

# EUROPEAN MEDICAL UNIVERSITY

“APPROVED”

Vice-rector of EMU,  
MD, PhD, DrMedSc, Professor

\_\_\_\_\_Herman TITOV

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## SYLLABUS OF THE EDUCATIONAL DISCIPLINE "PHARMACOLOGY "

|                            |                                                                   |
|----------------------------|-------------------------------------------------------------------|
| Cycle of Higher Education: | second cycle of higher education<br>(Master's degree)             |
| Field of Study:            | 22 «Healthcare»                                                   |
| Specialty                  | 221 Dentistry                                                     |
| Educational qualification  | Master of Dentistry                                               |
| Professional qualification | doctor                                                            |
| Educational program        | EPP «Dentistry» 2023                                              |
| Department                 | Department of Fundamental Disciplines                             |
| Contact information        | dp1funddis@dmitnm.edu.ua<br>Akademician H. Dzyaka St. 3,, Dnipro. |
| Compilers of the syllabus  | Teachers – D. in Pharmacy Anna KURT-AMETOVA,<br>Kristina GUDKOVA. |

Dnipro

2024

## 1. Status and structure of the discipline

|                                                                  |                                                                              |
|------------------------------------------------------------------|------------------------------------------------------------------------------|
| Discipline status                                                | Mandatory                                                                    |
| Discipline code in EPP/place of discipline in EPP                | EC 17, professional training discipline                                      |
| Course/semester                                                  | 2 -3 course (4-5 semester)                                                   |
| Course volume (total number of hours/<br>number of ECTS credits) | 180 hours / 6 ECTS credits                                                   |
| Number of Chapter :                                              | 2                                                                            |
| Number of content sections                                       | 6                                                                            |
| Distribution by types of training and hours of study             | Lectures 16 hours<br>Practical classes 74 hours<br>Independent work 90 hours |
| Language of instruction                                          | English                                                                      |
| Form of education                                                | Full-time                                                                    |
| Type of final control                                            | Exam                                                                         |

## 2. Prerequisites and Postrequisites of educational discipline

**Prerequisites:** Pharmacology as a discipline which is based on the study of Latin, ethics, philosophy, ecology, medical biology, medical chemistry, biological and bioorganic chemistry, biophysics, human anatomy, pathological anatomy, physiology, pathological physiology, microbiology and integrates with these disciplines;

**Postrequisites:** it sets the foundations for the study of students of clinical pharmacology and pharmacotherapy and the formation of skills to apply knowledge of pharmacology in the further study of therapy, surgery, pediatrics and other clinical disciplines and in future professional activities.

## 3. Characteristic of the educational discipline

### Purpose and definition of the educational discipline:

**The purpose of the discipline "Pharmacology"** involves the acquisition of theoretical knowledge and practical skills on the basic principles of substantiation of rational and safe for human health use of drugs for the treatment and prevention of diseases by each student. Achieving the goal will prepare students for practical activities, quality performance of functional responsibilities associated with the rational choice of drugs, self-preparation of pharmacotherapy regimens and further monitoring of the effectiveness and safety of pharmacotherapy, prevention of adverse reactions.

## 4. Tasks of educational "pediatrics" discipline

- 1) determining the group of drugs,
- 2) pharmacokinetics,
- 3) pharmacodynamics,

- 4) manifestations of possible side effects, symptoms of overdose, measures to prevent and promote the elimination of adverse reactions,
- 5) the main indications for administration,
- 6) interaction with other drugs,
- 7) acquisition of practical skills, in particular prescribing drugs in various dosage forms.

## 5. Appointment of the discipline

### Competencies.

*General competencies (GC): GC 1-3, GC 7, GC 9, GC 13*

|       |                                                                                                                      |
|-------|----------------------------------------------------------------------------------------------------------------------|
| GC 1  | Ability to think abstractly, analyze and synthesize. Ability to learn and develop.                                   |
| GC 2  | Knowledge and understanding of the subject area and understanding of the multilevel nature of professional activity. |
| GC 3  | Ability to apply professional knowledge and practical skills in medical practice.                                    |
| GC 7  | Ability to search, process and analyze scientific information from various sources.                                  |
| GC 9  | The ability to identify, pose, and solve problems.                                                                   |
| GC 13 | The ability to act socially responsible and conscious.                                                               |

*Special (professional, subject) competencies (SC): SC 5, SC 7, SC 9, SC 14, SC 15, SC 17*

|       |                                                                                                                                                                                                       |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SC 5  | Ability to design the process of providing medical care: determine approaches, plan, types and principles of treatment of diseases of organs and tissues of the oral cavity and maxillofacial region. |
| SC 7  | Ability to determine the tactics of managing patients with diseases of organs and tissues of the oral cavity and maxillofacial region with concomitant somatic diseases.                              |
| SC 9  | Ability to treat the main diseases of organs and tissues of the oral cavity and maxillofacial region.                                                                                                 |
| SC 14 | Ability to maintain regulatory medical documentation.                                                                                                                                                 |
| SC 15 | Processing of state, social and medical information.                                                                                                                                                  |
| SC17  | Ability to legally ensure one's own professional activities.                                                                                                                                          |

*Program learning outcomes (PLO): PLO 8, PLO10, PLO 11*

|        |                                                                                                                                                                                                          |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PLO 8  | Determine the approach, plan, type and principle of treatment of a dental disease (from list 2) by making an informed decision based on existing algorithms and standardized schemes.                    |
| PLO 10 | Determine the tactics of managing a dental patient with somatic pathology (according to list 3) by making an informed decision according to existing algorithms and standard schemes.                    |
| PLO 11 | To carry out treatment of major dental diseases according to existing algorithms and standard schemes under the supervision of a supervising physician in a medical institution (according to list 2.1). |

## 6. Content of the discipline

### Lectures plan (L) –

| №            | Topic                                                                                                                                                                                                                                                                                                                         | Hours     |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1            | History of pharmacology development. The state of modern pharmacology. The Law of Ukraine "On Medicines". General pharmacology.                                                                                                                                                                                               | 2         |
| 2            | Pharmacology of drugs affecting efferent innervation. Drugs that regulate the transmission of excitation in cholinergic and adrenergic synapses: cholinotropic and adrenotropic drugs.                                                                                                                                        | 2         |
| 3            | Drugs for inhalation and non-inhalation anesthesia and analgesia. Local anesthetics. Pharmacology and toxicology of ethyl alcohol. Narcotic analgesics (opiates, opioids), non-steroidal anti-inflammatory drugs.                                                                                                             | 2         |
| 4            | Psychotropic drugs with predominantly depressant and activating effects: sedatives, tranquilizers, neuroleptics (antipsychotics), antimanic drugs (normotimics); antiparkinsonian, antiepileptic drugs and analeptics and psychostimulants, antidepressants, nootropics and cerebroprotectors, adaptogens and actoprotectors. | 2         |
| 5            | Pharmacology of systemic and coronary circulation. Antihypertensive and antianginal and hypolipidemic drugs.                                                                                                                                                                                                                  | 2         |
| 6            | Cardiotonic drugs of glycoside and non-glycoside nature. Antiarrhythmic drugs.                                                                                                                                                                                                                                                | 2         |
| 7            | Pharmacology of drugs for the treatment of infectious diseases. Classification of antibiotics.                                                                                                                                                                                                                                | 2         |
| 8            | Pharmacology of drugs for the treatment and prevention of parasitic diseases.                                                                                                                                                                                                                                                 | 2         |
| <b>Total</b> |                                                                                                                                                                                                                                                                                                                               | <b>16</b> |

### Practical lessons plan (PL)

| №                                                                                                                           | Topic                                                                                         | Hours |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------|
| <b>Chapter 1:</b><br><b>"Medical Formulation. General Pharmacology. Pharmacology of Drugs Affecting the Nervous System"</b> |                                                                                               |       |
| <b>Content section 1</b><br><b>"Medical formulation. General pharmacology"</b>                                              |                                                                                               |       |
| 1.                                                                                                                          | Law of Ukraine "On Medicines ". Introduction to medicinal formulation. Solid dosage forms     | 2     |
| 2.                                                                                                                          | Soft dosage forms: ointments, pastes, liniments, creams, gels and suppositories               | 2     |
| 3.                                                                                                                          | Liquid dosage forms: solutions for external use and internal use. Dosage forms for injections | 2     |

|                                                                                                                                                                                 |                                                                                                                     |   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|---|
| 4.                                                                                                                                                                              | Propaedeutic medicinal formulation.                                                                                 | 2 |
| 5.                                                                                                                                                                              | Test paper                                                                                                          | 2 |
| <b>Content section 2 "Drugs affecting the peripheral and central nervous system"</b>                                                                                            |                                                                                                                     |   |
| 6.                                                                                                                                                                              | Drugs that affect the transmission of excitation in cholinergic synapses                                            | 3 |
| 7.                                                                                                                                                                              | Drugs that affect the transmission of excitation in adrenergic synapses. Adrenergic-positive drugs                  | 3 |
| 8.                                                                                                                                                                              | Drugs that affect the transmission of excitation in adrenergic synapses. Adrenergic-negative drugs                  | 3 |
| 9.                                                                                                                                                                              | Psychotropic drugs. Neuroleptics, tranquilizers, lithium salts, sedatives and hypnotics                             | 3 |
| 10.                                                                                                                                                                             | Antiepileptic and antiparkinsonian drugs. Central muscle relaxants                                                  | 3 |
| 11.                                                                                                                                                                             | Pharmacology of pain and analgesia. Narcotic and non-narcotic analgesics                                            | 3 |
| 12.                                                                                                                                                                             | Drugs for inhalation and non-inhalation anesthesia. Local anesthetics. Pharmacology and toxicology of ethyl alcohol | 3 |
| 13.                                                                                                                                                                             | Psychomotor stimulants. Nootropics and cerebrovascular drugs. Antidepressants. Pharmacology of antimigraine drugs   | 3 |
| 14.                                                                                                                                                                             | Summary lesson. "Medical prescription. General pharmacology. Pharmacology of drugs that affect the nervous system.  | 2 |
| <b>Chapter 1:</b><br><b>"Pharmacology of drugs that affect the function of organs and systems. Chemotherapeutic drugs. Drugs that affect the nervous system and metabolism"</b> |                                                                                                                     |   |
| <b>Content section 3 "Pharmacology of drugs that affect the function of the respiratory, digestive, cardiovascular systems, kidney function and myometrium"</b>                 |                                                                                                                     |   |
| 15                                                                                                                                                                              | Pharmacology of the respiratory system.                                                                             | 2 |
| 16.                                                                                                                                                                             | Pharmacology of the digestive system.                                                                               | 2 |
| 17.                                                                                                                                                                             | Pharmacology of the circulatory system. Hypo- and hypertensive drugs. Antianginal and cerebrovascular drugs.        | 2 |
| 18.                                                                                                                                                                             | Antihyperlipidemic drugs, angioprotectors.                                                                          | 2 |
| 19                                                                                                                                                                              | Cardiotonic drugs. Antiarrhythmic drugs.                                                                            | 2 |
| 20                                                                                                                                                                              | Diuretics. Drugs that affect the myometrium. Antigout drugs.                                                        | 2 |
| 21                                                                                                                                                                              | Final lesson on the pharmacology of drugs that affect the function of executive organs and physiological systems    | 2 |
| <b>Content section 4 "Synthetic antimicrobials. Antibiotics. Antiviral, antifungal, antiparasitic and antitumor drugs"</b>                                                      |                                                                                                                     |   |
| 22.                                                                                                                                                                             | Antiseptics and disinfectants. Sulfonamides. Fluoroquinolones.                                                      | 2 |
| 23.                                                                                                                                                                             | Antibiotics I ( $\beta$ -lactams, macrolides, aminoglycosides)                                                      | 2 |

|                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                 |           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 24.                                                                                                                                                                                                                 | Antibiotics II (tetracyclines, chloramphenicol). Antifungal, antiviral and antituberculosis drugs.                                                                                                                                              | 2         |
| 25.                                                                                                                                                                                                                 | Antiparasitic, antitumor drugs. Final lesson on the pharmacology of antimicrobial, antiviral, antiparasitic, antifungal drugs                                                                                                                   | 2         |
| <b>Content section 5 “Hormonal, vitamin and enzyme drugs. Pharmacology of the hematopoietic and hemocoagulation systems. Immunotropic and antiallergic drugs. Pharmacology of acute poisonings and emergencies”</b> |                                                                                                                                                                                                                                                 |           |
| 26.                                                                                                                                                                                                                 | Pharmacology of the endocrine system. Hormonal agents, their synthetic substitutes and antagonists.                                                                                                                                             | 2         |
| 27.                                                                                                                                                                                                                 | Vitamins. Antiallergic and immunotropic agents.                                                                                                                                                                                                 | 2         |
| 28.                                                                                                                                                                                                                 | Pharmacology of the blood system. Pharmacology of substances that affect hematopoiesis and blood clotting, platelet aggregation and fibrinolysis. Antitumor drugs.                                                                              | 2         |
| 29.                                                                                                                                                                                                                 | Antiallergic and immunotropic agents. Final lesson on the pharmacology of metabolic processes.                                                                                                                                                  | 2         |
| 30.                                                                                                                                                                                                                 | Final control of Section 2. "Pharmacology of agents that affect the function of organs and systems. Pharmacology of antimicrobial, antiviral, antiparasitic, antifungal drugs (drugs). Hormonal, vitamin, antiallergic and immunotropic drugs". | 2         |
| 31.                                                                                                                                                                                                                 | Final test control on the topic of Section 1, 2. Preparation for integrated and licensed exams: pharmacological characteristics of drugs that are included in the list of drugs of the licensing exam "STEP-1".                                 | 2         |
| 32.                                                                                                                                                                                                                 | Pharmacology of acute poisoning. Rework of Chapter 2                                                                                                                                                                                            | 2         |
| 33.                                                                                                                                                                                                                 | Pharmacological surveillance of drug side effects. Reorganization of the final test control on the topics of Chapter 1, 2.                                                                                                                      | 2         |
| <b>Total</b>                                                                                                                                                                                                        |                                                                                                                                                                                                                                                 | <b>74</b> |

### Self-study topics

| № | ТЕМА                                                                                                   | Кількість годин |
|---|--------------------------------------------------------------------------------------------------------|-----------------|
| 1 | Modern principles and methods of research of new medicines                                             | 6               |
| 2 | Individual sensitivity to drugs. Idiosyncrasy. The concept of drug safety                              | 6               |
| 3 | Metabolism of drugs in the body. The role of the cytoplasmic reticulum of the liver in drug metabolism | 4               |
| 4 | Basic antidotes                                                                                        | 5               |
| 5 | Toxicological significance and ways to eliminate the symptoms of OPs poisoning                         | 5               |
| 6 | Drugs that affect n-cholinergic receptors.<br>Toxicology of nicotine. Medications for the relief of    | 5               |

|                            |                                                                                   |           |
|----------------------------|-----------------------------------------------------------------------------------|-----------|
|                            | smoking cessation                                                                 |           |
| 7                          | Drugs for inhalation anesthesia                                                   | 5         |
| 8                          | Ethyl alcohol and drugs for the treatment of alcoholism                           | 5         |
| 9                          | Antidepressants                                                                   | 5         |
| <b>Total of 4 semester</b> |                                                                                   | <b>44</b> |
| 10                         | Adaptogens and actoprotectors                                                     | 4         |
| 11                         | Pharmacology of normothymics and agents affecting metabolism<br>GABA              | 4         |
| 12                         | Drugs affecting the metabolism of bone and cartilage tissue<br>tissue metabolism. | 4         |
| 13                         | Drugs affecting uric acid metabolism                                              | 4         |
| 14                         | Antacids                                                                          | 4         |
| 15                         | Hepatoprotectors                                                                  | 4         |
| 16                         | Probiotics, prebiotics and symbiotics                                             | 4         |
| 17                         | Pharmacology of drugs for the treatment of HIV infections                         | 4         |
| 18                         | Pharmacology of chemotherapeutic drugs                                            | 4         |
| 19                         | Enzymes and their inhibitors.                                                     | 4         |
| 20                         | Pharmacological control of side effects of medicines in Ukraine.                  | 6         |
| <b>Total of 5 semester</b> |                                                                                   | <b>46</b> |
| <b>Total</b>               |                                                                                   | <b>90</b> |

**Independent work of a student** provides for preparation for practical classes and final control, studying topics for independent out-of-class work, preparing abstract reports, presentations, tables. Control of learning results of topics of independent out-of-class work is carried out during the class and during final control in the discipline.

**Individual work** includes the study of scientific literature, preparation of reviews on the submitted topics for presentation, implementation of scientific and practical research, participation in specialized competitions, scientific and practical conferences, competitions of student scientific papers.

*Calendar plans of practical classes, thematic plan of independent extracurricular work, scope and directions of individual work are published on the website of the Department.*

**Route for receiving materials:** Website of EMU/Student/ Department of fundamental disciplines / Educational and methodological support of the Department/ Pediatrics / or follow the link

Department of fundamental disciplines, discipline "Pediatrics". Materials are accessed from the student's Office 365-based corporate account.

## 7. Forms and methods of monitoring learning success

|                                                                                             |                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Current control in practical classes                                                        | Methods: individual oral survey, structured written works, test tasks with the choice of correct answers.                                                                   |
| Control of mastering the thematic section of the discipline in intermediate control classes | Methods: oral or written survey, electronic testing, <i>methods of self-control and self-assessment</i> .                                                                   |
| Final semester control                                                                      | According to the regulation on control measures in EMU (regulation of EMU)                                                                                                  |
| Final control of the discipline - <i>exam</i>                                               | Methods: by exam cards in the form of an oral exam, monitoring of acquiring of practical skills (According to the Regulation on control measures in EMU(Regulation of EMU). |
| Tools for diagnosing learning success                                                       | Theoretical questions, tests, clinically oriented situational tasks, practical tasks, demonstration of practical skills.                                                    |

## Evaluation criteria

Knowledge assessment is carried out according to regulation on control measures in EMU (regulation of EMU).

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Current control                  | According to the four-point system of traditional grades: 5 "Excellent", 4 "Good", 3 "Satisfactory", 2 "Unsatisfactory"                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Control of practical skills      | According to the four-point system of traditional grades                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Exam                             | Based on a 200-point scale (the sum of points for the current academic activity of the student, the result of passing the exam and for successful completion of an individual task, if any)<br>Credited: 120 to 200 points<br>Not credited: less than 120 points (see Rating scale)                                                                                                                                                                                                                                                                                                                 |
| Final control for the discipline | The final control of students' academic performance is carried out after completing the study of the discipline and is implemented in the form of an exam.                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Discipline assessment:           | The score on the discipline is determined based on the results of assessment of current activities and is expressed using a <b>fourpoint scale:</b> ("Excellent", "Good", "Satisfactory", "Unsatisfactory"), multi-point scale and ECTS. The assessment in the discipline consists of an assessment of the current academic performance and the result of passing the exam (in points), which is set when evaluating theoretical knowledge and practical skills in accordance with the list defined by the discipline program. The number of points that the applicant scored for current academic. |



|  |                                                                                                                                                                                                                                                                                                                                                                                                        |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | performance in the discipline is defined as the arithmetic mean of the number of points that the applicant received during the study of the discipline (practical, seminar, laboratory classes, etc.). The resulting value of the average traditional rating is converted to points according to the scale of conversion of traditional ratings to rating points. The maximum number of points is 200. |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Matching grades on a 200-point scale, a 4-point (traditional) scale, and ECTS scale

| On a 200-point scale | Rating on a 4-point scale |
|----------------------|---------------------------|
| 180–200              | Excellent                 |
| 140–179              | Good                      |
| 120–139              | Satisfactory              |
| 0–119                | Unsatisfactory            |

| On a 200-point scale | ECTS evaluation |
|----------------------|-----------------|
| 192–200              | A               |
| 172–191              | B               |
| 148–171              | C               |
| 128–147              | D               |
| 120–127              | E               |
| 0–119                | F               |

### **Discipline/course policy**

The student has the right to receive high-quality educational services, access to up-to-date scientific and educational information, qualified advice during the study of the discipline and mastering practical skills. The policy of the department in the provision of Educational Services is student-centered, based on the regulatory documents of the Ministry of Education and the Ministry of Health of Ukraine, the Charter of the EMU and the procedure for providing educational services regulated by the regulation on the organization of the educational process in the EMU and the principles of academic integrity.

### **Compliance with the EMU schedule, safety precautions in the classroom.**

#### **Requirements for preparing for practical classes.**

Students should arrive at classes on time, without being late. A student who is more than 10 minutes late for classes is not allowed in and must work it out in accordance with the established procedure. During practical classes, the student must wear a work uniform (medical gown, cap).

Students who do not have a work uniform are not allowed to attend classes. The student must follow the safety rules during practical classes and while staying in the Department's premises. When discussing theoretical issues, students should demonstrate tolerance, politeness and respect for their colleagues and the teacher; when performing practical tasks, the workplace should be kept in order and cleaned after completing practical work.

**Use of mobile phones and other electronic devices.** The use of mobile phones and other electronic devices in the classroom is not allowed, only during Distance Learning, provided that it is technically necessary.

**Academic integrity.** When studying the discipline, the student should be guided by the following regulations: on academic integrity of EMU (regulation of EMU). In case of violation of the regulations of academic integrity during the current and final controls, the student receives a grade of "2" and must work it out to the teacher in accordance with the established procedure.

Regulation on control measures in EMU (Regulation of EMU).

**Skipping classes.** Missed classes should be worked out in accordance with the procedure established in the regulations on control measures in the EMU (regulation of EMU) during the time determined by the work schedule (Department of fundamental disciplines) to the teacher on duty. To work out a missed lesson the student must pass a test and answer in writing or verbally the question on the topic of the lesson.

**Procedure for admission to the final control** in the discipline is given in the regulations on control measures and regulations on the organization of the educational process in the EMU (regulation of EMU) and regulations on control measures in the TNM DMI (regulation of EMU). Students who do not have missed not worked out practical classes and lectures and have received an average traditional grade of at least "3" are allowed to participate in the final control.

**Additional individual points.** Points are awarded subject to the mandatory participation of the head, head teacher and teacher. These points are encouraging and are added once to the total score of the current academic performance and the result of passing the comprehensive exam. Their total number for one student should not exceed 10, and the final amount of points for an academic discipline should not exceed 200 points.

**Individual tasks include:**

- 1) writing essays and creating multimedia presentations with reports at meetings of the student scientific group of the department – 3 points;
- 2) participation in the creation of tables, graphological structure, posters on the topics of practical classes – 2 points;
- 3) participation in the student competition in the discipline at the First Stage – 1 point;
- 4) participation/prize-winner of the All-Ukrainian student competition in the discipline - 7/10 points;
- 5) author or co-author of abstracts/article – 2/5 points;
- 6) author or co-author of an oral/information stand report at a scientific conference – 6/3 points;
- 7) author of a student scientific paper accepted for participation or awarded by a diploma of I-III degree in the All – Ukrainian competition of student scientific papers at Stage II - 8 (participation) or 10 (diploma) points.

**Resolving conflict issues.** If there are misunderstandings and complaints against the teacher due to quality of educational services provided, knowledge assessment, and other conflict situations, the student must first report his/her claims to the teacher. If the conflict issue is not resolved, the student has the right to submit an appeal to the head of the department in accordance with the regulations on consideration of applications from applicants for higher education in EMU(regulation of EMU), Regulations on consideration of applications, complaints, and proposals of students in EMU (regulation of EMU), Regulations on meeting the requirements of the organization of the educational process (regulation of EMU), Regulation on the appeal of the results of the final control of knowledge of applicants for higher education in EMU(regulation of EMU), Regulations on safe educational environment in EMU (regulation of EMU).

**Policy in the context of distance learning.** The procedure for distance learning is regulated by regulation of EMU. The main training platforms for conducting training sessions are Microsoft Teams, Zoom. The procedure for conducting practical classes and lectures, working out and consultations during Distance Learning is published on the Department's Web page Department of fundamental disciplines. Feedback from the teacher is provided directly during the lesson and/or consultation, and is also possible via email (in case of force majeure) during working hours.

#### **Training resources**

Educational and methodological support of the discipline is published on the website of the Department of fundamental disciplines. Consultations are held according to the consultation schedule.

**Schedule and distribution of groups by teacher** are published on the Department's Web page (Department of fundamental disciplines).

**Questions for intermediate and final control of the discipline** are published on the Department's Web page (Department of fundamental disciplines).

## 8. Literature

### Basic

1. Pharmacology: a textbook / Viktor M. Bobyrov, Tetyana O. Devyatkina, Olena M. Vazhnicha, Vadim M. K hristyuk-V innytsya: NOVA KNYIIA Publishers, 2010. - 520 p.: il. ISBN 078 966 182-292-1
2. Whalen K Feild C Radhakrishnan R. Lippincott Illustrated Reviews: Pharmacology. Seventh ed. Philadelphia: Wolters Kluwer; 2019.
3. Brunton LL, Hilal-Dandan R, Knollmann BC. Eds. *Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13e*. McGraw Hill; 2019.
4. Meyler's Side Effects of Drugs. The International Encyclopedia of Adverse Drug Reactions and Interactions. 2016. – 73 p.
5. Sidhartha D. Ray. Side Effects of Drugs Annual  
A Worldwide Yearly Survey of New Data in Adverse Drug Reactions. Volume 39. 2017.
5. Melinda Cuthbert, Anne Lee. Adverse Drug Reactions. 2023. 496 p.

### Additional

1. Toronto Notes 2020: Comprehensive Medical Reference and Review for the Medical Council of Canada Qualifying Exam (MCCQE) Part I and the United States Medical Licensing Exam (USMLE) Step II. Toronto Notes for Medical Students, Incorporated; 2020.
2. Turco S, Medical (Firm) K. USMLE® Step 1 Lecture Notes 2020: Biochemistry and Medical Genetics. Kaplan Medical; 2020.
3. Basic & clinical pharmacology / edited by Bertram G. Katzung ; associate editors, Susan B. Masters, Anthony J. Trevor / New York : McGraw-Hill Medical, 2012. - 12th ed.

### Electronic resources:

1. <https://www.youtube.com/>
2. [www//E-medicine.com](http://www.E-medicine.com)
3. [www.drugs.com](http://www.drugs.com)
4. [www.pubmed.com](http://www.pubmed.com)

Responsible for the course  
D. in Pharmacy, Lecturer

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Anna KURT-AMETOVA,

Head of the department  
ScD., Professor

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Svitlana OSTROVSKA