

## COURSE DESCRIPTION (SYLLABUS)

1.	Course:  <b>Microbiology</b>
2.	Language of instruction:  <b>English</b>
3.	Faculty:  <b>Faculty of Biotechnology</b>
4.	Course/module code:  <b>29-BT-S1-E4-EnMB</b>
5.	Course/module type ( <i>mandatory or elective</i> ):  <b>mandatory</b>
6.	Programme:  <b>Biotechnology</b>
7.	Study cycle ( <i>1st/2nd</i> ):  <b>1st cycle</b>
8.	Year:  <b>2nd</b>
9.	Semester ( <i>autumn or spring</i> ):  <b>spring</b>
10.	Form of tuition and number of hours: Lecture: <b>30 h</b> Learning methods: <b>Attendance at lectures (listening and assimilation of knowledge), commitment (ability to ask questions to the teacher), activity (preparation for the lecture according to recommended issues and sources).</b>
11.	Coordinator(s):  <b>Dorota Dziadkowiec, PhD</b>
12.	Initial requirements ( <i>knowledge, skills, social competences</i> ):  <b>Basic knowledge of chemistry and biochemistry.</b>
13.	Objectives:  <b>Gaining basic knowledge about the structure, metabolism, habitats and pathogenesis of prokaryotic microorganisms.</b>
14.	Content:  <b>1. Size, shape and structure of cells of microorganisms belonging to three domains: <i>Eukarya, Bacteria</i> and <i>Archaea</i>.</b>

	<p><b>2. Genome organisation and means of genetic information transfer in these groups.</b></p> <p><b>3. Metabolism - vast metabolic plasticity, diversity of ecological niches and nutritional types among prokaryotic microorganisms.</b></p> <p><b>4. Microorganisms in biotechnology, applications of genetic engineering in modern biotechnology.</b></p> <p><b>5. Interactions between microorganisms, aerobic and anaerobic trophic chains in ecosystems. C, N, S, P cycles in nature.</b></p>	
1.	<p>Learning outcomes:</p> <p>Student:</p> <ul style="list-style-type: none"> <li>• can make a qualitative and quantitative description of the basic microbiological phenomena and processes;</li> <li>• is able to link theoretical knowledge of microbiology, microbial biochemistry and biotechnology, with its practical application in industry, health care and environmental protection;</li> <li>• is familiar with the basic principles of health, safety and ergonomics procedures in the laboratory; knows procedures of work with genetically modified microorganisms;</li> <li>• is familiar with basic and advanced physicochemical, genetic, microscopy and biochemical techniques necessary for the study of microbiological processes;</li> <li>• is familiar with basic statistical methods and computer technology to describe microbiological phenomena and analysis of experimental data;</li> <li>• knows how to work as a team, works together to solve problems during preparation of reports based on scientific literature</li> <li>• knows and follows the rules of safety and health at work.</li> </ul>	<p>Outcome symbols:</p> <p>K1_W01</p> <p>K1_W09</p> <p>K1_W10</p> <p>K1_W08; K1_U01</p> <p>K1_W07; K1_U06</p> <p>K1_U13</p> <p>K1_K05</p>
2.	<p>Obligatory and recommended literature:</p> <ul style="list-style-type: none"> <li>• <b>Madigan, Martinko, Stahl, Clark (2011) <i>Brock Biology of Microorganisms</i>. Pearson.</b></li> </ul>	
3.	<p>Methods of verification of the assumed learning outcomes:</p> <p><b>written exam</b></p>	
4.	<p>Conditions of earning credits:</p> <p><b>positive exam result</b></p>	
5.	<p>Student's workload:</p>	
	<p>Activity</p>	<p>Number of hours for the</p>

	activity
Hours of instruction (as stipulated in study programme): <ul style="list-style-type: none"> <li>• lecture: <b>30 h</b></li> <li>• consultations: <b>2 h</b></li> </ul>	32 h
Student's own work: <ul style="list-style-type: none"> <li>• reading the literature</li> <li>• preparation for the exam</li> </ul>	32 h
Total number of hours:	<b>64 h</b>
Number of ECTS:	<b>3 ECTS</b>