

Nazwa zajęć/Course title:		<b>Mikrobiologia żywności</b>			<b>ECTS</b>	<b>2</b>
Nazwa zajęć w j. angielskim/ Course title in English:		<b>Food microbiology</b>				
Zajęcia dla kierunku studiów/ Degree program name:		Biotechnologia				
Język kursu/ Course language:		English		Poziom studiów/Study level:		I
Typ studiów/ Form of studies:	<input checked="" type="checkbox"/> intramural <input type="checkbox"/> extramural	Status zajęć/ Course status	podstawowe/ Basic <input checked="" type="checkbox"/> kierunkowe/ major	obowiązkowe/ mandatory <input checked="" type="checkbox"/> do wyboru/ elective	Semestr/Semester: 4 semestr zimowy/ winter semester <input checked="" type="checkbox"/> semestr letni/ summer semester	
		Rok akademicki/Academic year:		<b>2022/2023</b>	Numer katalogowy/ Catalogue number	<b>BBT_BTa-1S-4L-34_3</b>
Koordynator zajęć/Course coordinator:		<b>Dr hab. inż. Iwona Gientka, prof. SGGW</b>				
Prowadzący zajęcia/ Teachers responsible for the course:		Dr hab. inż. Iwona Gientka, prof. SGGW				
Założenia, cele i opis zajęć/ Aims, objectives and description of the course:		<p><b>The aim of the lectures</b> is to familiarize students with the basic groups of microorganisms inhabiting natural environments and causing microbiological contamination characteristic of raw materials and food products, discussing the impact of the food environment and processes used in food technology on the viability of microorganisms and food preservation, and the characteristics of pathogens carried by water and food along with their diagnostics. The aim of the exercises is to familiarize students with the methods used in examining the microbiological quality of food and its production environment.</p> <p><b>Lectures:</b> Definitions and concepts related to the quality and health safety of food. Microbiological characteristics of food raw materials. The influence of the food environment and unit operations on the viability of microorganisms. Microbial spoilage of food. The use of microorganisms in food production. Characteristics of water and food borne pathogens. Intoxication, toxicoinfections and infections - characteristics. Microbiological diagnostics.</p> <p><b>Classes:</b> Microflora of water, air and soil. The use of indicator and breeding methods of counting microorganisms in the assessment of the microbiological quality of raw materials and food of plant and animal origin. Rapid diagnostic methods used in food microbiology. Identification of gram-negative sticks and gram-positive kernels. Effect of preservatives and natural preservatives on the growth of microorganisms in food.</p> <p>Each student is provided with a properly equipped permanent workplace (microscope, small glass equipment, Petrie's dishes, pipettes, loops, reagents for staining, etc.) as well as access to the necessary laboratory equipment (incubators, microwaves) and appropriate biological material and substrates with the use of which he conducts observations and experiments.</p>				
Formy dydaktyczne, liczba godzin/ Teaching forms, number of hours:		a) Lecture ; 15h.; b) Laboratory classes; 15h;				
Metody dydaktyczne/Teaching methods:		Lectures/ on-line lectures, laboratory experiments,				
Wymagania formalne i założenia wstępne/ Formal requirements and prerequisites		Basics of biochemistry, Microbiology				
Efekty uczenia się/Learning outcomes:		treść efektu przypisanego do zajęć/ the content of the effect assigned to the course:		Odniesienie do efektu kierunkowego /Relation to the course outcomes		Sila dla ef. kier* /Impact on the course outcomes *
Wiedza (absolwent zna i rozumie) /Knowledge: (the graduate knows and understands))	W1	concepts related to safety and hygiene of the production process of food, the impact of hygiene on the health safety of food		K_W09 K_W11	2 2	
	W2	the processes of microbiological spoilage of raw materials and food products		K_W06 K_W08 K_W09 K_W10	3 2 2 2	
	W3	characterizes pathogens carried by water and food		K_W06 K_W09	3 2	
Umiejętności (absolwent potrafi) /Skills: (the graduate is able to)	U1	use different methods in assessment of the microbiological quality of raw materials and various types of food		K_U05 K_U21 K_U06	2 2 2	
	U2	uses diagnostic methods to assess the microbiological quality of raw materials and food of plant and animal origin		K_U05 K_U21	2 2	

			K_U06	2
Kompetencje (absolwent jest gotów do) /Competences: (The graduate is ready to)	K1	is ready to apply knowledge in the implementation of diagnostics in social projects	K_K02 K_K06	1 1
Treści programowe zapewniające uzyskanie efektów uczenia się: /Program contents ensuring the achievement of the learning outcomes:	Characteristic groups of microorganisms that cause contamination of raw materials and various types of food products, the influence of factors on the microbiological quality of food, characteristics of food-borne pathogens and the role of beneficial microorganisms in food fermentation			
Sposób weryfikacji efektów uczenia się/ Methods of the verification of the learning outcomes:	Learning outcomes W,U,K: written Exam/ ON-LINE exam Learning outcomes U, K: colloquiums during classes and evaluation of experiments performed during classes, possibility of on-line verification			
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:	colloquiums with the assessment, the content of the examination questions with the assessment, electronic versions of the remote verification			
Elementy i wagi mające wpływ na ocenę końcową/Elements and weights influencing the final grade:	1. Assessment of the test and experiments performed during the classes - 30% 2. Exam -70%			
Miejsce realizacji zajęć/ Teaching place:	Lectures room / on-line lectures via MS Teams and laboratory room (building 32, Department of Food Biotechnology and Microbiology)			
Literatura/Literature:	Mandatory and supportive materials "Food Microbiology" Martin R Adams Maurice O Moss, 2000 Available at: E-książki - Biblioteka Główna (sggw.edu.pl) Supportive materials will be provided by lecturer.			
UWAGI/ANNOTATIONS	Tests are assessed according to the scale 51% of knowledge = satisfactory (3.0) and, consequently, the thresholds 61% (3.6), 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 /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:	60 h
Łączna liczba punktów ECTS, którą student uzyskuje na zajęciach wymagających bezpośredniego udziału nauczycieli akademickich lub innych osób prowadzących zajęcia/ Total number of ECTS credits accumulated by the student during contact learning:	1.2 ECTS