# COURSE DESCRIPTION CARD - SYLLABUS

Course name
Drug chemistry - biological activity and chemical structure [S1IFar2>CLabasc]

## Course

Field of study
Pharmaceutical Engineering

Year/Semester
3/5

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

## Number of hours

Lecture
0

Laboratory classes
0

Other
0

Tutorials
15

Projects/seminars
0

## Number of credit points

1,00

## Coordinators

prof. dr hab. Izabela Muszalska-Kolos
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## Lecturers

## Prerequisites

The student should have basic knowledge in the field of biology, biochemistry and chemistry. He should also have the skills to acquire knowledge and information from the indicated sources and be ready and able to work in a team.

## Course objective

Transfer of knowledge about the biological effects of chemical structures on the human body. The issues related to the influence of chemical structure and its modification on pharmacological activity will be presented. Students learn about the influence of physicochemical properties and biological activity evaluation of structure/activity

## Course-related learning outcomes

Knowledge:
1. The student has knowledge of the modification of chemical structures and their biological effects. [K_W24]
2. The student has knowledge of the basics of drug design. [K_W24]
3. The student has knowledge about the possibilities of the importance of physicochemical properties in

drug design. [K_W5; K_W7]

Skills:
1. The student is able to use scientific literature to update data on all forms of xenobiotic activity. [K_U1]
2. The student demonstrates the ability to discuss drug safety. [K_U1; K_U24]
3. The student has the ability to self-study. [K_U25]

Social competences:
1. The student understands the importance of therapy safety. [K_K1]
2. The student is aware of the advantages and threats of inappropriate use of chemical substances. [K_K3]
3. The student is able to interact and work in a group. [K_K2]

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Knowledge and skills acquired during meetings are verified on the basis of a final test in the form of a test consisting of 10 questions. The test takes place at the last meeting. Final issues will be sent to students using the university system (WISUS). Passing threshold: 50% of points. Depending on the epidemic situation, the test will be performed in stationary or online mode.

## Programme content

The program covers the following topics:
1. Basic concepts related to the biological activity of chemical structures.
2. The influence of physicochemical properties on pharmaceutical availability and bioavailability.

## Course topics

The student will learn the basic concepts related to the biological activity of the chemical structure, the impact of physicochemical properties on pharmaceutical availability and bioavailability. As part of this, we will discuss:
• molecular therapeutic targets,
• physicochemical properties and structural modifications in design,
• use of SAR research in drug design,
• the concept and importance of interaction in the pharmaceutical and pharmacodynamic phases.

## Teaching methods

Multimedia presentation illustrated with examples and a discussion. Preparation of presentations and discussions by students on a topic given by the teacher.

## Bibliography

Basic:
1. Zając M., Jelińska A., Muszalska I.: „Chemia leków z elementami chemii medycznej” Wydawnictwo Naukowe Uniwersytetu Medycznego im. Karola Marcinkowskiego w Poznaniu, 2018
2. Graham P.: „Chemia medyczna", PWN, Warszawa, 2019
3. Sznitowska M., Kaliszan R.: "Biofarmacja" Elsevier Urban & Partner, Wrocław, 2014

Additional:
1. Steinhilber D., Schubert-Zsilavecz M., Roth H.J.: „Chemia medyczna”, MedPharm Polska, Wrocław, 2012
2. Patric G.: „Chemia leków - krótkie wykłady, PWN, Warszawa, 2004

## Breakdown of average student's workload

| | Hours | ECTS |
|---|---|---|
| Total workload | 30 | 1,00 |
| Classes requiring direct contact with the teacher | 15 | 0,50 |
| Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation) | 15 | 0,50 |