

First level – Semester 2

Bachelor of Pharmacy (Clinical Pharmacy Pharm D) 2019-2020

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# COURSE SPECIFICATIONS

Pharmaceutical Organic chemistry II

First level – Semester 2

# **Course Specification of Pharmaceutical Organic Chemistry**(2)

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# University: Zagazig Faculty: Pharmacy

# **A- Course specifications:**

Programme(s) on which the course is given: Bachelor of Pharmacy (Clinical pharmacy pharm D) Major or Minor element of programmes: Major Department offering the program: ------Department offering the course: Pharmaceutical Organic Chemistry Academic year / Level: first level / Second Semester Date of specification approval:

# **B- Basic information:**

Title: Pharmaceutical Organic Chemistry IICode: PR 202Lectures: 2 hrs/weekPracticals: 1 hrs/weekTutorials:---Practicals: 3 hrs/weekPracticals: 1 hrs/week

# c- Professional information:

# **Overall aim of the course**

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

On completion of the course, the student will be able to explain the aromatic, antiaromatic and not aromatic compounds, chemistry of aromatic compounds as benzene and electrophilic substitution ex. nitration, sulphonation, halogenations & Friedel-Craft alkylation and acylation.Also nomenclature, synthesis and chemical reaction of arenes, sulphonic acid, nitro compounds, phenol, ether, aryl halides, and aromatic amines and diazonium salts .Identification of aromatic compounds using spectroscopic tools as UV,IR,<sup>1</sup>HNMR,<sup>13</sup>CNMR &mass spectrometry.

# 2- Key elements of Pharmaceutical Organic Chemistry II

#### DOMAIN 1- FUNDAMENTAL KNOWLEDGE

**1-1- COMPETENCY:** Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.

**1.C1.1** • Illustrate the chemical character of aromatic compounds

1.C1.2	• Explain the mechanism of different chemical reactions.
1.C1.3	• Define the systematic nomenclature of different aromatic
	organic compounds
1.C1.4	<ul> <li>Differentiate between physical and chemical character of</li> </ul>
	different functional groups
1.C1.5	<ul> <li>Illustrate the principle of spectroscopic techniques in</li> </ul>
	identification /analysis of aromatic compounds
DOMAI	N 2: PROFESSIONAL AND ETHICAL PRACTICE
	<b>MPETENCY:</b> Standardize pharmaceutical materials, formulate and
	ure pharmaceutical products, and participate in systems for dispensing, nd distribution of medicines.
	<ul> <li>Perform laboratory experiments concerning synthesis</li> </ul>
2.C2.1	and identification of chemical compounds
2.C2.2	<ul> <li>Interpret laboratory results effectively</li> </ul>
2.C2.3	Apply spectroscopic tools for qualitative analysis of pharmaceutical
	compounds
2.C2.4	<ul> <li>Suggest appropriate methods of synthesis and identification of aryl</li> </ul>
	halides, phenols, aromatic aldehydes, ketones, carboxylic acids and pharmaceutically related compounds
2-3- CON	<b>IPETENCYL:</b> Handle and dispose biologicals and synthetic/natural
-	utical materials /products effectively and safely with respect to relevant laws
and legisl	
2.C3.1	<ul> <li>Handle basic laboratory equipments and chemicals         offectively and safely     </li> </ul>
	effectively and safely.
2.C3.2	<ul> <li>Apply GLP guidelines for safe handling and disposal of chemicals</li> </ul>
DOMAR	N 4: PERSONAL PRACTICE
	1927 1928 1928 1928 1928 1928 1928 1928 1928
	solving, independent and team working, creativity and entrepreneurial skills.
4.C1.1	<ul> <li>Work effectively as a member of a team</li> </ul>
4 C1 2	<ul> <li>Demonstrate problem solving and time management</li> </ul>
4.C1.2	skills

# **Course Content :**

Week No.	Lecture contents (2 hrs/lec.)	Practical session (1hrs/lab)
1	Aromaticity & aromatic compounds.	Laboratory safety
2	Benzene & electrophilic substitution	Identification of benzene
3	Electrophilic substitution	Preparation of nitrobenzene
4	Aromatic aliphatic hydrocarbon(arenes)	Identification of benzoic acid
5	Nitro compounds	Preparation of m-nitro benzoic acid
6	Aryl halides & aromatic nucleophilic substitution	Identification of phenol
7	Midterm exam	
8	Aromatic hydroxyl compounds ,alcohols& phenols	Preparation of tribromo phenol
9	Aromatic sulphonic acid and derivatives Aromatic amines & diazonium salts	Identification of aniline
10	Polynuclear aromatic hydrocarbons	Preparation of Schiff base
11	U V Spectroscopy	Identification of naphthalene
12	IR Spectroscopy	Preparation of nitro naphthalene
13	Mass spectrometry	Practical exam
14	<sup>1</sup> HNMR & <sup>13</sup> CNMR Spectroscopy	
15	Final written exam & oral exam	

#### **Teaching and Learning Methods:**

- Lectures
- Practical session
- Group discussion
- Blended learning

#### **Student Assessment methods:**

- Written exams to assess: 1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4, 1.C1.5, 4.C1.2
- Practical exams to assess: 2.C2.1, 2.C2.2, 2.C2.3, 2.C2.4, 2.C3.1
- Oral exam to assess: 1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4, 1.C1.5
- Activities to assess: 4.C1.1, 4.C1.2

#### Assessment schedule

Assessment (1): Written exams	Week 15
Assessment (2): Practical exams	Week 13, 14
Assessment (3): Oral exams	Week 15
Assessment (4): Activity	participation each lab
Assessment (5): Periodical exams	Week 7

#### Weighting of Assessment

Assessment method	Marks	Percentage
Written exam	50	50%
Practical exam	25	25%
Activity within labs	5	5
Oral exam	10	10%
Periodical exam	10	10%
TOTAL	100	100%
T1 11/1 1 10 / 1		

**Facilities required for teaching and learning:** 

- For lectures: Black (white) boards, data show.
- For Labs: Chemicals, glassware, instruments, Digital balances, water bathes.

### List of References:

**1- Course Notes:** Student book of pharmaceutical organic chemistry approved by pharmaceutical organic chemistry department 2019.

**2- Essential Books:** Organic Chemistry; Solomons T.W.G. & Fryhle C.B.; John Wiley and Sons Inc., USA (2010).

3-Organic Chemistry, Second Edition, Bhupinder Mehta and Manju Mehta (2015).

4-Organic synthesis. Chauhan jaidev, Organic spectroscopy : delhi (2018).

## Periodicals, Web Sites, etc

https://www.ekb.eg/

http://chemwiki.ucdavis.edu/

www.Pubmed.Com

www.sciencedirect.com

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## Course Coordinator: Prof. dr/ Hanan Abdel-Razik

## Head of Department: Prof. dr/ Hanan Abdel-Razik

تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ :Date

	Mat	t <mark>rix I</mark> o	f phar											
		Key elements of pharmaceutical organic chemistry II course												
	<b>Course Contents</b>		1-1- COMPETENCY					2-2- COMPETENCY				4.1. COMPETENCY		
	Lectures	1.C1.1	1.C1.2	1.C1.3	1.C1.4	1.C1.5	2.C2.1	2.C2.2	2.C2. 3	2.C2.4	2.C3.1	4.C1.1	4.C1.2	
1	Aromaticity and aromatic compounds	x												
2	- Benzene & electrophilic substitution	x												
3	- electrophilic substitution	X												
4	Aliphatic aromatic hydrocarbon(arenes)	X	x	x	X									
5	Nitro compounds	Х	x	x	X									
6	Aryl halides & aromatic nucleophilic substitution	X	x											
7	Aromatic hydroxyl compounds ,alcohols& phenols	X		x	х									
8	Aromatic sulphonic acid and derivatives Aromatic amines & diazonium salts	X		x	x									
9	Polynuclear aromatic hydrocarbons	Х	x	x	X									
10	U V Spectroscopy					Х			х					
11	IR Spectroscopy					X			X					
12	Mass spectrometry					X			X					
13	<sup>1</sup> HNMR & <sup>13</sup> CNMR Spectroscopy					X			X					
	Practical session													
1	-Laboratory safety rules						x	X		x	X	x	x	
2	-Identification of benzene						x	X		X	Х	x	x	
3	- Preparation of nitrobenzene						x	x		Х	X	x	x	

4	Identification of benzoic acid				Х	Х			
5	Preparation of nitrobenzoic acid		X	X	v	Х	X	X	
6	Identification of phenol		X	<u> </u>	Λ	Х	X	X	
7	- Preparation of Tribromophenol		X	x x	X X	Х	X	X X	
8	Identification of aniline		х	х	Х	Х	х	х	
9	Preparation of Schiff base		Х	х	Х	Х	х	х	
1 0	Preparation of nitro naphthalene		x	x	Х	Х	x	X	
1 1	Identification of naphthalene		x	x	Х	Х	x	x	

# Matrix 2 of Pharmaceuticl Organic Chemistry Course

National Academic Reference Standards	<u> </u>	Course key elements	Course contents	Sources		Weighting of assessment
	elements				Teaching and learning methods	

NARS					Lecture	Practical session	Self learning	Written exam	Practical exam	Oral exam	Med term
1-1-1 Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and	1.C1.1	1.C1.1	1 Aromaticity and aromatic compounds	Student book Essential books	X			X		X	X
.clinical sciences		1.C1.2	1 Aromaticity and aromatic compounds	Student book Essential books	X X			X		X	Х
			-2 Benzene & - electrophilic substitution	Student book Essential books	5						

	Aliphatic - aromatic hydrocarbon (arenes)		Х	X	X	X	X
1.C1.3	Alcohols4 and thiols nomenclatur e, synthesis and Chemical .reactions	Student book Essential books	X		X	X	X
	Phenols5 nomenclatur e, synthesis and Chemical .reactions	Student book Essential books	X	Х	Х	X	X

	Ethers ,6 . epoxide - Nomenclatu re of aldehydes & .ketones	Student book Essential books	X			X	X
					Х	Λ	
	10 Carboxylic acids,classifi cation,nome & nclature .Synthesis	Student book Essential books					
			Х		Х	Х	х
	12 Carboxylic acid .derivatives	Student book Essential books	х		X	X	X
1.C1.4	Alkyl -3 halides SN1 SN2,E1,E2,	Student book Essential books	X	X	X	X	х

Alcohols4 and thiols nomenclatur e, synthesis and Chemical .reactions	Student book Essential books					
		Х				
				Х	Х	Х
Phenols5 nomenclatur e, synthesis and Chemical .reactions	Student book Essential books					
		x		Х	х	Х
Ethers ,6 . epoxide - Nomenclatu re of	Essential books					
aldehydes & .ketones		X		Х	X	Х

	Synthesis -8 and chemical reactions of aldehydes .and ketones	Student book Essential books	X	Х	X	Х
	Chemical9 reactions of aldehydes .and ketones	Student book Essential books	X	Х	Х	Х
	10 Carboxylic acids,classifi cation,nome & nclature .Synthesis	Student book Essential books	х	Х	Х	Х
	11 Carboxylic acids chemical .reactions	Student book Essential books	х	X	х	Х
	12 Carboxylic acid .derivatives	Student book Essential books	Х	Х	х	Х
1.C1.5	U V Spectroscop	Student book Essential	х	Х	х	х

y IR	books		X		
Spectro	scop				
Mass spectror	netr				
y 1HNMI 13CNM	R &				
Spectro y					

2-2-1 Isolate, design, identify, synthesize, purify, analyze, and standardize synthetic/ natural pharmaceutical materials.	2.C2.1	2.C2.1 2.C2.2 2.C2.3 2.C2.4	Identificatio n of benzene Preparation of nitrobenzene Identificatio	Practical notes	х		X	
2-3-1 Handle, identify, and dispose biologicals, synthetic/natural materials, biotechnology-based and radio-labeled products, and other materials/products used in pharmaceutical field.	2.C3.1	2.C3.1	n of benzoic acid Preparation of m-nitro benzoic acid Identificatio n of phenol Midterm exam Preparation	Practical notes	X		Х	

2-3-2 Recognize and adopt ethical, legal, and safety guidelines for handling and disposal of biologicals, and pharmaceutical materials/products.	2.C3.2	2.C3.2	of tribromo phenol Identificatio n of aniline Preparation of Schiff base Identificatio n of		Х		х	
4-1-1 Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	4.C1.1	4.C1.1	n of naphthalene Preparation of nitro naphthalene	Practical notes	X		Х	
4-1-2 Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.C1.5	4.C1.1		Practical notes	Х	Х	х	

# COURSE SPECIFICATIONS

Pharmaceutical Analytical chemistry II

First level – Semester 2

# Course specification of Pharmaceutical Analytical Chemistry-2

University: Z	agazig	]	Faculty:	Pharmacy	7
A- Course specific	ations:				
Program (s) on whic	h the course i	s given:	Bachelor of	Pharmacy	(Clinical
Pharmacy Pharm D)					
Major or Minor eleme	nt of programs:		Major		
Department offering the	ne program:				
Department offering the	ne course:	Ana	lytical chemist	try departme	ent
Academic year /Level	: 2019-2020	Fi	rst level- Seco	nd semester	
Date of specification a	pproval:	8/10/201	.9		

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# **B-Basic information:**

Title: Pharmaceutical Analytical Chemistry-2Code: PA 202Credit Hours:Code: PA 202

- Lectures : 2 hrs/week
- Practical: 1 hr/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 principles and the application of oxidation-reduction reactions, potentiometry, conductometry and polarography.

- Apply studied quantitative methods for determination of different pharmaceutical compounds.
- Outline the proper steps of statistical analysis and analytical method validation.

# 2-Key elements of Pharmaceutical Analytical Chemistry-2

DOMAIN	1 1- FUNDAMENTAL KNOWLEDGE							
1-1- CO	OMPETENCY:							
U	knowledge from basic and applied pharmaceutical and clinical sciences to standardize							
materials, formulate and manufacture products, and deliver population and patient-centered care.								
1.C1.1.	Describe principles of redox reactions, potentiometry, conductometry and							
1.01.1.	polarography.							
<b>1.C1.2.</b>	Illustrate the use of these titration reactions in pharmaceutical assay.							
<b>1.C1.3.</b>	Explain the required validation parameters for analytical procedures.							
DOMAIN	N 2: PROFESSIONAL AND ETHICAL PRACTICE							
2-2- CON	IPETENCY:							
Standard	ize pharmaceutical materials, formulate and manufacture pharmaceutical							
products,	and participate in systems for dispensing, storage, and distribution of medicines.							
<b>2.C2.1.</b>	Perform redox titration.							
	Select the most appropriate standardization method for different							
2.C2.2.	compounds.							
	Solve different problems on potentiometric, conductometric,							
2.C2.3.	polarographic techniques and calculate different validation parameters in							
	pharmaceutical analysis.							
2-3- CON	IPETENCY:							
	d dispose biologicals and synthetic/natural pharmaceutical materials /products							
	y and safely with respect to relevant laws and legislations.							
<b>2.C3.1.</b>	Handle and dispose chemicals safely.							
DOMAIN	N 4: PERSONAL PRACTICE							
4-1- CON	IPETENCY							
Express l	eadership, time management, critical thinking, problem solving, independent and							
team wor	king, creativity and entrepreneurial skills.							
<b>4.C1.1.</b>	Work as member of team.							
<b>4.C1.2.</b>	Develop problem solving skills.							

# **D- Contents:**

Week	Lecture	Practical Session
No.	(2hrs/week)	(1 hr/week)
	-Introduction to oxidation-reduction	- Safety guidelines
1	reactions( definition, oxidation	Determination of oxalic acid oxalates.
-	number-balancing redox equation)	
	Electrode potential E.	
2	Oxidation potential	Determination of ferrocyanide.
		Determination of Sodium nitrite
	-Titration curves.	Determination of glucose
3	-Detection of end-point in redox	
	titration -Redox reactions involving	
	iodine	
4	- Application of redox reactions	Determination of arsenite, potassium
		dichromate
5	- Application of redox reactions	Determination Of peroxides, zinc
	- Electrochemical method	metal Determination of aldehydes
	<ul> <li>Potentiometry</li> </ul>	Determination of aldenydes
6	Reference electrodes, NHE. SCE ,	
	silver/silver chloride	
7	periodical exam	
	For the second s	Problem solving on:
0	Indicator electrodes	-Potentiometry
0 7 8	Application of potentiometry	- Conductometry
		-Polarography
9	Conductometric titrations	Problem solving on method validation
10	Polarography and its principles	Problem solving on method validation
11	Application of polarography	Activity
12	- Statistical analysis:	Practical exam
14	Types of errors, sampling	
13	Validation parameters	Practical exam
14	- General discussion and revision	
15	Final Exam	

# **E- Teaching and Learning Methods:**

- Lectures (data show, board)
- Practical sessions
- Problem solving
- Blended learning

## **F- Student Assessment Methods:**

1- Written exam	m		to	assess
1.C1.1,1.C1.2,1.C	C1.3,2.C2.2,2.C2.3,	4.C1.2		
2- Practical exam	to assess	.2C2.1,2.C2.3, 2.C3.1		
3- Oral exam	to assess	1.C1.1,1.C1.2,1.C1.3	,2.C2.2,	2.C2.3
4- Periodical exam	to assess	1.C1.1,1.C1.2,1.C1.3,2	2.C2.2	
5- Activities	to assess	4.C1.1, 4.C1.2		

### Assessment schedule:

Assessment (1): Written exam	Week 15
Assessment (2): Practical exam	Weeks 12,13
Assessment (3): Oral exam	Week 15
Assessment (5): Mid-term exam	Weeks 7
Assessment (11): Activity	Weeks 11

## Weighting of Assessment:

Assessment method	Marks	Percentage
Written exam	50	50%
Midterm exam	10	10%
Practical exam	25	25%
Oral exam	10	10%
activity	5	5%
TOTAL	100	100%

## **G- Facilities Required for Teaching and Learning:**

- Lectures (Computer, board)
- Practical sessions (Chemicals and Glassware)

- Activity
- Open discussion

# H- List of References:

#### **1- Course Notes**

Student book "Pharmaceutical analytical chemistry II" approved by the analytical chemistry department book ,2019

### 2- Essential (textbooks)

- J. Mendham, et al., Vogel's Textbook of Quantitative Chemical Analysis (6<sup>th</sup> edition);, Addison Wesley Publishing Co., 2000
- 2. ii-Daniel C. Harris, Quantitative Chemical Analysis (6<sup>th</sup>Edition);. (2002).

## **3- Recommended books:**

- D. C. Harris, Quantitative Analytical Chemistry (9<sup>th</sup> edition), W. H. Freeman and Co. (2015)
- 2. D. Chowrasia, N. Sharma, Analytical Chemistry. A Qualitative & Quantitative Approach (General Techniques) Knoc education (2015).

### 4- Periodicals, Web Sites, etc

https://www.ekb.eg/

http://chemwiki.ucdavis.edu/

http://en.wikipedia.org/

www.Pubmed.Com and

www.sciencedirect.com

### **Course Coordinator: Prof. Dr. Gamal Hassan Ragab**

#### **Head of Department:**

تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ 8 /2019/10 Date: 2019/10/

	Matrix I of Pharmaceutical Analytical Chemistry-2										
	<b>Course Contents</b>	Key elements of Pharmaceutical Analytical Chemistry-2									
		1-1- COMPETENCY			2-2- COMPETENCY			2-3- COMPETENCY	4-1- COMPETENCY		
	Lectures										
			1.C1.2	1.C1.3	2.C2.1	2.C2.2	2.C2.3	<b>2.C3.1</b>	4.C1.1	4.C1.2	
1	-Introduction to oxidation-reduction reactions( definition, oxidation number- balancing redox equation) Electrode potential E.	X									
2	Oxidation potential	X									
3	-Titration curves. -Detection of end-point in redox titration - Redox reactions involving iodine	X									
4	- Application of redox reactions	X	X			X				X	
5	- Application of redox reactions	X	X			X				X	
6	<ul> <li>Electrochemical method</li> <li>Potentiometry</li> <li>Reference electrodes, NHE. SCE , silver/silver chloride</li> </ul>	X									
7	Indicator electrodes Application of potentiometry	X	X			X				X	
8	Conductometry Introduction and Instruments Application of conductivity	X	X			X				X	
9	Polarography and its principles	X									
10	Application of polarography	X	X			X				X	
11	- Statistical analysis: Types of errors, sampling			X						X	

12	Validation parameters		X					X
		Practic	al sessio	ns				·
1	- Safety guidelines Determination of oxalic acid oxalates.			X		X	X	X
2	Determination of ferrocyanide. Determination of Sodium nitrite			X		X	X	X
3	Determination of glucose			X		X	X	X
4	Determination of arsenite, potassium dichromate			X		X	X	X
5	Determination Of peroxides, zinc metal			X		X	X	X
7	Determination of aldehydes			X			X	X
8	Problem solving on: -Potentiometry - Conductometry -Polarography				X		X	X
9	Problem solving on method validation				X		X	X
10	Problem solving on method validation				X		X	X
11	Activity						X	

	Matrix II of Pharmaceutical Analytical Chemistry-2											
Na	ntional Academic Reference	Program Course		Commo		Teaching and learning methods			Weighting of assessment			
S	tandards NARS	key elements	key elements	Course contents	Sources	lecture	practical session	self learning	written exam	practical exam	oral exam	Midterm exam
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.C1.1.	1.C1.1	-Introduction to oxidation- reduction reactions -Electrode potential E. Oxidation potential -Titration curves. -Detection of end- point in redox titration - -Electrochemical method -Potentiometry Reference electrodes, Indicator electrodes •Conductometry Introduction and Instruments •Polarography and its principles	Student book Essential books Recommended books	X			X		X	x

1.1.3	Integrate knowledge from fundamental sciences to handle, identify, extract, design, prepare, analyze, and assure quality of synthetic/ natural pharmaceutical materials/products.	1.C1.9.	1C.1.2 1C.1.3	-Redox reactions involving iodine -Application of redox reactions - Application of potentiometry - Application of conductivity Application of polarography Introduction to statistical analysis: Types of errors statistical analysis: sampling •validation parameters	Student book Essential books Recommended books	x		X		X	
2.2.1	Isolate, design, identify, synthesize, purify, analyze, and standardize synthetic/ natural pharmaceutical materials.	2.C2.1.	2.C2.1	<ul> <li>Redox Titration curves</li> <li>Application of redox reactions</li> </ul>	Student book Essential books Recommended books Practical note	x	x	x	x	x	x
2.2.3	Recognize the principles of various tools and instruments, and select the proper techniques for synthesis and analysis of different materials and production of pharmaceuticals.	2.C2.5.	2.C2.2 2.C2.3	Redox reactions involving iodine -Application of redox reactions - Application of potentiometry - Application of conductivity Application of polarography	Student book Essential books Recommended books Practical note	x	x	x	x	x	x

	Adopt the principles of					X	X		X	X	
	pharmaceutical					^	^		^	^	
	calculations,			-Introduction to statistical							
	biostatistical analysis,			analysis:							
	bioinformatics,			-validation parameters	Student book						
2.2.4	pharmacokinetics, and			Problem solving	Essential books Recommended						
2.2.4	bio-pharmaceutics and	2.C2.8	2.C2.3	on: -Potentiometry	books						
	their applications in new			- Conductometry	Practical note						
	drug delivery systems,			-Polarography Problem solving							
	dose modification,			on method							
	bioequivalence studies,			validation							
	and pharmacy practice.										
	Handle, identify, and										
	dispose biologicals,										
	synthetic/natural										
	materials,			Safety							
2.3.1	biotechnology-based and	2.C3.1.	2.C3.1	guidelines	Practical notes		x			x	
	radio-labeled products,										
	and other										
	materials/products used										
	in pharmaceutical field.										
	Demonstrate										
	responsibility for team										
4.1.1	performance and peer	4 01 1		• All practical	Practical						
4.1.1	evaluation of other team	4.C1.1.	4.C1.1	sessions Activity	notebook		X	X		X	
	members, and express										
	time management skills										

4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team	4.C1.5.	4.C1.2	<ul> <li>Application of redox reactions</li> <li>Application of potentiometry</li> <li>Application of conductivity</li> <li>Application of polarography</li> <li>Introduction to statistical analysis: Types of errors</li> <li>Statistical analysis: sampling</li> <li>Validation parameters</li> <li>All practical sessions</li> </ul>	Student book activity Practical notebook	x	x	x	x	X		X	
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Course Coordinator: Prof. Dr. Gamal Hassan Ragab Head of Department: Date: 2019/10/8 تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ

# COURSE SPECIFICATIONS

PhannacognosyI

First level – Semester 2

# **Course specification of Pharmacognosy 1**

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University: Zagazig

**Faculty:** Pharmacy

# **A- Course specifications:**

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

Major or Minor element of programs:	Major
Department offering the program:	
Department offering the course:	Pharmacognosy Department
Academic year Level:	First level/ semester 2
Date of specification approval:	September 2019

## **B-** Basic information:

Title: Pharmacognosy	I Code: PG 202
Credit Hours:	
Lectures: 2hr/week	
Practical: 1hr/week	
Tutorials:	
Total: 3 hrs/week	

# **C- Professional information**:

#### **1-Overall aim of the course**

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

- Describe morphological, histological characters and uses of medicinal flowers, barks, and wood as well as identification of different active constituents and adulteration.
- Examine and determine the active constituents of the studied drugs

# 2- Key elements of Pharmacognosy I

DOMAI	N 1- FUNDAMENTAL KNOWLEDGE							
clinical so	<b>APETENCY:</b> Integrate knowledge from basic and applied pharmaceutical and ciences to standardize materials, formulate and manufacture products, and deliver n and patient-centered care.							
1.C1.1.	Illustrate morphological , Histological characters and uses of medicinal flowers, barks, and wood							
1.C1.2.	Identify adulteration of different medicinal flowers, barks, and wood							
1.C1.3.	Identify different active constituents of medicinal flowers, barks, and wood							
DOMAIN	N 2: PROFESSIONAL AND ETHICAL PRACTICE							
pharmace	<b>2-2- COMPETENCY:</b> Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in systems for dispensing, storage, and distribution of medicines.							
2.C2.1.	Examine drugs of plant origin in entire and powdered form.							
Handle ar	<b>APETENCY</b> and dispose biologicals and synthetic/natural pharmaceutical materials /products y and safely with respect to relevant laws and legislations.							
2.C3.1	Handel and dispose chemicals in a safe way							
DOMAIN	N 4: PERSONAL PRACTICE							
	IPETENCY							
	Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.							
4.C1.1.	Work as a member of a team							
	IPETENCY: Effectively communicate verbally, non-verbally and in writing with ls and communities.							
4.C2.1	Implement writing and presentation skills							

# **D- Contents:**

No.	<ul> <li>General introduction for what will be taught all over the term</li> </ul>						
1	• Introduction for the flowers and giving the students the possible references, web sites, text books.	<ul><li>Laboratory safety measures</li><li>Dealing with microscope.</li></ul>					
2	<ul> <li>Rest of introduction of flower.</li> <li>Description of clove flower Including macro- and micro-morphological study for entire drug and for powdered clove.</li> </ul>	<ul> <li>Description of clove flower Including macro- and micro- morphological study for entire drug.</li> <li>Histology of powdered clove.</li> </ul>					
3	• Chamomile (German and Roman) and calendula flowers macro-and, micro-morphology of the entire and powdered drugs, chemical identification.	• German chamomile flower macro-, and micro-morphology, powders and chemical identification.					
4	• Rest of flower drugs, uses, active constituents, pharmaceutical preparations.	<ul> <li>Santonica flowers macro-and, micro-morphology, powder and chemical identification.</li> <li>Activity (Net research on the pharmaceutical products derived from the flowers).</li> </ul>					
5	• General introduction of bark	• Cinnamon bark macro-and micro-morphology, powder and chemical identification.					
6	• Rest of the introduction and cinnamon bark: macro-and; micro-morphology-, powder and chemical identification.	<ul> <li>Cassia barks (Morphology, histology, powder and chemical test, when it is possible.</li> </ul>					
7	Midterm Exam						
8	<ul> <li>Cinchona in details: macro-and; micro- morphology, powder and chemical identification.</li> </ul>	<ul> <li>Cinchona barks (Morphology, histology for entire drug powder and chemical test when it is possible.</li> <li>Morphological demonstration for</li> </ul>					

		all barks.
9	• Cascarilla, quillaia, and canella bark (Morphology, histology, powder and chemical test when it is possible.	<ul> <li>Revision for powdered barks (Cinnamon, Cassia and cinchona).</li> </ul>
10	<ul> <li>Cascara and frangula in details: macro- morphology; micro-morphology powder and chemical identification.</li> </ul>	<ul> <li>Quassia wood: Macro- and micro-morphology of entire wood.</li> <li>Galls: Macro-morphology and micro-morphology of entire drug.</li> </ul>
11	• Rest of the taught barks.	0 Revision.
12	• Galls: Macro-morphology of entire wood; micro-morphology-, Powder; chemical identification.	• Practical exam 1
13	<ul> <li>Introduction to wood Quassia wood: Macro- and micro-morphology of entire wood.</li> </ul>	• Practical exam 2
14	• Revision	
15	• Final oral and written exam.	

# **E- Teaching and Learning Methods:**

- Lectures and interactive lectures.
- Practical sessions
- Self learning (group discussion, group assignment)
- Blended learning

### **F- Student Assessment methods:**

- Midterm exam to assess: 1.C1.1, 1.C1.2, 1.C1.3
- Written exams to assess: 1.C1.1, 1.C1.2, 1.C1.3
- Practical exams to assess: 2.C2.1, 2.C3.1
- Oral exam to assess: 1.C1.1, 1.C1.2, 1.C1.3
- Activities (group discussion, group assignment, case study) to assess: 4.C1.1, 4.C2.1

#### **Assessment schedule**

Assessment (1): Written exams	Week 15
Assessment (2): Activity	Week 4, 8
Assessment (3): Practical exams	Week 12. 13
Assessment (4): Oral exams	Week 15
Assessment (5): midterm	Week 7

#### Weighting of Assessment

Assessment method	Marks	Percentage
Written exams	50	50%
Mid term	10	10%
Activity	5	10%
Practical exam	25	25%
Oral exam	10	15%
TOTAL	100	100%

# **G- Facilities required for teaching and learning:**

- For lectures: Black (white) boards and data show.
- For Labs: Chemicals, glassware and microscopes.

### **H- List of References:**

**1- Course Notes:** Student book of Pharmacognosy I approved by Pharmacognosy

Department (2019).

### **2- Essential Books:**

- Wallis, T. (1967). "Text Book of Pharmacognosy 5th Edition, London." J and A. Churchhill Ltd: 81-82.
- De Smet, P. A., K. Keller, R. Hänsel and R. F. Chandler (1992). Adverse effects of herbal drugs, Springer.
- Betty, P. and W. Derek (2000). "Atlas of microscopy of medicinal plants, culinary Herbs and species." <u>CBS publisher New Delhi</u>: 17-42.
- Evans, W. (2005). Trease and Evans Pharmacognosy, ed: 15th, Elsevier, a reed Elsevier India pvt ltd.

- Jackson, M. and A. Lowey (2010). <u>Handbook of extemporaneous</u> preparation: a guide to pharmaceutical compounding, Pharmaceutical Press London, UK.
- Upton, R., A. Graff, G. Jolliffe, R. Länger and E. Williamson (2016). <u>American herbal pharmacopoeia: botanical</u> <u>pharmacognosy-microscopic characterization of botanical</u> <u>medicines</u>, CRC Press.
- McCreath, S. B. and R. Delgoda (2017). <u>Pharmacognosy:</u> Fundamentals, applications and strategies, Academic Press.

#### **3- Recommended Books:**

Martindale (2007), "<u>The extra pharmacopeia</u>". 31st edn., by James,
 E.F Reynolds. And Kathleen Parfitt, Royal Pharmaceutical Society,
 London.

#### 4- Periodicals and websites:

- Aquilina A. (2013), The extemporaneous compounding of paediatric medicines at Mater Dei Hospital. Journal of the Malta College of <u>Pharmacy Practice</u>. Issue 19, 28 30.
- <u>http://canadianpharmacistsletter.therapeuticresearch.com/ce/ceCourse.asp</u>
- https://www.google.com/search?safe=active&sxsrf=ACYBGNT1wfCQl6DGxZ5 ouZY11QZZfJSrYg:1568843605556&q=Pharmacognosy4all&tbm=isch&source =univ&sa=X&ved=2ahUKEwiel8TurdvkAhVIrxoKHcTHDMAQ7Al6BAgBEC Q&biw=1008&bih=584#imgrc=7NmuWomEP170WM:

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#### **Course Coordinator : Prof. Dr. Fawkeya Abbas**

#### Head of department : Prof. Dr. Amal Al-Gendy

تم مناقشة وإعتماد توصيف المقرر من مجلس القسم بتاريخ 2019 / 9 / Date: / 9

	Matrix I of pharmacognosy I course												
							pharmacognos	sy I cour	se				
	<b>Course Contents</b>	1-1- C	OMPET	ENCY	2- COMPE		2-3- COMPETENCY	4-1 COMPE		4-2- COMPETENCY			
	Lectures	1.C1.1	<b>1.C1.2</b>	<b>1.C1.3</b>	2.C2.1		<b>2.C3.1</b>	4.C1.1		<b>4.C2.1</b>			
	<ul> <li>General introduction for what will be taught all over the term</li> </ul>												
1	• Introduction for the flowers and giving the students the possible references, web sites, text books.	Х	Х	X									
2	<ul> <li>Rest of introduction of flower.</li> <li>Description of clove flower Including macro- and micro- morphological study for entire drug and for powdered clove.</li> </ul>	х	х	X									
3	• Chamomile (German and Roman) and calendula flowers macro-and, micro- morphology of the entire and powdered drugs, chemical identification.	х	х	X									
4	Rest of flower drugs, uses,	Х	X	X									

	active constituents, pharmaceutical						
	preparations						
5	• General introduction of bark	X	x	х			
6	Rest of the introduction and cinnamon bark: macro-and; micro- morphology-, powder and chemical identification.	Х	Х	x			
7	Cinchona in details: macro-and; micro- morphology, powder and chemical identification.	х	Х	х			
8	Cascarilla, quillaia, and canella bark (Morphology, histology, powder and chemical test when it is possible	X	X	X			
9	Cascara and frangula in details: macro- morphology; micro- morphology powder and chemical identification.	X	X	X			
10	• Rest of the taught barks.	Х	Х	х			
11	• Galls: Macro- morphology of entire wood; micro- morphology-, Powder; chemical identification.	Х	Х	x			

12	• Introduction to wood Quassia wood: Macro- and micro-morphology of entire wood.	X	Х	x					
	Practical sessions				T			1	
1	<ul> <li>Laboratory safety measures</li> <li>Dealing with microscope.</li> </ul>					Х			
2	<ul> <li>Description of clove flower Including macro- and micro- morphological study for entire drug.</li> <li>Histology of powdered clove.</li> </ul>				x	Х			
3	• German chamomile flower macro-, and micro-morphology, powders and chemical identification.				x	х			
4	<ul> <li>Santonica flowers macro-and, micro- morphology, powder and chemical identification.</li> </ul>				x	Х			
5	• Activity (Net research on the pharmaceutical products derived from the flowers).						X		х
6	Cinnamon bark macro-and micro-morphology, powder				x	Х			

	and chemical identification				
7	Cassia barks (Morphology, histology, powder and chemical test, when it is possible	X	X		
8	• Cinchona barks (Morphology, histology for entire drug powder and chemical test when it is possible.	x	x		
9	Morphological demonstration for all barks.	X	x		
10	Quassia wood: Macro- and micro- morphology of entire wood. Galls: Macro-morphology and micro- morphology of entire drug.	X	х		

				Matrix II of	pharma	icogno	sy I cou	rse						
	onal Academic					Teachi	ng and lea	rning methods	W	eighting of	assessi	ment		
	Reference ndards NARS	Program key elements	Course key elements	Course contents	Sources	lecture	practical session	Activities (reports and presentations) and Field visit	written exam	practical exam & activity	oral exam	Midterm exam		
Stal	ndards NAKS			•General	Student									
	Demonstrate understanding of		1.C1.1	introduction for what will be taught all over the term	book Essential books	*			*		*	*		
1.1.1	knowledge of pharmaceutical, biomedical, social, behavioral, administrativo	al, 1.C1.2 ial,	1.C1.2	•Introduction for the flowers and giving the students the possible references,	Student book Essential books	*			*		*	*		
	administrative, and clinical sciences.	1.C1.3		web sites, text books. •Rest of introduction of	Student book Essential books	*			*		*	*		
	Integrate knowledge from fundamental				1.C12	flower. •Description of clove flower Including macro- and micro- morphological study	Student book							
1.1.3	sciences to handle, identify, extract, design, prepare, analyze, and assure quality of	ces to handle, tify, extract, gn, prepare, alyze, and		for entire drug and for powdered clove. •Chamomile (German and	Essential books	*	*	*	*	*	*	*		
	assure quality of synthetic/ natural pharmaceutical materials/products.		1.1.5	Roman) and calendula flowers macro-and, micro- morphology of the entire and powdered drugs, chemical	Self learning									

	identification.		
	Rest of flower		
	drugs, uses, active		
	constituents,		
	pharmaceutical		
	preparations		
	•General		
	introduction of bark		
	Rest of the		
	introduction and		
	cinnamon bark:		
	macro-and; micro¬-		
	morphology-,		
	powder and		
	chemical		
	identification.		
	Cinchona in details:		
	macro-and; micro-		
	morphology,		
	powder and		
	chemical		
	identification.		
	Cascarilla, quillaia,		
	and canella bark		
	(Morphology,		
	histology, powder		
	and chemical test		
	when it is possible		
	Cascara and		
	frangula in details:		
	macro-morphology;		
	micro-morphology		
	powder and		
	chemical		
	identification.		
	Rest of the		
	taught barks.		
	•Galls: Macro-		
	morphology of		

				entire wood; micro- morphology-, Powder; chemical identification. •Introduction to wood Quassia wood: Macro- and micro-morphology of entire wood.					
	Isolate, design, identify,			• Laborator	Practical notes	*		*	
2.2.1	synthesize, purify, analyze, and standardize synthetic/ natural pharmaceutical materials.	2.C2.1	2.C2.1	y safety measures • Dealing with microscope.	Practical notes	*		*	
2.3.1	Handle, identify, and dispose biologicals, synthetic/natural materials, biotechnology- based and radio- labeled products, and other materials/products used in pharmaceutical field	2.C3.1	2.C3.1	Descriptio n of clove flower Including macro- and micro- morphological study for entire drug. • Histology of powdered clove. • German chamomile flower macro-, and micro- morphology,	Practical notes	x		X	

	nowdoro ond				
	powders and				
	chemical				
	identification.				
	Santonica				
	flowers macro-				
	and, micro-				
	morphology,				
	powder and				
	chemical				
	identification.				
	•				
	Activity				
	(Net research on				
	the				
	pharmaceutical				
	products derived				
	from the flowers).				
	Cinnamon bark				
	macro-and micro-				
	morphology,				
	powder and				
	chemical				
	identification				
	Cassia barks				
	(Morphology,				
	histology, powder				
	I				

				and chamical test	[	1		[		]
				and chemical test,						
				when it is possible						
				Cinchona						
				barks						
				(Morphology,						
				histology for entire						
				drug powder and						
				chemical test						
				when it is						
				possible.						
				Morphological						
				demonstration for						
				all barks.						
				• Quassia						
				wood: Macro- and						
				micro-morphology						
				of entire wood.						
				Galls: Macro-						
				morphology and						
				micro-morphology						
				of entire drug.						
	Demonstrate			Activity 1						
	responsibility for			(researches and						
4.1.1	team	4.C1.1	4.C1.1	reports on cell differentiation, cell			х		х	
	performance and			contents and						
	peer evaluation			different stages of production of						
	-			r						

	of other team members, and express time management skills.			natural drugs like drying). Activity 2 (researches and presentation on pharmaceutical preparations containing leaves)					
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	4.C2.3	4.C2.1	containing reaves)	Self learning	х			

Course Coordinator : Prof. Samih El-Dahmy

Head of department : Prof. Dr. Amal Al-Gendy

تم مناقشة وإعتماد توصيف المقرر من مجلس القسم بتاريخ 2019 / 9 / Date: / 9

# COURSE SPECIFICATIONS

# Anatomy & Histology

First level – Semester 2

2019-2020

#### **Course Specification of Histology University: Faculty:** Zagazig **Pharmacy A- Course specifications:** Program(s) on which the course is given: Bachelor of Pharmacy (PharmD, clinical pharmacy) Major or Minor element of programs: Major Department offering the program: \_\_\_\_\_ Department offering the course: Faculty of Medicine, Medical histology & cell biology department First level /Semester 2 Academic year/ Level: Date of specification approval: Dec. 2019 **B-Basic information:** Title: Anatomy & Histology (1.Histology) Code: MD 202 Credit Hours: ---Lectures : 1hr/week Practical: 0.5 hr/week **Tutorials**: \_\_\_ Total: 1.5 hrs/week + 1.5 hours for Anatomy

### **C- Professional information:**

#### **1-Overall Aims of the Course:**

On completion of the course, students will be aware of the description of the different types of human body cells and their functions. Also, the student should be able to identify and describe the structure of normal human tissues, and organs and to correlate their structure to their function.

# 2- Key elements of Histology:

DOMA	IN 1- FUNDAMENTAL KNOWLEDGE								
1-1- CO	MPETENCY								
	knowledge from basic and applied pharmaceutical and clinical sciences to								
	standardize materials, formulate and manufacture products, and deliver population and								
	patient-centered care.								
1.C1.1	Outline the methods used to study the histological structure of the								
	human body, types of microscopes and the principles of staining								
1.C1.2	Distinguish the general characteristics and types of epithelial tissue and								
	connective tissue								
1.C1.3	Identify the different types of cell organelles, cell inclusions,								
	main components of blood and their functions								
1.C1.4	Describe the general characteristics and types of bones, cartilage,								
	muscles, neuron, skin, lymphatic organs as well as arteries, veins and								
	blood cappilaries								
DOMA	IN 3: PHARMACEUTICAL CARE								
3-1- CO	MPETENCY								
	e principles of body functions to participate in improving health care services using								
-	-based data.								
3.C1.1	Identify different tissues and organs on histological slides by using the								
	ordinary light microscope								
3.C1.2	Apply different types of stains specific for different types of cells and								
	tissues.								
3.C1.3	Identify the ultra structural details of cells through electron microscope								
	pictures								
DOMA	IN 4: PERSONAL PRACTICE								
	MPETENCY								
-	leadership, time management, critical thinking, problem solving, independent and								
	rking, creativity and entrepreneurial skills.								
4.C1.1	Justify the interpersonal relationships and to work effectively in a								
	team.								
	MPETENCY								
	ely communicate verbally, non-verbally and in writing with individuals and								
commun 4.C2.1									
4.02.1	Improve communication capabilities								

### **D- Contents:**

Week No.	Lecture (1 hr/week)	Practical session (0.5 hr/week)						
1	Microtechniques and microscopy Introduction to							
2	Cytology							
3	Epithelium							
4	Connective tissue							
5	Blood							
6	Bone							
7	Midterm exam							
8	Vascular							
9	Cartilage							
10	Muscular T - assignment							
11	Nervous T - assignment							
12	Lymph							
13	Skin							
14	-Revision & Assignments delivery	Practical exam						
15	Final exam							

# **E- Teaching and Learning Methods:**

Lectures

Demonstrations

Interactive Learning

Presentation

Laboratory training

Blended learning

### **F- Student Assessment Methods:**

1- Written exams	to assess	1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4
2- Assignments	to assess	4.C1.1, 4.C2.1

#### 3- Practical exam to assess 3.C1.1, 3.C1.2, 3.C1.3

#### Assessment schedule:

Assessment (1): Final Written exam	Week 15
Assessment (2): assignment	Week 10, 11
Assessment (3): Practical exams	Week 14
Assessment (4): midterm exam	Week 7

#### Weighting of Assessment:

Assessment method	Marks	Percentage
Final Written exam	30	30%
Midterm exam	5	5 %
assignments	2.5	2.5%
Practical exam	12.5	12.5%
TOTAL	50	50%

### **G- Facilities Required for Teaching and Learning:**

• Black (white) board, Data show, laboratory microscopes, slides, stains

# **H-List of References:**

**1- Course Notes:** Student book of Histology approved by Histology Department (2020)

#### **2- Essential Books:**

Ross M.H.& Pawlina W.: Histology: A Text and Atlas (Histology (Ross))

(2010).

#### **3- Recommended books**

Leslie Gartner, Textbook of Histology, Elsevier, 4<sup>th</sup> edition, 2016.

Course Coordinator: Prof. Khaled El Mesalamy

							Matriy	x I of H	Histolo	gy cou	rse				
					Key elements of Histology										
	<b>Course Contents</b>			DOMAIN 1- FUNDAMENTAL KNOWLEDGE					OMAIN MACEU CARE		D PI P	L			
									3.C1.1	3.C1.2	3.C1.3				
	Lectures				1.C1.1	1.C1.2	1.C1.3	1.C1.4				4.C1.1	4.0	2.1	
1	Microtec cytology		microscopy I	ntroduction to	х										
2	Cytology	7			Х										
3	Epitheliu					Х									
4	Connecti	ve tissue				Х									
5	Blood						Х								
6	Bone							Х						1	
7	Vascular							Х							
8	Cartilage	e						Х							
9	Muscular	r T						Х							
10	Nervous	T						Х							
11	Lymph							Х							
12	Skin							Х							

	Practical sessions										
1	Microtechniques and microscopy Introduction to cytology						Х	Х	х	х	
2	Cytology						Х	Х	Х	х	
3	Epithelium						Х	Х	Х	х	
4	Connective tissue					Х	Х		Х	х	
5	Blood					Х	Х	Х	Х	х	
6	Bone					Х	Х	Х	Х	х	
7	Vascular					Х	Х	Х	х	х	
8	Cartilage					Х	Х	Х	Х	х	
9	Muscular T								Х	х	
10	Nervous T								Х	х	
11	Lymph										
12	Skin					Х	Х	Х	Х	Х	

Matrix II of histology course										
National Academic	Program	Course	Course	q	Teach	ning and methoo	learning ls	Meth	od of ass	sessment
Reference Standards (NARS)	key elements	key elements	contents	Sources	lecture	practical session	Course assignments	written exam	practical exam	Course assignments

	Demonstrate understanding of knowledge of pharmaceutical, biomedical,	1.C1.3	1.C1.1	Microtechniques and microscopy Introduction to cytology Cytology	student book	X		X		
	social, behavioral, administrative, and clinical		1.C1.2	Epithelium Connective tissue	student book	Х		Х		
1.1.1	sciences.		1.C1.3	Blood	student book, essential books	Х		X		
			1.C1.4	Bone Vascular Cartilage Muscular T Nervous T Lymph Skin	student book	x		x		
	Monitor and control microbial growth and carry out laboratory tests for identification of infections/ diseases.	3.C1.4	3.C1.1	Microtechniques and microscopy Introduction to cytology						
3.1.3			3.C1.2	Cytology Epithelium Connective tissue Blood Bone	Practical notes		X		X	
			3.C1.3	Vascular Cartilage Muscular T Nervous T Lymph Skin						

4.1.1	Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills	4.C1.1	4.C1.1	Microtechniques and microscopy Introduction to cytology Cytology Epithelium Connective tissue Blood	Practical notes		х		x
4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities.	4.C2.1	4.C2.1	Blood Bone Vascular Cartilage Muscular T Nervous T Lymph Skin	Practical notes		X		х

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# **Course Coordinator:**

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#### **University: Faculty:** Zagazig **Pharmacy A- Course specifications:** Program(s) on which the course is given: Bachelor of Pharmacy (clinical pharmacy PharmD) Major or Minor element of programs: Major Department offering the program: \_\_\_\_\_ Department offering the course: Faculty of Medicine, Human Anatomy and embryology department Academic year/ Level: First level /Semester 2 Date of specification approval: Dec. 2019 **B-Basic information:** Title: Anatomy & Histology (2. anatomy) Code: MD 202 Credit Hours: ---Lectures : 1hr/week Practical: 0.5 hr/week Tutorials: \_\_\_

**Course Specification of Anatomy** 

Total: 1.5 hrs/week + 1.5 hours for Anatomy

# **C- Professional information:**

#### **1-Overall Aims of the Course:**

On completion of the course, students will be able to outline the anatomy of major body systems and its organs as well as apply the anatomical information in identification of different diseases.

### **2- Key elements of anatomy:**

DOMA	IN 1- FUNDAMENTAL KNOWLEDGE
1.C1.1	Recognize the principles of anatomy, including anatomical terms,
	anatomical positions and anatomical movements
1.C1.2	Describe surface anatomy of body organs.
1.C1.3	Use the anatomical terms in describing the anatomy of body structure.
DOMA	IN 3: PHARMACEUTICAL CARE
3.C1.1	Interpret the radiological pictures of body structures
3.C1.2	Apply the anatomical information in identification of different
	diseases, including joints and nerve injuries as well as occlusion of
	blood vessels.
DOMA	IN 4: PERSONAL PRACTICE
4.C1.1	Develop critical thinking skills
4.C2.1	Write and present reports

# **D- Contents:**

Week No.	Lecture (1 hr/week)         Practical session (0.5 hr/week)						
1	Introduction (anatomical terms- anato	omical positions- anatomical					
	movements)						
2	Joints and muscular system						
3	Cardiovascular system						
4	Respiratory system						
5	Lymphatic system						
6	Digestive system						
7	Midterm exam						
8	Urinary system						
9	Male genital system						
10	Female genital system						
11	Endocrine glands						
12	Nervous system	presentation					
13	Special senses and skin	Final practical exam					
14	Skeletal system and vertebral column						
15	Final exam						

# **E- Teaching and Learning Methods:**

Lectures

Demonstrations

Interactive Learning

Self learning

Blended learning

### **F- Student Assessment Methods:**

1- Written exams	to assess	1.C1.1, 1.C1.2, 1.C1.3
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2-Presentation to assess 4.C1.1, 4.C1.2

3- Practical exam to assess 3.C1.1, 3.C1.2

#### Assessment schedule:

Assessment (1): Final Written exam	Week 15
Assessment (2): presentation	Week 12
Assessment (3): Practical exams	Week 13
Assessment (4): midterm exam	Week 7

#### Weighting of Assessment:

Assessment method	Marks	Percentage
Final Written exam	30	30%
Midterm exam	5	5 %
presentation	2.5	2.5%
Practical exam	12.5	12.5%
TOTAL	50	50%

# **G- Facilities Required for Teaching and Learning:**

• Black (white) board, Data show, laboratory bones and models of organs.

# **H- List of References:**

1- Course Notes: Student book of Anatomy approved by Anatomy Department

(2019)

### **2- Essential Books:**

Kindersley D.& Medi-Mation: The Concise Human Body Book: An Illustrated Guide to Its Structure, Function and Disorders (2009).

### **3-** Periodicals, Web Sites, etc

https://www.ekb.eg/

http://chemwiki.ucdavis.edu/

http://en.wikipedia.org/

www.Pubmed.Com and

www.sciencedirect.com

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Course Coordinator: Prof. Mohey ElSayed Hulial

**Date: 9/2019** 

Matrix I of Anatomy course										
		Key elements of anatomy								
<b>Course Contents</b>			DOMAIN 1- FUNDAMENTAL KNOWLEDGE			DOMAIN 3: PHARMACEUTICAL CARE		DOMAIN 4: PERSONAL PRACTICE		
					3.C1.1	3.C1.2				
	Lectures	1.C1.1	1.C1.2	1.C1.3			<b>4.C1.1</b>	4.C1.2		
1	Introduction (anatomical terms- anatomical positions- anatomical movements)	Х	Х	х						
2	Joints and muscular system	Х	Х	Х						
3	<sup>3</sup> Cardiovascular system		х	Х						
4	Respiratory system	Х	х	Х						
5	Lymphatic system	Х	х	Х						
6	Digestive system	Х	х	Х						
7	7 Urinary system		х	Х						
8	8 Male genital system		x	Х						
9	9 Female genital system		х	Х						
10	<sup>10</sup> Endocrine glands		х	Х						
11	Nervous system	Х	х	Х						

10	~ · · ·			-						
12	Special senses and skin	Х	X	X						
13	Skeletal system and vertebral column		X	Х						
	Practical sessions									
1	Introduction (anatomical terms- anatomical positions- anatomical movements)				X	Х				
2	Joints and muscular system				Х	Х				
3	Cardiovascular system				Х	Х				
4	Respiratory system				X	Х				
5	Lymphatic system				Х	Х				
6	Digestive system				Х	Х				
7	Urinary system				X	Х				
8	Male genital system				Х	Х				
9	Female genital system				Х	Х				
10	Endocrine glands				Х	Х				
11	Nervous system				Х	Х				
12	Special senses and skin & presentation				Х	Х	Х	x		
13	Skeletal system and vertebral column & presentation				X	Х	X	х		

	Matrix II of anatomy course											
National Academic Reference Standards (NARS)		Program Course		Course	¥	Teaching and learning methods			Method of assessment			
		key elements	key elements	contents	Sources	lecture	practical session	Self learning	written exam	practical exam	presentation	
	Demonstrate understanding of knowledge of pharmaceutical, biomedical,	1.C1.3	1.C1.1	<ul> <li>Introduction (anatomical terms- anatomical positions- anatomical movements) <ul> <li>Joints and</li> <li>muscular system</li> <li>Cardiovascular</li> <li>system</li> <li>Respiratory</li> <li>system</li> <li>Lymphatic</li> <li>system</li> <li>Digestive system</li> <li>Urinary system</li> <li>Male genital</li> <li>system</li> <li>Female genital</li> <li>system</li> <li>Fendocrine glands</li> <li>Nervous system</li> <li>Special senses and skin</li> <li>Skeletal system</li> <li>and vertebral</li> <li>column</li> </ul></li></ul>	student book	X			x			
	social, behavioral, administrative, and clinical		1.C1.2		student book	x			х			
1.1.1	sciences.		1.C1.3		student book, essential books	X			X			

			3.C1.1	- Introduction (anatomical terms- anatomical positions-					
3.1.1	Apply the principles of body function and basis of genomics in health and disease states to manage different diseases.	3.C1.1	3.C1.2	<ul> <li>anatomical</li> <li>movements)</li> <li>Joints and</li> <li>muscular system</li> <li>Cardiovascular</li> <li>system</li> <li>Respiratory</li> <li>system</li> <li>Lymphatic</li> <li>system</li> <li>Digestive system</li> <li>Urinary system</li> <li>Male genital</li> <li>system</li> <li>Female genital</li> <li>system</li> <li>Fendocrine glands</li> <li>Nervous system</li> <li>Special senses</li> <li>and skin</li> <li>Skeletal system</li> <li>and vertebral</li> <li>column</li> </ul>	Practical notes	X		X	
4.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.C1.4	4.C1.1	Special senses and skin & presentation Skeletal system and vertebral column & presentation	Practical notes		х		х

4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities.	4.C2.1	4.C2.1		Practical notes							
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# **Course Coordinator:** Prof. Mohey ElSayed Hulial

# COURSE SPECIFICATIONS

Physical pharmacy

First level – Semester 2

2019-2020

### **Course Specification of Physical Pharmacy**

Code: **PT202** 

### University: Zagazig Faculty: Pharmacy

### **A- Course specifications:**

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

Major or Minor element of programs: Major

Department offering the program: ------

Department offering the course: Pharmaceutics Dept.

Academic year Level: First level – Semester 2

Date of specification approval: Oct 2019

### **B- Basic information:**

Title: Physical pharmacy

Credit Hours: ---

Lectures: 2 hrs/week

Practical: 1 hrs/week

Tutorials: ---

Total: 3 hrs/week

### **C- Professional information**:

### **1-Overall aim of the course**

This course provides students with knowledge of physical and chemical principles essential for the design and formulation of pharmaceutical products. Students are introduced to the fundamental concepts of states of matter, Phase equilibrium, colligative properties, isotonicity, buffer, solubility, dissolution, partition coefficient, surface and interfacial phenomena, surface active agents, adsorption and its application in pharmacy and rheological behavior of dosage form. Drug reaction rate, stability and stabilization of drugs.

### 2-Key elements of physical pharmacy:

### DOMAIN 1- FUNDAMENTAL KNOWLEDGE

1-1- COMPETENCY: Integrate knowledge from basic and applied pharmaceutical and

clinical sciences to standardize materials, formulate and manufacture products, and deliver

population and patient-centered care.

1.C1.1	Enumerate types of (flow, surfactants and adsorption)											
1.C1.2	Define buffer, isotonicity, kinetic molecular theory, solubility and colligative											
	properties of solution, partition coefficient and dissolution											
1 01 0												

**1.C1.3** Outline the state of matter, application of viscosity and surface tension in pharmacy

### **DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE**

#### **2-2- COMPETENCY**

Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in systems for dispensing, storage, and distribution of medicines.

· •	Measure the viscosity, surface tension of different solutions and adsorption of active
2.C2.1	agent on adsorbate as well as drug solubility
2.C2.2	Select different pharmaceutical ingredients for proper formulation
	Perform different pharmaceutical calculations related to buffer, isotonicity, drug
2.C2.3	stability kinetics
DOMA	IN 4: PERSONAL PRACTICE
4-2- CO	MPETENCY
Effectiv	ely communicate verbally, non-verbally and in writing with individuals and
commu	nities.

4.C2.1	Communicate effectively both in oral and written manners
4.C2.2	Develop information technology skills

D- Conte	ents	
Week No.	Lecture contents (2hrs/week)	Practical session (1hrs/week)
1	State of matter and intermolecular forces	Introduction to Lab safety and equipment
2	Phase equilibrium and phase rule	Introduction to surface tension and surfactants
3	Surface and Interfacial Phenomena	Determination of surface tension of liquids
4	Surface Active Agents (Surfactant)	Solubilization
5	Adsorption Isotherms	Determination of percentage of adsorbed substances
7	Periodical exam	
8	Rheology	Determine of viscosity of certain liquid
9	Rate of chemical reaction (reaction Kinetics) Stability testing	Solve problems about reaction kinetics
10	Solution and solubility	Solubility expression and determine of solubility of certain pharmaceutical agent
11	Collegative properties of solution and isotonic solution	Problems on isotonicity
12	Buffer solution and buffer capacity	Problems on Buffer
13	Partition coefficient	Practical Exam
14	Dissolution	Students presentation
15	final written exam	

#### **D- Contents**

### **E- Teaching and Learning Methods:**

- Lectures
- Practical session
- Think/pair/share
- Blended learning

### **F-** Student Assessment methods:

- 1-Written exams to assess: 1.C1.1, 1.C1.2, 1.C1.3
- 2- Practical exams to assess: 2.C2.1, 2.C2.2, 2.C2.3
- 3- Activity within labs: 4.C2.1, 4.C2.2,

3- Oral exam to assess: 1.C1.1, 1.C1.2, 1.C1.3, 4.C2.1

#### **Assessment schedule**

Assessment (1): Periodical exams	Week 7
Assessment (2): Final written exams	Week 15
Assessment (3): Activity within labs & presentation	Week 12
Assessment (4):Practical exams	Week 13
Assessment (5):Oral exams	Week 15

#### Weighting of Assessment

Assessment method	Marks	Percentage
Periodical exam	10	10%
Final Written exam	50	50%
Activities	5	5%
Practical exams	25	25%
Oral exam	10	10%
TOTAL	100	100%

### **G-** Facilities required for teaching and learning:

For lectures : Black ( white ) boards, data show

For labs: Chemicals, glass ware, digital balance, water bathes, viscometer and stallagmometer

### **H- List of References:**

**1- Course Notes:**Student book of physical pharmacy approved by pharmaceutics department 2019-2020

### **2- Essential Books:**

- i- Attwood, D & Florence, A. T. 2012. Fast Track Physical Pharmacy, pharmaceutical press.
- ii- Aulton, Michael E. Pharmaceutics: The Science of Dosage Form Design. 2 nded.Churchill, 2002

### **3- Recommended Books**

i- Applied physical pharmacy, Mansoor M. Amiji, Beverly J. Sandmann, McGraw-Hill,(2003).

4- Periodicals, Web Sites, etc

https://www.ekb.eg/

http://chemwiki.ucdavis.edu/

http://en.wikipedia.org/

www.Pubmed.Com

www.sciencedirect.com

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Course Coordinator: Nagia Ahmed El-megrab

Head of Department: Nagia Ahmed El-megrab

تم مناقشة و اعتماد توصيف المقرر من مجلس القسم بتاريخ (10/2019 82

			Matri	x I of P	hysical	pharma	acy co	urse					
				Key	eleme	nts of	Physic	al Ph	arm	acy Co	ourse		
	Course Contents	1-1 COMPETENCY			2-2COMPETENCY						4-2 COMPETE		
	Lectures		1.C1. 2	1.C1 .3	2.C2 .1	2.C2 .2	2.C2 .3				4.C2 .1	4.C2 .2	
1	State of matter and intermolecular forces		x	X									
2	Phase equilibrium and phase rule		x	х									
3	Surface and Interfacial Phenomena		x	x									
4	Surface Active Agents												
	(Surfactant)	х											
5	Adsorption Isotherms												
6	Rheology	X X											
7	Rate of chemical reaction (reaction Kinetics) Stability testing	x	x										
8	Solution and solubility	х	x										
9	Collegative properties of solution and isotonic solution	x	x										
10	Buffer solution and buffer capacity	X	X										
11	Partition coefficient	Х	Х										
12	Dissolution	х											
]	Practical Session												
1	Determination of surface tension of liquids				X						х	х	
2	Solubilization					х					Х	Х	
3	Determination of percentage of adsorbed substances					X					X	X	
4	Determine of viscosity of certain liquid				x						X	x	
5	Solve problems about reaction kinetics						x				x	X	

6	Solubility expression and determine of solubility of certain pharmaceutical agent			X		X	x	
7	Problems on isotonicity			X				
8	Problems on Buffer			Х				
9	Presentation					х	X	

			Μ	latrix II of pl	hysical p	harma	acy cou	rse				
	National Academic					Tea	ching and metho	d learning ods	Wei	ghting of	asses	ssment
Reference Standards NARS		Program key elements	Course key elements	<b>Course</b> contents	Sources	lecture	practical session	Lab activity and presentation	writte n exam	practical exam	oral exa m	Midterm exam
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.C1.2	1.C1.1	Surface Active Agents (Surfactant) Adsorption Isotherms Rheology Rate of chemical reaction (reaction Kinetics) Stability testing Solution and solubility Collegative properties of solution and isotonic solution Buffer solution and buffer capacity	Student book Essential books	X			X		x	X

Partition coefficient DissolutionState of matter and intermolecular forces Phase equilibrium and phase rule Surface and Interfacial Phenomena Rate reaction (reaction Kinetics) Stability testing Solution and solubility Collegative properties of solution Buffer solution and buffer capacity Partition coefficient	Student book Essential books	X			X		x	X
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			1.C1.3	State of matter and intermolecular forces Phase equilibrium and phase rule Surface and Interfacial Phenomena	Student book Essential books	х			Х		x	x
2.2.1	Isolate, design, identify, synthesize, purify, analyze, and standardize synthetic/ natural pharmaceutical materials.	2.C2.1	2.C2.1	Determination of surface tension of liquids Determine of viscosity of certain liquid	Practical notes		Х	X		X		
2.2.2	Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and distributing pharmaceutical materials/ products considering various incompatibilities	2.C2.2	2.C2.2	Solubilization Determination of percentage of adsorbed substances	Practical notes		X	x		X		
2.2. 4	Adopt the principles of pharmaceutical	2.C2.12	2.C2.3	Solve problems about reaction kinetics Solubility expression and	Practical notes		X	X		x		

	calculations, biostatistical analysis, bioinformatics, pharmacokinetic s, and bio- pharmaceutics and their applications in new drug delivery systems, dose modification, bioequivalence studies, and pharmacy practice.			solubility certain pharmaceutical agent Problems isotonicity	of of on on					
4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities.	4.C2.1	4.C2.1	Oral presentation Practical sessions			Х		Х	
4.2. 2	Use contemporary technologies and media to demonstrate	4.C2.3	4.C2.2	Oral presentation	self learning		X		x	

	effective						
	presentation						
	skills.						

**Course Coordinator: Nagia Ahmed El-megrab** 

Head of Department: Nagia Ahmed El-megrab

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

# COURSE SPECIFICATIONS

# Psychology

First level – Semester 2

2019-2020

# **Course Specification of Psychology**

University:	Zagazig		Faculty:	Phar	macy	
A- Course spe	cifications:					
Program(s) on	which the cour	se is give	en: Bachelo	r of Phar	macy	(clinical
pharmacy Pharm	D)					
Major or Minor	element of prog	cams:	Minor			
Department offer	ring the program	•				
Department offer	ring the course:	Psycholog	gy department	t (Faculty o	of Educ	cation)
Academic year/ I	Level:	First	level /Semest	ter 2		
Date of specifica	tion approval:	Jan. 2	.020			
<b>B- Basic infor</b>	mation:					
Title: Psycholog	У	Code:	UR 203			
Credit Hours:						

Lectures : 1hr/week

Practical: 0 hr/week

Tutorials: ---

Total: 1 hr/week

## **C- Professional information:**

### **1-Overall Aims of the Course:**

The course introduces different principles, theories and vocabulary of psychology as a science. The course also aims to provide students with basic concepts of social psychology, medical sociology and interpersonal communication which relate to the pharmacy practice system that involves patients, pharmacists, physicians, nurses and other health care professionals.

### 2- Key elements of Psychology:

DOMA	IN 1- FUNDAMENTAL KNOWLEDGE	
1.C1.1		يلم بمباديء علم النفس
	·	

1.C1.2	يحدد مفهوم التنشئة الاجتماعية و دينامكيات السلوك و أنواع العلاقات الاجتماعية									
1.C1.3	يحدد القواعد الأساسية للتعلم الشرطي و تطبيقاته									
1.C1.4	يذكر مفاهيم الصحة النفسية و العقلية									
DOMA	DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE									
2.C1.1	يستخدم النظريات و المفاهيم السابقة في التوجيه و الاختيار بناء على الفروق الفردية									
DOMA	DOMAIN 4: PERSONAL PRACTICE									
4.C1.1	ينمي مهارات التفكير النقدي و اتخاذ القرارات و حل المشكلات									

## **D- Contents:**

Week No.	Lecture (1 hr/week)
1	مدخل إلى علم النفس
2	ما هو التعلم؟
	التعلم الشرطي و الوقائع التجريبية و تفسيره
3	القواعد الأساسية للتعلم الشرطي و تطبيقاته
4	الدافعية و تعريفاتها و أهمية الدوافع و خصائصها
5	أنواع الدوافع و خصائصها و أهميتها في التعلم
6	الشخصية و تعريفاتها و محدداتها و مكوناتها
	الشخصية و نظرياتها و طرق قياسها
	7. Midterm exam
8	الذاكرة و تعريفاتها و نماذجها وأنواعها
9	معنى التنشئة الاجتماعية و ديناميات السلوك و أنواع العلاقات الاجتماعية
10	الجماعة و خصائصبها و أهميتها للفرد و المجتمع و أنواع الجماعات
11	التوجيه و الاختيار المهني و الفروق الفردية
12	الذكاء و حل المشكلات
13	العمليات العقلية النفسية (الإحساس- الانتباه- الإدراك- التذكر - التفكير)
	خطواتها و خصائصها و أنواعها
14	الصحة النفسية و الأمراض النفسية و العقلية
15	Final exam

## **E- Teaching and Learning Methods:**

- Lectures
- Blended learning

## **F- Student Assessment Methods:**

1-Written exams to assess 1.C1.1, 1.C1.2, 1.C1.3, 1.C1.4, 2.C1.1,

4.C1.1

### Assessment schedule:

Assessment (1): Final Written exam	Week 15
Assessment (2): midterm exam	Week 7

### Weighting of Assessment:

Assessment method	Marks	Percentage
Final Written exam	75	75%
Midterm exam & activity	25	25%
TOTAL	100	100%

## **G- Facilities Required for Teaching and Learning:**

• Black (white) board, Data show

### **H-List of References:**

**1- Course Notes:** 

### كتاب محاضرات في علم النفس

### **3- Recommended books**

قائمة المراجع في كتاب محاضرات علم النفس للاستزادة في موضوعات المقرر

http://en.wikipedia.org/

www.Pubmed.Com

www.sciencedirect.com

Course Coordinator: Prof. Adel Khedr, 2020

		Matr	rix I of I	Psycho	logy co	urse	
				]	Key elen	nents of Psychology	
	<b>Course Contents</b>		DOMA UNDAN KNOW	<b>IENTA</b>		DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE	DOMAIN 4: PERSONAL PRACTICE
	Lectures	1.C1.1	1.C1.2	1.C1.3	1.C1.4	2.C1.1	4.C1.1
1	مدخل إلى علم النفس	х					
2	ما هو التعلم؟ التعلم الشرطي و الوقائع التجريبية و تفسيره	X		X			
3	تفسيره القواعد الأساسية للتعلم الشرطي و تطبيقاته	Х		Х			
4	الدافعية و تعريفاتها و أهمية الدوافع و خصائصها	Х	x				
5	أنواع الدوافع و خصائصها و أهميتها في التعلم	х	x				
6	الشخصية و تعريفاتها و محدداتها و مكوناتها الشخصية و نظرياتها و طرق قياسها	х	Х				
7				Midterm e	xam	· · · · ·	
8	الذاكرة و تعريفاتها و نماذجها وأنواعها	Х	X				
9	معنى التنشئة الاجتماعية و دينامكيات السلوك و أنواع العلاقات الاجتماعية		X			Х	
10	الجماعة و خصائصها و أهميتها للفرد و المجتمع و أنواع الجماعات	X	Х			Х	
11	التوجيه و الأختيار المهني و الفروق الفردية	Х	x			Х	

12	الذكاء و حل المشكلات	Х	X		x
13	العمليات العقلية النفسية (الإحساس- الانتباه- الإدراك- التذكر - التفكير) خطواتها و خصائصها و أنواعها	Х	X		
14	الصحة النفسية و الأمراض النفسية و العقلية	Х		Х	

				Matrix II of	f Psycholog	y cour	se					
	National Academic	Program	Course	rse Course methods					Meth	ethod of assessment		
Reference Standards (NARS)		key elements	key elements	contents	contents Sources practical C		Course assignments	written exam	practical exam	Course assignments		
1.1.1	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.C1.4	1.C1.1	مدخل إلى علم النفس ما هو التعلم؟ ما هو التعلم؟ التعلم الشرطي و الوقائع القواعد الأساسية للتعلم الشرطي و تطبيقاته الشرطي و تطبيقاته أدواع الدوافع و أنواع الدوافع و نواع الدوافع و الشخصية و تعريفاتها و الشخصية و نظرياتها و محدداتها و مكوناتها الشخصية و نظرياتها و محدداتها و مكوناتها الذاكرة و تعريفاتها و الذاكرة و تعريفاتها و الذاكرة و تعريفاتها و الداكرة و تعريفاتها و المنحمية و نظرياتها و المحماية الاجتماعية أنواع العلاقات و أنواع الجماعات أهميتها للفرد و المجتمع المهني و الفروق الفردية	student book	X			X			

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			1	1		1	1	
			الذكاء و حل المشكلات					
			العمليات العقلية النفسية					
			(الإحساس- الانتباه-					
			الإدراك- التذكر -					
			التفكير) خطواتها و					
			خصائصها و أنواعها					
			الصحة النفسية و					
			الأمراض النفسية و					
			الاهرائص التعليبية و					
	-	1 01 0						
		1.C1.2	الدافعية و تعريفاتها و					
			أهمية الدوافع و					
			خصائصها					
			أنواع الدوافع و					
			خصائصها و أهميتها في					
			التعلم					
			الشخصية و تعريفاتها و					
			محدداتها و مكوناتها					
			الشخصية و نظرياتها و					
			طرق قياسها					
			الذاكرة و تعريفاتها و					
			نماذجها وأنواعها					
			معنى التنشئة الاجتماعية					
			و دينامكيات السلوك و					
			و دينامعيات المللوك و أنواع العلاقات					
			الواع العدقات					
			الاجتماعية الجماعة و خصائصها و					
			الجماعة و حصائصها و					
			أهميتها للفرد و المجتمع					
			و أنواع الجماعات					
			التوجيه و الاختيار					
			المهني و الفروق الفردية					
			الذكآء و حل المشكلات					
			العمليات العقلية النفسية					
			(الإحساس- الانتباه-					
			الإدراك التذكر -					
			التفكُّير) خطواتها و					
			خصائصها و أنواعها					
	ł	1.C1.3	ما هو التعلم؟	student book	х		X	
		1.01.5	التعام الشرطي والوقائع	stadent book	~		A .	
			التعلم الشرطي و الوقائع التجريبية و تفسيره					
			القواعد الأساسية للتعلم					
			العواجد الإسسي- سعم					

					الشرطي و تطبيقاته					
				1.C1.4	لصحة النفسية و الأمراض النفسية و العقلية	student book	Х		Х	
2	.1.2	Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity	2.C1.4 2.C1.6	2.C1.1	معنى التنشئة الاجتماعية و دينامكيات السلوك و أنواع العلاقات الاجتماعية أهميتها للفرد و المجتمع و أنواع الجماعات التوجيه و الاختيار المهني و الفروق الفردية	student book	Х		X	
4	.1.2	Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.C1.5	4.C1.1	الذكاء و حل المشكلات	Student book	х		X	

**Course Coordinator:** Prof. Adel Khedr, 2020

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# COURSE SPECIFICATIONS

**Cell Biology** 

First level – Semester 2

2019-2020

# **Course specification of Cell biology**

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University: Zagazig

Faculty: Pharmacy

## **A- Course specifications:**

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

Major or Minor element of programs:MajorDepartment offering the program:------

Department offering the course: Biochemistry Department

Academic year Level: Level one / semester2

Date of specification approval:

## **B- Basic information:**

Title: Cell biology Code: PB201

Credit Hours: ---

Lectures: 1hr/week

Practical: 1hr/week

Tutorials:

Total: 2 hrs/week

## **C- Professional information**:

## 1-Overall aim of the course

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

- Outline the principles of cell biology and molecular genetics.
- Use the proper terms of cell biology, cell division, cell cycle
- Differentiate between mitotic and meiosis as well as atrophy and hyperplasia.
- Illustrate uses and applications of laser.

## 2- Key elements of Cell biology

DOMAIN 1- FUNDAMENTAL KNOWLEDGE									
<b>1-1- COMPETENCY:</b> Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.									
1.C1.1.	Outline the principles of cell biology including cell theory and different types of cells, cell cycle, hypertrophy, hyperplasia,								
	apoptosis and necrosis.								
DOMAIN 3: PHARMACEUTICAL CARE									
	<b>IPETENCY:</b> Apply the principles of body functions to participate in g health care services using evidence-based data.								
	Correlate between the functions of different cellular								
3.C1.1.	organelles, different phases and types of cell division and								
J.C1.1.	various disorders and apoptosis in physiologic and pathologic								
	situations and								
3.C1.2	outline the basis of genetics, nucleic acids and protein								
5.01.2	synthesis, as well as mutations.								
	Perform microscopical identification of different cell								
3.C1.3	organelles including endoplasmic reticulum, mitochondria,								
	Golgi apparatus, etc								
DOMAIN 4: PERSONAL PRACTICE									
4-2- COMPETENCY									
Effectively communicate verbally, non-verbally and in writing with individuals and communities.									
4.C2.1.	4.C2.1. Write and present reports								

# **D- Contents:**

Week No.	Lecture (1hr/week)	Practical session (1hr/week)				
1	<ul> <li>Cell theory</li> <li>Animal cell</li> <li>Prokaryotic cell</li> <li>Eukaryotic cell</li> </ul>	<ul><li>Introduction</li><li>Types and parts of microscope</li></ul>				
2	<ul> <li>Structure of cell membrane</li> <li>Cytoplasm</li> <li>Transport across membrane</li> <li>Nucleus (Chromatin and chromosomes)</li> </ul>	- Micrographs of plant and animal cells at E.M level				
3	<ul> <li>Endoplasmic reticulum</li> <li>Golgi apparatus</li> <li>Lysosomes</li> </ul>	- Micrograph of cell membrane at E.M level				
4	- Chloroplasts -Mitochondria - Cytoskeleton -Micro-bodies	- Micrograph of nucleus at E.M level				
5	<ul><li>Molecular genetics</li><li>DNA and RNA synthesis</li></ul>	- Micrograph of smooth and rough endoplasmic reticulum				
6	<ul><li>Protein synthesis</li><li>Mutation points</li></ul>	<ul> <li>Micrograph of Golgi apparatus at E.M level</li> <li>Micrograph of lysosomes at E.M level</li> </ul>				
7	- Periodical exam	- Periodical exam				
8	<ul><li>Cell growth</li><li>Cell division (Mitotic)</li></ul>	<ul> <li>Micrograph of mitochondria at E.M level</li> <li>Micrograph of chloroplasts at E.M level</li> </ul>				
9	<ul><li>Cell division (Meiosis)</li><li>Cell cycle regulation</li></ul>	- Micrograph of cytoskeleton (microtubules)				
10	- Apoptosis-mechanism of apoptosis	- Micrograph of different stages of cell division				
11	- Necrosis	- Activity(DNA mutations and diseases, Cell cycle disorders and cancer)				
12	- Apoptosis and its relation to cancer	- Revision				
13	- Apoptosis and its relation to AIDs and atherosclerosis	- Practical exam				
14	- Revision and open discussion					
15	Final written exam					

## **E- Teaching and Learning Methods:**

- Lectures
- Practical sessions
- Think/pair/share
- Case study
- Blended learning

### **F- Student Assessment methods:**

- 1- Written exams to assess: 1.C1.1, 3.C1.1, 3.C1.2
- 2- Practical exams to assess: 3.C1.3
- 3- Activities to assess: 4.C2.1
- 4- Periodical exam to assess: 1.C1.1, 3.C1.1, 3.C1.2

#### Assessment schedule

Assessment (1): Activity	Week 11
Assessment (2): Periodical exam	Week 7
Assessment (3): Practical exam	Week 13
Assessment (4): Written exam	Week 15
Assessment (5): Oral exam	Week 15

#### Weighting of Assessment

Assessment method	Marks	Percentage
Activity	5	5%
Periodical exam	10	10%
Practical exam	25	25%
Written exam	50	50%
Oral exam	10	10%

TOTAL	100	100%

## **G- Facilities required for teaching and learning:**

• Black (white) board, Data show and software.

### **H- List of References:**

#### **1- Course Notes:**

- Student book of cell biology approved by biochemistry department 2019.
- Practical notes of cell biology approved by biochemistry department 2019.

#### **2- Essential books:**

- Cell biology, 3rd edition 2017, Thomas D. Pollard, William C. Earnshaw, Jennifer Lippincott-Schwartz, Graham Johnson.
- Encyclopedia of cell biology, 1st edition 2015, Ralph A.Bradshaw, Philip D. Stahl.
- Molecular cell biology (8th edition); Harvey Lodish, Arnold Berk, S Lawrence Zipursky, Paul Matsudaira, David Baltimore, and James Darnell. New York: W. H. Freeman (2016).

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Course Coordinator: Prof. Dr. Rawia Sarhan Amin Head of Department: Prof. Dr. Sahar El-Swefy Date: 23/9/2019تم مناقشة و إعتماد توصيف المقرر من مجلس القسم بتاريخ

# Matrix I of Cell biology course

						Key elements of Cell biology cours
	<b>Course Contents</b>	1-1- COMPETEN CY	3-1- COMPETENCY			<b>4-2- COMPETENCY</b>
	Lectures	1.C1.1	3.C1.1	3.C1.2	3.C1.3	4.C2.1
1	Cell theory- Animal cell-Plant cell Prokaryotic cell- Eukaryotic cell	X				
2	Structure of cell membrane Cytoplasm- Transport across membrane Nucleus (Chromatin and chromosomes)	x				
3	Endoplasmic reticulum - Golgi apparatus Lysosomes	x				
4	Chloroplasts -Mitochondria- Cytoskeleton- Micro-bodies	X				
5	Molecular genetics- DNA and RNA synthesis	X		x		
6	Protein synthesis- Mutation points	x		X		
7	Periodical exam	X				
8	Cell growth- Cell division (Mitotic)	X				
9	Cell division (Meiosis) -Cell cycle regulation	X				
10	Apoptosis-mechanism of apoptosis	x	X			
11	Necrosis	x	X			
12	Apoptosis and its relation to cancer	X	x			
13	Apoptosis and its relation to AIDs and atherosclerosis	x	x			
	Practical sess	ion				
1	Introduction (General terms of cell biology) Types and parts of microscope				X	

2	Micrographs of plant and animal cells at E.M level	x	
3	Micrograph of cell membrane at E.M level	X	
4	Micrograph of nucleus at E.M level	X	
5	Micrographs of smooth and rough endoplasmic reticulum	X	
6	Micrograph of Golgi apparatus at E.M level Micrograph of lysosomes at E.M level	X	
7	Micrograph of mitochondria at E.M level Micrograph of chloroplasts at E.M level	X	
8	Micrograph of cytoskeleton (microtubules) Micrograph of cytoskeleton (microfilaments)	X	
9	Micrograph of different stages of cell division	X	
10	Activity (Report)		X

				Matrix II of C	ell Biolog	y cours	e				
Nat			Program Course	Course	Sources	Teachi	ing and le methods	U	Weigh	ting of as	sessment
Sta	indards NARS	key elements	key elements	contents	Sources	Lecture	Practical session	Self learning	Written exam	Practical exam	Periodical exam
				Cell theory- Animal cell-Plant cell Prokaryotic cell- Eukaryotic cell	Student book Essential books	x			x		x
			Cell growth- Cell division (Mitotic)	Student book Essential books	x			x		x	
	Demonstrate understanding of			Cell division (Meiosis) Cell cycle regulation	Student book Essential books	x					
1.1.1	knowledge of pharmaceutical, biomedical, social,	1.C1.1	1.C1.1	Apoptosis- mechanism of apoptosis	Student book Essential books	x			x		
	behavioral, administrative, and clinical sciences.			Necrosis	Student book Essential books	x			X		
		ciences.	Apoptosis and its relation to cancer	Student book Essential books	x			x			
				Apoptosis and its relation to AIDs and atherosclerosis	Student book Essential books	x			x		
3.1.1	Apply the principles of body function and basis of genomics in health and disease states to manage different diseases.	3.C1.1	3.C1.1 3.C1.2	Structure of cell membrane Cytoplasm- Transport across membrane Nucleus (Chromatin and chromosomes)	Student book Essential books	x			x		x

				Endoplasmic reticulum - Golgi apparatus- Lysosomes- Chloroplasts	Student book Essential books	x			x		x
				Mitochondria- Cytoskeleton- Micro- bodies	Student book Essential books	x			x		x
				Molecular genetics- DNA and RNA synthesis	Student book Essential booksInternet	x		x	x		x
				Protein synthesis- Mutation points	Student book Essential books	x			x		x
				Cell growth- Cell division (Mitotic)	Student book Essential books	x			x		x
				Cell division (Meiosis) Cell cycle regulation	Student book Essential books	x					
				Apoptosis- mechanism of apoptosis	Student book Essential books	x			x		
				Necrosis	Student book Essential books	x			x		
				Apoptosis and its relation to cancer	Student book Essential books	x			x		
				Apoptosis and its relation to AIDs and atherosclerosis	Student book Essential books	x			x		
3.1.3	Monitor and control microbial growth and carry out laboratory tests for	3.C1.4	3.C1.3	Introduction (General terms of cell biology)- Types and parts of microscope	Practical notes		x			x	
	identification of infections/ diseases.			Micrographs of plant and animal cells at E.M level			X			x	

				Micrograph of cell membrane at E.M level		x	x	
				Micrographs of smooth and rough endoplasmic reticulum		x	x	
				Micrograph of nucleus at E.M level		x	x	
				Micrograph of Golgi apparatus at E.M level		x	x	
				Micrograph of lysosomes at E.M level		x	x	
				Micrograph of mitochondria at E.M level		x	x	
				Micrograph of cytoskeleton (microtubules)		x	x	
				Micrograph of cytoskeleton (microfilaments)		x	x	
				Micrograph of chloroplasts at E.M level		x	x	
				Micrograph of different stages of cell division		x	x	
4.2.2	Use contemporary technologies and media to demonstrate effective presentation skills.	4.C2.3	4.C2.1	Activity (report)	Internet	x	x	

### **Course Coordinator:** Prof. Dr. Rawia Sarhan Amin

## Head of Department: Prof. Dr. Sahar El-Swefy

تم مناقشة و إعتماد توصيف المقرر من مجلس القسم بتاريخ23/9/2019 تم مناقشة و

## COURSE SPECIFICATIONS

English language II

First level – Semester 2

2019-2020

## **Course specification of English Language 2**

University:	Zagazig	F	aculty:	Pharmacy	7
A- Course spe	ecifications:				
Program(s) on	which the course i	is given:	Bachelor	of Pharmacy	(Clinical
pharmacy pharm	ıD)				
Major or Minor	element of programs	s: N	Iajor		
Department offer	ring the program:				
Department offer	ring the course:	English D	epartment/	Faculty of Ed	ucation
Academic year/ l	Level:	Firs	st level /sem	nester 2	
Date of specifica	tion approval:	Ľ	ec 2019		
<b>B- Basic infor</b>	mation:				
Title: English la	nguage-2		Code: U	R 204	
Credit Hours:	-				
Lectures: 1 hr/we	eek				
Practical:					
Tutorials:					
Total: 1 hr/week					
<b>C- Profession</b>	al information:				

### **1-Overall Aims of the Course:**

On completion of the course, students will be able to recognize the fundamentals of effective scientific writing. It covers methods of paraphrasing, common mistakes in scientific writing, different writing styles, how to write a scientific report, proposal and manuscript.

#### 2-Key elements of English language 2:

DOMAIN	DOMAIN 1- FUNDAMENTAL KNOWLEDGE					
Integrate to standar	<b>1-1- COMPETENCY</b> Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.					
1.C1.1	1.C1.1 Enumerate different writing styles as well as paraphrasing techniques					
1C1.2	Outline the components and essential steps of writing scientific reports, proposal and manuscript					
1.C1.3	<b>1.C1.3</b> Identify common mistakes in writing scientific reports					
DOMAIN	I 4: PERSONAL PRACTICE					
Effective	<b>4-2- COMPETENCY</b> Effectively communicate verbally, non-verbally and in writing with individuals and communities.					
4.C2.1	Develop students' oral and written English language skills necessary to communicate in basic social and professional interactions related to their field of specialization					
4.C2.2	Write scientific report, proposal and manuscript using correct English					

### **D- Contents:**

Week No.	Lecture (1hr/week)		
1	Components of an Effective Paragraph: Topic		
	Sentences & Supporting details		
2	Components of an Effective Paragraph: Concluding		
	Sentences		
3	methods & Techniques of paraphrasing		
4	common mistakes in scientific writing		
5	different writing styles		
6	how to write a scientific report		
7	Midterm exam		
8	how to write proposals and manuscripts		
9	labels, abbreviations and acronyms Grammar, Spelling		
	and Punctuation in scientific writing		
10	writing a practical research paper		
11	Optimizing paragraph and sentence structure in		
	scientific writing		
12	Coherence in scientific writing		

13	Cohesion in scientific writing
14	Transitions in scientific writing
15	Final exam

## **E- Teaching and Learning Methods:**

- Lectures
- Self learning (exercises....)
- Journal reflections
- Internet resources are used as an integral part of the instruction.
- Electronic Mail which allows learners to freely interact on an individual or group level with other learners and the instructor.
- e- portfolio that includes all their activities during the semester. By the end of the semester, the students will send their e-portfolios via the instructor's e-mail to be evaluated.
- Blended learning

### **F- Student Assessment Methods:**

Written exam	to assess	1.C1.1, 1.C1.2, 1.C1.3
Assignments & p	ortfolio to assess	4.C2.1, 4.C2.2

### **Assessment schedule:**

Assessment (1): Midterm exam	Week 7
Assessment (1): Written exams	Week 15

### Weighting of Assessment:

Assessment method	Marks	Percentage
Midterm exam &	25	25%
assignments		
Final Written exam	75	75%
TOTAL	100	100%

## **G- Facilities Required for Teaching and Learning:**

• Black (white) board, Data show.

## **H- List of References:**

- 1- Course Notes: Student book of English approved by English department 2019
- 2- Essential Books (Text Books)
- Page, M., E., P. (2006). ESL Intermediate/Advanced Writing (English as a Second Language Series), Research & Education Association
- Gallagher, C. (2016). Writing in English is Easy!, CreateSpace Independent Publishing Platform
- Scholastic (2010). Scholastic Success with Reading Comprehension, Teaching; Illustrated edition (March 1, 2010)
- Thomas N. Huckin, Leslie A. Olsen (1983) English for science and technology: a handbook for nonnative speaker: McGraw-Hill, 1983 Language Arts & Disciplines
- Beare, K. (2002) Speaking English for Medical Purposes
- Parkinson, J. (1998). English for Science and Technology
- Paltridge, B., Starfield, S. and Parkinson, J. (2012). English for Science and Technology; Published Online: 13 SEP 2012
- Orr, T (2012). English for Science and Technology; by Published Online: 5 NOV 2012
- Trimble, L. and Swan, M. (Editor). English for Science and Technology : A Discourse Approach, Cambridge University Press
- Master, P. A. Science, Medicine, and Technology: English Grammar and Technical Writing, Publisher: Prentice Hall
- Ram Krishna Singh, R. K. (1998) Using English in Science and Technology

### D. Periodicals, Journals, Web Sites, etc

Medical English for Pharmacist http://www.englishmed.com/pharmacists/ Learn English Vocabulary for the Pharmacy https://www.canlearnenglish.com/english-at-the-pharmacy/ English at the Pharmacy https://www.canlearnenglish.com/english-at-the-pharmacy/ English for Pharmacist https://competencyrx.com/images/pdf/English\_for\_Pharmacist.pdf

Medical English

https://www.medicalenglish.com/

English as a Second Language

https://learn.saylor.org/course/index.php?categoryid=29&utm\_source=google&utm\_medium=ke yword&utm\_campaign=google\_keyword\_ad\_esl

International Dental Journal

http://www.fdiworlddental.org/resources/journals/international-

dental-journal

The English Journal

http://www.ncte.org/journals/ej

**TESOL** Quarterly

http://www.tesol.org/read-and-publish/journals/tesol-quarterly

ESL Journal

http://www.esljournal.org/

ESP journal

http://www.esp-world.info/

Grammarly: Great Writing, Simplified

https://www.grammarly.com/?utm\_source=google&utm\_medium=cpc&utm\_campaign=searchgr oupewriting&utm\_content=0&utm\_term=&matchtype=&placement=&network=&gclid=EAIaIQ obChMIvbvH0pyt6wIViPdRCh18lwIOEAMYASAAEgJQw\_D\_BwE

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**Course Coordinator:** Dr. Mohamed Hassan; Dr. Micheal Abd EL-Messih; Dr. Ahmed Abd El-Salam Edries

**Date:** /9/2019

	Matrix I of English language 2 course									
		Key elements of English 2 course								
	<b>Course Contents</b>	Knowledge and D understanding				OOMAIN 4: PERSONAL PRACTICE				
		1.C1.1	1.C1.2	1.C1.3		4.C2.1		4.C2.2		
1	Components of an Effective Paragraph: Topic Sentences & Supporting details		X				x			
2	Components of an Effective Paragraph: Concluding Sentences		x				X			
3	methods & Techniques of paraphrasing	x					X			
4	common mistakes in scientific writing			X			х			
5	different writing styles	x					X			
6	how to write a scientific report		x				X	Х		
7	how to write proposals and manuscripts		х				х	Х		
8	labels, abbreviations and acronyms Grammar, Spelling and Punctuation in scientific writing		x				x			
9	writing a practical research paper		х				x	X		
10	Optimizing paragraph and sentence structure in scientific writing		x				X			
11	Coherence in scientific writing		x				x			
12	Cohesion in scientific writing		x				x			
13	Transitions in scientific writing		x				x			

	Matrix II of English language 2 course										
National Academic Reference		8	Course key	Course	Sources	Teaching and learning methods			Method of assessment		
	tandards NARS	elements	elements	contents		Lecture	portfolio	assignments	Written exam		
			1.C1.1	methods & Techniques of paraphrasing different writing styles	Student book	x			X		
1-1-1-	Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.C1.1	1.C1.2	Components of an Effective Paragraph: Topic Sentences & Supporting details Components of an Effective Paragraph: Concluding Sentences how to write a scientific report how to write proposals and manuscripts labels, abbreviations and acronyms Grammar, Spelling and Punctuation in scientific writing writing a practical research paper Optimizing paragraph and sentence structure in scientific writing	Student book	X			X		

			1.C1.3	Coherence in scientific writing Cohesion in scientific writing Transitions in scientific writing common mistakes in scientific writing	Student book	x	x
4.2.1	Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities.	4.C2.1	4.C2.1	Components of an Effective Paragraph: Topic Sentences & Supporting details Components of an Effective Paragraph: Concluding Sentences methods & Techniques of paraphrasing common mistakes in scientific writing different writing styles how to write a scientific report how to write a scientific report how to write proposals and manuscripts labels, abbreviations and acronyms Grammar, Spelling and Punctuation in scientific writing writing a practical research paper Optimizing paragraph and	Student book		
				sentence structure in scientific writing Coherence in			

	scientific writing Cohesion in scientific writing Transitions in scientific writing			
4.C2.2	how to write a scientific report how to write proposals and manuscripts writing a practical research paper	Student book, essential book	х	Х

**Course Coordinators: Course Coordinator:** Dr. Mohamed Hassan; Dr. Micheal Abd EL-Messih; Dr. Ahmed Abd El-Salam Edries

**Date:** /9/2019