Cracow University of Technology

Course syllabus

binding for the doctoral students of the CUT Doctoral School commencing their studies in the academic year 2022/2023

Information on the course

Name of the course in Polish	Biochemia
Name of the course in English	Biochemistry
Number of the ECTS points	1
Language of instruction	Polish
Category of the course	Elective
Field of education	Engineering and Technology
Discipline of education	Environmental engineering, ,mining and power engineering
Person responsible for the course Contact	Michał Polus, doctor of science mpolus@pk.edu.pl

Type of course, number of hours in the study programme curriculum

Semester	Credit type (G / NG)*	Lecture	Practical class	Laboratory	Computer Laboratory	Project class	Seminar
3	G	15	0	0	0	0	0

*G – graded credit, NG – non-graded credit

Course objectives

Code	Objective description
Objective 1	Shaping the doctoral student's knowledge of the basic biochemical processes taking place in living cells, in natural environments and in technological devices

Learning Outcomes

Code	Description of the learning outcome adjusted to the specific characteristics of the discipline	Learning outcome symbol in the CUT SD	Methods of verification
OUTCOMES RELATED TO KNOWLEDGE			
EUW1	The student knows the basic biologically important compounds and their properties as well as the directions and effects of biochemical changes in which they participate; the rules of nomenclature, classification and structure of enzymes, the mechanism of their action and factors influencing the course of enzymatic reactions.	E_W01 E_W02	Involvement in class activities, a written test
OUTCOMES RELATED TO SKILLS			
EUU1	The doctoral student is able to link the metabolic properties of microorganisms with the possibility of their use in technological processes	E_U01	Graded paper
OUTCOMES RELATED TO SOCIAL COMPETENCES			

EUK1	The doctoral student is prepared for critical evaluation of the scientific achievements within the given scientific discipline	E_K01 E_K02	Involvement in class activities

Course outline

No.	Contents	Learning outcomes for the course	No. of hours
LECTURE			
W1	Properties and role of biologically important compounds. Biogens.	EUW1, EUU1 EUK1	3
W2	Structure and functions of nucleic acids (RNA and DNA).	EUW1, EUU1 EUK1	2
W3	Proteins: structure, properties and biological functions	EUW1, EUU1 EUK1	2
W4	Elements of enzymology. Kinetics of biochemical reactions. Coenzymes.	EUW1, EUU1 EUK1	3
W5	Decomposition and biological oxidation of compounds.	EUW1, EUU1 EUK1	3
W6	Biosynthesis.	EUW1, EUU1 EUK1	2

The ECTS points statement

WORKING HOURS SETTLEMENT	
Type of activity	Average number of hours (45 min.) dedicated to the completion of an activity type
SCHEDULED CONTACT HOURS WITH THE ACADEMIC TEACHER	
Hours allotted in the syllabus	15
Consultations	1
Examination / course credit assignment	2
HOURS WITHOUT THE PARTICIPATION OF THE ACADEMIC TEACHER	
Independent study of the course contents	8
Preparation of a paper, report, project, presentation, discussion	4
ECTS POINTS STATEMENT	
Total number of hours	30
The ECTS points number	1

Preliminary requirements

No.	Requirements
1	Basic knowledge of biology
2	Basic knowledge of general and organic chemistry

Course credit assignment conditions / method of the final grade calculation

No.	Description
COURSE CREDIT ASSIGNMENT CONDITIONS	
1	Delivery of a paper presentation. Obtaining> 50% of the points in the written test.
2	
	METHOD OF THE FINAL GRADE CALCULATION

	Credit assigned on the grounds of a written test.

Additional information

None

The course reading list

1	J. Kączkowski – The Basics of Chemistry, Warsaw, 2005, WNT
2	B.D. Hames, N.M. Hooper - Biochemistry - short lectures, Warsaw, 2009, PWN