Course Unit Descriptor

Study Programme: Bachelor Academic Studies in Biochemistry

Course Unit Title: Medicinal chemistry

Course Unit Code: B-404

Name of Lecturer(s): Professor Velimir Popsavin

Type and Level of Studies: Bachelor of Science Degree

Course Status (compulsory/elective): compulsory

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: 9

Prerequisites: None

Course Aims:

Acquiring the basic methods and biochemical principles relevant to the development, processing and biological testing of new pharmacologically active molecules – potential drugs.

Learning Outcomes:

Students will be able to identify structural features essential for the pharmacological activity of potential drugs and to understand their biological effects on the molecular level.

Syllabus:

Theory

Methods and objectives of medical chemistry. A brief overview of ligand-receptor interactions that are important for pharmacological effects of drugs at the molecular level. The general stages in drug discovery and design. Leads and analogues: some desirable properties. Sources of leads and drugs. Methods and routes of administration: the pharmaceutical phase. Introduction to drug action. Classification of drugs. Prodrugs. Stereochemistry and drug design. Solubility and drug design: solubility and the structure of the solute; salt formation; the incorporation of water solubilising groups in a structure. Partition. Structure-activity relationship (SAR): changing size and shape; introduction of new substituents; changing the existing substituents of lead. Quantitative structure-activity relationship (QSAR). Introduction to computer-aided drug design.

Practice

In accordance with theoretical instruction.

Required Reading:

1. V. Popsavin: Fundamentals of Medicinal chemistry, internal script (ePMF), 2019.
2. G. L. Patrick: *An Introduction to Medicinal Chemistry,* 4th Edition, Oxford University Press, Oxford, 2009.
3. G. Thomas: *Medicinal Chemistry – An Introduction,* 2nd Edition, John Wiley & Sons, Ltd, Chichester, 2007.
4. T. Nogrady: *Medicinal Chemistry: A Biochemical Approach,* 2nd Edition, Oxford University Press, Oxford, 1988.

Weekly Contact Hours: 105	**Lectures:** 45+15	**Practical work:** 45

Teaching Methods:

Lectures, laboratory work, seminar(s)

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	points

Active class participation	10	written exam	70
Practical work	10	oral exam	
Preliminary exam(s)		…….	
Seminar(s)	10		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			