

Study program: PHARMACY			
Type and level of studies: Integrated Academic Studies, Level 1/2			
Course unit: PHARMACOKINETICS			
Teacher in charge: Professor Natasa Djordjevic, MD, PhD			
Language of instruction: ENGLISH			
ECTS: 7			
Prerequisites: Enrolled in the ninth block of the study program of IAS Pharmacy			
Semester: WINTER SEMESTER			
Course unit objective: Introducing students to the processes that define the fate of the drug in the human body, analysis and interpretation of the pharmacokinetic parameters, and methods of implementation of pharmacokinetic data in optimizing pharmacotherapy.			
Learning outcomes of Course unit: Upon completion of the course in Pharmacokinetics, the student is expected to acquire knowledge about: <ul style="list-style-type: none"> • principles of pharmacokinetic processes in the human body and the factors that affect their variability; • methods of assessing pharmacokinetic parameters; • pharmacokinetic data analysis; • principles of pharmacogenetics; • clinical application of pharmacokinetics and pharmacogenetics; • basic principles and indications for therapeutic drug monitoring; • mechanisms, outcomes, and methods of prevention of clinically important pharmacokinetic drug interactions; • principles of toxicokinetics. At the end of the Pharmacokinetic course, the student is expected to master the skills of: <ul style="list-style-type: none"> • clinical application of pharmacokinetics principles; • analysis of pharmacokinetic parameters; • selecting and adjusting drugs and dosing regimens based on pharmacokinetic parameters; • optimizing therapeutic approach in specific populations, including children, elderly, overweight patients, pregnant and breast-feeding women, and patients with impaired liver or renal function. 			
Course unit contents Theoretical classes <ul style="list-style-type: none"> • introduction to pharmacokinetics: absorption, distribution, metabolism and excretion; • repeated dosing and steady-state pharmacokinetics; • pharmacokinetic modelling and compartmental approach to pharmacokinetic analysis; • principles of first- and zero-order pharmacokinetics; saturable pharmacokinetics; • principles, indications and clinical application of therapeutic drug monitoring; • principles and application of population pharmacokinetics; • principles and clinical application of pharmacogenetics; • pharmacokinetics drug interactions; • drugs and dosing regimens choice and adjustment in children, elderly, overweight patients, pregnant and breast-feeding women, and patients with impaired liver or renal function; • toxicokinetics. Practical classes <ul style="list-style-type: none"> • problem-based practical application of pharmacokinetic data in individualizing pharmacotherapy, using basic pharmacokinetic equations in estimating and optimizing drugs and dosing regimens. 			
Literature <ul style="list-style-type: none"> • Atkinson AJ, Abernethy DR, Daniels CE, et al. Principles of clinical pharmacology. Burlington, MA: Elsevier Inc; 2007. • Shargel L, Yu ABC, eds. Applied Biopharmaceutics & Pharmacokinetics. New York: McGraw-Hill Education; 2016. • Murphy JE, ed. Clinical pharmacokinetics. Bethesda: American Society of Health-System Pharmacists; 2005. • DiPiro JT, Spruill WJ, Wade WE, et al. Concepts in clinical pharmacokinetics. Bethesda: American Society of Health-System Pharmacists; 2005. • Gibaldi M, Perrier D. Pharmacokinetics. New York: Informa Healthcare USA, Inc; 2007. 			
Number of active teaching hours			Other classes
Lectures: 30	Practice: 30	Other forms of classes: Independent work: 15	
Teaching methods: Lectures, practical classes, and problem-based learning.			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points:	Final exam	No. of points:
Student's activity during lectures		oral examination	

practical classes/tests		written examination	100
Seminars/homework		
Project			
Other			

Grading system		
Grade	No. of points	Description
10	91 - 100	Excellent
9	81 - 90	Exceptionally good
8	71 - 80	Very good
7	61 - 70	Good
6	51 - 60	Passing
5	< 51	Failing