COURSE/MODULE DESCRIPTION (SYLLABUS)

1.	Course: **Molecular Basis of Medical Microbiology**
2.	Language of instruction: **English**
3.	Faculty: **Faculty of Biotechnology**
4.	Course code: **29-BT-S2-E3-MBMM**
5.	Course/module type (*mandatory* or *elective*): **mandatory**
6.	Programme: **Medical Biotechnology**
7.	Study cycle: **2nd cycle**
8.	Year: **2nd**
9.	Semester *(autumn* or *spring):* **autumn**
10.	Form of tuition and number of hours: **lecture, 15 h**
11.	Name, Surname, academic title **Jolanta ZAKRZEWSKA-CZERWIŃSKA, Professor**
12.	Initial requirements (knowledge, skills, social competences) regarding the course/module and its completion: **Completing basic courses in Biochemistry, Immunology and Microbiology.**
13.	Objectives: **The main aims of the lecture are to introduce to students: (i) the fundamental strategies of bacterial pathogens use to survive and proliferate; (ii) major strategies for combating bacterial infections.**
14.	Content: • **Introduction to medical microbiology.** • **Emerging and re-emerging infectious diseases**. • **Toxins and other toxic virulence factors - structures and function.** • **Biofilm formation and communication of bacteria.** • **Viable but non-culturable (VBNC) bacteria and persisters.** • **Microbiome.** • **Action and resistance mechanisms of antibiotics.**

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- **Antibacterial vaccine design.**

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Learning outcomes:

- advanced knowledge in the field of molecular basis of medical microbiology;
- understanding of the molecular mechanisms employed by microbial human pathogens in establishing infectious diseases;
- knowledge of concepts, terms, research methodology used in understanding the molecular basis of pathogenesis;
- knowledge and understanding of designing antibiotics and vaccines;
- knowledge of English terminology in the field of medical microbiology;
- using of scientific literature in the field of medical microbiology;
- learning and discussing the issue of bacterial pathogenesis, presented on the lecture.

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Outcome symbols:

K_W03, K_W04

K_U07

K_K05

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Recommended literature:

- **Bacterial Pathogenesis. A Molecular Approach (3nd edition), ASM Press**
- **Nature Reviews Microbiology**

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Methods of verification of the assumed learning outcomes

written exam

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Conditions of earning credits:

Results of the final exam. Student must get over 50% points. Examination points include test questions (single-choice test) and short open question (eg., list and define, draw and describe the diagram).

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<tr><td rowspan="5">19.</td><td colspan="2">Student’s workload:</td></tr>
<tr><td>Activity</td><td>Number of hours for the activity</td></tr>
<tr><td>Hours of instruction (as stipulated in study programme):
• lecture
• consultation</td><td>15 h
5 h</td></tr>
<tr><td>Student’s own work
• reading
• preparing for the exam</td><td>20 h</td></tr>
<tr><td>Total number of hours:</td><td>40 h</td></tr>
<tr><td></td><td>Number of ECTS:</td><td>2 ECTS</td></tr>
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