

Course title: MICROBIAL BIOTECHNOLOGY

ECTS credit allocation (and other scores): 2.0

Semester: autumn

Level of study: ISCED-6 - first-cycle programmes (EQF-6)

Branch of science: Natural sciences

Language: English

Number of hours per semester: 30 h

Course coordinator/ Department and e-mail: Justyna Mozejko-Ciesielska, Department of Microbiology and Mycology, justyna.mozejko@uwm.edu.pl

Type of classes: classes

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#### Substantive content

**CLASSES:** Isolation and identification of microorganisms of biotechnological importance; improvement of production characteristics of microorganisms of industrial importance; isolation of bacteria capable of growing in environments exposed to heavy metals (selection of metal-resistant strains).

**LECTURES:** Biotechnology - current status and development prospects; processes in biotechnology; investigation of biotechnologically useful microorganisms; directions of using biotechnological methods in environmental protection and industry.

**LEARNING PURPOSE:** Acquisition of knowledge about the role, importance and interdependence of microorganisms in biotechnological processes; acquiring skills in using basic research tools to design and conduct biotechnological processes.

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On completion of the study programme the graduate will gain:

**KNOWLEDGE:** student knows and understands the basic development trends of industrial biotechnology; student knows and understands the relationship between cultivation conditions and the efficiency of biotechnological processes.

**SKILLS:** student is able to identify microorganisms of application importance; student is able to describe the processes used in microbial biotechnology; student is able to use appropriate techniques to improve the characteristics of microorganisms.

**SOCIAL COMPETENCIES:** student knows the purpose of lifelong learning of microbial biotechnology; student knows to continuously expand his/her knowledge and critically evaluate his/her knowledge and skills.

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**Basic literature:** 1) Długoński J., Microbial Biotechnology in the Laboratory and Practice: Theory, Exercises, and Specialist Laboratories. Jagiellonian Univ Pr, 2023.

**Supplementary literature:** 1) Different authors, Original and review articles related to the field of biopolymers derived from microbial processes, Wyd. Scientific Journals from Journal Citation Report list (with Impact Factor), from 2023.

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The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 32 h.

Student's independent work: 18 h.