COURSE SPECIFICATIONS

Faculty of Pharmacy

Bachelor of Pharmacy

Third Year – Second Term

2017-2018

CONTENTS:

COURSE SPECIFICATIONS

Biochemistry (2)

Third Year-Second Term
2017-2018

Course Specification of Biochemistry (2)

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

A- Course specifications:

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

Major or Minor element of programs: Major

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

Department offering the course: Biochemistry Department

Academic year/ Level: Third year /second term

Date of specification approval: 25/9/2017

B- Basic information:

Title: Biochemistry (2) Code: BC321

Credit Hours: ---

Lectures : 3 hrs/week

Practical: 2 hrs/week

Tutorials: ---

Total: 4 hrs/week

C- Professional information:

1-Overall Aims of the Course:

On completion of the course, students will be able to explain the different metabolic pathways of carbohydrates, lipids, proteins and integration of metabolism.

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 and their regulation.
a3	Describe lipids metabolic pathways and their regulation.
a4	Explain special pathways of proteins metabolism.
B- Professional and Practical skills	
b1	Perform laboratory tests for biological samples to detect different diseases.
C- Intellectual skills	
c1	Apply different biological methods used to assay different metabolites and biological samples.
c2	Analyze and interpret quantitative data in a suitable form.
c3	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.

D-Contents:

Week No.	Lecture (3 hrs/ week)	Practical session (2 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)	- Case study related to carbohydrate metabolism abnormalities
3	- HMP shunt (Reactions and functions) - Uronic acid pathway (Reactions)	-lipid profile determination (triglyceride determination)
4	- Glycogen metabolism (Structure and functions) - Glycogenesis regulation - Glycogenolysis regulation	- lipid profile determination (total cholesterol determination)
5	- Digestion and absorption of lipids Plasma lipids - Fat oxidation of fatty acids	- Case study related to lipid metabolism abnormalities
6	midterm exam	
7	- Lipogenesis - Lipolysis in adipose tissues. - Phospholipid metabolism	**Activity and presentation**
8	- Ketone bodies metabolism - Self-learning activities	- Kidney function test - Determination of serum urea
9	- Cholesterol metabolism	Determination of serum creatinine
10	Lipoproteins metabolism - Self-learning activities (Drugs used to treat fatty liver , lipotropic factors)	- Case study related to protein metabolism abnormalities
11	- Protein turnover - Digestion and absorption of dietary proteins. - Nitrogen metabolism - Transamination	- Revision / Quiz

12	- Deamination -Trasdeamination (homework assignment) - Metabolism of ammonia - Urea cycle	-Practical exam
13	- Conversion of amino acids to specialized products - Self-learning activities (Growth formula, benefits and hazards)	
14	- Conversion of amino acids to specialized products (continue)	
15	- Metabolic correlation associated with some diseases	

E- Teaching and Learning Methods:

- Lectures
- Practical sessions
- Case study
- Self-learning (activity: net reports and presentation)

F- Student Assessment Methods:

1- Written exams to assess a1, a2, a3, a4, c2, c3

2- Practical exams to assess b1, c1

3- Activities to assess d1,d2

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

Assessment schedule:

Assessment (1): Written exams	Week 6,16
Assessment (2): Activity	Week 7,12
Assessment (3): Practical exams	Week 12
Assessment (4): Oral exams	Week 16

Weighting of Assessment:

Assessment method	Marks	Percentage
Written exam	60	60%
Activity	5	5 %

Practical exam	20	20%
Oral exam	15	15%
TOTAL	100	100%

G- Facilities Required for Teaching and Learning:

- Black (white) board, Data show, Laboratory equipment (glassware, spectrophotometer, water bath, centrifuge, digital balances) and Chemicals.

H- List of References:

1- Course Notes: Student book of Biochemistry (2) approved by biochemistry department 2017.

- Practical notes of Biochemistry (2) approved by biochemistry department 2017.

2- Essential books:

i- Basic concepts in biochemistry; Gilbert H.F.; The Mc Graw Hill companies Inc. (2000).

ii- Marks' basic medical biochemistry: a clinical approach (third edition); Lieberman M., Marks A.D., Smith C.M. (2008).

iii- Lehninger principles of biochemistry (fourth edition); Nelson D.L., Cox M.M., Freeman W.H. (2005).

3- Recommended books:

i- Biochemistry (third edition); Garrett R.H. and Grisham C.M.; Thomson learning, Inc (2005).

ii- Clinical Biochemistry made ridiculously simple; Stephen Goldberg. M.D.; Med Master Inc. (2000).

iii- Harper's Illustrated Biochemistry (28^{th} edition); Murray R.K., Bender D.A., Botham K.M., Kennelly P.J., Rodwell V.W., Weil P.A.; The Mc Graw Hill companies Inc. (2009).

4- Periodicals and websites:

Egyptian J. of biochem. and molecular biology.

Egyptian J. of Pharmaceutical sciences.

Arab J. of Laboratory Medicine.

J. of Cardiovascular diseases.

www.Pubmed.Com

www.sciencedirect.com.

Course Coordinator: Prof. Dr. Sahar elswefy

Head of Department: Prof. Dr. Sahar elswefy

تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ 25 / 9 / 2017 Date: م

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	a4	b1	c1	c2	c3	d1	d2
1	- Carbohydrates digestion and absorption - Metabolism of mono and disaccharides - Glycolysis (Reactions, steps and regulation)	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 (Structure and functions) - Glycogenesis regulation - Glycogenolysis regulation		x					x	x		
5	- Digestion and absorption of lipids Plasma lipids - Fat oxidation of fatty acids	x		x				x			
6	- Lipogenesis - Lipolysis in adipose tissues. - Phospholipid metabolism			x					x		
7	- Ketone bodies metabolism			x	x						
8	- Cholesterol metabolism			x	x			x	x		

9	Lipoproteins metabolism								x			
10	- Protein turnover - Digestion and absorption of dietary proteins. - Nitrogen metabolism - Transamination	x			x							
11	- Deamination -Trasdeamination - Metabolism of ammonia - Urea cycle				x			x				
12	- Conversion of amino acids to specialized products				x							
13	- Metabolic correlation associated with some diseases				x							
Practical sessions												
1	- Laboratory safety measures					x	x					
2	- Case study related to carbohydrate metabolism abnormalities					x	x					
3	-lipid profile determination (triglyceride determination)					x	x					
4	- lipid profile determination (total cholesterol determination)					x	x					
5	Case study related to lipid metabolism abnormalities					x	x					
6	Activity (Report and presentations)										x	x
7	- Kidney function test - Determination of serum urea					x	x					
8	Determination of serum creatinine					x	x					
9	- Case study related to protein metabolism abnormalities						x					
10	Self learning activities						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
2.1	Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice.	A4	a1	- Carbohydrates digestion and absorption - Metabolism of mono and disaccharides - Glycolysis (Reactions, steps and regulation)	Student book Essential books	x			x		X
				- Digestion and absorption of lipids Plasma lipids - Fat oxidation of fatty acids	Student book Essential books	x			x		X
				- Protein turnover - Digestion and absorption of dietary proteins. - Self-learning activities	Student book Essential books	x			x		X
				Revision	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 diseases.	A24	a2	- Carbohydrates digestion and absorption - Metabolism of mono and disaccharides - Glycolysis (Reactions, steps and regulation)	Student book Essential books	x			x		X
				- Gluconeogenesis (Reactions and regulation) - Tricarboxylic acid cycle (Reactions, regulation and calculation of energy produced)	Student book Essential books	x			x		X
				- HMP shunt (Reactions and functions) - Uronic acid pathway (Reactions)	Student book Essential books Recommended books Internet	x		x	x		X
				- Glycogen metabolism (Structure and functions) - Glycogenesis regulation - Glycogenolysis regulation	notebook	x			x		X

		A24	a3	- Digestion and absorption of lipids Plasma lipids - Fat oxidation of fatty acids	Student book Essential books	x			x		X
				- Lipogenesis - Lipolysis in adipose tissues. - Phospholipid metabolism	Student book Essential books	x			x		X
				- Ketone bodies metabolism - Self-learning activities - Periodical exam	Student book Essential books	x			x		X
				- Cholesterol metabolism and lipoproteins	Student book Essential books	x			x		X
		A24	a4	- Protein turnover - Digestion and absorption of dietary proteins. - Self-learning activities	Student book Essential books	x			x		X
				- Nitrogen metabolism - Transamination - Deamination -	Student book Essential books Recommended books Internet	x		x	x		X

				Trasdeamination							
				- Metabolism of ammonia - Urea cycle - Self learning activities	Student book Essential books	x			x		X
				- Conversion of amino acids to specialized products	Student book Essential books	x			x		X
		A25		- Conversion of amino acids to specialized products (continue)	Student book Essential books	x			x		X
				- Ketone bodies metabolism - Self-learning activities - Periodical exam	Student book Essential books	x			x		X
				- Cholesterol metabolism and lipoproteins	Student book Essential books	x			x		X
				- Metabolic correlation associated with some diseases	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	B9	b1	Laboratory safety measures -Glucose homeostasis - Determination of glycated Hb - Determination of fructosamine Case study related to carbohydrate metabolism abnormalities - lipid profile determination (triacylglycerol determination) - lipid profile determination (total cholesterol determination) - Case study related to lipid metabolism abnormalities Activity (Report and presentations) - Determination of urea - determination of creatinine- - Case study related to protein metabolism abnormalities	Practical notes		x			x

4.3	Apply qualitative and quantitative analytical and biological methods for QC and assay of raw materials as well as pharmaceutical preparations	C4	c1	Laboratory safety measures -Glucose homeostasis - Determination of glycated Hb - Determination of fructosamine Case study related to carbohydrate metabolism abnormalities - lipid profile determination (triacylglycerol determination) - lipid profile determination (total cholesterol determination) - Case study related to lipid metabolism abnormalities Activity (Report and presentations) - Determination of urea - determination of creatinine- - Case study related to protein metabolism abnormalities	Practical notes		x			x	

4.13	Analyze and interpret experimental results as well as published literature	C16	c2	- Glycogen metabolism (Structure and functions) - Glycogenesis regulation - Glycogenolysis regulation- - Digestion and absorption of lipids Plasma lipids - Fat oxidation of fatty acids- -	Student book Essential books	x			x		x
			c3	Cholesterol metabolism and lipoproteins- - Nitrogen metabolism - Transamination - Deamination Trasdeamination	Student book Essential books	x			x		x
5.3	Work effectively in a team	D4	d1	Activity (report and presentations)	Recommended books Internet			x		x	
5.9	Implement writing and presentation skills	D11	d2	Activity (report and presentations)	Recommended books Internet			x		x	

Course Coordinator: Prof. Dr. Sahar elswefy

Head of Department: Prof. Dr. Sahar elswefy

Date: م 2017 / 9 / 25 تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ

Course Specification

Sterile Products and Controlled Drug Delivery Systems

Third Year-Second Term

2017-2018

Course specification of Sterile Products and Controlled Drug Delivery Systems

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University: Zagazig **Faculty: Pharmacy**

A- Course specifications:

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

Major or Minor element of programs: Major

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

Department offering the course: Pharmaceutics Department

Academic year Level: Third year/Second semester

Date of specification approval: 3 September 2017

B- Basic information:

Title: Sterile Products and Controlled Drug Delivery Systems Code: PC325

Credit Hours: ---

Lectures: 2 hrs/week

Practical: 2 hrs/week

Tutorials: ---

Total: 4 hrs/week

C- Professional information:

1-Overall aim of the course

On completion of the course, the student will be able to illustrate characters, formulation and application of different modified drug release and controlled drug delivery systems. In addition, the student will be able to outline the requirements and quality control tests for the preparation of sterile products including parentrals, ophthalmic preparations and aerosols.

2- Intended learning outcomes of Sterile Products and Controlled Drug Delivery Systems (ILOs)

A- Knowledge and Understanding	
a1	Describe formulation requirements and quality control tests of aerosols.
a2	illustrate the principles and properties of different controlled and modified release drug delivery systems
a3	Outline the requirements, formulation and quality control tests of parentrals and ophthalmic dosage forms
a4	Illustrate the basis of sterilization and packaging of parentrals and ophthalmic dosage forms
B- Professional and Practical skills	
b1	perform different calculations related to compounding of parentrals including isotonicity adjustment, milliequivalent, osmolarity and rate of flow of intravenous infusions
C- Intellectual skills	
c1	Select the appropriate drug delivery system according to drug properties and the intended site and rate of drug release
c2	Interpret results of quality control tests of parentrals and aerosols according to the pharmacopeial requirments
D- General and Transferable skills	
d1	Use information technology to collect and present data
d2	Develop critical thinking, decision-making and problem-solving skills.
d3	Work effectively as a member of a team

D- Contents:

Week No.	Lecture contents (2 hrs/week)	Practical session (2 hrs/week)
1	Pharmaceutical aerosols: - Advantages - components	Isotonic solutions
2	- Quality control of aerosols. - Filling of aerosols.	Problem solving
3	- Introduction to parentral preparations - Advantages & disadvantages of parenterals - Requirements for parenteral preparations - Routes of parenteral administration - Classification of parenteral preparations	Electrolyte solutions: Milliequivalents, Milimoles and Milliosmoles
4	- Sterilization techniques moist heat , dry heat, radiation, gas and filtration	Problem solving
5	Formulation of parentrals	Intravenous Infusions, Parenteral Admixtures, and Rate-of-Flow Calculations
6	Midterm exam	
7	- Packaging of parentrals. - Quality control tests of parentral preparations	Case study
8	Ophthalmic dosage forms	Parenteral admixtures
9	- Introduction to drug delivery systems - Advantages & disadvantages of delayed release dosage forms - Enteric coating - Colon specific drug delivery	Parenteral Nutrition

10	- Gastroretentive drug delivery systems - Diffusion based sustained release dosage forms - Bioerodible sustained release dosage forms - Osmotic pressure activated controlled drug delivery - Targeted release dosage forms	Case study
11	Colloidal drug delivery systems Liposomes	Revision evidence-based assignment
12	Colloidal drug delivery systems - Niosomes	**Practical exam**
13	Colloidal drug delivery systems - Microemulsion	
14	- Revision	
15	- Open Discussion	

E- Teaching and Learning Methods:

- Lectures
- Practical session
- Self learning (evidence based assignments, case study)

F- Student Assessment methods:

1- Written exams to assess: a1, a2, a3, a4, c1

2- Activity to assess: d1, d2, d3

3- Practical exams to assess: a3, b1 , c2, d1, d2, d3

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

Assessment schedule

Assessment (1): Written exams	Week 6,16
Assessment (2): Activity	Week 11

Assessment (3): Practical exam	Week 12
Assessment (4): Oral exams	Week 16

Weighting of Assessment

Assessment method	Marks	Percentage
Written exam	60	60%
Practical exam and activities	25	25%
Oral exam	15	15%
TOTAL	100	100%

G- Facilities required for teaching and learning:

Black (white) boards, data show

H- List of References:

1- Course Notes: Student book of Sterile Products and Controlled Drug Delivery Systems approved by pharmaceutics department (2017).

2- Essential Books:

- Pharmaceutical dosage forms: Parenteral medications vol. 1, 2nd edn, Dekker, 1992.
- Sterile Dosage Forms: Their preparation and clinical application. Ed., Salvatore Turco, Publisher:Lippincott Williams and Wilkins.
- Good pharmaceutical manufacture practice, rational and compliance, Jhon Sharp, CRC press
- Ansel's Pharmaceutical Dosage Forms and Drug Delivery System. Ed., Allen, Popovich and Ansel (2005). Publisher: Lippincott Williams and Wilkins.

3- Recommended Books:

- Martin's Physical Pharmacy and Pharmaceutical Sciences. Ed. Patrick J. Sinko (2006). Publisher: Lippincott Williams and Wilkins

- Pharmaceutics; the Science of Dosage Form Design. Ed., Michael E. Aulton (2006). Publisher: Thomson Learning.
- Remington; the Science and Practice of Pharmacy (21st edition). Publisher: Lippincott Williams and Wilkins.
- USP (797) Pharmaceutical Compounding—Sterile Preparations

4- Periodicals and websites:

- www.researchgate.net
- www.speciation.net
- www.ncbi.nlm.nih.gov
- http//www.lib.utexas.edu/etd/d/2003/codyk036/codyk036.pdf
- http://en.wikipedia.org/wiki/Code-switching

Course Coordinator: Dr. Gehan Fathy Attia

- **Head of Department: Prof. Nagia Ahmed El-Megrab**

Date: 3 / 9 / 2017م تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ

Matrix I of Sterile Products and Controlled Drug Delivery Systems course

Course Contents		ILOs of Sterile Products and Controlled Drug Delivery Systems course									
		Knowledge and understanding				Professional and practical skills	Intellectual skills		Transferable and general skills		
Lectures		a1	a2	a3	a4	b1	c1	c2	d1	d2	d3
1	Pharmaceutical aerosols: - Advantages - components	x									
2	- Quality control of aerosols. - Filling of aerosols	x						x			
3	- Introduction to parentral preparations - Advantages & disadvantages of parenterals - Requirements for parenteral preparations - Routes of parenteral administration - Classification of parenteral preparations			x							
4	Sterilization techniques moist heat , dry heat, radiation, gas and filtration				x						
5	Formulation of parentrals			x							
6	- Packaging of parentrals. - Quality control tests of parentral preparations			x	x			x			
7	Ophthalmic dosage forms			x							
8	- Introduction to drug delivery systems - Advantages & disadvantages of delayed release dosage forms - Enteric coating - Colon specific drug delivery		x				x				

9	- Gastroretentive drug delivery systems - Diffusion based sustained release dosage forms - Bioerodible sustained release dosage forms - Osmotic pressure activated controlled drug delivery - Targeted release dosage forms		x				x				
10	Colloidal drug delivery systems (Liposomes)		x				x				
11	Colloidal drug delivery systems (Niosomes)		x				x				
12	Colloidal drug delivery systems (microemulsion)		x				x				
Practical sessions											
1	Isotonic solutions					x				x	x
2	Problem solving					x				x	x
3	Electrolyte solutions: Milliequivalents, Milimoles and Milliosmoles					x				x	x
4	Problem solving					x				x	x
5	Intravenous Infusions, Parenteral Admixtures, and Rate-of-Flow Calculations					x				x	x
6	Case study					x		x	x	x	x
7	Parenteral admixtures					x				x	x
8	Parenteral Nutrition					x				x	x
9	Case study					x			x	x	x
10	evidence-based assignment						x		x	x	x

Matrix II of Sterile Products and Controlled Drug Delivery Systems course

National Academic Reference Standards (NARS)		Program ILOs	Course ILOs	Course contents	Sources	Teaching and learning methods		Method of assessment		
						Lecture	Practical session	Written exam	Practical exam	Oral exam
2.2	Physico-chemical properties of various substances used in preparation of medicines including inactive and active ingredients as well as biotechnology and radio-labeled products.	A.9	a1	Pharmaceutical aerosols (Advantages, components & preparation). Packaging of pharmaceutical aerosols Filling of aerosols.	Student book Essential books	x		x		x
2.6	Properties of different pharmaceutical dosage forms including novel drug delivery systems.	A.16	a2	Parentral preparations (Advantages, disadvantages, route of administration). Controlled drug delivery systems " coated beads, microencapsulation, complex formation, resinated drugs,…..etc"	Student book Essential books	x		x		x

				Ophthalmic preparations (Solutions, suspensions, powders for reconstitution, ointment, ocusert, contact lenses). Packaging and use of ophthalmic preparations	Student book Essential books	x		x		x
				Pharmaceutical aerosols (Advantages, components & preparation).	Student book Essential books	x		x		x
			a3	Controlled release dosage forms for oral use Rational for extended release	Student book Essential books	x		x		x
				Controlled drug delivery systems " coated beads, microencapsulation, complex formation, resinated drugs,…..etc"	Student book Essential books	x		x		x
2.7	Principles of various instruments and techniques including sampling, manufacturing, packaging, labeling, storing and distribution processes in pharmaceutical industry	A.18	a4	Colloidal drug delivery systems (Liposomes, Niosomes and nanoparticles)	Student book Essential books	x		x		x
				Sterilization and packaging of parentral products. Manufacturing processes of (ampoules-vials).	Student book Essential books	x		x		x

				Packaging of pharmaceutical aerosols	Student book Essential books	x		x		x
3.3	Compound, dispense, label, store and distribute medicines effectively and safely	B4	b1	Isotonic solutions	Practical notes		x		x	
				Electrolyte solutions: Milliequivalents, Milimoles and Milliosmoles			x		x	
				Intravenous Infusions, Parenteral Admixtures, and Rate-of-Flow Calculations			x		x	
				Parenteral admixtures			x		x	
				Parenteral Nutrition			x		x	
4.1	Apply pharmaceutical knowledge in the formulation of safe and effective medicines as well as in dealing with new drug delivery systems.	C.1	c1	- Introduction to drug delivery systems - Advantages & disadvantages of delayed release dosage forms - Enteric coating - Colon specific drug delivery	Student book Essential books	x		x		x
				- Gastroretentive drug delivery systems - Diffusion based sustained release dosage forms - Bioerodible sustained release dosage forms - Osmotic pressure activated controlled drug delivery - Targeted release dosage forms						
				Colloidal drug delivery systems (Liposomes)						
				Colloidal drug delivery systems (Niosomes)						

				Colloidal drug delivery systems (microemulsion)						
		C.2	c2	Quality control of aerosols.		x		x		x
				Quality control tests of parentral preparations		x		x		x
5.3	Work effectively in a team	D4	d3	Isotonic solutions	Practical notes					
				Electrolyte solutions: Milliequivalents, Milimoles and Milliosmoles						
				Intravenous Infusions, Parenteral Admixtures, and Rate-of-Flow Calculations						
				Parenteral admixtures						
				Parenteral Nutrition						
5.4	Use numeracy, calculation and statistical methods as well as information technology tools	D.5	d1	Case study	Practical notes and Internet		x		x	
				evidence-based assignment						
5.1O	Implement writing and thinking, problem-solving and decision-making abilities.	D.12	d2	Isotonic solutions	Practical notes		x		x	
				Electrolyte solutions: Milliequivalents, Milimoles and Milliosmoles						
				Intravenous Infusions, Parenteral Admixtures, and Rate-of-Flow Calculations						
				Parenteral admixtures						
				Parenteral Nutrition						

Course Coordinator: Dr. Gehan Fathy Attia

- **Head of Department: Prof. Nagia Ahmed El-Megrab**

Date: 2017م / 9 / 3 تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ

COURSE SPECIFICATIONS

Parasitology and Pathology

Third Year-Second Term
2017-2018

Course Specification of Parasitology and Pathology

University: Zagazig Faculty: Pharmacy

A- Course specifications:

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

Major or Minor element of program: Major

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

Department offering the course: Microbiology & Immunology Department

Academic year/level: Third year/ Second term

Date of specification approval: 3 September 2017

B- Basic information:

Title: Parasitology and Pathology Code: MI322

Credit Hours: ---

Lectures : 2 hrs/week

Practical: 1 hr/week

Tutorials: ---

Total: 2.5 hrs/week

C- Professional information:

1-Overall Aims of the Course:

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

- Underline the basic concepts of parasitology, entomology and pathology as well as specify the appropriate methods for treatment, prevention and control of different diseases caused by parasites and insects

2-Intended Learning Outcomes of Parasitology and Pathology Course (lLOs):

A- Knowledge and Understanding	
a1	Illustrate the basic concepts of parasitology.
a2	Summarize the principles of entomology and diseases caused by insects.
a3	Identify the basic fundamentals of pathology.
a4	Recognize etiology, epidemiology and clinical features of different diseases caused by parasites and insects.
a5	Determine the etiology of disease and response of cells to various injurious agents.
a6	Outline the laboratory diagnosis of diseases caused by different parasites.
B- Professional and Practical skills	
b1	Use the proper terms of parasitology, entomology and pathology.
b2	Select drugs for treatment of different diseases caused by parasites.
b3	Perform microscopical examination of different parasitic stages and insects from different specimens.
b4	Identify pathological slides for different diseases.
C- Intellectual skills	
c1	Suggest the appropriate methods for treatment, prevention and control of different parasites and insects.
c2	Analyze and interpret experimental results for identification of parasites, insects and pathological diseases in suitable form.
D- General and Transferable skills	
d1	Interact effectively with public, patients and other health care professionals.
d2	Acquire computer skills for writing reports and researches.
d3	Write and present reports.
d4	Demonstrate critical thinking, decision-making and problem-solving in dealing with case study.

D- Contents:

Week No.	Lectures (2 hrs/week)	Practical session (1hr/week)
1	- General Introduction	- General Introduction – General terms of parasitology
2	- Helminthology 2a-Trematodes: - General characters - Fasciola species - Short essay questions	- Parasitological laboratory examination: - Sample collection - Evaluation of different techniques used in the diagnosis of parasitic infections: - Microscopical Serology - Modern molecular techniques (e.g. PCR)
3	- Heterophyes species - Schistosoma species - Case report	- Demonstration of microscopic slides of morphologic stages of: - Fasciola species - Heterophyes species - Schistosoma species - Demonstration of Snails hosts
4	Cestodes: General characters Taenia saginata Taenia solium Cysticercosis Case report	- Demonstration of microscopic slides of morphologic stages of: Taenia saginata Taenia solium
5	- Echinococcus sp. - Hymenolepis sp. - Diphyllobothrium sp. Nematodes:` - General characters - Ascaris lumbricoides - Hook worm sp.	Demonstration of microscopic slides of morphologic stages of : - Echinococcus sp. - Ascaris lumbricoides - Hook worm sp. - **Activity (report)**
6	Midterm exam	
7	- Enterobius & Trichuris - Trichinella spiralis - Wuchereria species - Case report	Demonstration of microscopic slides of morphologic stages of: - Enterobius & Trichuris - Trichinella spiralis

		- Wuchereria species
8	Protozoology - Amoebae species - Balantidium coli - Giardia lamblia - Trichomonas vaginalis - Case report	Demonstration of microscopic slides of morphologic stages of: - Amoebae species - Balantidium coli - Giardia lamblia - Trichomonas vaginalis
9	- Leishmania species - Trypanosoma species. Case report	- Leishmania species - Trypanosoma species.
10	- Plasmodium species - Toxoplasma gondii Case study	- Plasmodium species - Toxoplasma gondii - Lab. Diagnosis of parasitic infections
11	Entomology - General characters - Mosquito species - Lice, Fleas, Bugs - Ticks, Mites & Cyclops Parasitic Infections: Clinical Manifestations, Diagnosis and Treatment	Demonstration of microscopic slides of: - Mosquito species - Lice, Fleas, Bugs - Ticks, Mites & Cyclops
12	General Pathology - Introduction - Inflammation - Healing and regeneration - Repair - Cell injury & cell death - Blood pressure & Diabetes	Demonstration of computer Slide of: some pathological slides Cardinal signs of inflammation Neutrophile margination Dilated congested capillaries. Chronic Non specific inflammation Acute localized suppurative inflammation (acute lung abcess) Acute diffuse suppurative inflammation (Cellulitis) Tuberculous granuloma foreign body giant cell granuloma Serous Inflammation (effusion) Edema Demonstration of computer Slide of: other pathological slides Coagulative necrosis Liquefactive necrosis Granulation tissue Fatty degeneration in liver

		Apoptosis in liver Adenoma liver Meningioma Revision
13	- Thrombosis & Embolism - Ischemia & Infarction - Sclerosis & Heart failure - Blood disorders - Apoptosis - Necrosis	**Practical exam**
14	Growth Disorders Neoplastic and non-neoplastic growth Genetic Disorders: Degenerative Disorders Hepatic & Pulmonary Disorders Diseases of nervous system	
15	Revision & Open Discussion	

E- Teaching and Learning Methods:

- Lectures
- Practical sessions
- Self learning (Activity, Internet search, case report, …..)

F- Student Assessment Methods:

1- Written exam to assess a1, a2, a3, a4, a5, a6, c1, d4

2- Activity to assess d2, d3

3- Practical exam to assess b1, b2, b3, b4, c2, d1,d2,d3

Assessment schedule:

Assessment (1): Written exams	Week 6,16
Assessment (2): Activity	Week 5
Assessment (3): Practical exams	Week 13
Assessment (4): oral exam	Week 16

Weighting of Assessment:

Assessment method	Marks	Percentage
Written exam	60	60%
Practical exam and activities	25	25%
Oral exam	15	15%
TOTAL	100	100%

G- 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:

A- Parasitology:

1- Student book of Parasitology and pathology-Lecture approved by Microbiology & Immunology department & practical notes by staff of the department 2017.

2- Essential Books:

i- Medical Parasitology (eighth edition); Markell and Voge's, W.B. Saunders Company (1999).

ii- District Laboratory practice in Tropical countries.

iii- MONICA CHEESBROUGH, Printed in Great Britain at University press, Cambridge (1999).

iv- Clinical Parasitology (ninth Edition); Beaver, P.C.; Jung, R.C. and Cupp, E.W. Lea & Febiger; Philadelphia (1984).

3- Recommended Books

Manson's Tropical Diseases (21th edition), Cook GC (ed), London: WB Saunders (2003).

4- Periodicals, Web Sites

http://medicaleducationonline.org/

http://www.parasitesonline.net

http://pathmicro.med.sc.edu/book/parasit-sta.htm

http://www.dpd.cdc.gov/dpdx/HTML/Para_Health.htm

Course Coordinator: Prof. Dr. Ghada Hamed Shaker

Head of Department: prof. Dr. Nehal elsayed youssif

Date: 2017/ 12 / 25 تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ م

Matrix I of Parasitology and pathology course

Course Contents		ILOs of Parasitology and pathology course															
		Knowledge and understanding						Professional and practical skills				Intellectual skills		General and transferable skills			
Lectures		a1	a2	a3	a4	a5	a6	b1	b2	b3	b4	c1	c2	d1	d2	d3	d4
1	General Introduction	x															
2	Helminthology Trematodes: General characters - Fasciola species Short essay questions	x			x		x					x					x
3	Heterophyes species Schistosoma species Case report	x			x		x					x					x
4	Cestodes: General characters - Taenia saginata - Taenia solium - Cysticercosis Case report	x			x		x					x					x
5	Echinococcus sp. - Hymenolepis sp. - Diphyllobothrium sp. Nematodes:`General characters - Ascaris lumbricoides - Hook worm sp.	x			x		x					x					x
6	Enterobius & Trichuris - Trichinella spiralis - Wuchereria species Case report	x			x		x					x					x
7	Protozoology: Amoebae species - Balantidium coli - Giardia lamblia -Trichomonas vaginalis Case report	x			x		x					x					x

8	Leishmania species - Trypanosoma species. Case report	x			x		x					x					x
9	Plasmodium species - Toxoplasma gondii • Case study	x			x		x					x					x
10	Entomology: General characters - Mosquito species - Lice, Fleas, Bugs - Ticks, Mites & Cyclops Parasitic Infections: Clinical Manifestations, Diagnosis and Treatment	x	x		x		x					x					
11	General Pathology: Introduction - Inflammation - Healing and regeneration - Repair - Cell injury & cell death - Blood pressure & Diabetes			x		x											
12	Thrombosis & Embolism - Ischemia & Infarction - Sclerosis & Heart failure – Blood disorders - Apoptosis - Necrosis			x		x											
13	Growth Disorders - Neoplastic and non-neoplastic growth Genetic Disorders: Degenerative Disorders Hepatic & Pulmonary Disorders Diseases of nervous system			x		x											
14	Revision	x	x	x	x	x	x										
15	Open discussion	x	x	x	x	x	x										
Practical sessions																	
16	General Introduction – General terms of parasitology							×									

17	Parasitological laboratory examination: - Sample collection - Evaluation of different techniques used in the diagnosis of parasitic infections: Microscopical - Serology - Modern molecular techniques (e.g. PCR)									×							
18	Demonstration of microscopic slides of morphologic stages of: Fasciola species - Heterophyes species - Schistosoma species Demonstration of Snails hosts							×	×	×			×	×			
19	Demonstration of microscopic slides of morphologic stages of: Taenia saginata - Taenia solium							×	×	×			×	×			
20	Demonstration of microscopic slides of morphologic stages of : Echinococcus sp. - Ascaris lumbricoides - Hook worm sp.							×	×	×			×	×			
21	Demonstration of microscopic slides of morphologic stages of: Enterobius & Trichuris - Trichinella spiralis - Wuchereria species							×	×	×			×	×			
22	Demonstration of microscopic slides of morphologic stages of: Amoebae species - Balantidium coli - Giardia lamblia - Trichomonas vaginalis							×	×	×			×	×			
23	Leishmania species Trypanosoma species.							×	×	×			×	×			
24	Plasmodium species Toxoplasma gondii - Lab. Diagnosis of parasitic infections							×	×	×			×	×			
25	Demonstration of microscopic slides of: Mosquito species - Lice, Fleas, Bugs - Ticks, Mites & Cyclops							×		×			×	×			
26	Demonstration of computer Slides of: some pathological slides							×			×		×	×			

27	Demonstration of computer Slides of: other pathological slides - Revision							×			×		×	×			
28	Activity														×	×	

Matrix II of Parasitology and pathology 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
2.1	Principles of basic, pharmaceutical medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice	A4	a1	General Introduction	Student book Essential books	x			x	
				Helminthology Trematodes: General characters - Fasciola species Short essay questions	Student book Essential books	x			x	
				Heterophyes species Schistosoma species Case report	Internet Recommended books	x		x	x	
				Cestodes: General characters - Taenia saginata - Taenia solium - Cysticercosis Case report	Student book Essential books	x			x	

				Echinococcus sp. - Hymenolepis sp. - Diphyllobothrium sp. Nematodes:`General characters - Ascaris lumbricoides - Hook worm sp.	Student book Essential books	x			x	
				Enterobius & Trichuris - Trichinella spiralis - Wuchereria species Case report	Student book Essential books	x			x	
				Protozoology: Amoebae species - Balantidium coli - Giardia lamblia - Trichomonas vaginalis Case report	Student book Essential books	x			x	
				Leishmania species - Trypanosoma species. Case report	Student book Essential books	x			x	
				Plasmodium species - Toxoplasma gondii Case study	Internet Recommended books	x		x	x	
				Entomology: General characters - Mosquito species - Lice, Fleas, Bugs - Ticks, Mites & Cyclops Parasitic Infections: Clinical Manifestations, Diagnosis and Treatment	Student book and Essential books	x			x	

				Revision	Student book and Essential books	x			x	
				Open discussion	Student book and Essential books	x			x	
			a2	Entomology: General characters - Mosquito species - Lice, Fleas, Bugs - Ticks, Mites & Cyclops Parasitic Infections: Clinical Manifestations, Diagnosis and Treatment	Student book and Essential books	x			x	
				Revision	Student book and Essential books	x			x	
				Open discussion	Student book Essential books	x			x	
			a3	General Pathology: Introduction - Inflammation - Healing and regeneration - Repair - Cell injury & cell death - Blood pressure & Diabetes	Student book Essential books	x			x	
				Thrombosis & Embolism - Ischemia & Infarction - Sclerosis & Heart failure - Blood disorders - Apoptosis - Necrosis	Student book Essential books	x			x	

				Growth Disorders - Neoplastic and non-neoplastic growth Genetic Disorders: Degenerative Disorders Hepatic & Pulmonary Disorders Diseases of nervous system	Student book Essential books	x			x	
				Revision	Student book and Essential books	x			x	
				Open discussion	Student book and Essential books	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	A24	a4	Helminthology Trematodes: General characters - Fasciola species Short essay questions	Student book Essential books	x			x	
				Heterophyes species Schistosoma species Case report	Internet Recommended books	x		x	x	
				Cestodes: General characters - Taenia saginata - Taenia solium - Cysticercosis Case report	Student book Essential books	x			x	

				Echinococcus sp. - Hymenolepis sp. - Diphyllobothrium sp. Nematodes:`General characters - Ascaris lumbricoides - Hook worm sp.	Student book Essential books	x			x	
				Enterobius & Trichuris - Trichinella spiralis - Wuchereria species Case report	Student book Essential books	x			x	
				Protozoology: Amoebae species - Balantidium coli - Giardia lamblia - Trichomonas vaginalis Case report	Student book Essential books	x			x	
				Leishmania species - Trypanosoma species. •Case report	Student book Essential books	x			x	
				Plasmodium species - Toxoplasma gondii Case study	Internet Recommended books	x		x	x	
				Entomology: General characters - Mosquito species - Lice, Fleas, Bugs - Ticks, Mites & Cyclops Parasitic Infections: Clinical Manifestations, Diagnosis and Treatment	Student book Essential books	x			x	
				Revision	Student book Essential books	x			x	

				Open discussion	Student book and Essential books	x			x	
2.12	Etiology, epidemiology, laboratory diagnosis and clinical features of different diseases and their pharmacotherapeutic approaches	A27	a5	General Pathology: Introduction - Inflammation - Healing and regeneration - Repair - Cell injury & cell death - Blood pressure & Diabetes	Student book and Essential books	x			x	
				Thrombosis & Embolism - Ischemia & Infarction - Sclerosis & Heart failure - Blood disorders - Apoptosis - Necrosis	Student book and Essential books	x			x	
				Growth Disorders - Neoplastic and non-neoplastic growth Genetic Disorders: Degenerative Disorders Hepatic & Pulmonary Disorders Diseases of nervous system	Student book Essential books	x			x	
				Revision	Student book Essential books	x			x	
				Open discussion	Student book Essential books	x			x	

		A28	a6	Helminthology2a-Trematodes: General characters - Fasciola species • Short essay questions	Student book Essential books	x			x	
				• Heterophyes species • Schistosoma species • Case report	Internet Recommended books	x		x	x	
				Cestodes: General characters - Taenia saginata - Taenia solium - Cysticercosis • Case report	Student book Essential books	x			x	
				Echinococcus sp. - Hymenolepis sp. - Diphyllobothrium sp. Nematodes:`General characters - Ascaris lumbricoides - Hook worm sp.	Student book Essential books	x			x	
				Enterobius & Trichuris - Trichinella spiralis - Wuchereria species Case report	Student book Essential books	x			x	
				Protozoology: Amoebae species - Balantidium coli - Giardia lamblia - Trichomonas vaginalis Case report	Student book Essential books	x			x	
				Leishmania species - Trypanosoma species. Case report	Student book Essential books	x			x	

				Plasmodium species - Toxoplasma gondii Case study	Internet Recommended books	x		x	x	
				Entomology: General characters - Mosquito species - Lice, Fleas, Bugs - Ticks, Mites & Cyclops Parasitic Infections: Clinical Manifestations, Diagnosis and Treatment	Student book Essential books	x			x	
				Revision	Student book Essential books	x			x	
				Open discussion	Student book Essential books	x			x	
3.1	Use the proper pharmaceutical and medical terms, abbreviations and symbols in pharmacy practice	B1	b1	General Introduction – General terms of parasitology	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of: Fasciola species - Heterophyes species - Schistosoma species Demonstration of Snails hosts	Practical notes		x			X

				Demonstration of microscopic slides of morphologic stages of: Taenia saginata - Taenia solium	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of : Echinococcus sp. - Ascaris lumbricoides - Hook worm sp.	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of: Enterobius & Trichuris - Trichinella spiralis - Wuchereria species	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of: Amoebae species - Balantidium coli - Giardia lamblia - Trichomonas vaginalis	Practical notes		x			X
				Leishmania species Trypanosoma species.	Practical notes		x			X
				Plasmodium species Toxoplasma gondii Lab. Diagnosis of parasitic infections	Practical notes		x			X
				Demonstration of microscopic slides of: Mosquito species - Lice, Fleas, Bugs - Ticks, Mites & Cyclops	Practical notes		x			X

				Demonstration of computer Slides of: some pathological slides	Practical notes		x			X
				Demonstration of computer Slides of: other pathological slides - Revision	Practical notes		x			X
3.5	Select medicines based on understanding etiology and path physiology of diseases	B7	b2	Demonstration of microscopic slides of morphologic stages of: Fasciola species - Heterophyes species - Schistosoma species Demonstration of Snails hosts	Practical notes		x			×
				Demonstration of microscopic slides of morphologic stages of: Taenia saginata - Taenia solium	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of : Echinococcus sp. - Ascaris lumbricoides - Hook worm sp.	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of: Enterobius & Trichuris - Trichinella spiralis - Wuchereria species	Practical notes		x			X

				Demonstration of microscopic slides of morphologic stages of: Amoebae species - Balantidium coli - Giardia lamblia - Trichomonas vaginalis	Practical notes		x			X
				Leishmania species Trypanosoma species.	Practical notes		x			X
				Plasmodium species Toxoplasma gondii Lab. Diagnosis of parasitic infections	Practical notes		x			X
3.6	Monitor and control microbial growth and carry out laboratory tests for identification of infectious and non-infections in biological specimens	B9	b3	Parasitological laboratory examination: - Sample collection - Evaluation of different techniques used in the diagnosis of parasitic infections: Microscopical - Serology - Modern molecular techniques (e.g. PCR)	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of: Fasciola species - Heterophyes species - Schistosoma species Demonstration of Snails hosts	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of: Taenia saginata - Taenia solium	Practical notes		x			X

				Demonstration of microscopic slides of morphologic stages of : Echinococcus sp. - Ascaris lumbricoides - Hook worm sp.	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of: Enterobius & Trichuris - Trichinella spiralis - Wuchereria species	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of: Amoebae species - Balantidium coli - Giardia lamblia - Trichomonas vaginalis	Practical notes		x			X
				• Leishmania species • Trypanosoma species.	Practical notes		x			X
				• Plasmodium species • Toxoplasma gondii - Lab. Diagnosis of parasitic infections	Practical notes		x			X
				Demonstration of microscopic slides of: Mosquito species - Lice, Fleas, Bugs - Ticks, Mites & Cyclops	Practical notes		x			X
			b4	Demonstration of computer Slides of: some pathological slides	Practical notes		x			X
				Demonstration of computer Slides of: other pathological slides - Revision	Practical notes		x			X

4.8	Select and assess appropriate methods of infection control to prevent infections and promote public health	C11	c1	HelminthologyTrematodes: General characters - Fasciola species Short essay questions	Student book and Essential books	x			x	
				Heterophyes species Schistosoma species Case report	Student book and Essential books	x			x	
				Cestodes: General characters - Taenia saginata - Taenia solium - Cysticercosis Case report	Student book Essential books	x			x	
				Echinococcus sp. - Hymenolepis sp. - Diphyllobothrium sp. Nematodes:`General characters - Ascaris lumbricoides - Hook worm sp.	Student book Essential books	x			x	
				Enterobius & Trichuris - Trichinella spiralis - Wuchereria species Case report	Student book Essential books	x			x	
				Protozoology: Amoebae species - Balantidium coli - Giardia lamblia - Trichomonas vaginalis Case report	Student book Essential books	x			x	
				Leishmania species - Trypanosoma species. Case report	Student book Essential books	x			x	

				Plasmodium species - Toxoplasma gondii Case study	Student book Essential books	x			x	
				Entomology: General characters - Mosquito species - Lice, Fleas, Bugs - Ticks, Mites & Cyclops Parasitic Infections: Clinical Manifestations, Diagnosis and Treatment	Student book Essential books	x			x	
4.13	Analyze and interpret experimental results as well as published literature	C16	c2	Demonstration of microscopic slides of morphologic stages of: Fasciola species - Heterophyes species - Schistosoma species Demonstration of Snails hosts	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of: Taenia saginata - Taenia solium	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of : Echinococcus sp. - Ascaris lumbricoides - Hook worm sp.	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of: Enterobius & Trichuris - Trichinella spiralis - Wuchereria species	Practical notes		x			X

				Demonstration of microscopic slides of morphologic stages of: Amoebae species - Balantidium coli - Giardia lamblia - Trichomonas vaginalis	Practical notes		x			X
				Leishmania species Trypanosoma species.	Practical notes		x			X
				Plasmodium species Toxoplasma gondii Lab. Diagnosis of parasitic infections	Practical notes		x			X
				Demonstration of microscopic slides of: Mosquito species - Lice, Fleas, Bugs - Ticks, Mites & Cyclops	Practical notes		x			X
				Demonstration of computer Slides of: some pathological slides	Practical notes		x			X
				Demonstration of computer Slides of: other pathological slides - Revision	Practical notes		x			X
5.1	Communicate clearly by verbal and written means	D1	d1	Demonstration of microscopic slides of morphologic stages of: Fasciola species - Heterophyes species - Schistosoma species Demonstration of Snails hosts	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of: Taenia saginata - Taenia solium	Practical notes		x			X

				Demonstration of microscopic slides of morphologic stages of : Echinococcus sp. - Ascaris lumbricoides - Hook worm sp.	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of: Enterobius & Trichuris - Trichinella spiralis - Wuchereria species	Practical notes		x			X
				Demonstration of microscopic slides of morphologic stages of: Amoebae species - Balantidium coli - Giardia lamblia - Trichomonas vaginalis	Practical notes		x			X
				Leishmania species Trypanosoma species.	Practical notes		x			X
				Plasmodium species Toxoplasma gondii Lab. Diagnosis of parasitic infections	Practical notes		x			X
				Demonstration of microscopic slides of: Mosquito species - Lice, Fleas, Bugs - Ticks, Mites & Cyclops	Practical notes		x			X
				Demonstration of computer Slides of: some pathological slides	Practical notes		x			X

				Demonstration of computer Slides of: other pathological slides - Revision	Practical notes		x			x
5.4	Use numeracy, calculation and statistical methods as well as information technology tools	D6	d2	Activity	Internet Recommended books		x	x		X
5.9	Implement writing and presentation skills	D11	d3	Activity	Internet Recommended books		x	x		X
5.1O	Implement writing and thinking, problem- solving and decision- making abilities	D12	d4	Helminthology 2a-Trematodes: General characters - Fasciola species Short essay questions	Student book Essential books	x			x	
				Heterophyes species Schistosoma species Case report	Student book Essential books	x			x	
				Cestodes: General characters - Taenia saginata - Taenia solium - Cysticercosis Case report	Student book Essential books	x			x	
				Enterobius & Trichuris - Trichinella spiralis - Wuchereria species Case report	Student book Essential books	x			x	

				Protozoology: Amoebae species - Balantidium coli - Giardia lamblia - Trichomonas vaginalis Case report	Student book Essential books	x			x	
				Leishmania species - Trypanosoma species. Case report	Student book Essential books	x			x	
				Plasmodium species - Toxoplasma gondii Case study	Student book Essential books	x			x	

Course Coordinator: Prof. Dr. Ghada Hamed Shaker

Head of Department: prof. Dr. Nehal elsayed youssif

Date: م 2017/ 12 / 25 تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ

COURSE SPECIFICATIONS

Pharmacology (2)

Third Year-Second Term
2017-2018

Course Specification of Pharmacology (2)

University: Zagazig Faculty: Pharmacy

A- Course specifications:

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

Major or Minor element of programs: Major

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

Department offering the course: Pharmacology& Toxicology department

Academic year/ Level: Third year / second Term

Date of specification approval: 3 September 2017

B- Basic information:

Title: Pharmacology (2) Code: PT323

Credit Hours: ---

Lectures : 2hrs/week

Practical: 2 hrs/week

Tutorials: ---

Total: 3hrs/week

C- Professional information:

1-Overall Aims of the Course:

On completion of the course, students will be able to explain body functions as well as clinical features of different diseases to determine appropriate pharmacological therapy.

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

A- Knowledge and Understanding	
a1	Illustrate disorders in body functions associated with various disease states.
a2	Demonstrate etiology, epidemiology and clinical features of different diseases.
a3	Describe pharmacological properties of drugs.
B- Professional and Practical skills	
b1	Apply lab safety measures.
b2	Practise the basics handling of experimental animals & routes of drugs administration.
b3	Perform *in vivo* experiments to determine pharmacological properties of drugs in a professional manner.
C- Intellectual skills	
c1	Select the proper drug in various disease conditions based on drug-related information.
c2	Assess information from different sources in the field of pharmacology.
D- General and Transferable skills	
d1	Calculate the dose of a drug according to body weight

D- Contents:

Week No.	Lecture (2 hrs/ week)	Practical session (2 hrs/week)
1	- Degenerative & Neuronal disorders	- Laboratory safety measures (1)
2	- Psychiatric disorders & Depression	- Laboratory safety measures (2)
3	- Pain control & NSAIDs	- Handling of experimental animals & Routes of drugs administration (1)
4	- General & local anesthetics	- Handling of experimental animals & Routes of drugs administration (2)
5	- CNS stimulants & migraine	- CNS depressants (1)
6	Midterm exam	
7	- Gout & Rheumatoid arthritis	- CNS depressants (2)
8	- Kidney &,Diuretics	- CNS stimulants (1)
9	- Hypertension & antihypertensive drugs	- CNS stimulants (2)
10	- Hypolipidemia & Hypolipidemic drugs	- Miscellaneous drugs (1)
11	- Congestive heart failure	- Miscellaneous drugs (2)
12	- Arrhythmia & Antiarrhythmic drugs	**- Activity**
13	- Ischemic heart & antianginal drugs	**- Practical exam**
14	- Anemia & Anticoagulants	
15	- Revision & Open discussion	

E- Teaching and Learning Methods:

- Lectures
- Practical sessions
- Self learning (activity, group discussion…)

F- Student Assessment Methods:

1- Written exam: to assess a1, a2, a3, c1, c2

2- Activity to assess c2

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

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

Assessment schedule:

Assessment (1): Written exams	Week 6, 16
Assessment (2): Activity	Week 12
Assessment (3): Practical exams	Week 13
Assessment (4): Oral exams	Week 16

Weighting of Assessment:

Assessment method	Marks	Percentage
Written exam	60	60%
Practical exam and activities	25	25%
Oral exam	15	15%
TOTAL	100	100%

G- Facilities Required for Teaching and Learning:

- Black (white) board, Data show, Laboratory equipment (digital balance), animals and Chemicals.

H- List of References:

1- Course Notes: Student book of Pharmacology (2) approved by the Pharmacology & Toxicology department (2017)

- Practical notes of Pharmacology (2) approved by the Pharmacology & Toxicology department (2017)

2- Essential books

i- Rang &Dale pharmacology (sixth edition); Churchil Livingstone (2007).

ii- Katzung basic and clinical pharmacology (tenth edition); Mc Graw Hill Lang. (2007).

3- Recommended books:

i- Lippincott illustrated reviews-pharmacology (sixth edition) (2009).

Course Coordinators: Prof. Dr. Rasha Hassan

Head of Department: Prof. Dr. Hassan Elfayoumi

Date: تم مناقشة و إعتماد توصيف المقرر من مجلس القسم بتاريخ 3 /9/ 2012م

Matrix I of pharmacology 2 course

Course content		ILOs of pharmacology-2								
		Knowledge and understanding			Professional and practical skills			Intellectual skills		General and transferable skills
Lectures		a1	a2	a3	b1	b2	b3	c1	c2	d1
1	Degenerative & Neuronal disorders	x	x	x				x	x	
2	Psychiatric disorders & Depression	x	x	x				x	x	
3	Pain control & NSAIDs	x	x	x				x	x	
4	General & local anesthetics			x				x	x	
5	CNS stimulants & migraine	x	x	x				x	x	
6	Gout & Rheumatoid arthritis	x	x	x				x	x	
7	Kidney &,Diuretics	x	x	x				x	x	
8	Hypertension & antihypertensive drugs	x	x	x				x	x	
9	Hypolipidemia & Hypolipidemic drugs	x	x	x				x	x	
10	Congestive heart failure	x	x	x				x	x	
11	Arrhythmia & Antiarrhythmic drugs	x	x	x				x	x	
12	Ischemic heart & antianginal drugs	x	x	x				x	x	
13	Anemia & Anticoagulants	x	x	x				x	x	
Practical sessions										
1	Laboratory safety measures				x					
2	Handling of experimental animals & Routes of drugs administration					x				
3	CNS depressants						x			x
4	CNS stimulants						x			x

5	Miscellaneous drugs						x			x
6	Activity								x	

Matrix II of pharmacology 2 course										
National Academic Reference Standards (NARS)		Program ILOs	Course ILOs	Course content	Source	Teaching and learning methods		Method of assessment		
						Lecture	Practical session	Written exam	Practical exam	Oral exam
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.	A24	a1	- Degenerative & Neuronal disorders - Psychiatric disorders & Depression - Pain control & NSAIDs - CNS stimulants & migraine - Gout & Rheumatoid arthritis - Kidney &,Diuretics - Hypertension & antihypertensive drugs - Hypolipidemia & Hypolipidemic drugs - Congestive heart failure - Arrhythmia & Antiarrhythmic drugs - Ischemic heart & antianginal drugs - Anemia & Anticoagulants	Student book Essential books	x		x		x
2.12	Etiology, epidemiology, laboratory diagnosis and clinical features of different diseases and their	A27	a2	- Degenerative & Neuronal disorders - Psychiatric disorders & Depression	Student book Essential books	x		x		x

	pharmacotherapeutic approaches.			- Pain control & NSAIDs - CNS stimulants & migraine - Gout & Rheumatoid arthritis - Kidney &,Diuretics - Hypertension & antihypertensive drugs - Hypolipidemia & Hypolipidemic drugs - Congestive heart failure - Arrhythmia & Antiarrhythmic drugs - Ischemic heart & antianginal drugs - Anemia & Anticoagulants						
2.13	Pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, ADRs and drug interactions.	A30	a3	- Degenerative & Neuronal disorders - Psychiatric disorders & Depression - Pain control & NSAIDs - General & local anesthetics - CNS stimulants & migraine - Gout & Rheumatoid arthritis - Kidney &,Diuretics - Hypertension & antihypertensive	Student book Essential books	x		x		x

				drugs - Hypolipidemia & Hypolipidemic drugs - Congestive heart failure - Arrhythmia & Antiarrhythmic drugs - Ischemic heart & antianginal drugs - Anemia & Anticoagulants						
3.2	Handle and dispose chemicals and pharmaceutical preparations safely.	B2	b1	- Laboratory safety measures	Practical notes		x		x	
	Program ILOs Exceeding the NARS	B3	b2	- Handling of experimental animals & Routes of drugs administration	Practical notes		x		x	
			b3	- CNS depressants - CNS stimulants - Miscellaneous drugs	Practical notes		x		x	
4.11	Assess drug interactions, ADRs and pharmacovigilance.	C14	c1	- Degenerative & Neuronal disorders - Psychiatric disorders & Depression - Pain control & NSAIDs - General & local anesthetics - CNS stimulants & migraine - Gout & Rheumatoid arthritis - Kidney &,Diuretics	Student book Essential books Recommended books	x		x		x

				- Hypertension & antihypertensive drugs - Hypolipidemia & Hypolipidemic drugs - Congestive heart failure - Arrhythmia & Antiarrhythmic drugs - Ischemic heart & antianginal drugs - Anemia & Anticoagulants - Revision - Open discussion						
4.14	Analyze and evaluate evidence-based information needed in pharmacy practice.	C17	c2	- Degenerative & Neuronal disorders - Psychiatric disorders & Depression - Pain control & NSAIDs - General & local anesthetics - CNS stimulants & migraine - Gout & Rheumatoid arthritis - Kidney &,Diuretics - Hypertension & antihypertensive drugs - Hypolipidemia & Hypolipidemic drugs - Congestive heart failure	Student book Essential books Recommended books	x		x		x

				- Arrhythmia & Antiarrhythmic drugs - Ischemic heart & antianginal drugs - Anemia & Anticoagulants - Revision - Open discussion - Activity						
5.4	Use numeracy, calculation and statistical methods as well as information technology tools.	D5	d1	- CNS depressants - CNS stimulants - Miscellaneous drugs	Practical notes		x		x	

Course Coordinators: Prof. Dr. Rasha Hassan

Head of Department: Prof. Dr. Hassan Elfayoumi

Date:2012/9/ 3 تم مناقشة و إعتماد توصيف المقرر من مجلس القسم بتاريخ

COURSE SPECIFICATIONS

Phytochemistry 1

Third Year-Second Term
2017-2018

Course Specification of Phytochemistry 1

University: Zagazig Faculty: Pharmacy

A- Course specifications:

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

Major or Minor element of programs: Major

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

Department offering the course: Pharmacognosy

Academic year/ Level: Third year/Second term

Date of specification approval: 29 October 2017

B- Basic information:

Title: Phytochemistry (1) Code: PG324

Credit Hours: ---

Lectures : 2 hrs/week

Practical: 2 hrs/week

Tutorials: ---

Total: 3 hrs/week

C- Professional information:

1. Overall Aims of the Course:

On completion of the course, students will be able to illustrate the different methods for extraction, purification of medicinally valuable carbohydrates, glycosides and alkaloids and their medicinal uses.

2. Intended Learning Outcomes of Phytochemistry I:

A- Knowledge and Understanding	
a1	Outline definition, classification and properties of different natural drugs belonging to carbohydrates, glycosides tannins, bitter principals, minerals, carotenoids, natural antioxidant, resin and resin combination
a2	Describe the general physical and chemical characters of carbohydrates, glycosides, tannins, bitter principals, minerals, carotenoids, natural antioxidant, resin and resin combination.
a3	State the principle of isolation, purification and identification of carbohydrates, glycosides, tannins, bitter principals, carotenoids, natural antioxidant, resin and resin combination
a4	Outline the pharmacological activity and contraindication of medicinally used carbohydrates, glycosides tannins, bitter principals, minerals, carotenoids, natural antioxidant, resin and resin combination
B- Professional and Practical skills	
b1	Handle basic laboratory equipments and chemicals effectively and safely.
b2	Perform laboratory tests for extraction, isolation and identification of carbohydrates, glycosides tannins, bitter principals, minerals, carotenoids, natural antioxidant, resin and resin combination
b3	Construct a research study about different chromatographic techniques.
C- Intellectual skills	
c1	Predict different analytical methods used for determination of naturally occurring carbohydrates, glycosides tannins, bitter principals, minerals, carotenoids, natural antioxidant, resin and resin combination.
c2	Create appropriate procedures for isolation, purification and identification of carbohydrates, glycosides tannins, bitter principals, minerals, carotenoids, natural antioxidant, resin and resin combination.
c3	Analyze and interpret qualitative data in a suitable form.
D- General and Transferable skills	
d1	Work effectively as a member of a team.
d2	Develop research and communications skills.
d3	Write reports and present them.

D- Course contents:

Week No	Lecture (2hrs/week)	Practical session (2hrs/week)
1	- Carbohydrates (definition and classification) -Properties and evaluation of carbohydrates. -Drugs containing carbohydrates (monosaccharide).	Laboratory safety measures Physical and chemical properties of some carbohydrates.
2	-Drugs containing carbohydrates (disaccharide). -Drugs containing carbohydrates (sugar derivatives).	Identification of monosaccharide
3	-Holopolysaccharides. -Miscellaneous carbohydrates	Indemnification of disaccharides.
4	--Glycosides (definition, structure, classification and hydrolysis) -Extraction, isolation and evaluation of glycosides. -Simple phenolic glycosides.	Identification of polysaccharides.
5	-Cynogenetic glycosides - Thioglycosides	**Revision of carbohydrates Activity**
6	Midterm exam	
7	- Coumarin and coumarin glycosides. -Flavonoid glycosides.	Practical exam (1)
8	Cardio-active glycosides. -Antharquinone glycosides	Extraction and identification of different types of glycosides (cardiac and anthraquinone

		glycosides).
9	-Tannins and Saponin glycosides. -Miscellaneous glycosides (antibiotic and related glycosides).	Identification of different types of glycosides (flavonoid and saponin glycosides).
10	-Extraction and isolation of tannins and bitter principals. -Ellagitannins and gallotannins	Identification of tannins in natural sources.
11	Minerals	Extraction and identification of resin and resin combination.
12	-Natural carotenoids	Activity
13	- Resins and resin combination	**Practical exam (2)**
14	- Natural Antioxidants	
15	-Revision & Open discussion	

E- Teaching and Learning Methods:

- Lectures (data show, board)
- Practical sessions
- Self-learning (Activities, group discussion, net research, ...)

F- Student Assessment Methods:

1- Written exam to assess a1, a2, a3, a4, c1, c2

2- Activity to assess b3, c3, d1, d2, d3

3- Practical exam to assess b1, b2, d1

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

Assessment schedule:

Assessment (1): Written exams	Week 6, 16
Assessment (2): Activity	Week 5,12
Assessment (3): Practical exams	Week 7,13

Assessment (4): Oral exams	Week 16

Weighting of Assessment:

3. Assessment method	Marks	Percentage
4. Written exams	60	60%
5. Practical exam and activities	25	25 %
6. Oral exam	15	15 %
7. TOTAL	100	100%

G- Facilities Required for Teaching and Learning:

Black (white) board, Data show, Laboratory equipment and Chemicals.

H- List of References:

1- Student´s book approved by Pharmacognosy Department on 2017.

2- Essential Books:

i- Comprehensive Natural Products Chemistry; Barton, D and Nakanishi, K, Elsevier Science Ltd.(1999)

ii- Natural Products Chemistry;Torssel, K. B. G.: Apotekars. Press (1997)

iii- Natural Products from Plants; Kaufmann, P. B et al ;CRC Press (1999).

iv- Pharmacognosy and Pharmacobiotechnology; Robbers, J. E., Speedie ,M. K. and Tyler. V. E.; Williams &Wilkins (1996).

v- Medicinal Plant constituents, 3rd Ed., General organization for Preparative Chromatography Techniques; Application in Natural Products Isolation; Hostetmann, K. Marston, A, and Hostetmann, M. 2nd Ed. Springer (1998)

3- Recommended Books

i- The Hand Books of Natural Flavonoids; Harborne, J., B. and Baxter, H,; John Wiley &Sons Ltd.(1999).

ii- Natural Products Isolation; Canell, R. J. P, Humana Press. (1998).

iii- Chromatographic Analysis of pharmaceuticals; Adamovics, J. A; 2nd Ed (1997).

Course Coordinator: Prof. Dr. Azza Mohommed E-Shafae

Head of Department: Prof. Dr. Azza Mohommed E-Shafae

Date: **تم مناقشة و إعتماد توصيف المقرر من مجلس القسم بتاريخ 2017/10/29**

Matrix I of Phytochemistry-1 Course

Course Contents		ILOs of Phytochemistry-1 Course												
		Knowledge and understanding				Professional and practical skills			Intellectual skills			Transferable and general skills		
		a1	a2	a3	a4	b1	b2	b3	c1	c2	c3	d1	d2	d3
Lectures														
1	- Carbohydrates (definition and classification) -Properties and evaluation of carbohydrates. -Drugs containing carbohydrates (monosaccharide).	×	×	×	x									
2	-Drugs containing carbohydrates (disaccharide). -Drugs containing carbohydrates (sugar derivatives).	×	×	×	x									
3	Holopolysaccharides. -Miscellaneous carbohydrates	×	×	×	x									
4	- Glycosides (definition, structure, classification and hydrolysis) Extraction, isolation and evaluation of glycosides.	×	×	×	x									
5	- Simple phenolic glycosides.	×	×	×	×									
6	- Cynogenetic glycosides, Thioglycosides>	×	×	×	×									
7	- Coumarin and coumarin glycosides.	×	×	×	×									
8	- Cardio-active glycosides.	×	×	×	×									
9	- Flavonoid glycosides.	×	×	×	×									
10	- Holopolysaccharides.	×	×	×	×									

11	- Antharquinone glycosides.	×	×	×	×									
12	- Heteropolysaccharides and synthetic carbohydrates.	×	×	×	×									
13	- Tannins.	×	×	×	×									
14	- Saponin glycosides.	×	×	×	×									
15	- Miscellaneous glycosides (antibiotic and related glycosides).	×	×	×	×									
16	-Extraction and isolation of tannins and bitter principals. -Ellagitannins and gallotannins	×	×	×	×									
17	Minerals	×	×	×	×									
18	Natural carotenoids	×	×	×	×									
19	Resins and resin combination	×	×	×	×									
20	Natural Antioxidants	×	×	×	×									
	Practical sessions													
21	- Laboratory safety measures					×								
22	- Physical and chemical properties of some carbohydrates.						×							
23	Indenification of monosaccharides.						x			x				
24	- Indenification of disaccharides.						×			×				
25	- Identification of polysaccharides.						×			×				
26	- Extraction and identification of different types of glycosides(cardiac and anthraquinone glycosides)..						×							

27	Identification of different types of glycosides (flavonoid and saponin glycosides).						×			×				
28	Identification of tannins in natural sources						×							
29	Extraction and identification of resin and resin combination.						×		×	×				
30	- Activity							×			×	×	×	×

Matrix II of Phytochemistry-1 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
Lectures											
2.1	Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice.	A2	a1	- Carbohydrates (definition and classification) - Glycosides (definition, structure, classification and hydrolysis) - Tannins and Saponin glycosides. - Minerals - Natural carotenoids - Resins and resin combination - Natural Antioxidants	Student's book	×			×		×
2.2	Physico-chemical properties of various substances used in preparation of medicines including inactive and active ingredients as well as biotechnology and radio-labeled products.	A9	a2	- Properties and evaluation of carbohydrates. - Glycosides (definition, structure, classification and hydrolysis) - Tannins and Saponin glycosides. - Minerals - Natural carotenoids - Resins and resin combination - Natural Antioxidants	Student's book	×			×		×

2.4	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds.	A12	a3	- Extraction, isolation and evaluation of glycosides. - Simple phenolic glycoside - Drugs containing carbohydrates (monosaccharide). - Cynogenetic glycosides, - Thioglycosides - Coumarin and coumarin glycosides - Drugs containing carbohydrates (disaccharide). - Cardio-active glycosides -Drugs containing carbohydrates (sugar derivatives). - Flavonoid glycosides - Holopolysaccharides. - Antharquinone glycosides - Heteropolysaccharides and synthetic carbohydrates. - Tannins. - Saponin glycosides. - Miscellaneous glycosides (antibiotic and related glycosides). --Extraction and isolation of tannins and bitter principals. -Ellagitannins and gallotannins - Minerals - Natural carotenoids - Resins and resin combination - Natural Antioxidants	Student's book	×			×		×
2.1	Pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, ADRs and	A32	a4	- Extraction, isolation and evaluation of glycosides. - Simple phenolic glycoside - Drugs containing carbohydrates (monosaccharide). - Cynogenetic glycosides,		×			×		×

	drug interactions.			- Thioglycosides - Coumarin and coumarin glycosides - Drugs containing carbohydrates (disaccharide). - Cardio-active glycosides - Drugs containing carbohydrates (sugar derivatives). - Flavonoid glycosides - Holopolysaccharides. - Antharquinone glycosides - Heteropolysaccharides and synthetic carbohydrates. - Tannins. - Saponin glycosides. - Miscellaneous glycosides (antibiotic and related glycosides). --Extraction and isolation of tannins and bitter principals. -Ellagitannins and gallotannins - Minerals - Natural carotenoids - Resins and resin combination - Natural Antioxidants							
Practical sessions											
3.2	Handle and dispose chemicals and pharmaceutical preparations safely	B2	b1	- Laboratory safety measures	Practical notes		×			×	

3.4	Extract, isolate, synthesize, purify, identify, and/or standardize active substances from different origins.	B5	b2	- Physical and chemical properties of some carbohydrates. - Identification of monosaccharide - Indemnification of disaccharides. - Identification of polysaccharides. - Extraction and identification of different types of glycosides. - Identification of tannins in natural sources. - Extraction and identification of resin and resin combination	Practical notes		×			×	
3.10	Conduct research studies and analyze the results	B17	b3	- Activity	Internet, essential and recomme-nded books			×		×	
4.3	Apply qualitative and quantitative analytical and biological methods for QC and assay of raw materials as well as pharmaceutical preparations	C7	c1	- Properties and evaluation of carbohydrates - Extraction, isolation and evaluation of glycosides. - Identification of tannins in natural sources. - Extraction and identification of resin and resin combination	Practical notes		×		×		×
4.5	Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	C9	c2	- Physical and chemical properties of some carbohydrates. - Extraction and identification of different types of glycosides. - Identification of tannins in natural sources. - Extraction and identification of resin and resin combination	Practical notes		×		×		× ×

4.14	Analyze and evaluate evidence-based information needed in pharmacy practice.	C21	c3	- Activity	Internet, essential and recommend -ed books			×		×	
5.3	Work effectively in a team	D4	d1	- Activity	Group discussion			×		×	
5.4	Use numeracy, calculation and statistical methods as well as information technology tools	D6	d2	- Activity	Group discussion			×		×	
5.9	Implement writing and presentation skills	D11	d3	- Activity	Group discussion			×		×	

Course Coordinator: Prof. Dr. Azza Mohommed E-Shafae

Head of Department: Prof. Dr. Azza Mohommed E-Shafae

Date: **تم مناقشة و إعتماد توصيف المقرر من مجلس القسم بتاريخ 2017/10/29**

COURSE SPECIFICATIONS

Medicinal Chemistry (2)

Third Year- Second Term

2017-2018

Course Specification of Medicinal Chemistry (2)

University: Zagazig Faculty: Pharmacy

A- Course specifications:

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

Major or Minor element of program: Major

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

Department offering the course: Medicinal chemistry Department

Academic year/ Level: Third year /Second term

Date of specification approval: 27/11/2017

B- Basic information:

Title: Medicinal Chemistry (2) Code: MC321

Credit Hours: ---

Lectures : 2 hrs/week

Practical: 2 hrs/week

Tutorials: ---

Total: 3 hrs/week

C- Professional information:

1-Overall Aims of the Course:

On completion of the course, students will be able to enumerate the therapeutic drugs of different uses with their mode of action and synthetic pathways (antimycobacterium, antineoplastic, antiviral, oral hypoglycemic, diagnostic agents, cardiovascular acting drugs and diuretics).

2-Intended Learning Outcomes of Medicinal Chemistry (2) (lLOs):

A- Knowledge and Understanding	
a1	Describe basics of chemistry of different drug classes (antimycobacterium, antineoplastic, antiviral, oral hypoglycemic, diagnostic agents, cardiovascular acting drugs and diuretics).
a2	Outline synthetic pathways of the aforementioned drugs.
a3	Recognize mode of action & SAR of the aforementioned drugs**.**
B- Professional and Practical skills	
b1	Handle basic laboratory equipments and chemicals effectively and safely.
b2	Identify the active substances (sulfa drugs, aliphatic & aromatic acids & sodium salts).
b3	Establish a research study for assay and analysis of commercial drugs (boric acid and compare results with the pharmacopeia)**.**
C- Intellectual skills	
c1	Apply GLP guide lines in pharmacy practice through learning different analytical techniques
c2	Evaluate quantitative and qualitative methodology of raw materials (boric acid, hexamine, hydrogen peroxide) and pharmaceutical preparations
D- General and Transferable skills	
d1	Work effectively as a member of a team with students.
d2	Write reports and present it.

D- Contents:

Week No.	Lecture (2hrs/week)	Practical session (2hrs/week)
1	-Antimycobacterium agents	-Laboratory safety measures
2	Oral hypoglycemic drugs.	-Quantitative estimation of boric acid
3	Diuretics	-Quantitative estimation of hexamine
4	-Antineoplastic agents (Alkylating agents, antimetabolites)	Quantitative estimation of tolbutamide
5	-Antineoplastic agents (antimetabolites, hormones)	- Identification of boric acid , borax, urea and hexamine **Activity 1 (case study).**
6	Midterm exam	
7	-Antiviral agents (host cell penetration inhibitors and nucleic acid inhibitors)	- Identification of sulpha drugs
8	-Antiviral agents (protein inhibitors)	-Identification of organic acids and its salts of pharmaceutical use
9	-Antianginal agents	-Identification of iron , zinc and magnesium salts of pharmaceutical use -Activity 2 (case study)
10	-Antiarryhthmic drugs	**Revision scheme 1**
11	-Antihypertensive agents	Revision scheme 1
12	-Anticoagulants	**-Practical exam**
13	-Antihyperlipidemic agents	
14	Diagnostic agents	----------
15	Revision & Open discussion	----------

E- Teaching and Learning Methods:

- Lectures (data show, board)
- Practical sessions

- Self learning (activity, case report)

F- Student Assessment Methods:

1- Written exam to assess a1, a2, a3, c2

2- Activity to assess d2

3- Practical exam to assess b1, b2, b3, c1, d1, d2

4- Oral exam to assess a1, a2, a3, c2

Assessment schedule:

Assessment (1): Written exams	Week 6,16
Assessment (2): Activity	Week 5, 9
Assessment (3): Practical exam	Week 12
Assessment (4): Oral exams	Week 16

Weighting of Assessment:

Assessment method	Marks	Percentage
Written exam	60	60%
Practical exam and activities	25	25%
Oral exam	15	15%
TOTAL	100	100%

G- Facilities Required for Teaching and Learning:

1. Black (white) board.
2. Data show
3. Explanatory videos.
4. Laboratory equipment (test tubes, piurettes and conical flasks).
5. Chemicals.

H- List of References:

1- Course Notes: Student book of Medicinal chemistry (2) approved by medicinal chemistry department 2017

- Practical notes of Medicinal chemistry (2) approved by medicinal chemistry department 2017

2- Essential Books:

i- Wilson & Griswold's Textbook of Organic: Medicinal and Pharmaceutical Chemistry; Wilson, Charles Owens; Beale, John Marlowe; Block, John H.; Block, John H.; Griswold, Ole; Wiley-Interscience (2009).

ii- Foye's Principles of Medicinal Chemistry; Williams, David A., William O. Foye, and Thomas L. Lemke; Lippincott Williams and Wilkins (2009).

iii- B.p. &U.S Pharmacopia (1988-2007)

3- Recommended books

i- An Introduction to Medicinal Chemistry; Patrick, Graham L, Oxford (2009)

4- Periodicals, Web Sites, etc

http://www.ncbi.nlm.nih.gov/sites/entrez

http://journals.tubitak.gov.tr/chem/index.php

http://www.pharmacopoeia.co.uk/

www.Pubmed.Com

www.sciencedirect.com

Course Coordinator: Prof. Dr./ Lobna Abdelaziz.

Head of Department: Prof. Dr./ Mohammed Baraka.

Date: 27/11/2017 تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ

Matrix I of Medicinal chemistry 2 course

Course Contents		ILOs of Medicinal chemistry 2 course									
		Knowledge and understanding			Professional and practical skills			Intellectual skills		General and transferable skills	
Lectures		a1	a2	a3	b1	b2	b3	c1	c2	d1	d2
1	Antimycobacterium agents	x	x	x							
2	Antineoplastic agents(Alkylating agents)	x	x	x							
3	Antineoplastic agents(Alkylating agents, antimetabolites)	x	x	x							
4	Antineoplastic agents(antimetabolites, hormones)	x	x	x							
5	Antiviral agents (host cell penetration inhibitors and nucleic acid inhibitors) (host cell penetration inhibitors and nucleic acid inhibitors)	x	x	x							
6	Antiviral agents(protein inhibitors)	x	x	x							
7	Oral hypoglycemic (sulfonylurea derivatives)	x	x	x					x		
8	Oral hypoglycemic (biguanide derivatives) & diagnostic agents	x	x	x							
9	Antianginal agents & antiarryhthmic drugs	x	x	x							
10	Antihypertensive agents	x	x	x							
11	Anticoagulants & antihyperlipidemic agents	x	x	x							

12	Diuretics (water and osmotic agents, acidifying salts, mercurials , α,β unsaturated ketones, purines , pyrimidines)	x	x	x							
13	Diuretics (sulfonamide derivatives and endocrine antagonists)	x	x	x							
Practical sessions											
1	Laboratory safety measures				x						
2	Quantitative estimation of boric acid, hexamine, hydrogen peroxide & tolbutamide				x		x	x	x	x	x
3	Identification of organic acids / salts,iron , zinc and magnesium salts, sulpha, boric acid, urea and hexamine of pharmaceutical use				x	x		x	x	x	
4	Activity (case study)										x

Matrix II of Medicinal Chemistry 2 course

National Academic Reference Standards (NARS)		Program ILOs	Course ILOs	Course contents	Sources	Teaching and learning methods			Methods of assessment		
						lecture	practical session	self learning	written exam	practical exam	oral exam
2.1	Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice.	A2	a1	Antimycobacterium agents	Student book	x			x		x
				Antineoplastic agents(Alkylating agents)	Student book	x			x		x
				Antineoplastic agents(Alkylating agents, antimetabolites)	Student book	x			x		x
				Antineoplastic agents(antimetabolites, hormones)	Student book Essential books	x		x	x		x
				Antiviral agents (host cell penetration inhibitors and nucleic acid inhibitors)	Student book	x			x		x
				Antiviral agents(protein inhibitors)	Student book	x			x		x
				Oral hypoglycemic (sulfonylurea derivatives) (sulfonylurea derivatives) (sulfonylurea derivatives)	Student book	x			x		x

				Oral hypoglycemic (biguanide derivatives) & diagnostic agents	Student book Essential books	x			x		x
				Antianginal agents & antiarryhthmic drugs	Student book	x			x		x
				Antihypertensive agents	Student book	x			x		x
				Anticoagulants & antihyperlipidemic agents	Student book Internet Recommended books	x		x	x		x
				Diuretics (water and osmotic agents, acidifying salts, mercurials , α,β unsaturated ketones, purines , pyrimidines)	Student book Essential books	x			x		x
				Diuretics (sulfonamide derivatives and endocrine antagonists)	Student book	x			x		x
2.5	Principles of drug design, development and synthesis.	A15	a2	Antimycobacterium agents	Student book	x			x		x
				Antineoplastic agents(Alkylating agents)	Student book	x			x		x
				Antineoplastic agents(Alkylating agents, antimetabolites)	Student book Internet Recommended books	x		x	x		x
				Antineoplastic agents(antimetabolites, hormones)	Student book	x			x		x

				Antiviral agents (host cell penetration inhibitors and nucleic acid inhibitors)	Student book	x			x		x
				Antiviral agents(protein inhibitors)	Student book	x			x		x
				Oral hypoglycemic (sulfonylurea derivatives)	Student book	x			x		x
				Oral hypoglycemic (biguanide derivatives) & diagnostic agents	Student book	x			x		x
				Antianginal agents & antiarryhthmic drugs	Student book	x			x		x
				Antihypertensive agents	Student book Internet Recommended books	x		x	x		x
				Anticoagulants & antihyperlipidemic agents	Student book	x			x		x
				Diuretics (water and osmotic agents, acidifying salts, mercurials , α,β unsaturated ketones, purines , pyrimidines)	Student book	x			x		x
				Diuretics (sulfonamide derivatives and endocrine antagonists)	Student book	x			x		x
2.13	Pharmacological properties of drugs including mechanisms of	A30	a3	Antimycobacterium agents	Student book	x			x		x
				Antineoplastic agents(Alkylating agents)	Student book	x			x		x

	action, therapeutic uses, dosage, contra-indications, ADRs and drug interactions.			Antineoplastic agents(Alkylating agents, antimetabolites)	Student book	x			x		x
				Antineoplastic agents(antimetabolites, hormones)	Student book Internet Recommended books	x		x	x		x
				Antiviral agents (host cell penetration inhibitors and nucleic acid inhibitors)	Student book	x			x		x
				Antiviral agents(protein inhibitors)	Student book	x			x		x
				Oral hypoglycemic (sulfonylurea derivatives)	Student book	x			x		x
				Oral hypoglycemic (biguanide derivatives) & diagnostic agents	Student book	x			x		x
				Antianginal agents & antiarryhthmic drugs	Student book	x			x		x
				Antihypertensive agents	Student book	x			x		x
				Anticoagulants & antihyperlipidemic agents	Student book Internet Recommended books	x		x	x		x
				Diuretics (water and osmotic agents, acidifying salts, mercurials , α,β unsaturated ketones, purines , pyrimidines)	Student book	x			x		x

				Diuretics (sulfonamide derivatives and endocrine antagonists)	Student book	x			x		x
3.2	Handle and dispose chemicals and pharmaceutical preparations safely	B2	b1	Laboratory safety measures	Practical notes		x			x	
3.4	Extract, isolate, synthesize, purify, identify, and/or standardize active substances from different origins.	B6	b2	Identification of organic acids / salts,iron , zinc and magnesium salts, sulpha, boric acid, urea and hexamine of pharmaceutical use	Practical notes		x			x	
3.11	Conduct research studies and analyze the results	B17	b3	Quantitative estimation of boric acid, hexamine, hydrogen peroxide & tolbutamide	Practical notes		x			x	
4.1	Apply pharmaceutical knowledge in the formulation	C1	c1	Quantitative estimation of boric acid, hexamine, hydrogen peroxide & tolbutamide	Practical notes		x			x	

	of safe and effective medicines as well as in dealing with new drug delivery systems.			Identification of organic acids / salts,iron , zinc and magnesium salts, sulpha, boric acid, urea and hexamine of pharmaceutical use	practical notebook		x			x	
4.3	Apply qualitative and quantitative analytical and biological methods for QC and assay of raw materials as well as pharmaceutical preparations	C4	c2	Oral hypoglycemic (sulfonylurea derivatives)	Student book Internet Recommended books	x		x	x		X
				Quantitative estimation of boric acid, hexamine, hydrogen peroxide & tolbutamide	Practical notes		x			x	
				Identification of organic acids / salts,iron , zinc and magnesium salts, sulpha, boric acid, urea and hexamine of pharmaceutical use	Practical notes		x			x	

5.3	Work effectively in a team	D4	d1	Quantitative estimation of boric acid, hexamine, hydrogen peroxide & tolbutamide	Practical notes		x			x	
5.9	Implement writing and presentation skills	D11	d2	Activity	Internet Recommended books		x	x		x	
				Quantitative estimation of boric acid, hexamine, hydrogen peroxide & tolbutamide, Activity	Practical notes		x			x	

Course Coordinator: Prof. Dr./ Lobna Abdelaziz.

Head of Department: Prof. Dr./ Mohammed Baraka.

Date: 27/11/2017 تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ