1.	**Field of study**	**Biotechnology**
2.	Faculty	Faculty of Natural Sciences
3.	Academic year of entry	2019/2020 (winter term), 2020/2021 (winter term)
4.	Level of qualifications/degree	second-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time

Module: Bioinformatics

Module code: 2BT_E_11

1. Number of the ECTS credits: 6

2. Learning outcomes of the module

code	description	learning outcomes of the programme	level of competence (scale 1-5)
2BT_E_11_1	Student classifies and applies information technologies and statistical techniques in the analyses of DNA and protein sequences.	2BT_E_W01_P	4
2BT_E_11_2	Student applies informatics and bioinformatisc techniques to collect and describe data from the experiments on DNA, cDNA and protein sequencing and protein sequence and structure analyses.	2BT_E_W03_P	4
2BT_E_11_3	Student notices and analyses correlations in nature and applies the knowledge in the phylogenetic analyses and biodiversity analyses based on DNA and protein sequence.	2BT_E_W03_P	4
2BT_E_11_4	Chooses adequate bioinformatics and statistical methods to describe phenomena and to collect and analyse data from biological experiments.	2BT_E_U01_P	5
2BT_E_11_5	Student plans and preforms the bioinformatics analyses connected with the solving of research problem in biote	2BT_E_U01_P 2BT_E_U02_P	5 5
2BT_E_11_6	Student appreciates the significance of bioinformatics and statistical tools in the description of natural phenomena and processes and in the solving of research problem in biotechnology and biology.	2BT_E_K01_P 2BT_E_K03_P	5 5
2BT_E_11_7	Student demonstrates the creativity and self-reliance in bioinformatics analyses and is in a habit of updating of the knowledge in the studied subject.		

3. Module description

Description	Performed, without the tutor’s help, using a komputer, bioinformatics analyses, the recording of the results in an electronic form , checking the level of understanding and mastering of the knowledge and skills acquired during the classes.
Prerequisites	Mastering knowledge in the basics of computer science, genetics, molecular biology and biochemistry

4. Assessment of the learning outcomes of the module			
code	**type**	**description**	**learning outcomes of the module**
2BT_E_11_w_1	Pass colloquium	Performed, without the tutor’s help, using a komputer, bioinformatics analyses, the recording of the results in an electronic form , checking the level of understanding and mastering of the knowledge and skills acquired during the classes.	2BT_E_11_1, 2BT_E_11_2, 2BT_E_11_3, 2BT_E_11_4, 2BT_E_11_5
2BT_E_11_w_2	Continuous assessment of practical skills	The assessment of the skills in the bioinformatics analyses and in the concluding.	2BT_E_11_4, 2BT_E_11_5, 2BT_E_11_6, 2BT_E_11_7
2BT_E_11_w_3	Practical test	Assessment of the ability to independently carry out bioinformatic analyzes and extraction applications: carried out independently, using a computer, analysis bioinformatics and record of obtained results in electronic form	

5. Forms of teaching						
code	**form of teaching**			**required hours of student's own work**		**assessment of the learning outcomes of the module**
	type	**description (including teaching methods)**	**number of hours**	**description**	**number of hours**	
2BT_E_11_fs_1	lecture	Multimedia lecture about selected issues – presentations.	15	Reading handbooks, supplementary reading.	35	2BT_E_11_w_1
2BT_E_11_fs_2	laboratory classes	Supervisioned works, performing the analyses based on the instructions, analyses of the results	45	Acquiring of the knowledge presented during the lectures, work on handbooks, supplementary reading	30	2BT_E_11_w_1, 2BT_E_11_w_2, 2BT_E_11_w_3