



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Medical aspects of microbiology [S2Bioinf2>MAM]

### Course

Field of study

Bioinformatics

Year/Semester

1/2

Area of study (specialization)

–

Profile of study

general academic

Level of study

second-cycle

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

0

### Number of credit points

1,00

### Coordinators

prof. dr hab. inż. Ewa Kaczorek  
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### Lecturers

### Prerequisites

The student should have knowledge in biology, including microbiology, as well as the ability to obtain and interpret information from designated sources, and an awareness of the need to continuously develop their competencies.

### Course objective

The aim of the course is to familiarize students with the basics of medical microbiology, including the human microbiota, the main groups of pathogenic microorganisms, and the principles of their transmission. Students will also learn the fundamentals of epidemiology, the issue of antimicrobial resistance, and the general principles of microbiological diagnostics and immune system functioning.

### Course-related learning outcomes

Knowledge:

Knows and understands complex biological phenomena and processes, and bases their interpretation in research work and practical activities on a precise and consistent approach using empirical data.

Skills:

Is able to proficiently use and integrate information obtained from literature and electronic sources, in both Polish and English, and to evaluate, critically analyze, synthesize, and creatively interpret it. Is able to draw conclusions and clearly formulate and thoroughly justify their opinions based on data from various sources.

#### Social competences:

Is ready for lifelong learning, for inspiring and organizing the learning process of others, including seeking expert opinions and critically evaluating the collected content.

Is ready to demonstrate a creative attitude in professional and social life and to consciously fulfill the social role of a university graduate, including caring for the public interest.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

At the end of the lecture series, students' knowledge will be assessed through a written exam including both open-ended and multiple-choice questions. The passing threshold is 50% of the total points.

### Programme content

The lecture will cover issues related to the characteristics and pathogenicity of selected groups of microorganisms, as well as the principles of their spread in the context of health and disease. Students will learn about pathogen transmission mechanisms, the development of infections, and the basics of epidemiology.

### Course topics

The lecture will cover the following topics:

1. The natural human microbiota
2. Medical bacteriology and virology - part 1
3. Medical bacteriology and virology - part 2
4. Medical mycology and parasitology
5. Pathogen transmission, infections, epidemiology
6. Biocidal pharmaceuticals and antimicrobial resistance
7. Immunology, techniques and methods in microbiological diagnostics

### Teaching methods

Multimedia presentation and engaging students in discussion.

### Bibliography

Basic:

Maria Zaremba, Jerzy Borowski, Mikrobiologia lekarska, wyd. Lekarskie PZWL, 1997.

Eligia M. Szewczyk, Diagnostyka bakteriologiczna, wyd. PWN, 2019.

Beata Dudzińska-Bajorek, Skrypt do ćwiczeń z mikrobiologii dla studentów kierunków medycznych i inżynierskich, wyd. Państwowa Wyższa Szkoła Zawodowa im. Hipolita Cegielskiego w Gnieźnie, 2020.

Additional:

Gabriel Virella, Mikrobiologia i choroby zakaźne, wyd. Edra Urban & Partner, 2015.

Jadwiga Baj, Mikrobiologia, wyd. PWN, 2018.

Gerard J. Tortora, Berdell R. Funke, Christine L. Case, Microbiology: An Introduction, 13th Edition, wyd. Pearson, 2018.

### Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	10	0,50