COURSE DESCRIPTION CARD - SYLLABUS

Course name
Microbiology -Methods for assessing antimicrobial activity [S1IFar2>Mmoap]

Course

Field of study
Pharmaceutical Engineering

Year/Semester
1/1

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
0

Laboratory classes
0

Other
0

Tutorials
15

Projects/seminars
0

Number of credit points

1,00

Coordinators

dr hab. Jolanta Długaszewska
jolanta.dlugaszewska@put.poznan.pl

Lecturers

Prerequisites

Students taking the course should have well-established theoretical and practical knowledge in the field of biology and chemistry at the secondary school level, as well as from the introductory Microbiology course.

Course objective

The classes aim to familiarize the student with issues related to the influence of physical and chemical factors on microorganisms, as well as the assessment of the antimicrobial activity of selected compounds and substances.

Course-related learning outcomes

Knowledge:
1. Possesses knowledge of mathematics to the extent that allows calculations to be made to correctly interpret the results of microbiological tests. [K_W2]
2. Possesses knowledge of microbiology to the extent that allows understanding and description of phenomena and processes related to the action of antimicrobial agents on microorganisms. [K_W3]
3. Has knowledge of basic techniques, research methods used to assess the activity of antimicrobial agents knows classical and instrumental methods used in pharmaceutical and technical microbiology.

[K_W7]
4. Has knowledge of natural, synthetic, and other raw materials used to remove or reduce the number of microorganisms. [K_W13]
5. Has basic knowledge in the field of methods of assessment of antimicrobial activity of new medicinal substances, plant and synthetic medicine as well as biochemical and molecular gripping points, pharmacopoeial standards and norms related to pharmaceutical engineering, knows methods and techniques of researching medicinal products in terms of their antimicrobial activity. [K_W24]

Skills:
1. Understands the biocide literature in Polish, reads and understands uncomplicated scientific and technical texts in a foreign language, is able to obtain information from literature, databases, and other sources related to pharmaceutical engineering, also in a foreign language, integrate, interpret and extract conclusions and form opinions. [K_U1]
2. Based on general knowledge explains the basic phenomena associated with the action of various biocidal agents on microorganisms. [K_U2]
3. Selects the appropriate methods and techniques in assessing the antimicrobial activity of biocides. [K_U11]
4. Is able to plan simple experiments in the field of antimicrobial activity assessment of antimicrobial agents, interpret their results, and draw conclusions. [K_U12]

Social competences:
1. Is ready to critically assess knowledge, understands the need for further education, supplementing specialized knowledge and raising his professional competences, understands the importance of knowledge in solving problems. [K_K1]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The condition for passing the course is active participation in classes, preparing a presentation on the material assigned for discussion, correct completion of tasks and completing the protocol, and obtaining a minimum grade of 3.0 on the final test.
The grade for the seminars will be given according to the following points:
18 - 20 points - rating 3.0
20.5 - 22.5 points - rating 3.5
23 - 25 points - rating 4.0
25.5 - 27 points - rating 4.5
27.5 - 30 points - rating 5.0

Programme content

The program covers the following topics:
1. Basic concepts related to antimicrobial activity and mechanisms of influence of compounds of natural origin and those obtained by chemical synthesis on microorganisms,
2. Compounds and substances with potential antimicrobial activity,
3. Compounds and substances with potential mutagenic and carcinogenic effects, assumptions of the Ames test,
4. Methods for assessing the antimicrobial activity of various compounds and substances,
5. Methods for assessing preservatives.

Course topics

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5. Methods for assessing preservatives.

Teaching methods

Multimedia presentation, analysis of examples, discussion, and projects developed by students

Bibliography

Basic:
1. Hans G. Schlegel Mikrobiologia ogólna , PWN, 2008.
2. Krystyna Kowal, Zdzisława Libudzisz, Zofia Żakowska Mikrobiologia techniczna. Tom 1 i 2 , PWN, 2008.

Additional:
1. Urząd Rejestracji Produktów Leczniczych FARMAKOPEA POLSKA XIII , Urząd Rejestracji Produktów Leczniczych, 2023.

Breakdown of average student's workload

	Hours	ECTS
Total workload	30	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)	15	0,50