UNIWERSYTET GDAŃSKI

Course title
Oddziaływania związków przeciwdrobnoustrojowych z jonami metali / Interactions of antimicrobials agents with metalions

ECTS code
13.3.0987

Name of unit administrating study
Faculty of Chemistry

Studies

Field of study	Type	Form	
Chemistry	Masters	Full-time studies	

Teaching staff
Dr inż. Malgorzata Wysocka

Forms of classes, the realization and number of hours

A. Forms of classes, in accordance with the UG Rector's regulations
lecture

B. The realization of activities
in-class learning

C. Number of hours
30 h lecture

ECTS credits 3

classes - 30 h
tutorial classes – 5 h
student's own work – 40 h

Total: 75 h - 3 ECTS

The academic cycle
2020/21 winter semester

Type of course
obligatory

Language of instruction
Polish

Teaching methods

Lecture with multimedia presentation
discussion

Form and method of assessment and basic criteria for evaluation or examination requirements

A. Final evaluation, in accordance with the UG study regulations
course completion (with a grade)

B. Assessment methods
written test with open questions (tasks)

C. The basic criteria for evaluation or exam requirements
A positive result is required to pass the lecture (> 51%)
from the exam, which consists of about 10 open questions (tasks) covering issues mentioned in the lecture's program content. The percentage result of the exam translates into the final grade in the manner indicated in the applicable "UG Study Regulations".

Required courses and introductory requirements
Completed course in "General Chemistry", "Inorganic Chemistry", "Organic Chemistry".
Knowledge of the basics of general, inorganic and organic chemistry.

Aims of education
Acquainting with the chemistry of antimicrobial agents, ie their chemical structure, nomenclature (chemical and international names);
Acquainting with the synthesis methods of the most important antimicrobial drugs;
Familiarization with known mechanisms of action of selected antibacterial and antifungal drugs;
Acquainting with the methods of searching for new, potential antimicrobial drugs;
Acquainting with the methods of creating complexes of antimicrobial drugs with metal ions;

Course contents
Characteristics of antimicrobial drugs; b-lactam antibiotics; aminoglycoside antibiotics; tetracycline antibiotics; macrolide antibiotics, peptide antibiotics, ansamycin antibiotics; chloramphenicol group, quinolones, sulfoamides, spiran antibiotics, imidazole and triazole derivatives, antimetabolites; the mechanism of action of individual antimicrobials; therapeutic index; the purpose of the drug; lead structure; drug resistance; pharmacodynamics of antibiotics (MIC, MBC); physicochemistry of complexes; presentation of examples of anticancer drugs based on metal ion complexes.

Bibliography of literature

A. Literature required to pass the course

A. Zejca, M. Gorczyca „Chemia leków", wyd. PZWL, warszawa 2004
Z. Markiewicz, Z. A. Kwiatkowski „Bakterie, antybiotyki, lekooporność", wyd. PWN, Warszawa 2012
R.B. Silverman, „Chemia organiczna w projektowaniu leków", wyd. WNT, Warszawa, 2004
S.J. Lippard, J.M. Berg – Podstawy chemii bionieorganicznej

B. Extracurricular readings

Knowledge

Knows and recognizes antimicrobials;
uses terminology related to the naming of antimicrobials and their construction;
can indicate the decisive functional groups with chemical and physical properties

Skills

knows how to plan the synthesis of the selected antimicrobial drug
understands and can explain the importance of complex compounds (complex: antimicrobial compound - metal ion)

Social competence

understands the importance of antimicrobial drugs in everyday life;
understands the importance of searching for new antimicrobials;
understands the importance of searching for complex compounds (antimicrobial compound - metal ion)