

Planning and Quality Assurance Affairs

Form (A)

Course Specifications

General Information

Course name	Advanced Biopharmaceutics and Pharmacokinetics
Course number	PHAR6302
Faculty	
Department	
Course type	Major Needs
Course level	6
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

1 - Review the principle of biopharmaceutics and pharmacokinetics that can be applied to drug phases (liberation, absorption, distribution and elimination)
2 - Study physiological drug absorption, distribution, metabolism and excretion
3 - Determination variable pharmacokinetic parameters
4 - Mathematic fundamental of compartment open model kinetics for different rout of drug administrat
5 - Biopharmaceutic considerations in drug delivery system
6 - Method of assessing drug concentration in biological fluid

Intended Learning Outcomes

Knowledge and Understanding	* Study main kinetics of drug processes in human body starting from liberation phase, across through absorption, distribution ,metabolism, and ending for excretion phase. * In addition to, studying its pharmacokinetic parameters as Plasma half-life, Absorption and Elimination rate constant, Apparent volume of distribution, Total body clearance and Bioavailability value which assisting to determine the quantitative of drug concentration in the biological fluid and relationship between dose of drug and its pharmacological effect. * Also, application of the pharmacokinetic principles in the clinical practices and how to achieve the effective and safety dose. * The course including the methods for study physicochemical and physiological factors that effect on drug kinetics, in vitro, in vivo and in situ techniques.
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Course Contents

- 1 - Introduction of Biopharmaceutics and pharmacokinetics.
- 2 - Biopharmaceutic considerations in drug product design.
- 3 - Physiological and physicochemical factors affecting on absorption process.
- 4 - Experimental methods (in vitro, in vivo and in situ) for studying drug absorption rate and bioavailability.
- 5 - Physiological drug distribution and protein binding.
- 6 - Drug elimination and Renal clearance.
- 7 - One compartment open models.
- 8 - Multi-compartment models
- 9 - Non-linear pharmacokinetics
- 10 - Posology
- 11 - Multiple dosage regiment
- 12 - Bioequivalence study and method for determination
- 13 - Relationship between pharmacokinetics and pharmacodynamics
- 14 - Application of pharmacokinetics in clinical situation

Teaching and Learning Methods

- 1 - Interactive lectures
- 2 - In vitro/in vivo experimental method
- 3 - Audiovisual aids

Students Assessment

<u>Assessment Method</u>	<u>TIME</u>	<u>MARKS</u>
presentations	3h	20%
Assignment	3h	20%
Midterm Exam	3h	30%
Final Exam	3h	30%

Books and References

Course note	Biopharmaceutics and pharmacokinetics. (Brahmankar and Sunil)
	Biopharmaceutics and pharmacokinetics. (Gibaldi, M)
	Applied Biopharmaceutics and Pharmacokinetics. (Leon Shargel and Susanna Wu-Pong) fifth edition
	Basic pharmacokinetics (Sunil Jambhekar and Philip Breen)
	Biopharmaceutics and clinical pharmacokinetics (Gibaldi, M)
	Fundamental of clinical pharmacokinetics (Wagner, J)
	Pharmacokinetics for pharmaceutical science (Wagner, J)