

Nazwa zajęć/ <i>Course title:</i>	<b>Metody biostatystyczne w zarządzaniu zasobami genowymi</b>	ECTS	<b>2</b>
Nazwa zajęć w j. angielskim/ <i>Course title in English:</i>	<b>Biostatistical methods in management of genetic resources</b>		
Zajęcia dla kierunku studiów/ <i>Degree program name:</i>	Biotechnology		

Język kursu/ <i>Course language:</i>		English		Poziom studiów/ <i>Study level:</i>		I	
Typ studiów/ <i>Form of studies:</i>	x intramural .. extramural	Status zajęć/ <i>Course status</i>	podstawowe/ <i>Basic</i> X kierunkowe/ <i>major</i>	obowiązkowe/ <i>mandatory</i> X do wyboru/ <i>elective</i>	Semestr/ <i>Semester:</i>	6 semestr zimowy/ <i>winter semester</i> x semestr letni/ <i>summer semester</i>	
Rok akademicki/ <i>Academic year:</i>				2022/2023	Numer katalogowy/ <i>Catalogue number:</i>	BBT_BTa-1S-6L-47_10	

Koordynator zajęć/ <i>Course coordinator:</i>		dr hab. Hanna Bolibok-Bragoszewska			
Prowadzący zajęcia/ <i>Teachers responsible for the course:</i>		dr hab. Hanna Bolibok-Bragoszewska, employees and doctoral students of the department			
Założenia, cele i opis zajęć/ <i>Aims, objectives and description of the course:</i>		<p>1.to familiarize the student with high-throughput methods of DNA analysis and biostatistical methods useful in managing gene bank resources supported by DNA genotyping</p> <p>2. preparing the graduate for independent work in the field of broadly understood protection of genetic resources and molecular ecology</p> <p>Lecture topics: What are they, what they do and what are gene banks for; Basic problems and challenges in creating and managing ex situ collections; Methods for characterizing the resources of gene banks; The most important methods of high-throughput analyzes of DNA polymorphism, Sequencing of amplicons in the characteristics of genetic variation. The concept of core collection;</p> <p>Exercise topics: Basic methods of biostatistical analysis of data characterizing gene collections (genotyping results); Basic statistics used in the description of the population structure, Bioinformatic analysis of the population structure, Construction of the core collection, Case study - overview and interpretation of the published results of biostatistical analyzes of genetic resources of selected species of crops.</p>			
Formy dydaktyczne, liczba godzin/ <i>Teaching forms, number of hours:</i>		<p>a) lecture number of hours 15</p> <p>b) laboratory classes number of hours 15</p>			
Metody dydaktyczne/ <i>Teaching methods:</i>		Lecture, discussion, computer bioinformatics analysis, consultations, the possibility of using distance education when necessary			
Wymagania formalne i założenia wstępne/ <i>Formal requirements and prerequisites</i>		Genetics, Genetic Engineering; The student has knowledge and basic skills in the field of general and molecular genetics and the basics of genetic engineering, in particular, the most important molecular techniques for detecting DNA polymorphisms and basic bioinformatics tools.			
Efekty uczenia się/ <i>Learning outcomes:</i>		treść efektu przypisanego do zajęć/ <i>the content of the effect assigned to the course:</i>		Odniesienie do efektu kierunkowego <i>/Relation to the course outcomes</i>	Siła dla ef. kier* <i>/Impact on the course outcomes*</i>
Wiedza (absolwent zna i rozumie) <i>/Knowledge: (the graduate knows and understands)</i>	W1	knows the methods and procedures used in the characterization of genetic resources		K_W05 K_W08 K_W01 K_W07	3 3 2 2
	W2	has knowledge of the status quo of DNA marker-assisted management of genetic resources in the world		K_W05 K_W08 K_W01 K_W07	3 3 2 2
Umiejętności (absolwent potrafi) <i>/Skills: (the graduate is able to)</i>	U1	is able to apply and properly evaluate the effectiveness of biostatistical methods of data analysis obtained in characterizing the resources of the collection of gene banks		K_U04	3
	U2	has the ability to use computer programs designed to analyze the structure of the population and the structure of the core collection		K_U04	3
	U3	is able to develop and apply in practice his skills in the field of characterizing genetic resources using biostatistical methods		K_U04	3
Kompetencje (absolwent jest gotów do) <i>/Competences: (The graduate is ready to)</i>	K1	He is ready to develop practical skills in characterizing genetic resources with biostatistical methods		K_K02 K_K01	1 1

<i>Treści programowe zapewniające uzyskanie efektów uczenia się: /Program contents ensuring the achievement of the learning outcomes:</i>	Presentation of the basic methods and procedures used in the management of genetic resources and DNA analysis techniques
<i>Sposób weryfikacji efektów uczenia się/ Methods of the verification of the learning outcomes:</i>	lectures - for the effect of W1 and W2 - written exam exercises - written test for the effect of U1, U2 and U3, for the effects of U2 and K1 additionally practical test. possibility of using distance learning when necessary
<i>Szczegóły dotyczące sposobów weryfikacji i form dokumentacji osiągniętych efektów uczenia się /Details on the verification methods and of the ways of documenting the learning outcomes:</i>	Lectures - the content of examination questions with the grade, personal grade cards Exercises - the content of the final questions with the assessment, input and result files prepared by the student during the practical exam. Possibility of using distance learning when necessary
<i>Elementy i wagi mające wpływ na ocenę końcową/Elements and weights influencing the final grade:</i>	The assessment of the learning outcomes consists of: 1- grade from the lectures (written form, test questions), 2- grade from the theoretical test from the exercises, 3 - grade from the practical pass from the exercises, 4- evaluation of the student's activity during the classes weight of each element: 1 - 45%, 2 - 22.5%, 3 - 22.5%, 4 - 10%. The condition for passing the course is to obtain a minimum of 51% from items 1, 2 and 3. The final grade is calculated as the sum of the points obtained for each element (taking into account their weight). The condition for passing the course is to obtain a minimum of 50% of the points, taking into account all the elements.
<i>Miejsce realizacji zajęć/ Teaching place:</i>	The seminar room and teaching laboratories of the cathedral
<i>Literature / Literature:</i> Biotechnologia roślin, red. S.Malepszy, wyd. PWN 2009 2. Ekologia molekularna, Joanna R. Freeland, Wydawnictwo Naukowe PWN 2008 3. Scientific articles and websites indicated by the lecturers	
<i>UWAGI/ANNOTATIONS</i> Tests are assessed according to a scale of 50% of knowledge = satisfactory (3,) 61% (3.5), 71% (4.0), 81% (4.5), 91% (5.0)	

\* ) 3 – zaawansowany i szczegółowy, 2 – znaczący, 1 – podstawowy/ 3 – significant and detailed, 2 – considerable, 1 – basic,

Wskaźniki ilościowe charakteryzujące moduł/przedmiot/*Quantitative summary of the course:*

Szacunkowa sumaryczna liczba godzin pracy studenta (kontaktowych i pracy własnej) niezbędna dla osiągnięcia zakładanych dla zajęć efektów uczenia się - na tej podstawie należy wypełnić pole ECTS / <i>Estimated number of work hours per student (contact and self-study) essential to achieve the presumed learning outcomes - basis for the calculation of ECTS credits:</i>	50 h
Łączna liczba punktów ECTS, którą student uzyskuje na zajęciach wymagających bezpośredniego udziału nauczycieli akademickich lub innych osób prowadzących zajęcia/ <i>Total number of ECTS credits accumulated by the student during contact learning:</i>	1.2 ECTS