Course Unit Descriptor

Study Programme: Master Academic Studies in Biochemistry

Course Unit Title: Metabolism of drugs and xenobiotics

Course Unit Code: IB-507

Name of Lecturer(s): Associate Professor Bojana Srećo Zelenović

Type and Level of Studies: Master of Science Degree

Course Status (compulsory/elective): elective

Semester (winter/summer): summer

Language of instruction: English

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 5

Prerequisites: none

Course Aims:

To introduce students to the basic principles of biotransformation of drugs and xenobiotics via cytochrome P450 and the other oxygenases as the most important pathways of their metabolism. Because of the great importance of the oxido-reductive biotransformation, students will learn about the enzyme systems involved in these reactions.

Learning Outcomes:

To obtain the basic theoretical and practical knowledge about the metabolism of drugs and xenobiotics, which will enable students to engage in work in the pharmaceutical industry and other biochemical laboratories.

Syllabus:

Theory

The classification of drugs. Mixed function oxidase (MFO) and cytochrome P 450th. The main routes of biotransformation of drugs through the MFO system: hydroxylation of acyclic and aromatic compounds, N-oxidation, oxidative deamination, O-dealkylation, etc. Fundamentals of pharmacokinetics and pharmacodynamics of major groups of medications (antibiotics, chemotherapeutic agents, etc.). Testing biological activity of selected drugs and antimetabolites, methods of detection of major groups of drugs and their metabolites.

Practice

In accordance with theoretical instruction.

Required Reading:

1. Bojana Srećo Zelenović: Metabolism of drugs and xenobiotics, internal script (ePMF), 2018.
2. S. Rendić, M. Medić-Šarić: Methabolism of drugs and selected xenobiotics, Medicinska naklada, Zagreb, 2013.

Weekly Contact Hours: 4 (60)	**Lectures:** 2 (30)	**Practical work:** 2 (30)

Teaching Methods:

Lectures, laboratory work, seminar(s)

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	points
Active class participation	5	written exam	70
Practical work	10	oral exam	
Preliminary exam(s)		…….	

Seminar(s)	15		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			