbreviations and symbols in pharmacy practice.
1.1.4	**1.1.4.1**	Articulate knowledge from fundamental sciences to evaluate drugs' action, therapeutic effects and their appropriateness, effectiveness, and safety in individuals and populations.
1.1.5	**1.1.5.1**	Define the principles, practice and critical understanding of fundamental sciences to solve problems related to human health.
1.1.6	**1.1.6.1**	Make evidence-informed professional decisions through analysis and application of relevant scientific literature and other scientific resources.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.1.2	**2.1.2.1**	Make use of the principles of professional codes of ethics, preserving patients' rights and respecting population diversity.
2.4.3	**2.4.3.1**	Make decisions regarding recognized drug-related and pharmaceutical care problems.
2.5.2	**2.5.2.1**	Identify relevant and necessary evidence-based information about a patient's health-related care needs.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element	Course K. element

	no.	
3.1.1	**3.1.1.1**	Adjust a dosage regimen for a patient based on knowledge of different biochemical, metabolic and immunological changes related to disease or concomitant drug therapy.
3.2.2	**3.2.2.1**	Use the principles of clinical pharmacology and clinical nutrition and the necessary technical skills to rationalize the use of medicines and medical devices.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.2	**4.1.2.1**	Gather information and analyze data, point out problems and present solutions, participate independently and collaboratively with other team members in the healthcare system.
4.2.1	**4.2.1.1**	Make use of 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**	Employ 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**	Encourage continuous professional development by practicing self and independent learning.

3- Course Contents:

Week No.	Topics	Lecture credit Hours
1	Introduction & Inborn Errors of Metabolism	2
2	Carbohydrate metabolism disorders	2
3	Blood glucose & Diabetes Mellitus	2
4	Liver function Tests	2
5	Diagnostic enzymology	2
6	Water, electrolytes and hydrogen ion disorders	**2**

7	Lipid disorders	2
8	Kidney function Tests	2
9	Cardiac function test	2
10	Respiratory disorders	2
11	Amino acid metabolism disorders	2
12	Collagen and Plasma proteins disorders	2
13	Tumor markers	2
14	Disorders of nucleic acids, purine and pyrimidine metabolism.	2
15	Revision /quiz	2
16	**Final written and oral exam**	**-**
Practical topics		
Week No	**Topics**	**No. of hours**
1	Lab safety and the use of laboratory.	1
2	Patient Sample collection	1
3	Laboratory Diagnosis of Diabetes Mellitus/ Complications of Diabetes Mellitus	1
4	Oral Glucose Tolerance Test/**case study.**	1
5	Mineral disturbance in diabetes	1
6	Clinical cases on Diabetes Mellitus	1
7	Tests for Evaluation of Liver Function (Total protein, ALT, AST).	**1**
8	**Mid-term Exam**	**-**
9	Determination of serum bilirubin (total and direct) /**case study**	1
10	Tumor markers.	1
11	Acute myocardial infarction/**Presentation**.	1
12	Diagnosis of renal dysfunction/ **Presentation**.	1
13/14	Revision/ case study	2
15	Practical Exam	-

4- Teaching and learning Methods:

No	Teaching and learning Methods	Week
5.1	Computer aided learning: a. Lectures using Data show, power Point presentations b. Distance learning • On line learning through my mans "Mansoura university "as recorded – video lectures • Inter active discussion through My Mans	1-14
5.2	Self-learning	13
5.3	Practical session using chemicals and laboratory equipment and/ or tutorials	1-14
5.4	Class Activity: Group discussion offline and online.	8
5.5	Problem – based learning and brainstorming	8
5.6	Research assignments	12

5- Student Assessment:

a- Assessment Methods:

Assessment Methods	K elements to be assessed
1-Written exam	1.1.1.1, 1.1.2.1, 1.1.4.1, 1.1.5.1, 1.1.6.1, 2.1.2.1, 2.4.3.1, 2.5.2.1
2-Practical exam	2.4.3.1, 2.5.2.1, 4.1.2.1, 4.2.2.1, 4.3.1.1
3-Oral exam	1.1.1.1, 1.1.5.1, 2.1.2.1, 2.4.3.1, 2.5.2.1, 3.1.1.1, 3.2.2.1, 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, 2.5.2.1, 4.1.1.1, 4.3.2.1

b. Assessment schedule

Assessment 1	Periodical (Mid-term exam)	8th week
Assessment 2	Practical exam	15 th week
Assessment 3	Oral exam	16th week
Assessment 4	Written exam	16th week

c. Weighing of assessments

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

6- Facilities required for teaching and learning

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

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

Week No.	Course contents / K. elements	Domain1					Domain2			Domain3		Domain4				
		1.1.1.1	1.1.2.1	1.1.4.1	1.1.5.1	1.1.6.1	2.1.2.1	2.4.3.1	2.5.2.1	3.1.1.1	3.2.2.1	4.1.2.1	4.2.1.1	4.2.2.1	4.3.1.1	4.3.2.1
1	Introduction & Inborn Errors of Metabolism	√						√								
2	Carbohydrate metabolism disorders	√		√		√	√		√	√						
3	Blood glucose & Diabetes Mellitus	√	√		√	√				√		√	√	√		
4	Liver function Tests	√	√		√	√	√	√	√	√	√	√	√	√		
5	Diagnostic enzymology	√	√	√	√				√	√			√	√		
6	Water, electrolytes and hydrogen ion disorders	√	√		√	√	√						√	√		
7	Lipid disorders	√	√			√						√	√		√	
9	Kidney function Tests		√		√	√		√		√	√		√	√	√	√
10	Cardiac function test	√		√	√	√		√	√	√	√				√	√
11	Respiratory disorders		√		√		√	√		√						
12	Amino acid metabolism disorders	√				√						√	√		√	√
13	Collagen and Plasma proteins disorders		√		√	√	√	√		√	√		√	√	√	
14	Tumor markers	√		√	√	√		√	√	√	√				√	√

	Practical topics																		
1	Lab safety and the use of laboratory.		√	√	√			√	√	√			√		√	√	√		
2	Patient Sample collection		√		√	√			√	√			√		√		√		
3	Laboratory Diagnosis of Diabetes Mellitus/ Complications of Diabetes Mellitus	√		√	√			√		√		√			√		√		
4	Oral Glucose Tolerance Test/case study.		√	√	√			√	√	√			√		√	√	√		
5	Mineral disturbance in diabetes	√		√	√			√		√		√			√		√		
6	Clinical cases on Diabetes Mellitus																		√
7	Tests for Evaluation of Liver Function (Total protein, ALT, AST).		√		√	√			√		√		√			√		√	
9	Determination of serum bilirubin (total and direct) /case study	√	√	√				√	√			√			√	√	√		√
10	Tumor markers.																		
11	Acute myocardial infarction/Presentation .																		
12	Diagnosis of renal	√	√	√				√	√			√	√		√	√		√	

	dysfunction/ Presentation.																		
13/14	Revision/ case study		√		√			√							√	√		√

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.	Nutrition therapy and pathophysiology, Marcia Nelms and Kathryn P. Sucher,Wadsworth, Inc,4th edition,2020.	Books
4.	Nutrition for health and health care,Linda Kelly DeBruyne and Kathryn Pinna, Cengage learning, 6th edition,2017.	Books
5.	William's basic nutrition and diet therapy, Staci Nix, Elsevier, 16th edition,2020	Books
6.	Basic nutrition, Lori A. Smolin, Ph.D. and Mary B. Grosvenor, M.S., R.D., Chelsea house,3rd edition, 2019.	Books
7.	www.nutrition.gov/topics/healthy-living-and-weight/weight-management-youth www.nutrition.gov/topics/diet-and-health-conditions www.nutrition.gov/topics/diet-and-health-conditions/cancer https://www.ekb.eg	Web sites

Course Coordinator	To be nominated
Head of Department	Dr. Noha M.H. Abdel- Rahman

Date: 16 /9/ 2023

Course specification

2023-2024

Clinical Pharmacy Program

Faculty of Pharmacy

Mansoura University

بكالوريوس الصيدلة

لائحة موحدة و معدلة

(Unified & Modified by law)

Course Specification

Academic year: 2023-2024

Course name: Drug marketing	اسم المقرر: التسويق الدوائي
Academic Level: Level 4	المستوى الأكاديمي: الرابع
Scientific department: **Clinical Pharmacy & Pharmacy Practice Department**	القسم العلمي: قسم الصيدلة الإكلينيكية والممارسة الصيدلية
Head of Department: **Dr. Mohamed Elhusseiny Shams**	رئيس القسم: أ.د/ محمد الحسيني شمس
Course Coordinator: **Dr. Mona Mohamed El tamalawy**	منسق المقرر: د/مني محمد فتحي الطملاوي

University	Mansoura
Faculty	Pharmacy
Department offering the course	Clinical Pharmacy and Pharmacy Practice Department
Department supervising the course	Clinical Pharmacy and Pharmacy Practice Department
Program on which the course is given	**B. Pharm. (Unified & Modified by law)**
Academic Level	Fourth level, second semester, 2023-2024
Date of course specification approval	7-9-2023

1- Basic Information: Course data:

Course Title	**Drug marketing**
Course Code	**PP-806**
Prerequisite	**Registration**
Teaching Hours: Lecture	**1**
Tutorial	**0**
Total Credit Hours	**1 (Credit H)**

2- Course Aims:

2.1. Introduce the major concepts in management and marketing in the different fields of pharmacy practice.
2.2. Understand the different application involved in different management system.
2.3. Organizing the different properties, applications of health economics and health technology assessment.
2.4. Overview on different types of economic evaluation and budget impact analysis.

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**	Define the different basic knowledge of pharmaceutical marketing management.
1.1.6	**1.1.6.1**	Classify different methods of analysis and apply relevant scientific resources to make evidence-based cost-effective health care decisions.
1.1.7	**1.1.7.1**	Analyze evolving evidence, that may be applicable to solve pharmaceutical marketing problems.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

Program K. element	Course K. element	Course K. element

no.	no.	
2.1.1	**2.1.1.1**	Organize and apply legal professional requirements to healthcare team in competitive analysis and sale force management.
2.4.3	**2.4.3.1**	Specify the factors affecting contribution to decision making processes for recognized drug-related and pharmaceutical care problems for values-based pricing.
2.6.1	**2.6.1.1**	Interpret the basic principles involved in managing financial, and customer behavior and marketing research.
2.6.2	**2.6.2.1**	Conduct guidelines of drug promotion , market segmentation, accounting and budget impact analysis.

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**	Create or practices independent participation in the field of pharmacy and collaboration in the delivery of health services.
4.3.2	**4.3.2.1**	Practice self-learning to improve professional skills and developing a plan to meet these needs so promote critical thinking, decision-making, and time managing capabilities.

4- Course Contents

Week No.	Topics	Lecture Hours
1	Presentation Skills guide	1
2	Structuring the presentation organizing and gathering presentation materials	1
3	Structuring the presentation	1
4	Pharmacists' effective communication with patients	1
5	Pharmacists' effective communication with healthcare team members	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	Mechanism of health care market	1
15	**Starting of Written exam**	--

5- Teaching and Learning Methods:

5.1	**Computer aided learning:** **a. Online learning through My mans "Mansoura university "as recorded – video lectures** **b. Inter active discussion through My Mans** **c. Power point (PPT) presentations**	**Week 1-14**
5.2	**Self-learning**	**Week 13**
5.3	**Formative assignments**	**Week 1-14**
5.4	**Class activity discussion / Brainstorming / problem solving**	**Week 1-14**

6- Student Assessment:

a- Assessment Methods:

1-Written exam	**1.1.1.1/ 1.1.6.1/ 1.1.7.1/ 2.1.1.1/ 2.4.3.1 /2.6.1.1/2.6.2.1/ 4.1.1.1/4.1.2.1/ 4.3.2.1**
2-Formative Assessment	**1.1.1.1/ 1.1.6.1/ 1.1.7.1/ 2.1.1.1/ 2.4.3.1 /2.6.1.1/2.6.2.1**

b- Assessment schedule

Assessment 1	**Course work**	6-9th week
Assessment 2	**Written**	Starting in 15th week

Other assessment		

c- Weighing of assessments

1	**Mid-term examination**	10%
3	**Final-term examination**	90%
5	**Other types of assessment**	
Total		100%

7- Facilities required for teaching and learning

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

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	1.1.6.1	1.1.7.1		2.1.1.1	2.4.3.1	2.6.1.1	2.6.2.1		4.1.1.1	4.1.2.1	4.3.2.1
Presentation Skills guide	√	√			√	√				√	√	
Structuring the presentation organizing and gathering presentation materials	√	√			√	√	√	√		√	√	
Structuring the presentation	√	√	√		√	√				√	√	√
Pharmacists' effective communication with patients	√	√	√		√	√				√	√	
Pharmacists' effective communication with healthcare team members	√	√	√		√	√	√	√		√	√	
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	√	√			√	√				√	√	
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)	√	√	√				√	√			√	√
Mechanism of health care market												
Presentation Skills guide	√	√	√				√	√			√	√

9- List of References

No	Reference	Type
1.	Electronic book prepared by staff members	**Course notes**
2.	Recorded videos prepared by stuff members	**Videos on platform**
3.	"**Pharmacoeconomics : From theory to practice**", (2 nd edition) Renee J.G. Arnold, CRC Press, New York , (August 2020).	**Book**
4.	**"Pharmaceutical Marketing Principles, Environment, and Practice"** (1st edition), Eugene Mick Kolassa, James Greg Perkins, Bruce R Siecker, CRC Press, (2002).	**Book**
5.	**"Pharmacy Administration"** (2nd edition), Beijing, China Shimin Yang, Medical Technique Press, (2006)**.**	**Book**
6.	https://www.researchgate.net/publication/325023106 http://www.sciencedirect.com / http://www.google.com / http://www.pubmed.com https://www.ekb.eg/web/guest/home	**Websites**

Course Coordinator	**Dr. Mona Mohamed Eltamalawy**
Head of Department	**Dr. Mohamed Elhusseiny SHams**

Date: 7/9/2023

Course specification
2023/2024
Clinical Pharmacy Program
Faculty of Pharmacy
Mansoura University

Fourth Level

Course Specification:
Public Health and Preventive Medicine

University: Mansoura University (MU)
Faculty: Pharmacy
Department: Microbiology and Immunology
Course title: Public Health and Preventive Medicine
Course code: PM 810

Program on which the course is given	B. Pharm (Clinical Pharmacy), Modified and unified bylaw)
Academic Level	Level 4, Second semester, 2023-2024
Date of course specification approval	10/9/2023

1. Basic Information: Course data:

Course title:	Public Health and Preventive Medicine	**Code:** PM 810
Specialization:	**Health and environmental**	
Prerequisite:	**Clinical Microbiology**	
Teaching Hours:	**Lecture: 2**	**Practical:** -
Number of units: (credit hours)	**2**	

2. Course Aims:

2.1. Orienting the students to epidemiology and principles of maintaining good health
2.2. Recognizing different types of types of diseases and their etiology.
2.3. Knowing applications of different treatment strategies and immunization techniques and good nutrition to control different and prevent diseases.

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**	Recall the basic Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences.
1.1.5	**1.1.5.1**	Utilize different principles and health problems related to different fields of life to improve health.

1.1.6	1.1.6.1	Analyze available information principles and health problems related to different fields of life to prevent and minimize different health problems.

Domain 2: Professional and Ethical Practice

Program K. element no.	Course K. element no.	Course K. element
2.1.1	2.1.1.1	Make the best use of knowledge regarding maternal, child and patient health to prevent expected diseases complications.
2.1.3	2.1.3.1	Cooperate professionally with health care team members to prevent diseases ,improve patients' health and avoid disease complications.

Domain 3: Pharmaceutical Care

Program K. element no.	Course K. element no.	Course K. element
3.1.2	3.1.2.1	Develop appropriate methods of infection control to limit infections and promote public health awareness.
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 and cost effective tool leading to the identification of the causative organism.
3.2.6	3.2.6.1	Spread awareness regarding immunization strategies.

Domain 4: Personal Practice:

Program K. element no.	Course K. element no.	Course K. element
4.1.1	4.1.1.1	Apply medical knowledge to participate in decision making required for solving different health problems.
4.1.2	4.1.2.1	Participate in developing solutions and preventive measures to avoid diseases or minimize the related complications
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. Contents:

Week No	Topics	Lecture credit hours	Practical credit hours
1	Introduction to public health	2	-
2	Epidemiology	2	-
3	Food- borne diseases	2	-
4	Water-borne diseases	2	-
5	Occupational diseases	2	-
6	Immunization	2	-
7	Maternal Health	2	
8	Child health	2	-
9	Nosocomial or Health-care associated Infections	2	-
10	Contact Diseases	2	-
11	Zoonosis	2	-
12	Airborne Diseases	2	-
13	Non-communicable diseases	2	-
14	Health promotion and preventive healthcare	2	-
15	Revision and quiz	2	-

5. Teaching and learning Methods:

Teaching and learning method	
5.1	Computer aided learning: a. On line learning through My mans "Mansoura university "as recorded – video lectures b. Inter active discussion through My Mans c. Lectures using Data show, PowerPoint presentations
5.2	Self-learning
5.3	Formative Assignments

6. Student Assessment:

a-Assessment methods

Assessment Methods	K elements to be assessed
1- Periodical (Mid-term exam)	1.1.1.1, 1.1.5.1, 1.1.6.1, 2.1.1.1, 3.1.2.1, 3.1.4.1, 3.2.6.1, 4.1.1.1, 4.1.2.1, 4.2.1.1
2-Written exam	1.1.1.1, 1.1.5.1, 1.1.6.1, 2.1.1.1, 2.1.3.1, 3.1.2.1, 3.1.4.1, 3.2.6.1, 4.1.1.1, 4.1.2.1, 4.2.1.1

b-Assessment schedule

Assessment 1	Mid-term	8th week
Assessment 2	Oral	16th week
Assessment 3	Written	16th week

c-Weighting of assessments

1.	Mid-term examination	10 %
2.	Oral examination	15 %
3.	Final-term examination	75 %
Total		100 %

7. List of References

No.	Reference	type
1	Theoretical course Notes "Public Health and Preventive Medicine" prepared by staff members	Course notes
2	Mitchell, Amber Hogan, 2020. Preventing Occupational Exposures to Infectious Disease in Health Care. A practical guide. Springer press.	Book
3	Pinger, R.R. and Seabert, D., 2016. *An introduction to community & public health*. 9th edition, Jones & Bartlett Learning.	**Book**
4	Edelman, C.L., Mandle, C.L. and Kudzma, E.C., 2017. *Health promotion throughout the life span-e-book*. Elsevier Health Sciences.	Book
5	Perry, S.E., Hockenberry, M.J., Alden, K.R., Lowdermilk, D.L., Cashion, M.C. and Wilson, D., 2017. *Maternal Child Nursing Care-E-Book*. Mosby.	Book
6	Kasenga, F. ed., 2016. *Epidemiology of Communicable and Non-Communicable Diseases: Attributes of Lifestyle and Nature on Humankind*. BoD–Books on Demand.	Book
7	http://www.sciencedirect.com / http://www.google scholar.com / http://www.pubmed.com https://www.ekb.eg	Website

8. Matrix of course content versus course K. element

Week	Course contents	Domain 1			Domain 2			Domain 3			Domain 4		
		1.1.1.1	1.1.5.1	1.1.6.1	2.1.1.1	2.1.3.1	2.1.7.1	3.1.2.1	3.1.4.1	3.2.6.1	4.1.1.1	4.1.2.1	4.2.1.1
1	Introduction to public health	√	√	√			√	√		√	√	√	√
2	Epidemiology	√	√	√			√	√		√	√	√	√
3	Food- borne diseases		√	√			√	√		√	√	√	√
4	Water-borne diseases		√	√			√	√		√	√	√	√
5	Occupational diseases		√	√			√	√	√	√	√	√	√
6	Immunization		√	√	√		√	√		√	√	√	√
7	Maternal Health		√	√	√	√	√	√		√	√	√	√
8	Child health		√	√	√	√	√	√		√	√	√	√
9	Nosocomial or Health-care		√	√			√	√		√	√	√	√

	associated Infections												
10	Contact Diseases		√	√			√	√		√	√	√	√
11	Zoonosis		√	√			√	√		√	√	√	√
12	Airborne Diseases		√	√			√	√		√	√	√	√
13	Non-communicable diseases		√	√			√	√	√	√	√	√	√
14	Health promotion and preventive healthcare	√	√			√	√	√	√	√	√	√	√
15	Revision and quiz	√	√	√	√	√	√	√	√	√	√	√	√

Course Coordinator:	**Prof. El Sayed El Sherbiny Habib**
Head of Department:	**Prof. El Sayed El Sherbiny Habib**

Date: 10/9/2023