



T-104
2022

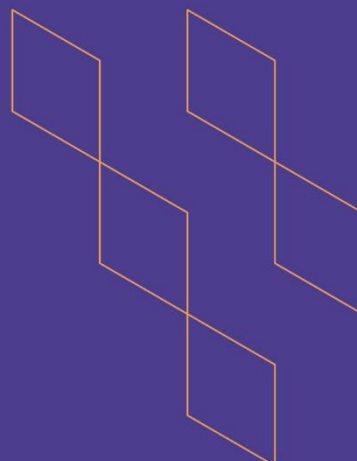
Course Specification





T-104
2022

Course Specification



Course Title:	Basic Pharmacokinetics
Course Code:	334-PHU-3
Program:	Pharmaceutical Sciences
Department:	Pharmaceutics
College:	College of Pharmacy
Institution:	Najran University
Version:	1
Last Revision Date:	20/12/2023



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A. General information about the course:

Course Identification	
1. Credit hours:	3 (2+1)
2. Course type	
a. University <input type="checkbox"/>	College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Track <input type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/>	Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 6 Level/ 3 rd Year	
4. Course general Description	
The course will provide concepts and understanding to students related to drug pharmacokinetic. The course is designed to provide fundamental understanding for how the body behaves with drug with reference to four basic components of pharmacokinetics: absorption, distribution, metabolism, and excretion.	
5. Pre-requirements for this course (if any): 331-PHU-3	
6. Co- requirements for this course (if any): NA	
7. Course Main Objective(s)	
I. To study the basic concepts and principles of drug pharmacokinetics.	
II. To provide understanding related to underlying factors that responsible for inter-subject variability in drug absorption and disposition.	

1. 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"> Traditional classroom E-learning 		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

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

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Demonstrate Knowledge and understanding related to basic pharmacokinetics of pharmaceuticals.	K1	Lectures	Theoretical exams (Essay exam, MCQ, Quizzes); Assignments
1.2	Demonstrate knowledge of physicochemical characteristics of pharmaceuticals influencing pharmacokinetic	K3	Lectures	Theoretical exams (Essay exam, MCQ, Quizzes); Assignments
2.0	Skills			
2.1	Demonstrate ability to calculate pharmacokinetic parameters on drug administration into body	S3	Lectures Lab work	1. Theoretical Exams 2. Practical Exam
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate ability to Work independently and professionally.	V1	Problem-based learning, Small group discussion	1. Practical Exam 2. Laboratory reports 3. Observation Card
...				

C. Course Content

No	List of Topics (Theory)	Contact Hours
1.	Introduction to basic pharmacokinetics (Absorption, distribution, protein binding, metabolism, excretion)	6
2.	Basic consideration of pharmacokinetics (Plasma drug concentration-time profile, pharmacokinetic parameters, rate constants and orders of reactions)	4
3.	Pharmacokinetic analysis: model and model-independent approach Pharmacokinetic models – compartment, physiological; non-compartment analysis	4
4.	Pharmacokinetic of intravenous bolus administration	4
5.	Pharmacokinetic of intravenous infusion administration	2
6.	Pharmacokinetic of oral administration	4
7.	Pharmacokinetics of Multiple Dosing	2
8.	Two compartmental pharmacokinetics	2
9.	Non-linear Pharmacokinetic	2
Total		30

No	List of Topics (Practical)	Contact Hours
1.	Plot of plasma drug concentration-time profile and determination of C _{max} , T _{max} , AUC	2
2.	Calculation related to zero-order kinetics and first-order kinetics	4
3.	Pharmacokinetic calculation on IV bolus administration, (Determination of K _e , T _{1/2} , V _d , Cl, etc.)	6
4.	Pharmacokinetic calculation on oral administration (Determination of K _e , T _{1/2} , V _d , Cl, etc.)	6
5.	Determination of absorption rate constant (K _a): method of residual, Wagner-Nelson method	4
6.	Pharmacokinetic calculation on IV infusion administration	4
7.	Pharmacokinetic on Multiple dosage regimen	4
Total		30

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz exam -I	5	05%
2.	Midterm exam	7-9	20%
3.	Quiz exam -II	12	05%
4.	Assignments	15	05%
5.	Laboratory note book and practical quiz	15	10%
6.	Observation card in lab	1-15	05%
7.	Final Practical exam	16	10%
8.	Final Theory exam	17-19	40%

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

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	<ol style="list-style-type: none"> 1. Basic Pharmacokinetics, Sunil S. Jambhekar and Philip J Breen, 2012 2. Power points slides/study materials (available through blackboard)
Supportive References	1. Basic Pharmacokinetics, Mohsen A. Hedaya, 2023
Electronic Materials	https://sdl.edu.sa/SDLPortal/en/Publishers.aspx https://www.nu.edu.sa/en/web/deanship-of-libraries-affairs/85
Other Learning Materials	Excel software for pharmacokinetic parameters calculations

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ol style="list-style-type: none"> 1. Suitable lecture room equipped with data show and internet and sufficient number of seats. 2. Suitable computer laboratory with internet and sufficient number of seats including facility for use of computer software for pharmacokinetics parameters.

Items	Resources
Technology equipment (projector, smart board, software)	Computer, projectors, internet access.
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students and the Head of the department	1. Indirect (survey) 2. Head of the department evaluates the faculty member
Effectiveness of students' assessment	Head of department, faculty, and student	1. Checking marking by the students themselves. 2. Using the help of other members in reviewing the quizzes and exams
Quality of learning resources	Students	Survey: Instructor's assessment by students
The extent to which CLOs have been achieved	Quality and development unit	Course specifications are periodically reviewed at Departmental level.
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	Pharmaceutics Department Council
REFERENCE NO.	Department meeting No. 13
DATE	25/12/2023