Załącznik nr 1 do Zarządzenia Nr 915 z 2019 r. Rektora PB

COURSE DESCRIPTION CARD

<table>
<tr><td colspan="11">Faculty of Civil Engineering and Environmental Sciences</td></tr>
<tr><td>Field of study</td><td colspan="6"></td><td colspan="2">Degree level and programme type</td><td>BSc.</td></tr>
<tr><td>Specialization/ diploma path</td><td colspan="6"></td><td colspan="2">Study profile</td><td>Academic profile</td></tr>
<tr><td rowspan="2">Course name</td><td colspan="6" rowspan="2">Molecular biology</td><td colspan="2">Course code</td><td>IS-FCEE-00203W</td></tr>
<tr><td colspan="2">Course type</td><td>Erasmus</td></tr>
<tr><td rowspan="2">Forms and number of hours of tuition</td><td>L</td><td>C</td><td>LC</td><td>P</td><td>SW</td><td>FW</td><td>S</td><td>Semester</td><td>Winter</td></tr>
<tr><td>15</td><td></td><td>30</td><td></td><td></td><td></td><td></td><td>No. of ECTS credits</td><td>4</td></tr>
<tr><td>Entry requirements</td><td colspan="10">Basics of biotechnology, Chemistry, Cell biology, Biochemistry</td></tr>
<tr><td>Course objectives</td><td colspan="10">Knowledge of the structure and functioning of prokaryotic and eukaryotic genomes and methods of genomic analysis. Knowledge of replication and repair of DNA, transcription and translation, regulation of gene expression and factors affecting gene expression in preparation for scientific research.</td></tr>
<tr><td>Course content</td><td colspan="10">Lecture: Classification and structure of cells. Structure of genes, chromosomes and genomes. The processes of DNA replication, repair and recombination. Expression of genetic information. Transcription and translation. Protein synthesis. Functional genomics and new technologies.
Laboratory classes: Principles of safety in the laboratory of molecular biology. Isolation of plasmid DNA from bacteria by alkaline lysis method. Isolation of genomic DNA from bacteria. Isolation of RNA from bacteria. Isolation of genomic DNA from plants by the method using CTAB buffer. Quantitative and qualitative analysis of nucleic acids. PCR reaction. Analysis of PCR reaction products.</td></tr>
<tr><td>Teaching methods</td><td colspan="10">Lecture - multimedia presentation (lectures with the use of Power Point presentation).
Laboratory - laboratory classes for individual students or in small groups and preparation of reports.</td></tr>
<tr><td>Assessment method</td><td colspan="10">Lectures - written credit,
Laboratory - assessment of reports, tests of preparation for exercises</td></tr>
<tr><td>Symbol of learning outcome</td><td colspan="8">Learning outcomes</td><td colspan="2">Reference to the learning outcomes for the field of study</td></tr>
<tr><td>LO1</td><td colspan="8">Knows in an advanced degree the issues of molecular biology</td><td colspan="2"></td></tr>
<tr><td>LO2</td><td colspan="8">Knows the issues related to the current state and the latest development trends in molecular biology in the country and in the world.</td><td colspan="2"></td></tr>
<tr><td>LO3</td><td colspan="8">Is able to obtain information from literature, databases and</td><td colspan="2"></td></tr>
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	other sources; is able to integrate information obtained, interpret it, draw conclusions and formulate and justify opinions.	
LO4	Is able to plan and conduct experiments in molecular biology, select methods and measuring devices, interpret the obtained results and draw correct conclusions.	
LO5	Can apply basic analytical techniques in molecular biology.	
Symbol of learning outcome	**Methods of assessing the learning outcomes**	**Type of tuition during which the outcome is assessed**
LO1	Colloquium from lectures Colloquium from laboratory Drawing up reports on laboratory exercises	L, LC
LO2	Colloquium from lectures Colloquium from laboratory Drawing up reports on laboratory exercises	L, LC
LO3	Colloquium from lectures Colloquium from laboratory Drawing up reports on laboratory exercises	L, LC
LO4	Colloquium from lectures Colloquium from laboratory Drawing up reports on laboratory exercises	L, LC
LO5	Colloquium from lectures Colloquium from laboratory Drawing up reports on laboratory exercises	L, LC
Student workload (in hours)		**No. of hours**
Calculation	Participation in lectures	15
	Participation in the laboratory	30
	Preparation for laboratory exercises	10
	Preparation of laboratory reports	15
	Participation in consultations related to exercises and preparation for passing the exercises	15
	Preparation for and attendance at the examination	15
	TOTAL:	**100**

Quantitative indicators	**HOURS**	**No. of ECTS credits**
Student workload – activities that require direct teacher participation	52	2,0
Student workload – practical activities	70	2,5

Basic references	Alberts B., Johnson A., Lewis J., Raff M., Roberts K, Walter P.(2002). Molecular Biology of Cell. 4th edition, New York: Garland Science; Brown T.A. Genomes. Oxford: Wiley-Liss
Supplementary	Twyman R.M. (1998). Advanced Molecular Biology. BIOS Scientific Publishers, Oxford

references		
Organisational unit conducting the course	**Department of Chemistry, Biology and Biotechnology**	**Date of issuing the programme**
Author of the programme	**dr Urszula Wydro**	**27.02.2020**

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work, S – seminar