COURSE SPECIFICATIONS

Faculty of Pharmacy

Bachelor of pharmacy

(Clinical Pharmacy)

Third level – Semester 5

2019-2020

CONTENTS:

COURSE SPECIFICATIONS

Pharmacology-1

Third level –Semester 5

2019-2020

Course Specification of Pharmacology I

University: **Zagazig** **Faculty:** **Pharmacy**

A- Course specifications:

Program(s) on which the course is given**:** **Bachelor of pharmacy (Clinical pharmacy)**

Major or Minor element of programs: Major

Department offering the program: ------

Department offering the course**:** **Pharmacology and toxicology department**

Academic year / Level: **third level / Semester 5**

Date of specification approval: October 2019

B- Basic information:

Title: pharmacology I Code: **Po 501**

Credit Hours:

Lectures: 2 hr/week

Practical: 1 hrs/week

Tutorials: ---

Total: 3 hrs/week

C- Professional information:

1-Overall Aims of the Course

On completion of the course, the student will be able to:

- Define the principles of pharmacokinetics, pharmacodynamics and dose-response curve of drugs

- Identify pharmacological properties of drugs, affecting different body systems & organs.
- Integrate and link the knowledge of physiology and pharmacology for proper selection of drugs in various disease conditions.
- Implement tasks as a member of a team.

2-Intended Learning Outcomes of (ILOS)

A- Knowledge and Understanding	
a1	Define the basic concepts of pharmacokinetics and pharmacodynamics.
a2	Illustrate which drug is better for certain condition and certain patient.
a3	Describe the mechanism of action of a given drug.
a4	Mention adverse effects as well as drug-drug interaction for a given drug.
B- Professional and Practical Skills	
b1	Perform laboratory safety measures.
b2	Apply techniques used in operating kymograph in order to perform in vitro experiments.
b3	Use organ bath simulation program
b4	Handle laboratory animals in a correct and safe way to obtain optimum results without harmful effects on animals.
C- Intellectual Skills	
c1	Integrate and link information across course components, including material met in different years, from different disciplines like physiology, histology and anatomy for proper selection of drugs in various disease conditions.
c2	Analyze and interpret data correctly and confidently in different ways.
D- General and Transferable Skills	
d1	Work effectively as a member of a team.
d2	Write reports and present it.

D- Contents:

Week No.	Lecture (2 hrs/week)	Practical Session (1hr/week)
1	Introduction to pharmacology	• Laboratory safety measures • Types of pharmacological experiments • Invitro pharmacological experiments using the isolated rabbit intestine muscle
2	Pharmacokinetics	Concentration-effect curve of acetylcholine using the isolated rabbit intestine muscle
3	Pharmacodynamics	Concentration-effect curve of atropine using the isolated rabbit intestine muscle
4	Adverse drug reactions	Effects and sites of action of different drugs (stimulants or relaxants) on the isolated rabbit intestine muscle
5	Drug- drug interactions	Effects and sites of action of different drugs (stimulants or relaxants) on the isolated rabbit intestine muscle
6	Autonomic nervous system	Performing concentration-effect curve of acetylcholine and determining site of action of unknown drug using the isolated rabbit intestine muscle (kymograph)
7	Periodical exam	• Handling of experimental animals • Routes of drug administration • General scheme of identification
8	Autonomic nervous system	• Ganglionic acting drugs • Parasympathomimetics • Skeletal muscle relaxants
9	Autonomic nervous system	Virtual rat simulation
10	Diuretics	Ups and Downs of pharmacology Activity report
11	Antihypertensives	Revision
12	Arrhythmia	Practical exam
13	Heart failure	
14	Angina	
15	Final exam	

E- Teaching and Learning Methods:

- Lectures
- Practical sessions
- Open discussion, self-learning.

F- Student Assessment Methods:

1- Written exam (Periodical and final) to assess: a1, a2, a3, a4, c1, c2

2- Activity (report) to assess d1, d2

3- Practical exam to assess: b1, b2, b3, b4, d1

4- Oral exam to assess: a1, a2, a3, a4, c1, c2

Assessment Schedule:

Assessment (1): Final written exam	15 Week
Assessment (2): Practical exam	12 Week
Assessment (3): Oral exam	15 Week
Assessment (4): Periodical exam	7 Week
Assessment (5): Activity (report)	10 Week

Weighting of Assessment:

Assessment method	Marks	Percentage
Written exam	50	50%
Practical exam	20	20%
Oral exam	15	15%
Periodical exam	10	10%

Activity (report)	5	5%
TOTAL	100	100%

F- Facilities required for teaching and learning:

- Black (white) board, Data show, Laboratory equipment (water bath, kymograph, organ bath, thermometer), laboratory animals and Chemicals.

H- List of References:

1- Course Notes: Student book of Pharmacology I approved by Pharmacology department

2- Essential Books:

- Richard A. Harvey, Michelle A. Clark, Lippincott's Illustrated Reviews Pharmacology 5th ed. Lippincott Williams & Wilkins, 2012.

3- Recommended Books

i- H.P.Rang,M.M.Dale,J.M.Ritter& R.J. Flower ed. RANG & DALE Pharmacology 6th 2008 Churchill 2. Livingstone Elsevier London.

ii- Katzung, B.G., ed. Basic and Clinical Pharmacology. 9th ed. New York : McGraw Hill, 2006.

iii- Bennet P.N., and M.J. Brown, eds. Clinical Pharmacology. 10th ed. London : Churchil Livingstone, 2006.

iv- Hardman J.G., L.E. Limbrid, and A.G. Gilman, eds. Goodman & Gilman's the Pharmacological Basis of Therapeutics. 10th ed. New York : McGraw Hill, 2006.

v- Luellmann H., L. Hein, K. Mohr, and D. Bieger. Color Atlas of Pharmacology. 3rd ed. Stuttgart : Thieme, 2005.

vi- Brenner,G.M.andSteven,C.W.., Pharmacology,3rd ed.,2010

4- Periodicals and websites:

- British J Pharmacol,
- European J Pharmacol,
- Pharmacology,
- Pharmacology and Toxicology

Pubmed.com

www.medconsult.com/www.pharmanet.com

----------Course Coordinator: Prof. Dr. Prof.Dr. Salah Gharib

Head of Department: Prof.Dr. Mona Fouad

Date: 2019/ 10 / 28 تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ م

Matrix I

Course Contents		ILOs of the course											
		Knowledge and understanding				Practical skills				Intellectual skills		General and transferable and skills	
		a1	a2	a3	a4	b1	b2	b3	b4	c1	c2	d1	d2
Lectures													
1	Introduction to pharmacology	x								x	x		
2	Pharmacokinetics	x								x	x		
3	Pharmacodynamics	x								x	x		
4	Adverse drug reactions				x					x	x		
5	Drug- drug interactions				x					x	x		
6	Autonomic nervous system		X	x	x					x	x		
7	Periodical exam	x	X	x	x					x	x		
8	Autonomic nervous system		X	x	x					x	x		
9	Autonomic nervous system		X	x	x					x	x		
10	Diuretics		X	x	x					x	x		
11	Antihypertensives		X	x	x					x	x		
12	Arrhythmia		X	x	x					x	x		
13	Heart failure		x	x	x					x	x		
14	Angina		x	x	x					x	x		

	Practical sessions												
1	• Laboratory safety measures • Types of pharmacological experiments • Invitro pharmacological experiments using the isolated rabbit intestine muscle					X	x	X				x	x
2	Concentration-effect curve of acetylcholine using the isolated rabbit intestine muscle					x	x	X				x	x
3	Concentration-effect curve of atropine using the isolated rabbit intestine muscle					x	x	X				x	x
4	Effects and sites of action of different drugs (stimulants or relaxants) on the isolated rabbit intestine muscle					x	x	X				x	x
5	Effects and sites of action of different drugs (stimulants or relaxants) on the isolated rabbit intestine muscle					x	x	X				x	x
6	Performing concentration-effect curve of acetylcholine and					x	x					x	x

	determining site of action of unknown drug using the isolated rabbit intestine muscle (kymograph)												
7	• Handling of experimental animals • Routes of drug administration • General scheme of identification					x			x			x	x
8	• Ganglionic acting drugs • Parasympathomimetics Skeletal muscle relaxants					x			x			x	x
9	Virtual rat simulation					x		X				x	x
10	Ups and Downs of pharmacology Activity report					x		X				x	x
11	Revision					x	x	X	x			x	x
12	Practical exam					x	x	X	x			x	x

Matrix II of Pharmacology I course

National Academic Reference Standards (NARS)		Program ILOs	Course ILOs	Course contents	Sources	Teaching and learning methods			Method of assessment			
						Lecture	Practical session	Self-learning	Written exam	Practical exam	Periodical exam	Oral exam
2.1	Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice.	A3	a1	Introduction to pharmacology. Pharmacokinetics and Pharmacodynamics.	Student book, Essential books	X			x		x	x
2.12	Etiology, epidemiology, laboratory diagnosis and clinical features of different diseases and their pharmacotherapeutic approaches.	A21	a2	Autonomic nervous system Diuretics Antihypertensives Arrhythmia Heart failure Angina	Student book, Essential books	X			x		x	x
2.13	Pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, ADRs and drug	A22	a3	Autonomic nervous system Diuretics Antihypertensives Arrhythmia Heart failure Angina	Student book Essential books	X			x		x	x
			a4	Drug-drug interaction Adverse drug reactions	Student book Essential	X			x			x

	interactions.			Autonomic nervous system Diuretics Antihypertensives Arrhythmia Heart failure Angina	books							
3.2	Handle and dispose chemicals and pharmaceutical preparations safely	B2	b1	Laboratory safety measures	Practical notes		x			x		
3.11	Conduct research studies and analyze the results.	B17	b2 b3 b4	Types of pharmacological experiments, Invitro pharmacological experiments using the isolated rabbit intestine muscle, Concentration-effect curve of acetylcholine using the isolated rabbit intestine muscle, Concentration-effect curve of atropine using the isolated rabbit intestine muscle, Effects and sites of action of different drugs (stimulants or relaxants) on the isolated rabbit intestine muscle, Effects and sites of action of different drugs (stimulants or relaxants) on the isolated rabbit intestine muscle, Performing concentration-effect curve of acetylcholine and determining site of action of unknown drug using the isolated rabbit intestine muscle (kymograph),	Practical notes		x			x		

				Handling of experimental animals, Routes of drug administration, General scheme of identification, Ganglionic acting drugs, Parasympathomimetics, Skeletal muscle relaxants, Virtual rat simulation, Ups and Downs of pharmacology Activity (report)								
4.9	Utilize the pharmacological basis of therapeutics in the proper selection and use of drugs in various disease conditions.	C11	c1	Introduction to pharmacology. Pharmacokinetics and Pharmacodynamics. Drug-drug interaction Adverse drug reactions Autonomic nervous system Diuretics Antihypertensives Arrhythmia Heart failure Angina	Student book Essential books	x			x			x
4.11	Assess drug interactions, ADRs and pharmacovigilance	C13	c2	Drug-drug interaction Adverse drug reactions Autonomic nervous system Diuretics Antihypertensives Arrhythmia Heart failure Angina	Student book Essential books	x			x			x
5.3	Work effectively in a team	D4	d1	Activity and practical session	Practical notes Recommended books Internet		X	X		x		
5.9	Implement writing and presentation skills	D11	d2	Activity and practical session	Practical notes Recommended books Internet		X	X		X		

COURSE SPECIFICATIONS

Clinical Microbiology

Third level –Semester 5

2019-2020

Course specification of Clinical Microbiology

University: Zagazig Faculty: Pharmacy

A- Course specifications:

Program(s) on which the course is given: **Bachelor of pharmacy (Clinical pharmacy)**

Major or Minor element of programs: Major

Department offering the program: ------

Department offering the course: **Microbiology and Immunology**

Academic year / Level: **third level / Semester 5**

Date of specification approval: October 2019

B- Basic information:

Title: Clinical Microbiology Code: **PM502**

Credit Hours:

Lectures: 2 hr/week

Practical: 1 hrs/week

Tutorials: ---

Total: 3 hrs/week

C- Professional information:

1- Objectives:

On completion of the course, the student will be able to:

- Illustrate the etiology, pathogenesis, clinical picture, laboratory diagnosis as well as therapeutic regimen of different bacterial, fungal and viral diseases
- Perform the diagnostic laboratory tests for identification of the infectious agents.
- Specify the appropriate vaccination, treatment and preventive measures for each infectious agent.

- Develop the critical thinking skills and communicate efficiently with patients and health care professionals.

2- Intended Learning Outcomes (ILOs):

A- Knowledge and Understanding	
a1	Outline the principles of host-parasite relationship and Pathogenesis of bacterial, fungal and viral diseases
a2	Illustrate the etiological agents, epidemiological aspects and clinical manifestations of different pathogenic bacteria, virus and fungi.
a3	Specify the diagnostic key elements of pathogenic bacteria, viruses and fungi.
a4	Outline the therapeutic regimen of different bacterial, fungal and viral diseases.
B- Professional and Practical skills	
b1	Handle and dispose the chemicals and the infectious contaminated materials.
b2	Perform the diagnostic laboratory tests for identification of the infectious agents.
C- Intellectual skills	
c1	Select the appropriate vaccination and preventive measures for each infectious agent.
c2	Select the appropriate medication for treatment and control of each infectious agent.
c3	Assess the experimental results for differentiation between the different etiological agents.
c4	Interpret experimental results for giving critical decision about patient's state.
D-General and Transferable skills	
d1	Communicate efficiently in oral and written manner.
d2	Develop the critical thinking and decision-making and problem saving skills.

D- Course Content of Clinical Microbiology

Week No.	Lecture contents (2 hrs/lec.)	Practical session (1 hr/lab)
1	• Introduction to medical microbiology Host-Parasite relationship • GRAM-POSITIVE COCCI -Genus Staphylococcus - Genus Streptococci: β- hemolytic streptococci	• Laboratory safety measures
2	• Genus Streptococci: α- hemolytic streptococci γ- hemolytic streptococci • GRAM-POSITIVE NON-SPORE FORMING RODS: *Corynebacterium and Listeria* • GRAM-POSITIVE SPORE-FORMING RODS: *Bacillus and Clostridium*	• Genus *Staphylococcus*: *-Staph. aureus* *-Staph. epidermidis* *-Staph. saprophyticus*
3	• ACID-FAST BACILLI: *Mycobacteriae* • CELL-WALL DEFICIENT BACTERIA: *Mycoplasma*	• β- hemolytic streptococci: *- Strept. pyogenes* *- Strept. agalactiae*
4	• OBLIGATE INTRACELLULAR BACTERIA: *Spirochetes, Rickettsiae and Chlamydiae* • GRAM-NEGATIVE COCCI: *Neisseria and Branhamella*	• α- hemolytic streptococci: *- Strept. pneumoniae* *- Strept. viridans*
5	• FERMENTATIVE GRAM-NEGATIVE RODS -Family Enterobacteriaceae: -Lactose Fermenters: *Escherichia, Klebsiella, Enterobacter* and *Citrobacter*	• γ- hemolytic streptococci: *- Enterococci* *- Non- enterococci*
6	• FERMENTATIVE GRAM-NEGATIVE RODS -Family Enterobacteriaceae: -Lactose Non-Fermenters: *Salmonella, Shigella, Proteus and Serratia* • Lactose Non-Fermenters: *Yersinia* • NON-FERMENTATIVE:GRAM-NEGATIVE RODS (OXIDATIVE GROUP): *Pseudomonas and Acinetobacter*	• Gm +ve bacilli: *- Bacillus anthracis* *- Listeria monocytogenes* *-Corynebacterium diphtheriae*

7	• **Periodical exam**	
8	• CURVED GRAM-NEGATIVE RODS *Vibrio, Campylobacter and Helicobacter* • GRAM-NEGATIVE UNUSUAL BACTERIA (RODS): *Haemophilus, Bordetella and Legionella*	• Enterobacteriaceae - Lactose fermenters: - *Escherichia coli* - *Citrobacter spp*
9	• MISCELLANEOUS FASTIDIOUS GRAM-NEGATIVE RODS: *Brucella and Pasteurella* • OBLIGATE ANAEROBIC GRAM-NEGATIVE BACTERIA: *Bacteroides and Fusobacterium*	• Enterobacteriaceae - Lactose fermenters: - *Klebsiella pneumoniae* - *Enterobacter spp*
10	• Introduction to Virology: General properties, morphology, replication, cultivation and classification of viruses • Pathogenesis of viral infections	• Enterobacteriaceae -Lactose non-fermenters: - Genus *Salmonella* - Genus *Shigella*
11	• Diagnosis of viral infection • Immune response to viral infection • Chemotherapy and prevention of viral diseases	• Enterobacteriaceae - Lactose non- fermenters: - Genus *Proteus* - Genus *Serratia*
12	DNA-VIRUSES: -Small-pox virus -Herpes Viruses. RNA VIRUSES: - Polio-virus - Influenza virus Human corona virus (e.g. Common cold)	• Oxidative Gram–ve rods: - Genus *Pseudomonas* - Genus *Acinetobacter*
13	RNA VIRUSES: - Rubeola (Measles) - Mumps virus - Rubella (German measles) virus - Rabies virus **Mycology**: Importance of fungi - Morphology and reproduction of fungi	**Final Practical exam**
14	-RNA VIRUSES: -Hepatitis viruses - Human Immunodeficiency Virus (HIV) -**Pathogenic fungi:** Superficial, Subcutaneous, Systemic and Opportunistic mycotic infections.	
15	**Final written exam**	

E- Schedule of Assessment Tasks for Students During Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Written exam	Week 15	50%
2	Practical exam	Week 13	25%
3	Oral exams	Week 15	15%
5	Periodical exams	Week 7	10%

F- Facilities required for teaching and learning:

1. **For lectures:** Black (white) boards and data show.
2. **For Labs.:** Chemicals, Autoclaves, Incubators, Ovens, Water bathes, staining dyes, microscopes, refrigerators and microbiological culture media

H- List of References:

1- Course Notes: Student book of Medical Bacteriology and Medical Virology approved by microbiology department.

2- Essential Books (Text Books):

i- Jawetz, Melnick and Adelberg "Medical Microbiology" 27 th edn, Appeiton & Lange; London (2015).
ii- '"Medical Microbiology" 17 TH EDN, BY Greenwood D, Slack R & Peuthere J. Churchill Livingstone. London (2007).

3- Recommended books:

1. Patrick R. Murray, Ken S. Rosenthal, Michael A. Pfaller. Medical Microbiology, 7th ed. (Philadelphia: Elsevier/Mosby, (2012).
2. Levinson, W. Review of Medical Microbiology and Immunology, 13th ed. LANGE REVIEW SERIES (NY: McGraw-Hill, 2014).
3. Brooks, G.F.; Carroll, K. C.; Butel, J.S.; Morse, S. A. (2007): Jawetz, Melnick and Adelberg's Medical Microbiology. 24th ed. McGraw-Hill.

4. Infectious Disease: A Clinical Short Course by F.S. Southwick, McGraw-Hill,3rd edition,2013.

4- Periodicals and websites:

Egyptian J. of Microbiology.

Arab J. of Laboratory Medicine

American journal of microbiology

www.Pubmed.Com

www.sciencedirect.com.

Course Coordinator: Prof. Dr. Mona Elsayed Abdelmonem.

Head of Department: Prof. Dr. Nehal Elsayed yousef.

Date: تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ / 9 /2019 م

Matrix1 of clinical microbiology

	Course content	ILOs											
		Knowledge and Understanding				Professional & Practical skills		Intellectual skills				Transferable & general skills	
		a1	a2	a3	a4	b1	b2	c1	c2	c3	c4	d1	d2
1	Introduction to medical microbiology Host-Parasite relationship -GRAM-POSITIVE COCCI -Genus Staphylococcus: β- hemolytic streptococci **Practical:** Laboratory safety rules		x	x	x	x	x	x	X	x	x	x	x
2	Genus Streptococci: α- hemolytic streptococci γ- hemolytic streptococci -GRAM-+ve NON-SPORE FORMING RODS: *Corynebacterium and Listeria* -GRAM-+ve SPORE-FORMING RODS: *Bacillus and Clostridium* **Practical:** Genus *Staphylococcus*:		x	x	x	x	x	x	X	x	x		

3	ACID-FAST BACILLI: *Mycobacteriae* CELL-WALL DEFICIENT BACTERIA: *Mycoplasma* **Practical:** β- hemolytic streptococci:		**x**	**x**	**x**	**x**	**x**	**x**	**X**	**x**	**x**		
4	INTRACELLULAR BACTERIA: *Spirochetes, Rickettsiae and Chlamydiae* GRAM-NEGATIVE COCCI: *Neisseria and Branhamella* **Practical:** α- hemolytic streptococci:		**x**	**x**	**x**	**x**	**x**	**x**	**X**	**x**	**x**		
5	FERMENTATIVE GRAM -ve RODS -Family Enterobacteriaceae: Lactose Fermenters: *Escherichia, Klebsiella, Enterobacter* and *Citrobacter.* **Practical:** γ- hemolytic streptococci:		**x**	**x**	**x**	**x**	**x**	**x**	**X**	**x**	**x**		
6	FERMENTATIVE GRAM -ve RODS - Enterobacteriaceae: Lactose Non-Fermenters: *Salmonella, Shigella, Proteus and Serratia,* :		**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**		

	Yersinia NON-FERMENTATIVE: GRAM -ve RODS *Pseudomonas and Acinetobacter* **Practical:** Gm +ve bacilli: - *Bacillus anthracis* - *Listeria monocytogenes* -*Corynebacterium diphtheriae*												
7	CURVED GRAM-NEGATIVE RODS *Vibrio, Campylobacter and Helicobacter* GRAM- -ve UNUSUAL BACTERIA (RODS): *Haemophilus, Bordetella and Legionella* **Practical** : Enterobacteriaceae - Lactose fermenters: *Escherichia coli* *Citrobacter spp*		**x**	**x**	**x**	**x**	**x**	**x**	**X**	**x**	**x**		
8	MISCELLANEOUS FASTIDIOUS GRAM-NEGATIVE RODS: *Brucella and Pasteurella* OBLIGATE ANAEROBIC GRAM-NEGATIVE BACTERIA:		**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**		

	Bacteroides and Fusobacterium **Practical**: Enterobacteriaceae - Lactose fermenters: *Klebsiella pneumoniae* *Enterobacter spp*												
9	Introduction to Virology: General properties, morphology, replication, cultivation and classification of viruses Pathogenesis of viral infections **Practical**: Enterobacteriaceae -Lactose non-fermenters: *Salmonella* & *Shigella*	**x**	**x**			**x**	**x**		**X**	**x**	**x**	**x**	**x**
10	Diagnosis of viral infection. Immune response to viral infection. Chemotherapy and prevention **Practical** Enterobacteriaceae Lactose non- fermenters: *Proteus* & *Serratia*		**x**	**X**	**x**	**x**	**x**	**x**	**X**	**x**	**x**		

11	DNA-VIRUSES: -Small-pox virus -Herpes Viruses. RNA VIRUSES: -Polio-virus -Influenza virus -Human corona virus **<u>Practical</u>** Oxidative Gram–ve rods: Genus *Pseudomonas & Acinetobacter*		**x**	**x**	**x**	**x**	**x**	**x**	**X**	**x**	**x**		
12	RNA VIRUSES: Rubeola (Measles) Mumps virus Rubella (German measles) virus Rabies virus **Mycology**: Importance of fungi, Morphology and reproduction of fungi	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**X**	**x**	**x**		
13	RNA VIRUSES:: Hepatitis viruses Human Immunodeficiency Virus (HIV) -**Pathogenic fungi:** Superficial, Subcutaneous, Systemic and Opportunistic		**x**	**X**	**x**	**x**	**x**	**x**	**x**	**x**	**x**		

	mycotic infections.												

Matrix II of clinical microbiology (2019-2020)

NARS	Program ILOs	Course ILOs	Course contents	Sources	Teaching and learning methods			Method of assessment			
					lecture	practical session	Self learning	written exam	practical exam	oral exam	Periodical exam
2.1 Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice.	[A3]Explain the principles of medical sciences (Anatomy; histology; physiology and pathology; biochemistry; parasitology; pharmacology; clinical pharmacology; therapeutics; medical microbiology; immunology and virology).	a1	Introduction to medical microbiology Host-Parasite relationship Introduction to Virology: General properties, morphology, replication, cultivation and classification of viruses Pathogenesis of viral infections Diagnosis of viral infection. Immune response to viral infection. Chemotherapy and prevention of viral diseases	Student book Essential books	x			x		x	x
2.12 Etiology, epidemiology, laboratory diagnosis and clinical features of different diseases and their pharmacotherapeutic approaches.	[A19] List the etiology, epidemiology, treatment and control of microbial and parasitic infection and host immune response to such infections [A20] Specify laboratory diagnosis of	a2, a3	=GRAM-POSITIVE COCCI -Genus Staphylococcus - Genus Streptococci: =GRAM POSITIVE NON-SPORE FORMING RODS =GRAM-POSITIVE SPORE-FORMING RODS =ACID-FAST BACILLI: =CELL-WALL DEFICIENT BACTERIA =OBLIGATE INTRACELLULAR BACTERIA =GRAM-NEGATIVE COCCI =GRAM-NEGATIVE RODS	Student book Essential books	x			x		x	x

	different diseases.	a4	-Lactose Non-Fermenters: -Lactose Non-Fermenters =NON-FERMENTATIVE:GRAM-NEGATIVE RODS (OXIDATIVE GROUP) =CURVED GRAM-NEGATIVE RODS =GRAM-NEGATIVE UNUSUAL BACTERIA (RODS). = FASTIDIOUS GRAM-NEGATIVE RODS: =OBLIGATE ANAEROBIC GRAM-NEGATIVE BACTERIA =DNA-VIRUSES: =RNA VIRUSES =pathogenic fungi								
3.2 Handle and dispose chemicals and pharmaceutical preparations safely.	[B2] Handle and dispose chemical and pharmaceutical materials safely with application of good laboratory practice (GLP) principles.	b1	**Practical sessions** =Gram positive cocci and bacilli. =Gram negative rods: Enterobacteriaceae(Lactose fermantors and non fermenters) -oxdative non fermentative	Practical book		X			x		
3.6 Monitor and control microbial growth and carry out laboratory tests for identification of Infectious and non-infections in biological specimens.	[B10] Handle biological specimens safely. [B11] Perform appropriate laboratory tests to diagnose infectious and non-infectious diseases.	b2	**Practical sessions** =Gram positive cocci and bacilli. =Gram negative rods: Enterobacteriaceae(Lactose fermantors and non fermenters) -oxdative non fermentative	Practical book, Internet search		X			x		

4.8 Select and assess appropriate methods of infection control to prevent infections and promote public health.	[C9 Select the most appropriate method for infection control.	c1,c2, c3	GRAM-POSITIVE COCCI =GRAM POSITIVE NON-SPORE FORMING RODS =GRAM-POSITIVE SPORE-FORMING RODS =ACID-FAST BACILLI: =CELL-WALL DEFICIENT BACTERIA =OBLIGATE INTRACELLULAR BACTERIA =GRAM-NEGATIVE COCCI GRAM-NEGATIVE RODS -Lactose Non-Fermenters: -Lactose Non-Fermenters =NON-FERMENTATIVE:GRAM-NEGATIVE RODS (OXIDATIVE GROUP) =CURVED GRAM-NEGATIVE RODS =GRAM-NEGATIVE UNUSUAL BACTERIA (RODS). = FASTIDIOUS GRAM-NEGATIVE RODS: =OBLIGATE ANAEROBIC GRAM-NEGATIVE BACTERIA =DNA-VIRUSES: =RNA VIRUSES = Pathogenic fungi	Student book Essential book	x			x		x	x
4.13 Analyze and interpret experimental results as well as published literature.	[C15] Analyze and interpret experimental results and information from published literature.	c4	**Practical sessions** =Gram positive cocci and bacilli. =Gram negative rods: Enterobacteriaceae(Lactose fermantors and non fermenters) -oxdative non fermentative	Practical book, Internet search		X			x		

5.1 Communicate clearly by verbal and means.	[D1] Interact effectively with patients, the public and health care professionals, either by writing or orally.	d1	**Activity**				x		x		
5.10 Implement writing and thinking, problem- solving and decision- making abilities	[D12] Develop critical thinking, problem solving and decision making skills.	d2	**Activity**				x		x		

COURSE SPECIFICATIONS

Pharmaceutical dosge forms- 2

Third level –Semester 5

2019-2020

Course specification of Pharmaceutical dosage forms-2 (2019-2020)

A- Course specifications:

- **Program (s) on which the course is given:** Bachelor of Pharmacy (clinical pharmacy)
- **Major or minor element of programs:** Major
- **Department offering the program: ----------**
- **Department offering the course:** Pharmaceutics and Industrial pharmacy
- **Academic year level:** Third level/ Fifth semester
- **Date of specification approval:** Sept. 2019

B- Basic information :

- **Title :**Pharmaceutical dosage forms-2 **Code : PT** 505
- **Credit Hours : ----**
- **Lectures :**2 hrs/ week
- **Practical :**1 hrs / week
- **Tutorials : ---------**
- **Total :**3 hrs/week

C- Professional information:

Overall aim of the course

On completion of the course, the student will be able to:

Describe the formulation of different dosage forms including semisolid preparations, suppositories, parentrals and ophthalmic dosage forms.

Intended Learning Outcomes

Knowledge and Understanding	
a1	Describe the properties of different dosage forms including Suppositories, Creams, Ointments, Gels, Pastes, Parentrals and ophthalmic preparations
a2	Enumerate the ingredients used in the preparation of Suppositories, Creams, Ointments, Gels, Pastes, Parentrals and ophthalmic preparations
a3	Outline different pharmaceutical calculations required for the formulation of different dosage forms
a4	Describe different methods for preparation of semisolid preparations, suppositories, parentrals and ophthalmic preparations
Professional and Practical skills	
b1	Handle pharmaceutical preparations safely
b2	Formulate different dosage forms including ointments, creams, pastes and suppositories
Intellectual skills	
c1	Select the proper ingredients for the preparation of semisolid preparations, suppositories, parentrals and ophthalmic preparations
c2	Differentiate between different suppository bases
c3	Differentiate between different types of semisolid preparations
General and Transferable skills	
d1	Communicate effectively with others
d2	demonstrate critical thinking and decision making skills
d3	work effectively as a member of a team

Course Content of Pharmaceutical dosage forms-2

Weeks	Lecture contents (2hrs/lec.)	Practical session (1hr/lab)
First week	-Suppositories -Definition - Characters of ideal bases - Advantages and disadvantages of suppositories	Suppositories -calculation of displacement value for zinc oxide & calamine
Second week	-Bases of suppositories	Calculations of Glycerogelatin suppositories
Third week	-Preparation of Suppositories	Preparation of Blank G.G. suppositories
Fourth week	Problems in preparations of suppositories	Preparation of Iodine suppositories
Fifth week	Semisolid dosage forms Ointments Advantages and disadvantages Characters of ideal bases	Preparation of zinc oxide suppositories
Sixth week	creams& Gels& pastes -Advantages and disadvantages -Characters of ideal bases	Preparation of Boric acid suppositories
Seventh week	Periodical exam	Preparation of glycerin soap suppositories
Eighth week	-Parental Preparations -Advantages & Disadvantages of parental route, preparation & problems in preparation	Preparation of cold cream
Ninth week	ophthalmic preparations, eye structure, major types of drugs used ophthamically factors affecting bioavailability, classification of ocular drug delivery systems, sterilization, preservation	Preparation of vanishing cream
Tenth week	Isotoniciy, Methods of preparing isosmotic solution , solving problems	Preparation of sulfur ointment

Eleventh week	buffering, viscosity, ophthalmic suspension, packaging, ophthalmic ointments and solid dosage forms	Preparation of white field ointment
Twelfth week	- Transdermal drug delivery: structure and function of the skin, mechanism of drug transport through the skin	**Delivery of reports**
Thirteenth week	-Factors affecting percutaneous absorption (biological and physicochemical factors)	**Practical exam**
Fourteenth Week	- methods of maximizing the bioavailability of drugs applied to the skin -Transdermal therapeutic patches(TTS)	
Fifteenth Week	**Final Written exam**	

Teaching and Learning Methods:

- Lectures
- Practical session (formulation)
- Activities (students were asked to prepare a report about marketed products relevant to taught topics)

Student Assessment methods:

- Periodical exam **to assess:** a1, a2, a3, a4
- Final Written exams **to assess:** a1, a2, a3, a4,c1,c2, c3
- Practical exams **to assess:** b1, b2, c1, d1, d2
- Oral exam **to assess:** a1, a2, a3, a4,c1,c2, c3, d1,d2
- Activity: d1,d3

Assessment schedule

Assessment (1): Final Written exam	Week 15
Assessment (2): Practical exams	Week 13
Assessment (3): Oral exams	Week 15
Assessment (4): periodical exam	Week 7
Assessment (5): reports	Week 12

Weighting of Assessment

Assessment method	Marks	Percentage
• Written exam	50	50%
• Practical exam & activity	25	25%
• Oral exam	15	15%
• Periodical exam	10	10%
TOTAL	**100**	**100%**

List of References

1- Course Notes authorized by the Department

2- Essential Books (Text Books)

1- Physical pharmacy (1993), Alfred Martin, 4 thedn, Lea and .Febiger, Philadelphia, London.

ii- Remington's Pharmaceutical Science (1985). Alfonso, R. Gennaro, 17 thedn, Mack Publishing Company, USA.

iii- Pharmaceutical dosage forms and drug delivery systems (1995), Ansel, H.C., Popovich, N.G., Allen, L.V., 6 thedn., Williams and Wilkins.

3- Recommended Books

Facilities required for teaching and learning:

- **For lectures** : Black (white) boards, data show
- **For labs**: Chemicals, glass ware, instruments, digital balance, water bathes

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- **Course Coordinator** : Assistant Prof. Dr/Aza Ali Hassan
- **Head of Department** : Prof.Dr / Nagia Ahmed Amin EL-megrab

- **Date :** Sept 2019

- Matrix -1 of Pharmaceutical dosage forms-2

Course Contents		ILOs of Pharmaceutical dosage forms-2 course											
		knowledge and understanding				professional and practical skills		intellectual skills			Transferable and general skills		
		a1	a2	a3	a4	b1	b2	c1	c2	c3	d1	d2	d3
1	Suppositories -Definition -Characters of ideal bases -Advantages and disadvantages of suppositories	x						X	x				
2	Bases of suppositories Preparation of Suppositories Problems in preparations of suppositories	x	X		x			X	x				
3	Semisolid dosage forms Ointments Advantages and disadvantages Characters of ideal bases ointments Preparation	x	X		x			X		x			
4	creams& Gels& pastes Advantages and disadvantages Characters of ideal bases Preparation of creams & Gels& pastes	x	X		x			X		x			
5	Parental Preparations -Advantages & Disadvantages of parental route Sterility tests	x			x			x					
6	Preparation of parental preparation & problems in preparation Packaging and sealing	x	x		x			x					
7	Ophthalmic preparations	x	X		x			X					

	-Advantages & Disadvantages -preparation Packaging												
8	Suppositories -calculation of displacement value for zinc oxide &calaminecalculation of displacement value for sulfur& Borax Calculations of Glycerogelatin suppositories			x		x	X				x	x	x
9	Preparation of Blank G.G. suppositories Preparation of Iodine suppositories Preparation of zinc oxide suppositories Preparation of Iodine suppositories Preparation of Boric acid suppositories			X		x	X				x	x	x
10	Preparation of sulfur ointment Preparation of whitefield ointment Preparation of cold cream Preparation of vanishing cream Preparation of Unnas paste			x		x	X				x	x	x

Matrix -2 of Pharmaceutical dosage forms-2

National Academic Reference Standards NARS		Program ILOs	Course ILOs	Course contents	Sources	Teaching and learning methods			Weighting of assessment			
						lecture	practical session	self learning	written exam	practical exam	oral exam	Periodical exam
2.1	Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice.	A2	a1 a2 a4	Suppositories -Definition -Characters of ideal bases -Advantages and disadvantages of suppositories Bases of suppositories Preparation of Suppositories Problems in preparations of suppositories Semisolid dosage forms Ointments Advantages and disadvantages Characters of ideal	Student book, essential books	x			x		x	X

				bases ointments Preparation creams& Gels& pastes Advantages and disadvantages Characters of ideal bases Preparation of creams & Gels& paste Parental Preparations -Advantages & Disadvantages of parental route Sterility tests								
2.2	Physical-chemical properties of various	A5	a2	Bases of suppositories Preparation of Suppositories	Student book, essential books	x			x		x	X

	substances used in preparation of medicines including inactive and active ingredients as well as biotechnology and radio-labeled products.			Problems in preparations of suppositories Semisolid dosage forms Ointments Advantages and disadvantages Characters of ideal bases ointments Preparation creams& Gels& pastes Advantages and disadvantages Characters of ideal bases Preparation of creams & Gels& pastes							
2.17	Methods of biostatistical analysis and pharmaceutical calculations.	A27	a3	Suppositories -calculation of displacement value for zinc oxide &calaminecalculation of displacement value for sulfur& Borax Calculations of Glycerogelatin suppositories Preparation of Blank	Practical notes		x			x		

				G.G. suppositories Preparation of Iodine suppositories Preparation of zinc oxide suppositories Preparation of Iodine suppositories Preparation of Boric acid suppositories Preparation of sulfur ointment Preparation of whitefield ointment Preparation of cold cream Preparation of vanishing cream Preparation of Unnas paste								
2.6	Properties of different pharmaceutical dosage forms including novel	A10	a4	Bases of suppositories Preparation of Suppositories Problems in	Student book, essential books	x			x		x	

2.10	drug delivery systems. List the different methods of sterilization, sterility testing and their application in microbiological quality control of pharmaceutical products.	A15		preparations of suppositories Semisolid dosage forms Ointments Advantages and disadvantages Characters of ideal bases ointments Preparation creams& Gels& pastes Advantages and disadvantages Characters of ideal bases Preparation of creams & Gels& pastes Parental Preparations -Advantages & Disadvantages of parental route Sterility tests Preparation of parental preparation & problems in preparation Packaging and sealing Ophthalmic preparations -Advantages & Disadvantages -preparation								

				Packaging								
3.2	Handle and dispose chemicals and pharmaceutical preparations safely.	B2	b1	Suppositories -calculation of displacement value for zinc oxide &calaminecalculation of displacement value for sulfur& Borax Calculations of Glycerogelatin suppositories Preparation of Blank G.G. suppositories Preparation of Iodine suppositories Preparation of zinc oxide suppositories Preparation of Iodine suppositories Preparation of Boric acid suppositories Preparation of sulfur ointment Preparation of whitefield ointment Preparation of cold cream Preparation of vanishing cream Preparation of Unnas paste	Practical note book		x			x		
3.3	Compound, dispense, label, store and distribute medicines effectively and safely.	B3	b2		Practical note book		x					

4.1	Apply pharmaceutical knowledge in the formulation of safe and effective medicines as well as in dealing with new drug delivery systems.	C1	c1 c2 c3	Suppositories Preparation of Suppositories Problems in preparations of suppositories Semisolid dosage forms Preparation of creams & Gels& pastes Preparation of parental preparation & problems in preparation Ophthalmic preparations	Student book, essential books& Practical note book		x			x		
5.1	Communicate clearly by verbal means.	D1	d1	Activity	Internet, Recommended books			x				
5.10	Implement writing and thinking, problem-solving and decision-making abilities.	D12	d2	Activity	Internet, Recommended books&Practical note book			x				

5.3	Work effectively in a team.	D4	d3	Activity	Internet, Recommended books&Practical note book			x				

COURSE SPECIFICATIONS

Biochemistry 2

Third level –Semester 5

2019-2020

Course Specification of Biochemistry (2)

University: Zagazig Faculty: Pharmacy

A- Course specifications:

Program(s) on which the course is given: Bachelor of Pharmacy (Clinical Pharmacy)

Major or Minor element of programs: Major

Department offering the program: -------

Department offering the course: Biochemistry Department

Academic year/ Level: 2019/2020 Level 3 /fifth semester

Date of specification approval: 8/2019

B- Basic information:

Title: Biochemistry (2) Code: PB502

Credit Hours: 3 hrs/week

Lectures: 2hrs/week

Practical: 1hrs/week

Tutorials: ---

Total: 3hrs/week

C- Professional information:

1-Overall Aims of the Course:

On completion of the course, students will be able to:

- Illustrate the different metabolic pathways of carbohydrates, lipids, proteins and integration of metabolism.
- Analyze and interpret experimental results.

2-Intended Learning Outcomes of Biochemistry (2) (lLOs):

A- Knowledge and Understanding	
a1	Outline the principles of food staff, absorption and digestion.
a2	Illustrate different metabolic pathways of carbohydrates, lipids and proteins.
a3	Discuss regulatory factors affecting different metabolic pathways.
B- Professional and Practical skills	
b1	Perform laboratory tests for biological samples to detect different types of metabolites such as glucose, lipids, ...etc.
b2	Interpret laboratory results in suitable form.
C- Intellectual skills	
c1	Apply different biological methods used to assay different metabolites and biological samples.
c2	Correlate between different metabolic pathways
D- General and Transferable skills	
d1	Work effectively as a member of a team.
d2	Write and present reports effectively.
d3	Develop self-learning skills.

D-Contents:

Week No.	Lecture (2hrs/ week)	Practical session (1 hr/week)
1	- Carbohydrates digestion and absorption - Metabolism of mono and disaccharides - Glycolysis (Reactions, steps and regulation)	- Laboratory safety measures
2	- Gluconeogenesis (Reactions and regulation) - Tricarboxylic acid cycle (Reactions, regulation and calculation of energy produced)	- Lipid profile determination (total cholesterol determination)
3	- HMP shunt (Reactions and functions) - Uronic acid pathway (Reactions)	-Triglyceride determination
4	- Glycogen metabolism - Glycogenesis regulation - Glycogenolysis regulation	- Methods of determination of HDL-c and LDL-c
5	- Digestion and absorption of lipids Plasma lipids - Oxidation of fatty acids	- Case study related to lipid metabolism abnormalities
6	- Lipogenesis - Lipolysis in adipose tissues. - Phospholipid metabolism	- Kidney function test - Determination of serum urea
7	**-self learning activities (Diabetes, glycogen storage diseases)** -Periodical exam	-Periodical exam.
8	- Ketone bodies metabolism	-Serum creatinine level
9	- Cholesterol metabolism - Lipoproteins metabolism	-Determination of serum creatinine level
10	- Protein turnover - Digestion and absorption of dietary proteins. - Nitrogen metabolism - Transamination	- Case study on kidney disorders

11	- Deamination -Transdeamination - Metabolism of ammonia - Urea cycle	-Practical exam 1 (sheet)
12	- Conversion of amino acids to specialized products **- self learning activities (Growth formula, benefits and hazards)**	- Practical exam 2
13	- Conversion of amino acids to specialized products (continue) - Metabolic correlation associated with some diseases	
14	- Revision	
15	-Final exam.	

E- Teaching and Learning Methods:

- Interactive lectures
- Practical sessions
- Case study
- Self-learning (activity: reports and presentations)

F- Student Assessment Methods:

1- Written exam	to assess	a1, a2, a3, c2
2- Practical exams	to assess	b1, b2, c1
3- Activities	to assess	d1, d2, d3
4- Oral exam	to assess	a1, a2, a3, c2
5- Periodical exam	to assess	a1, a2, a3, c2

Assessment schedule:

Assessment (1): Written exam	Week 15
Assessment (2): Practical exam 1	Week 11
Assessment (3): Practical exam 2	Week 12
Assessment (4): Oral exams	Week 15
Assessment (5):periodical exam	Week 7
Assessment (6): Activities	Week 7,12

Weighting of Assessment:

Assessment method	Marks	Percentage
Written exam and self -learning	50	50%
Practical exams & activity	25	25 %
Oral exam	15	15%
Periodical exam	10	10%
TOTAL	100	100%

G- Facilities Required for Teaching and Learning:

- Black/white board, screens, Laboratory equipment (glassware, spectrophotometer, centrifuge, digital balances) and Chemicals.

H- List of References:

1- Course Notes:

- Student book of Biochemistry (2) approved by biochemistry department 2019.
- Practical notes of Biochemistry (2) approved by biochemistry department 2019.

2- Essential books:

- Marks' basic medical biochemistry: a clinical approach (fifth edition); Lieberman M., Marks A.D., Peet MD, Alisa. (2017).
- Lehninger principles of biochemistry (seventh edition); NelsonD.L.; CoxM.M. (2017).
- Basic concepts in biochemistry; Gilbert H.F.; The McGraw Hill companies Inc. (2000).
- Lippincott'sIllustrated Reviews:Biochemistry (Seventh edition); FerrierD.R. (2017)

3- Recommended books:

- Biochemistry (sixth edition); Garrett R.H. and Grisham C.M.; Thomson learning, Inc (2016).
- Harper's Illustrated Biochemistry (31st edition); RodwellV.W., Bender D., BothamK.M., KennellyP.J., Weil P. A.(2018).
- Clinical Biochemistry made ridiculously simple(third edition); Stephen Goldberg. M.D.; Med Master Inc. (2010).

4- Periodicals and websites:

- Egyptian J. of biochem. and molecular biology.
- Egyptian J. of Pharmaceutical sciences.
- www.Pubmed.Com
- www.sciencedirect.com
- Arab J. of Laboratory Medicine.

Course Coordinator: Prof. Dr.NahlaYounis

Head of Department: Prof. Dr. SaharElswefy

Matrix I of Biochemistry-2 course

Course Contents		ILOs of Biochemistry-2 course									
		Knowledge and understanding			Professional and practical skills		Intellectual skills		General and transferable skills		
Lectures		a1	a2	a3	b1	b2	c1	c2	d1	d2	d3
1	- Carbohydrates digestion and absorption - Metabolism of mono and disaccharides - Glycolysis (Reactions, steps and regulation)	x	x	x				x			
2	- Gluconeogenesis (Reactions and regulation) - Tricarboxylic acid cycle (Reactions, regulation and calculation of energy produced)		x	x				x			
3	- HMP shunt (Reactions and functions) - Uronic acid pathway (Reactions)		x					x			
4	- Glycogen metabolism - Glycogenesis regulation - Glycogenolysis regulation		x	x				x			
5	- Digestion and absorption of lipids Plasma lipids - Oxidation of fatty acids	x	x								
6	- Lipogenesis - Lipolysis in adipose tissues. - Phospholipid metabolism		x					x			
7	-self-learning activity	x	x	x					x	x	

	- Periodical exam							x			x
8	- Ketone bodies metabolism		x								
9	-Lipoproteins metabolism - Cholesterol metabolism		x				x				
10	- Protein turnover - Digestion and absorption of dietary proteins. - Nitrogen metabolism - Transamination	x	x								
11	- Deamination -Transdeamination - Metabolism of ammonia - Urea cycle		x					x			
12	- Conversion of amino acids to specialized products -self-learning activity							x	x	x	x
13	- Conversion of amino acids to specialized products (continue) - Metabolic correlation associated with some diseases							x			
14	-Revision	x	x	x			x	x			
Practical sessions											
1	- Laboratory safety measures										
2	- Lipid profile determination (total cholesterol determination)				x	x	x				
3	-Triglyceride determination				x	x	x				
4	- Methods of determination of HDL-c and LDL-c				x	x	x				
5	- Case study related to lipid metabolism abnormalities					x	x				
6	- Kidney function test - Determination of serum urea				x	x	x				
7	-Periodical exam										

8	- Serum creatinine level.				x	x	x				
9	- Determination of serum creatinine level				x	x	x				
10	- Case study on kidney disorders					x	x				
11	- Practical exam 1						x				
12	-Practical exam 2				x	x	x				

Matrix II of Biochemistry-2 course												
National Academic Reference Standards NARS		Program ILOs	Course ILOs	Course contents	Sources	Teaching and learning methods			Weighting of assessment			
						Lecture	Practical session	Self learning	Written exam	Practical exam	Oral exam	Periodical exam
2.1	Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice.	A3	a1	Carbohydrates digestion and absorption	Student book Essential books	X			x		x	x
				Lipids digestion and absorption	Student book Essential books	X			x		x	x
				Phospholipids digestion and absorption	Student book Essential books	X			x		x	
				Proteins digestion and absorption	Student book Essential books	X			x		x	
2.11	Principles of body function in health and disease states as well as basis of genomic and different biochemical pathways regarding their correlation with different	A17	a2, a3	Glycolysis and tricarboxylic acid cycle	Student book Essential books	X			x		x	x
				Gluconeogenesis and glycogen metabolism	Student book Essential books	X			x		x	x
				Glycogenesis and glycogenolysis and metabolism of mono- and disacharides	Student book Essential books Recommended books Internet	X		x	x		x	x

	diseases.			HMP shunt and uronic acid pathway	Student book	X			x		x	x
				Fatty acids oxidation and biosynthesis	Student book Essential books	X			x		x	x
				Lipogenesis and lipolysis- synthesis and functions of phospholipids	Student book Essential books	X			x		x	x
				Cholesterol metabolism and Lipoproteins	Student book Essential books	X			x		x	
				- Ketone bodies	Student book Essential books	X			x		x	
				Transamination and oxidative deamination	Student book Essential books	X			x		x	
				Urea cycle and metabolism of ammonia	Student book Essential books Recommended books Internet	X		x	x		x	
				Amino acids degredation and synthesis	Student book Essential books	X			x		x	

				Conversion of amino acids to specialized products	Student book Essential books	X			x		x	
3.6	Monitor and control microbial growth and carry out laboratory tests for identification of infectious and non-infectious diseases in biological specimens	B10 B11	b1	• Laboratory safety measures • Lipid profile and determination of cholesterol • Determination of triglycerides • Determination of HDL-c and LDL-c • Kidney function tests and determination of urea • Determination of serum creatinine • Calculation of creatinine clearance	Practical notes		x			x		
3.11	Conduct research studies and analyze the results	B17	b2									

4.3	Apply qualitative and quantitative analytical and biological methods for QC and assay of raw materials as well as pharmaceutical preparations	C3	c1	• Laboratory safety measures • Lipid profile and determination of cholesterol • Determination of triglycerides • Determination of HDL-c and LDL-c • Kidney function tests and determination of urea • Determination of serum creatinine • Calculation of creatinine clearance	Practical notes		x			x		

4.13	Analyze and interpret experimental results as well as published literature	C15	c2	• Lipid profile and determination of cholesterol • Determination of triglycerides • Determination of HDL-c and LDL-c • Kidney function tests and determination of urea • Determination of serum creatinine • Calculation of creatinine clearance	Practical notes		x			x		
5.3	Work effectively in a team	D4	d1	Activity (report and presentations)	Recommended books Internet			x		x		
5.4	Use numeracy, calculation and statistical methods as well as information technology tools.	D6										
5.5	Practice independent learning needed	D7	d3					x		x		

	for continuous professional development.											
5.9	Implement writing and presentation skills	D11	d2	Activity (report and presentations)	Recommended books Internet			x		x		

COURSE SPECIFICATIONS

Pytochemistry-2

Third level –Semester 5

2019-2020

Course Specification of Phytochemistry II

University: **Zagazig** Faculty: **Pharmacy**

A- Course specifications:

Program(s) on which the course is given: Bachelor of Pharmacy (Clinical Pharmacy)

Major or Minor element of programs: Major

Department offering the program: ---------

Department offering the course: Pharmacognosy

Academic year/Level: Third level/ semester 5

Date of specification approval: 30 /09/2019

B- Basic information:

Title: Phytochemistry II Code: PG505

Credit Hours: ---

Lectures: 2 hrs

Practical: 1hr

Tutorials: ---

Total: 3 hrs

C- Professional information:

1-Overall Aims of the Course:

On completion of the course, the student will be able to:
Demonstrate comprehensive knowledge, clear understanding and the competent skills in dealing with chromatography as well as alkaloids and glycosides.

2-Intended Learning Outcomes of Phytochemistry II

A- Knowledge and Understanding	
a1	Define chromatography and identify different types and applications of chromatographic separation in the field of natural products.
a2	Define, state and classify certain classes of natural products (alkaloids and glycosides) and their physical properties.
a3	Describe the chemistry of the above mentioned classes, their pharmacological properties (biological activities) and contra-indications.
a4	Identify different analytical techniques used in natural products determination for the above mentioned classes, their methods of isolation, purification and identification.
a5	Identify natural and pharmaceutical products containing alkaloids and glycosides.
B- Professional and Practical skills	
b1	Handle chemicals, solvents and equipment safely.
b2	Examine different alkaloids and glycosides and apply chromatographic methods for their isolation and identification.
b3	Prepare lab research reports on chromatography, alkaloids and glycosides.
C- Intellectual skills	
c1	Choose the proper pharmaceutical terms and abbreviations for certain classes of natural products (alkaloids and glycosides).
c2	Estimate certain classes of naturally occurring products (alkaloids and glycosides).
c3	Predict the appropriate method for isolation, purification and identification of different alkaloids and glycosides.
D- General and Transferable skills	
d1	Work effectively as a member of a team.
d2	Manage time to achieve targets within deadlines.
d3	Write and present reports.
d4	Develop critical thinking and problem-solving skills.

D- Contents:

Week No.	Lecture (2hrs/week)	Practical session (1 hrs/week)
1	**Introduction to chromatography and extraction methods**	**Methods of plant analysis**
2	**Column chromatography**	**Column chromatography**
3	**Thin layer chromatography and paper chromatography**	**Thin layer chromatography and paper chromatography**
4	**Alkaloids** Classification, isolation, properties and biosynthesis	General alkaloids chemical tests and isolation
5	**Alkaloids** Non-heterocyclic, pyridine and piperidine alkaloids	Chemical tests for ephedrine, caffeine, brucine and quinine.
6	**Alkaloids** Tropane, xanthine and imidazole alkaloids	(Activity) Get a copy of pamphlets for pharmaceutical products containing alkaloids
7	**Alkaloids** Quinoline and isoquinoline alkaloids **Periodic exam**	Chemical tests for and papaverine, strychnine and atropine.
8	**Alkaloids** Indolic and terpenoid alkaloids	(Activity) Get a copy of pamphlets for pharmaceutical products containing alkaloids
9	**Glycosides** Classification, isolation and properties	General properties of glycosides and extraction methods
10	**Glycosides** Phenolic glycosides, cyanogenic glycosides, thioglycosides and flavonoids	Chemical tests for cardiac glycosides, anthraquinones, saponins and flavonoids.
11	**Glycosides** Cardiac glycosides	(Activity) Get a copy of pamphlets for pharmaceutical products containing glycosides
12	**Glycosides** Anthraquinones, coumarins, saponins and miscellaneous	**Practical exam I**

	glycosides	
13	**Glycosides** Saponins and miscellaneous glycosides	**Practical exam II**
14	**Revision**	
15	**Written exam**	

E- Teaching and Learning Methods:

- Lectures.
- Interactive lectures.
- Practical sessions.
- Self-learning (group discussion, net search).
- Visits to community pharmacy to get copy of pamphlets for pharmaceutical products containing studied natural products.

F- Student Assessment Methods:

1- Written exam (periodic, final) to assess a1, a2, a3, a4, a5, c1, c2, c3 and d4.

2- Practical exam and activity to assess b1, b2, b3, c1, c2, c3, d1, d2, d3 and d4.

3- Oral exam to assess a1, a2, a3, a4, a5, c1, c2, c3 and d4.

Assessment schedule:

Assessment (1): Periodic written exam	Week 7
Assessment (2): Practical exam and activity	Weeks 6, 8, 11, 12, 13
Assessment (3): Final written exam	Week 15
Assessment (4): Oral exams	Week 15

Weighting of Assessment:

Assessment method	Marks	Percentage
Periodic written exam	10	10%
Practical exam and activity	25	25%
Final written exam	50	50%
Oral exam	15	15%
TOTAL	100	100%

G- Facilities Required for Teaching and Learning:

- Black (white) board, Data show, Laboratory equipment (water bath, polarimeter, melting point apparatus, digital balances and glassware) and Chemicals.

H- List of References:

1- Course Notes:

Clinical student book of Phytochemistry II approved by Pharmacognosy Department (2019).

2- Essential books:

Nakanishi, K., Goto, T., & Itô, S. (Eds.). (2013). *Natural products chemistry* (Vol. 1). Academic press.
Dewick, P. M. (2002). *Medicinal natural products: a biosynthetic approach*. John Wiley & Sons.
Colegate, S. M., & Molyneux, R. J. (Eds.). (2007). *Bioactive natural products: detection, isolation, and structural determination*. CRC press.

3- Recommended books:

Rahman, A. U. (2012). *Studies in natural products chemistry/edited by Atta-ur-Rahman*. Amsterdam; New York: Elsevier.

4- Periodicals and websites:

Fitoterapia**,** Die Pharmazie, Journal of Natural Products, Phytochemistry and Planta medica

http:// www.elsevier.com/phytochem

http:// www.elsevier.com/phytomed

http:// www.wiley.co.uk.

http:// www.sciencedirect.com

Course Coordinator: Prof Dr. Mahmoud AbdAlaal
Head of Department: Prof Dr. Amal Al-Gendy
Date: 2019/09/30 تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ

Matrix I of Phytochemistry II course

Course Contents		ILOs of Phytochemistry II course														
		Knowledge and understanding					Professional and practical skills			Intellectual skills			General and transferable skills			
Lectures		a1	a2	a3	a4	a5	b1	b2	b3	c1	c2	c3	d1	d2	d3	d4
1	**Introduction to chromatography and extraction methods**	x														
2	**Column chromatography**	x														
3	**Thin layer chromatography and paper chromatography**	x														
4	**Alkaloids** Classification, isolation, properties and biosynthesis		x							x		x				
5	**Alkaloids** Non-heterocyclic, pyridine and piperidine alkaloids		x	x	x	x				x	x	x				
6	**Alkaloids** Tropane, xanthine and imidazole alkaloids		x	x	x	x				x	x	x				
7	**Alkaloids** Quinoline and isoquinoline alkaloids		x	x	x	x				x	x	x				
8	**Alkaloids** Indolic and terpenoid alkaloids		x	x	x	x				x	x	x				
9	**Glycosides** Classification, isolation and properties		x							x		x				

10	**Glycosides** Phenolic glycosides, cyanogenic glycosides, thioglycosides and flavonoids		x	x	x	x				x	x	x					
11	**Glycosides** Cardiac glycosides		x	x	x	x				x	x	x					
12	**Glycosides** Anthraquinones, coumarins		x	x	x	x				x	x	x					
12	**Glycosides** Saponins and miscellaneous glycosides		x	x	x	x				x	x	x					
Practical sessions																	
13	**Methods of plant analysis**						x	x	x			x			x		
14	**Column chromatography**						x	x	x			x			x		
15	**Thin layer chromatography and paper chromatography**						x	x	x			x			x		
16	General alkaloids chemical tests and isolation						x	x	x			x			x		
17	Chemical tests for ephedrine, caffeine, brucine and quinine.						x	x	x			x			x		
18	Alkaloids in pharmaceutical products (activity).									x	x	x	x	x	x	x	
19	Chemical tests for and papaverine, strychnine and atropine.						x	x	x			x			x		
20	Alkaloids in pharmaceutical products (activity).									x	x	x	x	x	x	x	
21	General properties of glycosides and extraction methods						x	x	x			x			x		
22	Chemical tests for cardiac glycosides, anthraquinones, saponins and flavonoids.						x	x	x			x			x		
23	Glycosides in pharmaceutical products (activity).									x	x	x	x	x	x	x	

Matrix II of Phytochemistry II course

National Academic Reference Standards (NARS)		Program ILOs	Course ILOs	Course contents	Sources	Teaching and learning methods			Method of assessment		
						Lecture /interactive lecture	Practical session	Self learning	Written exam	Practical exam and activity	Oral exam
				Theoretical sessions							
2.4	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds.	**A8**	**a1**	**Introduction to chromatography and extraction methods**	Student book Essential books Internet	x			x		x
2.4	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds.	**A8**	**a1**	**Column chromatography**	Student book Essential books Internet	x			x		x
2.4	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds.	**A8**	**a1**	**Thin layer chromatography and paper chromatography**	Student book Essential books Internet	x			x		x
2.4 **4.5**	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	**A8, C6**	**a2, c1, c3**	**Alkaloids** Classification, isolation, properties and biosynthesis	Student book Essential books Internet	x			x		x

2.4 **2.13,** **4.5**	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds. Pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra- indications, ADRs and drug interactions. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	**A8, A22, C6**	**a2, a3, a4, a5, c1, c2, c3**	**Alkaloids** Non-heterocyclic, pyridine and piperidine alkaloids	Student book Essential books Internet	x			x		x
2.4 **2.13,** **4.5**	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds. Pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra- indications, ADRs and drug interactions. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	**A8, A22, C6**	**a2, a3, a4, a5, c1, c2, c3**	**Alkaloids** Tropane, xanthine and imidazole alkaloids	Student book Essential books Internet	x			x		x
2.4 **2.13,** **4.5**	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds. Pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra- indications, ADRs and drug interactions. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	**A8, A22, C6**	**a2, a3, a4, a5, c1, c2, c3**	**Alkaloids** Quinoline and isoquinoline alkaloids	Student book Essential books Internet	x			x		x
2.4 **2.13,** **4.5**	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds. Pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra- indications, ADRs and drug interactions. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	**A8, A22, C6**	**a2, a3, a4, a5,**	**Alkaloids** Indolic and terpenoid alkaloids	Student book Essential books Internet	x			x		x

			c1, c2, c3								
2.4 **4.5**	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	**A8, C6**	**a2, c1, c3**	**Glycosides** Classification, isolation and properties	Student book Essential books Internet	x			x		x
2.4 **2.13,** **4.5**	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds. Pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra- indications, ADRs and drug interactions. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	**A8, A22, C6**	**a2, a3, a4, a5, c1, c2, c3**	**Glycosides** Phenolic glycosides, cyanogenic glycosides, thioglycosides and flavonoids	Student book Essential books Internet	x			x		x
2.4 **2.13,** **4.5**	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds. Pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra- indications, ADRs and drug interactions. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	**A8, A22, C6**	**a2, a3, a4, a5, c1, c2, c3**	**Glycosides** Cardiac glycosides	Student book Essential books Internet	x			x		x
2.4 **2.13,** **4.5**	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds. Pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra- indications, ADRs and drug interactions. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	**A8, A22, C6**	**a2, a3, a4, a5, c1,**	**Glycosides** Anthraquinones, coumarins	Student book Essential books Internet	x			x		x

			c2, c3							
2.4 **2.13,** **4.5**	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds. Pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra- indications, ADRs and drug interactions. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	**A8, A22, C6**	**a2, a3, a4, a5, c1, c2, c3**	**Glycosides** Saponins and miscellaneous glycosides	Student book Essential books Internet	x			x		x
				Practical sessions							
3.2 3.4, 3.11, 4.5 5.9,	Handle chemicals and pharmaceutical products effectively and safely with respect to relevant laws and legislations. Extract, isolate, synthesize, purify, identify, and /or standardize active substances from different origins. Conduct research studies and analyze the results Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins. Implement writing and presentation skills.	B2, B4, B17, C6, D11	**b1, b2, b3, c3, d3**	**Methods of plant analysis**	Practical notes		x			x	
3.2 3.4, 3.11, 4.5 5.9,	Handle chemicals and pharmaceutical products effectively and safely with respect to relevant laws and legislations. Extract, isolate, synthesize, purify, identify, and /or standardize active substances from different origins. Conduct research studies and analyze the results Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins. Implement writing and presentation skills.	B2, B4, B17, C6, D11	**b1, b2, b3, c3, d3**	**Column chromatography**	Practical notes		x			x	
3.2 3.4, 3.11, 4.5	Handle chemicals and pharmaceutical products effectively and safely with respect to relevant laws and legislations. Extract, isolate, synthesize, purify, identify, and /or standardize active substances from different origins. Conduct research studies and analyze the results Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	B2, B4, B17, C6,	**b1, b2, b3, c3,**	**Thin layer chromatography and paper chromatography**	Practical notes		x			x	

5.9,	Implement writing and presentation skills.	D11	**d3**								
3.2 3.4, 3.11, 4.5 5.9,	Handle chemicals and pharmaceutical products effectively and safely with respect to relevant laws and legislations. Extract, isolate, synthesize, purify, identify, and /or standardize active substances from different origins. Conduct research studies and analyze the results Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins. Implement writing and presentation skills.	B2, B4, B17, C6, D11	**b1,** **b2,** **b3,** **c3,** **d3**	General alkaloids chemical tests and isolation	Practical notes		x			x	
3.2 3.4, 3.11, 4.5 5.9,	Handle chemicals and pharmaceutical products effectively and safely with respect to relevant laws and legislations. Extract, isolate, synthesize, purify, identify, and /or standardize active substances from different origins. Conduct research studies and analyze the results Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins. Implement writing and presentation skills.	B2, B4, B17, C6, D11	**b1,** **b2,** **b3,** **c3,** **d3**	Chemical tests for ephedrine, caffeine, brucine and quinine.	Practical notes		x			x	
4.2, 4.5, 5.2, 5.3, 5.4, 5.9, 5.10	Comprehend and apply GLP, GPMP, GSP and GCP guidelines in pharmacy practice. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins. Retrieve and evaluate information from different sources to improve professional competencies. Work effectively in a team. Use numeracy, calculation and statistical methods as well as information technology tools. Implement writing and presentation skills. Implement writing and thinking, problem- solving and decision-making abilities.	C2, C6, D2, D3, D4, D5, D10, D11, D12	**c1,** **c2,** **c3,** **d1,** **d2,** **d3,** **d4**	(Activity) Pharmaceutical products	Practical notes Internet Visits for community pharmacies		x	x		x	
3.2 3.4, 3.11, 4.5	Handle chemicals and pharmaceutical products effectively and safely with respect to relevant laws and legislations. Extract, isolate, synthesize, purify, identify, and /or standardize active substances from different origins. Conduct research studies and analyze the results Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different	B2, B4, B17, C6,	**b1,** **b2,** **b3,** **c3,**	Chemical tests for and papaverine, strychnine and atropine.	Practical notes		x			x	

5.9,	origins. Implement writing and presentation skills.	D11	**d3**							
4.2, 4.5, 5.2, 5.3, 5.4, 5.9, 5.10	Comprehend and apply GLP, GPMP, GSP and GCP guidelines in pharmacy practice. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins. Retrieve and evaluate information from different sources to improve professional competencies. Work effectively in a team. Use numeracy, calculation and statistical methods as well as information technology tools. Implement writing and presentation skills. Implement writing and thinking, problem- solving and decision-making abilities.	C2, C6, D2, D3, D4, D5, D10, D11, D12	**c1,** **c2,** **c3,** **d1,** **d2,** **d3,** **d4**	(Activity) Pharmaceutical products	Practical notes Internet Visits for community pharmacies		x	x		x	
3.2 3.4, 3.11, 4.5 5.9,	Handle chemicals and pharmaceutical products effectively and safely with respect to relevant laws and legislations. Extract, isolate, synthesize, purify, identify, and /or standardize active substances from different origins. Conduct research studies and analyze the results Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins. Implement writing and presentation skills.	B2, B4, B17, C6, D11	**b1,** **b2,** **b3,** **c3,** **d3**	General properties of glycosides and extraction methods	Practical notes		x			x	
3.2 3.4, 3.11, 4.5 5.9,	Handle chemicals and pharmaceutical products effectively and safely with respect to relevant laws and legislations. Extract, isolate, synthesize, purify, identify, and /or standardize active substances from different origins. Conduct research studies and analyze the results Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins. Implement writing and presentation skills.	B2, B4, B17, C6, D11	**b1,** **b2,** **b3,** **c3,** **d3**	Chemical tests for cardiac glycosides, anthraquinones, saponins and flavonoids.	Practical notes		x			x	
4.2, 4.5,	Comprehend and apply GLP, GPMP, GSP and GCP guidelines in pharmacy practice. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	C2, C6, D2,	**c1,** **c2,** **c3,**	(Activity) Pharmaceutical products	Practical notes Internet Visits for		x	x		x	

5.2, 5.3, 5.4, 5.9, 5.10	Retrieve and evaluate information from different sources to improve professional competencies. Work effectively in a team. Use numeracy, calculation and statistical methods as well as information technology tools. Implement writing and presentation skills. Implement writing and thinking, problem- solving and decision-making abilities.	D3, D4, D5, D10, D11, D12	**d1,** **d2,** **d3,** **d4**		community pharmacies						

Course Coordinator: Prof Dr. Mahmoud AbdAlaal
Head of Department: Prof Dr. Amal Al-Gendy
Date: 2019/09/30 تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ

COURSE SPECIFICATIONS

Pathophysiology

Third level –Semester 5

2019-2020

Course specification of Pathophysiology (2019-2020)

A- Course specifications:

- Program (s) on which the course is given : Bachelor of Pharmacy (clinical pharmacy)

- Major or minor element of programs : Major

- Department offering the program : ----------

- Department offering the course : Pathology department-faculty of medicine

- A cademic year level : Third year / Fifth semester

- Date of specification approval : 2019-2020

B- Basic information :

- Title : Pathophysiology **Code :** MD507

- Credit Hours : ----

- Lectures : 2 hrs/ week

- Practical : 0 hrs / week

- Tutorials : ---------

- Total : 2 hrs/week

C- Professional information:

Overall aim of the course

On completion of the course, the students will be able to:

- Outline pathophysiology, clinical features and response of various diseases.
- Illustrate etiology, laboratory diagnosis and therapeutic approches of different pathological conditions.
- Use pathophysiological terminology and interpret microscopic changes.
- Retrieve information from various sources and correlate pathophysiological background to select the proper drug for each disease.
- Develop team work, critical thinking and presentation skills.

Weeks	Lecture contents (2hrs/week)

Intended learning outcomes:

Knowledge and Understanding	
a1	Illustrate the principles of pathophysiology of various diseases.
a2	Outline body functions in response to various pathological conditions.
a3	Describe the structural (pathological) changes of different cells, tissues and organs to various diseases, injurious agents as well.
a4	Identify etiology and pathogenesis of various disease states.
a5	Specify laboratory diagnosis methods of different diseases.
a6	Determine pharmacotherapeutic approaches of each disease.
Intellectual skills	
c1	Integrate and link the knowledge of etiology and pathophysiology in the proper selection of drug for each diseases.
c2	Analyze a wide range of information either scientific or library based.
General and Transferable skills	
d1	Interact effectively with patients and health care professional.
d2	Perform online computer search to improve professional abilities.
d3	Work effectively as a member of a team.
d4	Study independently to define learning needs and achieve professional development.
d5	Write and present reports
d6	Develop critical thinking, decision-making and problem-solving skills.

Course Content:

First week	-Introduction to pathophysiology -Cell injury and repair
Second week	-Disorders of hemostasis and coagulation -Alterations in hematologic function and oxygen transport
Third week	-Immune response and inflammation -Acquired immune deficiency syndrome (AIDS)
Fourth week	-Diseases of the vascular system -Alterations in blood pressure
Fifth week	-Diseases of the heart -Myocardial ischemia
Sixth week	-Myocardial infarction -Heart failure and shock
Seventh week	-Abnormalities of cardiac conduction **Periodical exam**
Eighth week	-Disorders of the respiratory system **Activity**
Ninth week	-Abnormalities of the kidney and urinary tract
Tenth week	-Gastrointestinal disorders
Eleventh week	-Disease of the liver and exocrine pancreas
Twelfth week	-Endocrine disorders -Diabetes mellitus
Thirteenth week	-Blood diseases
fourteen week	-Nervous system diseases
Fifteen week	Final written exam

Teaching and Learning Methods:

- Lectures
- Self learning (Case study)

Student Assessment methods:

- Periodical exam to assess: a1, a2, a3, a4, a5, a6,c1, c2
- Written exams to assess: a1, a2, a3, a4, a5, a6, c1, c2
- Oral exam to assess: a1, a2, a3, a4, a5, a6, c2
- Activity to assess d1,d2,d3,d4,d5,d6

Assessment schedule

Assessment (1): Written exams	Week 15
Assessment (2): Oral exams	Week 15
Assessment (3): Periodical exams	Weeks 7
Assessment (4): activity	Weeks 8

Weighting of Assessment

Assessment method	**Marks**	**Percentage**
Written exam	75	75%
Oral exam	15	15%
Periodical exam, Activity	10	10%
TOTAL	100	100%

Facilities required for teaching and learning:

- **For lectures:** Black (white) boards, data show.

- **Course Coordinators:** Prof Dr/yehia Al-Alphi Ali Al-Alphi
- **Date:** Sept. 2019

Matrix I of Pathophysiology course

Course Contents		ILOs of Pathophysiology course													
		Knowledge and understanding						Intellectual skills		General and transferable skills					
Lectures		a1	a2	a3	a4	a5	a6	c1	c2	d1	d2	d3	d4	d5	d6
1	-Introduction to pathophysiology -Cell injury and repair	x						x	x						
2	-Disorders of hemostasis and coagulation -Alterations in hematologic function and oxygen transport	x	x	x	x	x	x	x	x						
3	-Immune response and inflammation -Acquired immune deficiency syndrome (AIDS)	x	x	x	x	x	x	x	x						
4	-Diseases of the vascular system -Alterations in blood pressure	x	x	x	x	x	x	x	x						
5	-Diseases of the heart -Myocardial ischemia	x	x	x	x	x	x	x	x						
6	-Myocardial infarction -Heart failure and shock	x	x	x	x	x	x	x	x						
7	-Abnormalities of cardiac conduction	x	x	x	x	x	x	x	x						
8	-Disorders of the respiratory system	x	x	x	x	x	x	x	x						

9	-Abnormalities of the kidney and urinary tract	x	x	x	x	x	x	x	x								
10	-Gastrointestinal disorders	x	x	x	x	x	x	x	x								
11	-Disease of the liver and exocrine pancreas	x	x	x	x	x	x	x	x								
12	-Endocrine disorders -Diabetes mellitus	x	x	x	x	x	x	x	x								
13	-Blood diseases	x	x	x	x	x	x	x	x								
14	-Nervous system diseases	x	x	x	x	x	x	x	x								
	activity									x	x	x	x	x	x		

Matrix II of Pathophysiology course

National Academic Reference Standards (NARS)		Program ILOs	Course ILOs	Course contents	Sources	Teaching and learning methods		Method of assessment		
						Lecture/ interactive lecture	Self learning	Written exam	activity	Oral exam
2.1	Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice.	A3	a1	Introduction to pathophysiology	Student book Essential books Internet	x		x		x
2.11	Principles of body function in health and disease states as well as basis of genomic and different biochemical pathways regarding their correlation with different diseases.	A16 A18	a2 a3	-Disorders of hemostasis and coagulation -Alterations in hematologic function and oxygen transport -Immune response and inflammation -Acquired immune deficiency syndrome (AIDS) -Diseases of the vascular system -Alterations in blood pressure -Diseases of the heart -Myocardial ischemia -Myocardial infarction -Heart failure and shock -Abnormalities of cardiac conduction -Disorders of the respiratory system -Abnormalities of the kidney and urinary tract -Gastrointestinal disorders	Student book Essential books Internet	x		x		x
2.12	Etiology, epidemiology, laboratory diagnosis and clinical features of different diseases and their pharmacotherapeutic approaches	A19 A20 A21	a4 a5 a6		Student book Essential books Internet	x		x		x
4.9	Utilize the pharmacological basis of therapeutics in the proper selection and use of drugs in various disease conditions	C11	c1		Student book Essential books Internet	x		x		x

4.13	**Analyze and interpret experimental results as well as published literature**	**C15**	**c2**	-Disease of the liver and exocrine pancreas -Endocrine disorders -Diabetes mellitus -Blood diseases -Nervous system diseases	Student book Essential books Internet	x		x		x
5.1	**Communicate clearly by verbal and means**	**D1**	**d1**		Student book Essential books Internet	x		x		x
5.2	**Retrieve and evaluate information from different sources to improve professional competencies.**	**D2**	**d2**		Student book Essential books Internet	x		x		x
5.3	**Work effectively in a team.**	**D4**	**d3**		Student book Essential books Internet	x		x		x
5.5	**Practice independent learning needed for continuous professional development.**	**D7**	**d4**		Student book Essential books Internet	x		x		x
5.9	**Implement writing and presentation skills**	**D11**	**d5**		Student book Essential books Internet	x		x		x
5.10	**Implement writing and thinking, problem-solving and decision-making abilities.**	**D12**	**d6**		Student book Essential books Internet	x		x		x

- **Course Coordinators:** Prof Dr/yehia Al-Alphi Ali Al-Alphi

COURSE SPECIFICATIONS

Pharmacy Administration

Third level –Semester 5

2019-2020

توصيف مقررPharmacy administration

جامعة الزقازيق كلية الصيدلة

(أ) مواصفات المقرر:

- البرنامج الذي يقدم المقرر: بكالوريوس العلوم الصيدلية (الصيدله الاكلينيكيه)
- العنصر أساسي أم اختياري في البرنامج: أساسي
- القسم الذي يقدم البرنامج: ---------
- القسم الذي يدرس المقرر: كلية التجارة–قسم إدارة الأعمال
- مستوى العام الأكاديمي: السنة الثالثة/ الترم الخامس
- تاريخ التصديق على التوصيف:سبتمبر 2019

(ب) البيانات الأساسية:

- العنوان: إدارة أعمال (إدارة الصيدلية) **الكود:** PT506
- الساعات المعتمدة : ---
- المحاضرات: 2 ساعة/ الأسبوع
- الدروس العملية : ---
- الإجمالي: 2 ساعة/ الأسبوع

ج) البيانات المهنية:

1) الأهداف العامة للمقرر:

عند إتمام المقرر سوف يكون الطلاب قادرين على:

- يشرح المفاهيم والاتجاهات المختلفة للإدارة.
- يطبق المباديء الاقتصادية في إدارة الصيدلية، وفي دراسة الجدوى الاقتصادية للمشروعات الصيدلية.
- يختار ويطبق الشكل القانوني المناسب للمنظمة.
- يكتسب مهارت الإدارة والمبيعات والتسويق ويطبقها من خلال إدارة الصيدلية أو دراسات الجدوى الاقتصادية.

1- نتائج التعلم المنشودة لمادة إدارة الأعمال

أ – المعرفة والفهم	
أ1	يعرف نظريات الإدارة الحديثة وأسس تطبيقها في ظل العولمة.
أ2	يلم بالمعارف والمهارات المتعلقة بالتخطيط، التنظيم ،اتخاذ القرارات ،القيادة ،الرقابة والاتصال.
أ3	يوضح طرق إدارة المشروعات الصغيرة (الصيدلية) وتحديد الأهداف والموارد وتوزيع الوظائف.
أ4	يعرف كيفية عمل دراسة جدوى اقتصادية لإنشاء صيدلية.
ج- المهارات الذهنية	
ج1	يقيم بعض النماذج لشركات الأدوية الناجحة ومعرفة أسباب نجاحها والاستفادة منها.
ج2	يطبق المباديء الاقتصادية في إدارة الصيدلية، وفي دراسة الجدوى الاقتصادية للمشروعات الصيدلية.
د- المهارات العامة والمنقولة	
د1	يعمل بكفاءة كأحد أفراد الفريق.
د2	يستخدم المصادر الالكترونية ونظم المعلومات في الإدارة.
د3	يختار الشكل القانوني المناسب للمنظمة.
د4	يكتسب مهارات التفكير الإبداعي واتخاذ القرارات الذكية وتبسيط إجراءات العمل.
د5	ينمي مهارة إدارة الوقت والتخطيط الاستراتيجي.
د6	يطور مهارات التفكير النقدي و اتخاذ القرارات و معالجة المشكلات التي تواجه مديري الصيدليات وشركات الأدوية.

2- محتويات مقرر إدارة الأعمال

الأسبوع	محتويات المحاضرة (2 ساعة/ الأسبوع)
الأسبوع الأول	مفاهيم الإدارة والأعمال
الأسبوع الثاني	المتغيرات العالمية التي تؤثر على الصيدلي بعض المفاهيم الحديثة لمواجهتها
الأسبوع الثالث	ثقافة المنظمة الملتزمة بالجودة
الأسبوع الرابع	أخلاقيات الأعمال والمسئولية الإجتماعية للمنظمات
الأسبوع الخامس	التنبؤ وبناء القدرة على الرؤيا المستقبلية
الأسبوع السادس	التخطيط: طرق إعداد الخطط الاستراتيجية
الأسبوع السابع	أسس اتخاذ القرارات الذكية للصيدلي المتميز
الأسبوع الثامن	إدارة الوقت كأداة لتحقيق التميز-**الامتحان الدورى**
الأسبوع التاسع	إدارة الازمات وطرق مواجهتها
الأسبوع العاشر	دراسة جدوى إنشاء المشروع الجديد
الأسبوع الحادي عشر	طرق إدارة الصراع ومواجهتها

الأسبوع الثاني عشر	طرق الإدارة ضمن فريق العمل
الأسبوع الثالث عشر	مهارات الاتصال داخل المنظمة
الأسبوع الرابع عشر	التنسيق وتنظيم الأعمال الرقابة كأداة لتحقيق الخطط المحددة -مراجعة
الأسبوع الخامس عشر	الامتحان التحريري النهائى

أساليب التعليم و التعلم:

- المحاضرات
- التكليفات و الانشطة

طرق تقييم الطلاب:

الامتحان التحريري يقيم: **أ1و أ2و أ3و أ4و ج1وج2 د1ود2ود3ود4ود5و د6**

-الامتحانات الدورية يقيم : **أ1و أ2و و ج1وج2**

الجدول الزمني للتقييم:

تقييم (1): الامتحانات الدورية	الأسبوع الثامن
تقييم (2): الامتحان التحريري	الأسبوع الخامس عشر

ترجيح التقييم:

طريقة التقييم	الدرجات	النسب المئوية
الامتحانات الدورية	10	%10
الامتحان التحريري	90	%90
الإجمالي	100	%100

التسهيلات اللازمة للتعليم و التعلم:

1- **للمحاضرات:** اللوحات (البيضاء) و السوداء

- **منسقو المقرر: أ.د/ زكى صقر**
- **التاريخ: سبتمبر 2019**

مصفوفة 1 إدارة أعمال													
محتويات المقرر		نتائج التعلم المنشودة											
		المعرفة والفهم				المهارات الفكرية		مهارات عامة وتواصلية					
		أ1	أ2	أ3	أ4	ج1	ج2	د1	د2	د3	د4	د5	د6
1	مفاهيم الإدارة والأعمال	x											
2	المتغيرات العالمية التي تؤثر على الصيدلي بعض المفاهيم الحديثة لمواجهتها	x							x				
3	ثقافة المنظمة الملتزمة بالجودة	x							x				
4	أخلاقيات الأعمال والمسئولية الإجتماعية للمنظمات	x								x			
5	التنبؤ وبناء القدرة على الرؤيا المستقبلية		x			x							x
6	التخطيط: طرق إعداد الخطط الاستراتيجية		x									x	
7	أسس اتخاذ القرارات الذكية للصيدلي المتميز		x								x		
8	إدارة الوقت كأداة لتحقيق التميز			x			x					x	
9	إدارة الازمات وطرق مواجهتها		x				x						
10	دراسة جدوى إنشاء المشروع الجديد				x	x	x						x
11	طرق إدارة الصراع ومواجهتها			x			x						
12	طرق الإدارة ضمن فريق العمل			x			x	x					
13	مهارات الاتصال داخل المنظمة		x						x				
14	التنسيق وتنظيم الأعمال الرقابة كأداة لتحقيق الخطط المحددة -مراجعة		x										

مصفوفة 2 إدارة أعمال								
المعايير الأكاديمية المرجعية القومية (NARS)	نتائج التعلم المنشودة للبرنامج	نتائج التعلم المنشودة للمقرر	محتويات المقرر	المصدر	أساليب التعليم و التعلم			أسلوب التقييم
					المحاضرة	الدروس العملية	التعلم الذاتي	الامتحان التحريري
2.1 Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice.	A4	أ-1	مفاهيم الإدارة والأعمال. المتغيرات العالمية التي تؤثر على الصيدلي بعض المفاهيم الحديثة لمواجهتها. ثقافة المنظمة الملتزمة بالجودة. أخلاقيات الأعمال والمسئولية الإجتماعية للمنظمات.	الكتاب	x			x
2.18 Principles of management including financial and human resources	A 28	أ-2	التنبؤ وبناء القدرة على الرؤيا المستقبلية. التخطيط: طرق إعداد الخطط الاستراتيجية. أسس اتخاذ القرارات الذكية للصيدلي المتميز. إدارة الازمات وطرق مواجهتها. مهارات الاتصال داخل المنظمة. التنسيق وتنظيم الأعمال. الرقابة كأداة لتحقيق الخطط المحددة.	الكتاب	x			x
2.19 Principles of drug promotion, sales and marketing, business administration, accounting and pharmacoeconomics	A29	أ-3	إدارة الوقت كأداة لتحقيق التميز. طرق إدارة الصراع ومواجهتها. طرق الإدارة ضمن فريق العمل.	الكتاب	x			x
		أ-4	دراسة جدوى إنشاء المشروع الجديد.	الكتاب	x			x
4.12 Apply the principles of pharmacoeconomics in promoting	C14	ج-1	التنبؤ وبناء القدرة على الرؤيا المستقبلية. دراسة جدوى إنشاء المشروع الجديد.	الكتاب	x			x

								cost/effective pharmacotherapy
x			x	الكتاب	إدارة الوقت كأداة لتحقيق التميز. إدارة الازمات وطرق مواجهتها. دراسة جدوى إنشاء المشروع الجديد. طرق إدارة الصراع ومواجهتها. طرق الإدارة ضمن فريق العمل.	ج-2		
x			x	الكتاب	طرق الإدارة ضمن فريق العمل.	د-1	D4	**5.3 Work effectively in a team.**
					المتغيرات العالمية التي تؤثر على الصيدلي بعض المفاهيم الحديثة لمواجهتها. ثقافة المنظمة الملتزمة بالجودة. مهارات الاتصال داخل المنظمة.	د-2	D6	**5.4 Use numeracy, calculation and statistical methods as well as information technology tools**
x			x	الكتاب	أخلاقيات الأعمال والمسئولية الإجتماعية للمنظمات.	د-3	D8	**5.6 Adopt ethical, legal and safety guidelines**
x			x	الكتاب	أسس اتخاذ القرارات الذكية للصيدلي المتميز.	د-4	D9	**5.7 Develop financial, sales and market management skills**
x			x	الكتاب	التخطيط: طرق إعداد الخطط الاستراتيجية. إدارة الوقت كأداة لتحقيق التميز.	د-5	D10	**5.8 Demonstrate creativity and time management abilities.**
x			x	الكتاب	التنبؤ وبناء القدرة على الرؤيا المستقبلية. دراسة جدوى إنشاء المشروع الجديد.	د-6	D12	**5.10 Implement writing and thinking, problem-solving and decision- making abilities**