

Planning and Quality Assurance Affairs

Form (A)

Course Specifications

General Information

Course name	Biopharmaceutics & Pharmacokinetics 2
Course number	PHTC4314
Faculty	
Department	
Course type	Major Needs
Course level	4
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

1 - Have a basic understanding of the scope and impact of biopharmaceutics and pharmacokinetics
2 - To understand the principles of the compartmental analysis
3 - To understand the factors affecting the drugs distribution and metabolism

Intended Learning Outcomes

Knowledge and Understanding	<ul style="list-style-type: none"> * Describe the principles compartmental analysis * Differentiate between the linear and non-linear Pharmacokinetics * To describe and understand how the drug changes inside the body after its absorption to its excretion out from the body * training to calculate the dose administered at any time after the drug administration
Intellectual Skills	<ul style="list-style-type: none"> * Use proper pharmaceutical and medical definitions
Professional Skills	<ul style="list-style-type: none"> * interpretation of the data obtained experimentally by using blood and urine samples
General Skill	<ul style="list-style-type: none"> * Application and relationship between the biopharmaceutics and pharmacokinetics with other Pharmaceutical sciences

Course Contents

- 1 - Introduction to Biopharmaceutics and pharmacokinetics 1
- 2 - Application of biopharmaceutics and pharmacokinetics
- 3 - Compartmental analysis: Pharmacokinetics linear and non-linear compartmental models, uses of pharmacokinetics models
- 4 - Intravascular and extravascular administration of the drugs
- 5 - One compartmental open model after the administration of intravascular iv-bolus of drugs. Calculation of the constant rate of elimination of the drugs
- 6 - One compartmental open model after the extravascular administration of the drugs. calculation of the constant rate of absorption of the drugs. Factors affecting C_{max}, t_{max} and the K_a of drugs. Calculations
- 7 - Two compartmental open model after the administration of intravascular iv-bolus of the drugs. Schematic and graphical representation of the model
- 8 - Non-linear pharmacokinetics: The Michaelis Menten equation, competitive and non-competitive inhibition
- 9 - Drugs distribution and plasma protein binding. Factors affecting the drug distribution and drug binding
- 10 - Biotransformation: Hepatic and extrahepatic routes of excretion of drugs. Factors affecting the drug excretion
- 11 - Drugs excretion: renal and non-renal excretion of drugs. Calculations
- 12 - Bioavailability: Definition and types, factors affecting the bioavailability of drugs. Posology: concept, factors affecting

Books and References

Course note	Gibaldi, M. (1991) Biopharmaceutics and clinical Pharmacokinetics Lea and Febiger. London.
Essential books	Shargel, L. and Yu, A.B.C (2005). Applied Biopharmaceutics and Pharmacokinetics. Pharmaceutical Dosage forms and Drug delivery systems. Howard C. Ansel.