

**ODESA NATIONAL MEDICAL UNIVERSITY**  
**Medical Faculty**  
**Department of Infectious Diseases**  
**Department with a course of**  
**Dermatovenerology**

**Syllabus of the Elective Course (elective course)**  
**Antibiotic resistance. Rational use of antibiotics**

<b>Course Scope</b>	Total: 3 ECTS credits; 90 hours XI – XII semesters 6th year of study
<b>Days, time, location</b>	According the schedule by cycles, Department of Infectious Diseases, Knyazheskaya str, 1, Odesa
<b>Instructor(s)</b>	Tetiana V. Chaban, Head of the Department, MD, professor Associate professors: candidate in MS Usychenko K.M., Pavlenko O.V., Gerasymenko O.A., Movlyanova N.V. Assistants: Verba N.V., Bocharov V.M.
<b>Contacts</b>	<i>Information by phone:</i> Nataliia Victorivna Verba, head instructor of the Department +380931109458, <i>E-mail:</i> nataliia.verba@onmedu.edu.ua or verbanatali1@gmail.com <i>Consultations:</i> from 2:30 p.m. to 4:12 p.m. The link to the online consultation is provided to each group during classes separately

### COMMUNICATION

Communication with students is provided at classrooms (face-to-face).

During distance learning, communication is carried out through the Microsoft Teams platform, as well as through e-mail correspondence, Viber messengers (within Viber groups created for each one, separately through the head of a group).

The calendar and thematic plans of practical classes are posted in the materials of the department in the blog of the ONMedU library at the link [https://info.odmu.edu.ua/chair/infectious\\_diseases/](https://info.odmu.edu.ua/chair/infectious_diseases/)

Written tasks will be sent via Viber (phone number 0931109458).

Written papers should be sent to [nataliia.verba@onmedu.edu.ua](mailto:nataliia.verba@onmedu.edu.ua) or [verbanatali1@gmail.com](mailto:verbanatali1@gmail.com)

Face-to-face meetings are not held during quarantine. Make-ups are held online in Teams by the address: : ["Infectious diseases Working out class passes."](#)

### COURSE ANNOTATION

*The course subject* is Antibiotic resistance. Rational use of antibiotics.

*Prerequisites*

The basis for mastering the course is the knowledge, skills and abilities acquired during the study of such courses as: medical and biological physics, microbiology, virology and immunology, physiology, pathophysiology, clinical pharmacology, internal medicine, surgery.

### ***Postrequisites***

Knowledge, skills and abilities acquired during the study of the course "Antibiotic resistance. Rational use of antibiotics" are necessary for further studies in internal diseases, surgery, neurology, dermatology, epidemiology, ophthalmology, otolaryngology, endocrinology, resuscitation.

### ***Course purpose***

In the general system of training a doctor, the elective course " Antibiotic resistance. Rational use of antibiotics " lays the foundations for acquirers to study family medicine, which involves the integration of teaching with this discipline and the development of skills to apply knowledge in the process of further education and in professional activities.

### ***Course objectives:***

- the concept of antibiotic resistance.
- the multifaceted nature of the problem of antibiotic resistance in the world
- types of antibiotic resistance.

### ***Expected outcomes:***

On completing the course a student must

**know:** etiology, epidemiology, pathogenesis, clinic, diagnostics, differential diagnosis, treatment, prevention of infectious diseases and rational use of antibiotics.

### **be able to:**

- prescribe optimal antibiotic therapy
- make decisions on the use of antibiotics.
- use rapid diagnostic tests (procalcitonin, fluorescence in situ with nucleic acid peptides (PNAFISH), matrix-assisted laser desorption ionization (MALDI-TOP)) when deciding whether to prescribe antibiotics.
- use of antimicrobials in special groups of patients (pregnant women, elderly people, etc.).

## **COURSE SCOPE**

### ***Forms of study***

The course provides practicals (30 h.) and assumes trainees' self-study activities (60 h.).

### ***Teaching techniques:***

**Practicals:** multimedia presentations slides; videofilms; demonstration of thematic patients; solving clinical cases, practicing the skills of providing medical care to patients from the moment of their hospitalization, examination, diagnosis, treatment until discharge from the hospital; practicing the skills of working in a team of applicants, doctors, other participants in the provision of medical care.

**Self-study work:** independent work with recommended basic and additional literature, with electronic information resources, preparation for practical classes; independent work with a bank of test tasks КРОК-2, independent mastering of algorithms for communication with the patient.

### Course Content

Topic 1: The concept of antibiotic resistance. The multifaceted nature of the problem of antibiotic resistance in the world

Topic 2. Types of antibiotic resistance.

Topic 3. Reasons for the development of antibiotic resistance in microorganisms.

Topic 4. Errors in the use of antibiotics.

Topic 5. Mechanisms of microbial resistance formation

Topic 6. Risk factors for the development of antibiotic-resistant infections.

Topic 7. Optimal antibiotic therapy.

Topic 8. Decision-making on the use of antibiotics.

Topic 9: The use of rapid diagnostic tests (procalcitonin, fluorescence in situ with nucleic acid peptides (PNAFISH) in deciding whether to prescribe antibiotics.

Topic 10. The use of matrix-assisted laser desorption ionisation (MALDI-TOP)) in deciding whether to prescribe antibiotics.

Topic 11: Peculiarities of using antimicrobial agents in special groups of patients (pregnant women, elderly people, etc.).

Topic 12: Antimicrobial Stewardship strategy.

Topic 13 Order of the Ministry of Health of Ukraine of 18 May 2022 No. 823 "Rational use of antibacterial and antifungal drugs for therapeutic and prophylactic purposes".

Topic 14 Order of the Ministry of Health of Ukraine dated 18 May 2022 No. 823 "Rational use of antibacterial and antifungal drugs for therapeutic and prophylactic purposes".

Topic 15: WHO Global Action Plan to Combat Antimicrobial Resistance.

### ***Recommended literature***

#### **Basic:**

1. Infectious Diseases: textbook (IV a. 1.) / O.A. Holubovska, M.A. Andreichyn, A.V. Shkurba, T.V. Chaban et al. К. ВСВ «Медицина», 2018. (APPROVED by the Ministry of Education and Science of Ukraine as a textbook for students of higher medical educational establishments; APPROVED by the Ministry of Health of Ukraine as a textbook for students of higher medical educational establishments) – 664 с. + 12 с. кольор. вкл. ; двокольор. вид. ISBN 978-617-505-727-8.
2. Інфекційні хвороби: Підручник / Є.В. Нікітін, М.А. Андрейчин, К.Л.

Сервецький, В.О. Качор, А.М. Головченко, Є.М. Усиченко: За ред. Є.В. Нікітіна та М.А. Андрейчина. – Тернопіль: Укрмедкнига, 2004. – 364 с. ISBN 966-673-012-X

3. Pediatric Infectious Diseases: textbook / S.O. Kramarov, O.B. Nadraga, L.V. Pyra et al.; edited by S.O. Kramarov, O.B. Nadraga. — 4th edition. — Kyiv: AUS Medicine Publishing, 2020. — 240 p.
4. General epidemiology: study guide (IV a. 1.) / N.O. Vynograd. — 3rd edition, corrected K: ВСВ «Медицина», 2017. – 128 с.
5. Hagberg H., Wennerholm U.B., Savman K. // Current Opinion in Infection Disease». – 2015. - Vol. - № 3. - P. 301-306.
6. Harrison's Principles of internal medicine. 19th edition /edited by Anthony S. Fauci, Dennis L Kasper, Dan L. Longo [et all]. – New York. - 2017. – 1307 p.

#### **Additional**

1. Comprehensive Textbook of Infectious Disease: M. I. Sahadulla, S. A. Udman. – 2nd edition. Jaippee Brothers, Medical Publishers Pvt. Limited, 2019 – 835 p.
2. Атлас дитячих інфекційних хвороб. Червона Книга = Red Book® Atlas of Pediatric Infectious Diseases: пер. 3-го англ. вид. : двомов. вид. / Керол Дж. Бейкер ; наук. ред. пер. проф. С.О. Крамарьов; пер. з англ. Л.В. Закордонєць. — К. : ВСВ «Медицина», 2019. — 744 с. Tropical infections: manual/ed. MA Andreychyn, VD Moskaliuk. - Lviv: "Magnolia 2006", 2019. - 220 p.
3. Tropical infections: manual/ed. MA Andreychyn, VD Moskaliuk. - Lviv: "Magnolia 2006", 2019. - 220 p.

#### **Online resources**

- <https://library.odmu.edu.ua/catalog/> - Electronic catalogue of the ONMedU library
- <http://moz.gov.ua> – Ministry of Health of Ukraine
- [www.ama-assn.org](http://www.ama-assn.org) – American Medical Association
- [www.who.int](http://www.who.int) – World Health Organisation
- [www.dec.gov.ua/mtd/home/](http://www.dec.gov.ua/mtd/home/) - The State Expert Center of the Ministry of Health of Ukraine
- <http://bma.org.uk> – British Medical Association
- [www.gmc-uk.org](http://www.gmc-uk.org) - General Medical Council (GMC)
- [www.bundesaerztekammer.de](http://www.bundesaerztekammer.de) – German Medical Association

## ASSESSMENT

Types of control: current monitoring and final control.

Form of final control is a credit.

*Current monitoring of students' performance* is carried out at practicals based on theoretical knowledge and practical skills and abilities, for which the following forms are used:

- *oral inquiry*;

- *flash-poll*;

- *control of practical skills* (work at the patient's bedside) - by a teacher, self-assessment;

- *control of a situational clinical problem solving* with a diagnosis, its justification and the answer to a question at the end of a session (written control);

- *oral/written answers* to questions on SSS topics in accordance with the calendar and topic plan;

- *assessment of class activity*

The grade for one practical session is the arithmetic average of all components and can only have a whole value (5, 4, 3, 2), which is rounded according to the statistical method.

### Current evaluation criteria in practical training

Grade	Evaluation criteria
Excellent «5»	The acquirer has a fluent command of the material, takes an active part in discussing and solving a situational clinical problem, confidently demonstrates practical skills during the examination of a patient and the interpretation of clinical, laboratory and instrumental research data, expresses his opinion on the topic of the lesson, demonstrates clinical thinking.
Good «4»	The acquirer has a good command of the material, participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a patient and the interpretation of clinical, laboratory and instrumental research data with some errors, expresses his opinion on the subject of the lesson, demonstrates clinical thinking.
Satisfactory «3»	The acquirer does not have sufficient knowledge of the material, is unsure of participating in the discussion and solving of the situational clinical problem, demonstrates practical skills during the examination of the patient and the interpretation of clinical, laboratory and instrumental research data with significant errors.

Unsatisfactory «2»	The acquirer does not possess the material, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of the patient and the interpretation of clinical, laboratory and instrumental research data.
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Credit is awarded to an applicant who has completed all the tasks of the work program of the discipline, actively participated in practical classes, completed and defended an individual assignment and has a current average grade of at least 3.0 and has no academic debt.

The test is taken: at the last lesson. The grade for the test is the arithmetic average of all components on a traditional four-point scale and has a value that is rounded according to the statistical method with two decimal places.

### **Distribution of points received by acquirers of higher education**

The obtained grade point average for the discipline for students who have successfully completed the work program of the discipline is converted from the traditional four-point scale to points on a 200-point scale, as shown in the table:

**Table of conversion of traditional grade into a multi-point scale**

<b>National assessment for discipline</b>	<b>The sum of points for the discipline</b>
Excellent («5»)	185-200
Good («4»)	151-184
Satisfactory («3»)	120-150
Unsatisfactory («2»)	Lower then 120

A multi-point scale (200-point scale) characterizes the actual performance of each student in mastering the educational component. The conversion of the traditional grade (grade point average for a discipline) into a 200-point scale is performed by the University's Information Technology Department.

According to the points obtained on a 200-point scale, the achievements of applicants are evaluated according to the ECTS rating scale. Further ranking according to the ECTS rating scale allows to evaluate the achievements of applicants in the educational component who study in one course of one specialty, according to the points they received.

The ECTS scale is a relative and comparative rating scale that establishes the applicant's belonging to the group of the best or worst among the reference group of

fellow students (faculty, specialty). Grade A on the ECTS scale cannot be equal to grade A, and grade B cannot be equal to grade B, etc. When converting from a multi-point scale, the limits of grades "A", "B", "C", "D", "E" on the ECTS scale do not coincide with the limits of grades "5", "4", "3" on the traditional scale. Applicants who have received grades "FX" and "F" ("2") are not included in the list of ranked applicants. The grade "FX" is assigned to applicants who have scored the minimum number of points for current academic activities, but who have not been credited with the final control. The grade "F" is assigned to applicants who have attended all classes in the discipline, but have not gained an average score (3.00) for current academic activities and are not allowed to take the final control.

Acquirers enrolled in the same course (one specialty), based on the number of points gained in the discipline, are ranked on the ECTS scale as follows:

**Conversion of the traditional grade from the discipline and the sum of points on the ECTS scale**

ECTS mark	Statistic index
“A”	Next 10% of acquirers
“B”	Next 25% of acquirers
“C”	Next 30% of acquirers
“D”	Next 25% of acquirers
“E”	Next 10% of acquirers

**STUDENTS’ SELF-STUDY WORK**

Students’ self-study which is performed on the topic of a practical class along with classroom activities, is evaluated during the current monitoring at the corresponding session.

Self-study work involves preparation to each thematic session.

**COURSE POLICIES**

***Deadlines and make-ups policy.***

Unexcused absences at practical sessions are made up according to the schedule to the instructor on duty.

Absences for valid reasons are worked out according to an individual schedule with the permission of the dean's office. Work-up of missed classes according to an individual schedule is carried out in full at a time specially determined by the head/head instructor of the department every day, but no more than one class per day at the department.

***Academic integrity policy:***

*Students must observe academic integrity, namely:*

- independent performance of all types of work, assignments, forms of control provided by this course work program;
- cite all sources of information in the case of using ideas, designs, statements, data;
- observance of legislation on copyright and related rights;
- providing reliable information about the results of one's own educational (scientific) activity, used research methods and sources of information.

*Unacceptable for participants of the educational process are:*

- using family or official ties to obtain a positive or higher grade during any form of control of learning outcomes or advantages in academic performance;
- use of prohibited auxiliary materials or technical means (cheat sheets, notes, micro-earphones, telephones, smartphones, tablets, etc.) at controls;
- passing procedures for learning outcomes control by fake persons.

*For violation of academic integrity, students may get the following academic penalties:*

- decrease in grades for the control work, current performance, credit, etc.;
- retake of assessment (control work, credit, etc.);
- additional control assignments (additional individual tasks, control works, tests, etc.);
- conducting an additional inspection of other works authored by a violator.

### ***Attendance policy***

*Uniform:* a medical gown that completely covers the outer clothing, or medical pajamas, a cap, a mask, and a change of shoes.

*Equipment:* notebook, pen, phonendoscope.

*State of health:* students suffering from acute infectious diseases, including respiratory diseases, are not allowed to attend classes.

A student who is late for class can attend it, but if an instructor noted his absence in the register, he must make it up in the general order.

In order to receive a satisfactory grade, it is mandatory to attend and participate at classroom sessions.

### ***Mobile devices***

It is allowed to be used with the instructor's permission for performing a task.

### ***Student Conduct***

Students and instructors' conduct in a classrooms must be working and calm, strictly comply with the rules established by the Regulations on academic integrity and ethics in academic relations at Odesa National Medical University, in accordance with the Code of Academic Ethics and University Community Relations of Odesa National Medical University, Regulations on Prevention and detection of academic plagiarism in the research and educational work of students of higher education, scientists and teachers of Odesa National Medical University.