

T6. Course Specification (CS)

Institution:: <u>Najan university</u>	Date <u>17/8/1438H</u>
College/Department : <u>College of Medicine / Pharmacology Department</u>	

A. Course Identification and General Information:

1. Course title and code : <u>Pharmacology (PHL-245)</u>			
2. Credit hours: <u>3(2+1)</u>			
3. Program(s) in which the course is offered. <u>Medicine and Surgery</u> (If general elective available in many programs indicate this rather than list programs). (
4. Name of faculty member responsible for the course: <u>Dr. Basel A. Abdel-Wahab Mohammed</u> Associate professor of basic and Clinical Pharmacology <u>Massod Kateeb</u> Lecturer dept of Pharmacology			
5. Level/year at which this course is offered : <u>level 4/ 2nd year</u>			
6. Pre-requisites for this course (if any) : <u>Introductions to Anatomy, Physiology and Biochemistry.</u>			
7. Co-requisites for this course (if any) (<u>None</u>			
8. Location if not on main campus : <u>موقع تقديم المقرر إن لم يكن داخل المقر الرئيس للجامعة</u>			
9. Mode of Instruction (mark all that apply) (نمط التدريس (ضع علامة على كل ما ينطبق)			
a. Traditional classroom	<input checked="" type="checkbox"/>	What percentage	<u>100</u>
b. Blended (traditional and online)	<input type="checkbox"/>	What percentage	<input type="text"/>
c. e-learning	<input type="checkbox"/>	What percentage	<input type="text"/>
d. Correspondence	<input type="checkbox"/>	What percentage	<input type="text"/>
f. Other	<input type="checkbox"/>	What percentage	<input type="text"/>
Comments : <u>The course is conducted in classroom equipped with e-learning facilities and practical classes are conducted in the department labs.</u>			

B. Objectives

1. What is the main purpose for this course

- Acquire the basic knowledge about drugs and its use in treatment of diseases.
- Demonstrate the different methods of drug administration and dosage forms.
- Describe the basic principles of drug absorption, and distribution. Also how the drug is removed from the body.
- Identify the possible mechanisms by which drug can exert its therapeutic and undesirable effects.
- Describe the guiding concepts of development of drug tolerance.
- Describe the pharmacological basis of drugs affecting the autonomic nervous system.
- Application of information about autonomic drugs and its use in treatment of diseases.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

Continuous updating of the information, knowledge and skills included in the course through the continuous search for new knowledge and skills available in recent publications (books, researches, internet and others).

- 1) Continuous improvements in teaching methods to encourage the students to participate effectively in the various academic activities.
- 2) Continuous evaluation of the course content and students' performance to establish plans accordingly.

C. Course Description (Note: General description in the form used in the Bulletin or handbook should be attached.

Course Description :

This course includes the basic principle of pharmacokinetics and pharmacodynamics, some aspect of clinical pharmacology and the pharmacology of drug effecting sympathetic and parasympathetic nervous system and their therapeutic uses..

1. Topics to be Covered :		
List of Topics	No. of Weeks	Contact Hours
Introduction to general pharmacology	1 st week	1
Pharmacokinetics: Mechanisms of drug transport through biological membranes		1
Routes of drug administration.		1
Factors affecting drug absorption	2 nd week	1
Drug distribution		1
Drug redistribution phenomenon.		1
Drug plasma protein binding	3 rd week	1
Drug tissue protein binding		1
Drug biotransformation		1
Phases, sites and factors affecting biotransformation.	4 th week	1
Drug renal excretion		1
Drug fecal excretion, and other routes of drug excretion		1
Clinical pharmacokinetics. Therapeutic drug monitoring	5 th week	1
Clinical pharmacokinetics: Bioavailability & volume of distribution		1
Clinical pharmacokinetics: Clearance & biological half life		1
Receptor theory and transmembrane signaling mechanisms.	6 th week	1
Drug concentration-response relationship.		1
Receptor regulation and variations in drug response.		1
Drug antagonism	7 th week	1
Drug interactions: Pharmacokinetic interactions		1
Drug interactions: Pharmacodynamic interactions		1
Undesirable drug effects.	8 th week	1
Introduction to ANS.		1
Direct acting cholinomimetics		1
Effect of autonomic drugs on the Eye	9 th week	1
Reversible Indirect cholinomimetics.		1
Irreversible Indirect cholinomimetics: OPC		1
Antimuscarinic drugs: classification, mechanisms, uses	10 th week	1
Antimuscarinic drugs: adverse effects, contraindications.		1
Effect of drugs on neuromuscular junction		1
Sympathomimetics: classification, Direct acting.	11 th week	1
Indirect acting sympathomimetics.		1
Alpha adrenergic blockers. Non-selective and selective α_1 -blockers		1
Non-selective Beta adrenergic blockers.	12 th week	1
Cardioselective β -blockers		1

Adrenergic neuron blockers		1
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2. Practical labs

Topic	Week	Contact hours
Introduction to experimental pharmacology	1 st week	2
Drug dosage forms	2 nd week	2
Channels of drug administration	3 rd week	2
Drug metabolism , liver microsomal enzymes	4 th week	2
Pharmacokinetic models of drug metabolism	5 th week	2
Drug receptor interactions, drug targets and signaling transduction mechanisms.	6 th week	2
Dose-response curve	7 th week	2
Effect of autonomic drugs on rabbit Eye	8 th week	2
Effect of autonomic drugs on rabbit heart	9 th week	2
Effect of autonomic drugs on rabbit blood pressure	10 th week	2
Effect of spasmogens and spasmolytics on isolated rabbit intestine.	11 th week	2
Prescription order writing	12 th week	2

1.Course components (total contact hours and credits per semester:						
	Lecture	Tutorial	Practical	Other:	Total	
Contact Hours	36	-	24	-	60	Contact Hours
Credit	36	-	12	-	48	Credit

3-Additional private study/learning hours expected for students per week	6-8
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table)

Second, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes.

Third, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain).

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Outline the basic principle of pharmacokinetics and pharmacodynamics and some aspect of clinical pharmacology.	1. Classical lectures. 2. Practical classes. 3. Tutorials. 4. E-learning. 5. Seminars. 6. Group assignments.	1. MCQs. 2. Log Book. 3. Case study. 4. Posters. 5. Demonstrations. 6. Individual and group presentations.
1.2	Describe the pharmacology of drug effecting sympathetic and parasympathetic nervous system and their therapeutic uses.	1. Classical lectures. 2. Practical classes. 3. Tutorials. 4. E-learning. 5. Seminars. 6. Group assignments.	1. MCQs. 2. Log Book. 3. Case study. 4. Demonstrations. 5. Posters. 6. Individual and group presentations.
2.0	Cognitive Skills		
2.1	Identify the various factors effecting pharmacokinetics and pharmacodynamics principle of drugs administered to obtained optimize therapeutic effect in different patients (factors effecting drugs dosage, route of drug administration, ADME parameters, dose response , receptor regulation, bioavailability, volume of distribution and half-life of a drug)	1. Classical lectures. 2. Practical classes. 3. Tutorials. 4. E-learning. 5. Seminars. 6. Group assignments.	1. MCQs. 2. Case study. 3. Posters. 4. Individual and group presentations. 5. Log books.
2.2	Predict the possible action, adverse drug reaction, drug interaction and contraindications of different drugs affecting	1. Classical lectures. 2. Tutorials. 3. E-learning. 4. Seminars.	1. MCQs. 2. Case study. 3. Demonstrations. 4. Posters.

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	autonomic nervous system.	5. Group assignments. 6. Practical labs-demonstration	5. Individual and group presentations. 6. Log books.
3.0	Interpersonal Skills & Responsibility		
3.1	Understand and respect the different cultural beliefs and values that affect the use of certain drug groups and respect ethics related to drug prescription.	1. Tutorials. 2. E-learning. 3. Seminars. 4. Individual and Group assignments.	1. Case study. 2. Posters. 3. Individual and group presentations.
3.2	Behave in ways that convey a professional image such as adherence to deadlines, punctuality, compliance to class rules and regulations. Do self-directed learning and participate in class discussion.		
4.0	Communication		
4.1	Develop skill to use library and internet resources for self-directed learning and operate computer to produce reports, assignment and communication technology to prepare oral presentations.	1. E-learning. 2. Seminars. 3. Individual and Group assignments.	1. Case study. 2. Posters. 3. Individual and group presentations.
5.0	Psychomotor		
5.1	Perform different methods of drug administration, computer stimulated experiments related to effect of drugs on isolated tissue/organ of the experimental animals and or anesthetized animals. Practice to write safe prescriptions for selected common and important diseases.	1. Practical classes. 2. Tutorials. 3. Computer assisted learning	1. MCQs. 2. Log Book. 3. Case study. 4. Demonstrations.

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quiz -1	4 th week	5%
2	Quiz-2	6 th week	5%
3	Quiz-3	9 th week	5%
4	Midterm exam	8 th week	20%
5	Seminar presentation	9 th -11 th week	5%
	Final practical Exam	13 th week	20%
	Final written Exam	13 th week	40%

D. Student Academic Counseling and Support:

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
 - Academic office hours will be determined and announced on the office of the staff members responsible for teaching the course after arrangement between students and staff time tables and kept on the staff web site of Najran University.

E. Learning Resources مصادر التعلم

1. **List Required Textbooks**
B. Katzung. Basic and clinical Pharmacology. 11th edition.
2. **List Essential References Materials** (Journals, Reports, etc.)
 1. British journal of Pharmacology.
 2. Journal of Pharmacology and experimental therapeutics.
 3. European journal of Pharmacology.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
 - www.pubmed.com
 - www.druglib.com
 - www.icp.org.nz
 - www.globalrph.com
 - www.rx.com
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.
 1. Cardiolab software.
 2. Isolated rabbit heart (Pharma CAL software).
 3. isolated rabbit intestine (Pharma CAL software).
 4. Signal transduction mechanisms (Pharma CAL software).

F. Facilities Required

- Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
One classroom and one laboratory contains 33 seat in each are needed.
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
 - Data show.

- Smart Board.
- 10 computers.
- Computer software listed above.

2. Computing resources (AV, data show, Smart Board, software, etc.)

1. Arm models for injection training.
2. Isolated organ baths.
3. Lab animals (mice, rats, rabbits).
4. Non-invasive blood pressure measuring system.

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list).

G. Course Evaluation and Improvement Processes تقييم المقرر الدراسي وعمليات تحسينه

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

Students feedback about the course and teaching process is obtained through electronic voting on the website of najran university in the deanship of student's affairs.

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor

- Observations from colleagues.
- Class observation by supervisors.
- Independent assessment of standards achieved by the students.

3 Processes for Improvement of Teaching

- Continuous updating of course contents according to the previous course report.
- Regular meetings where problems are discussed and solutions given.
- Workshops on teaching methods.
- Review of recommended teaching strategies.

4. **Processes for Verifying Standards of Student Achievement** (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- Check marking of a sample of student work by an independent faculty member.
- Students who believe they are under graded could have their papers checked by another reader.

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Action plan for course improvement is updated at the end of the course according to the feedback about the course from students, other colleagues and the dean.

Name of instructor : Dr. Basel A. Abdel-Wahab; Masood Medleri Khateeb

Signature : _____ Date Report Completed: 17/8/1438H

Name of field experience teaching staff : Pharmacology and toxicology

Program coordinator : _____

Signature: _____ Date received: _____