



# Course Specification

— (Bachelor)

Course Title: **Pharmacology-1**

Course Code: **341 PHL-3**

Program: **Pharmaceutical Sciences**

Department: **Pharmacology**

College: **Pharmacy**

Institution: **Najran University**

Version: **1**

Last Revision Date: **24/12/2023**

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## A. General information about the course:

### 1. Course Identification

1. Credit hours: (3 (2+1) )

#### 2. Course type

A. ☐ University ☐ College ☐ Department ☐ Track ☒ Program  
B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: (5<sup>th</sup> level/ 3<sup>rd</sup> year)

#### 4. Course general Description:

This course provides students with the basic concepts of general pharmacology, including basics principles of pharmacokinetics, and pharmacodynamics. In addition, it involves studying the pharmacological bases of autonomic drugs including parasympathomimetics, parasympatholytics, sympathomimetics and sympatholytics. Moreover, the course involves studying the pharmacological basis of diuretics, drugs affecting cardiovascular system as well as the drugs used in disorders related to blood. The practical part of course includes basics of experimental pharmacology, prescription writing and effects of autonomic and cardiovascular drugs on blood pressure and on isolated tissues/organ with studying clinical cases.

#### 5. Pre-requirements for this course (if any):

**Physiology (242 PHL-3)**

#### 6. Co-requisites for this course (if any):

**None**

#### 7. Course Main Objective(s):

Students after completion this course will be:

- Aware by the general principles of pharmacokinetics and fate of drug in the body.
- Acquainted with the general principles of Pharmacodynamics and drug mechanisms of action.
- Conversed with the classification, mechanism of action, therapeutic uses, adverse effects, drug interactions, and contraindications of the drugs acting on autonomic nervous system, cardiovascular system, and blood coagulation.

### 2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning	-	-
3	Hybrid <ul style="list-style-type: none"> <li>• Traditional classroom</li> <li>• E-learning</li> </ul>	-	-
4	Distance learning	-	-



### 3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	30
3.	Field	-
4.	Tutorial	-
5.	Others (specify)	-
Total		60

### B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Students after completion this course will be able to: Outline the basic principles of Pharmacology, pharmacokinetics and pharmacodynamics, the various routes of drug administration, drug interactions and adverse drug reactions. basics functioning of autonomic nervous system, pharmacology of drugs effecting its functioning and memorize drugs acting on kidney and drugs acting on the cardiovascular system.	K1	Lectures	Written exams with multiple choice questions (MCQs) and short-answer questions (Quizzes, Mid-term and Final exams)
2.0	Skills			
2.1	Evaluate the possible applications of basic principles of pharmacokinetics and pharmacodynamics of drugs.	S1	Lectures Laboratory work Case studies or multimedia instruction	Written exams with multiple choice questions (MCQs) and short-answer questions

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
				(Quizzes, Mid-term and Final exams) Practical Exams
2.2	Evaluate the pharmacological principles of drug acting on autonomic nervous system, kidney, CVS system.	S2	Lectures Laboratory work Case studies or multimedia instruction Group discussion	Written exams with multiple choice questions (MCQs) and short-answer questions (Quizzes, Mid-term and Final exams) Practical Exams
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate leadership, skills, in addition to accountability, confidence, and independent thinking to respond to routine or unanticipated circumstances.	V1	Lectures Practice sessions	Observation card
3.2	Professional use of computer in preparing reports, assignments, and oral presentations and to be skilled in the use of electronic library and internet resources for self-directed learning.	V2	Lectures	Assignments (using rubrics) Presentations (using rubrics)

### C. Course Content

No	List of Topics (Theory)	Contact Hours
1.	Introduction + Pharmacokinetics: Absorption	2
2.	Drug Distribution	1
3.	Drug Biotransformation	1
4.	Drug Excretion	1
5.	Pharmacodynamics: Mechanisms of drug action, and tolerance	2
6.	Pharmacodynamics: Drug interactions and adverse drug reactions	2
7.	Introduction to autonomic nervous system	1





8.	Direct acting Cholinomimetics	1
9.	Indirect cholinomimetics: Reversible & Irreversible anticholinesterases	2
10.	Muscarinic receptors blocking drugs	1
11.	Sympathomimetics, catecholamines & B2-agonists	2
12.	Central adrenergic agonists & indirect acting agents	1
13.	Alpha adrenergic blockers	1
14.	Beta adrenergic blockers	1
15.	Adrenergic neuron blocking drugs	1
16.	Diuretic drugs	2
17.	Antihypertensive drugs	2
18.	Treatment of heart failure	2
19.	Treatment of angina pectoris	1
20.	Agents used in cardiac arrhythmias	2
21.	Agents used in hyperlipidemia	1
<b>Total</b>		<b>30</b>

No	List of Topics (Practical)	Contact Hours
1.	Introduction to Experimental Pharmacology	2
2.	Drug dosage forms	2
3.	Channels of drug administration	2
4.	Drug metabolism: The liver microsomal enzyme system	2
5.	Pharmacokinetic models of drug metabolism	2
6.	Pharmacodynamic model: drug receptor interaction and signal transduction mechanism.	2
7.	Dose-response curve	2
8.	Effect of autonomic drugs on rabbit Eye	2
9.	Effect of autonomic drugs on frog heart-1	2
10.	Effect of autonomic drugs on frog heart-2	2
11.	Effect of autonomic drugs on dog blood pressure-1	2
12.	Effect of autonomic drugs on dog blood pressure-2	2
13.	Effect of spasmogens and spasmolytics on isolated rabbit intestine.	2
14.	Prescription order writing	2
15.	Revision	2
<b>Total</b>		<b>30</b>



## D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz	5 <sup>th</sup> week	10%
2.	Midterm Exam	8 <sup>th</sup> week	20 %
3.	Practical Quiz	9 <sup>th</sup> week	5%
4.	Student Activity/Assignment/Presentation	14th Week	5%
5.	Students Observation card	Per semester	10%
6.	Final Practical Exam	16 <sup>th</sup> week	10%
7.	Final Theoretical Exam	17 <sup>th</sup> week	40%
8.	<b>Total</b>		<b>100%</b>

\*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

## E. Learning Resources and Facilities

### 1. References and Learning Resources

<b>Essential References</b>	B. Katzung. Basic & Clinical Pharmacology. 15th Edition by B.G. Katzung.
<b>Supportive References</b>	1. Goodman& Gilman: Pharmacological Basis of Therapeutics. 14 <sup>th</sup> Edition. 2. Katzung-Trevor. Basic & Clinical Pharmacology. 4th Edition. 3. Rang & Dale's: Pharmacology. 9 <sup>th</sup> Edition.
<b>Electronic Materials</b>	1. Pub Med 2. Science direct. 3. Medscape. 4. www.dlaf.nu.edu.sa
<b>Other Learning Materials</b>	1. Ex-pharm. 2. Drug metabolism Model. 3. Pharmacodynamics and drug receptor Model. 4. Microsoft word software.

### 2. Required Facilities and equipment

Items	Resources
<b>facilities</b> (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	1. Suitable lecture room equipped with data show and internet and sufficient number of seats. 2. Suitable laboratories equipped with health and safety tools, internet, and enough seats. 3. Blackboard collaborative system for e-learning in NU.
<b>Technology equipment</b> (projector, smart board, software)	1. Data show. 2. Computer software listed above. 3. Internet and Wifi- access
<b>Other equipment</b> (depending on the nature of the specialty)	1. Expharm 2. Pharmacal software 3. Different drug dosage forms. 4. Drug samples demonstration lab

## F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Head of departments and students	Direct Indirect (Questionnaires)
Effectiveness of Students assessment	Department Faculty members and department council	Direct Direct
Quality of learning resources	Students Department faculty member	Indirect (Questionnaires) Direct
The extent to which CLOs have been achieved	Faculty	Direct
Other		

**Assessors** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## G. Specification Approval

<b>COUNCIL /COMMITTEE</b>	PHARMACOLOGY DEPARTMENT COUNCIL
<b>REFERENCE NO.</b>	COUNCIL NO. 5, 1445-1446 H
<b>DATE</b>	24/12/2023

