



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Biochemistry [S1IFar1>Biochemia]

Course

Field of study

Pharmaceutical Engineering

Year/Semester

2/3

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

polish

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

2,00

Coordinators

prof. dr hab. Violetta Krajka-Kuźniak

Lecturers

Prerequisites

Basic knowledge of inorganic and organic chemistry, including analytical methods and thermodynamics

Course objective

Acquiring knowledge on the structure and function of biomolecules and reactions occurring in the body that molecular target for drug action

Course-related learning outcomes

Knowledge:

k_w5

has knowledge of physicochemical and biological foundations

health sciences to the extent appropriate for pharmaceutical engineering, with

basic issues within the scope of biochemistry

k_w24

has a basic knowledge of methods of searching for new substances

medicinal, plant and synthetic medicine and their biochemical and molecular form

target points

k_w25

has detailed knowledge of substances for pharmaceutical and cosmetic use, dietary supplements, plant materials in relation to metabolism and metabolic changes occurring in the body and cell

Skills:

k_u9
can use the basic equipment and apparatus used in engineering pharmaceutical, receives pharmaceutically active substances using synthetic and biotechnological methods, isolates active bodies from plant materials based on knowledge of basic operations physical and chemical as well as biochemical and molecular processes, develops the form of the drug, performs research in the field of character quality assessment drug, interprets and documents the results of product quality tests

k_u10
has the ability to conduct chemical, pharmaceutical and research toxicological pharmaceutical active substances and medicinal products

k_u24
has the ability to self-study

Social competences:

k_k1
is ready to critically assess knowledge, understands the need for further training complementing one's own knowledge and raising one's own professional, personal and social competences, understands the meaning knowledge in solving problems and is ready to consult experts

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:

Introductory tests to each laboratory exercise and evaluation of laboratory protocols; final test verifying the knowledge of lectures content.

Programme content

Lectures:

Structure and biological function of proteins, nucleic acids, carbohydrates, lipids, hormones and vitamins;

Structure and function of biological membranes and mechanisms of transport across membranes;

Main metabolic pathways and their interrelationship; metabolism regulation mechanisms; the influence of drugs on these processes;

Xenobiotics metabolizing systems.

Laboratory courses:

Preparation of biomolecules: proteins, polysaccharides, nucleic acids; assessment of their properties - characteristic reactions and quantitative analysis;

Assessment of the effect of selected drugs on their target metabolic pathways.

Teaching methods

Lectures: presentations and multimedia shows; discussion with students;

Laboratory exercises

Bibliography

Basic

1.Murray R.K., Granner D.K., Mayes P.A., Rodwell V.W.: Biochemia Harpera PZWL.

2.Berg J.M., Tymoczko J.L., Stryer L.: Biochemia PWN.

3.Cichocki M. Biochemiczne i molekularne podstawy biotransformacji ksenobiotyków. WN UMP 2015

Additional

Selected source materials

Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00