

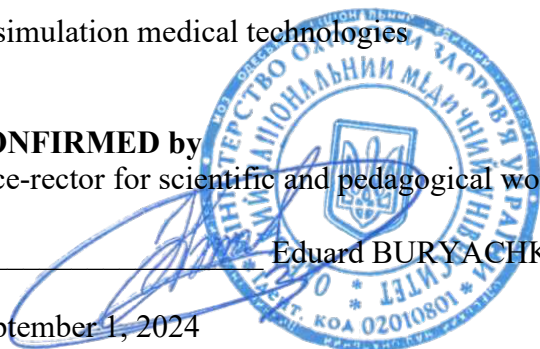
**MINISTRY OF HEALTH OF UKRAINE**  
**ODESA NATIONAL MEDICAL UNIVERSITY**

Department of simulation medical technologies

**CONFIRMED by**  
Vice-rector for scientific and pedagogical work

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Eduard BURYACHKIVSKY

September 1, 2024



**WORKING PROGRAM OF THE ACADEMIC DISCIPLINE**  
**«GENETIC DISEASES, «ORPHAN DISEASES». DIAGNOSIS AND MANAGEMENT.**  
**SIMULATION TRAINING»**

**Level of higher education:** second (master 's degree)

**Field of knowledge:** 22 "Health care"

**Specialty:** 222 "Medicine"

**Educational and professional program:** Medicine

The working program is compiled on the basis of the educational and professional program "Medicine" for the training of specialists of the second (master 's degree) level of higher education in the specialty 222 "Medicine" of the field of knowledge 22 "Health care", approved by the Academic Council of ONMedU (protocol No. 10 of 27.06.2024).

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The working program was approved at the meeting of the department of simulation medical technologies

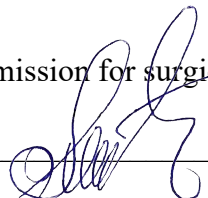
Protocol No. 1 of 28.08.2024

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Protocol No. 1 of 30.08.2024

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Vasyl MISHCHENKO

Revised and approved at the meeting of the department of simulation medical technologies  
Protocol No. \_\_ dated \_\_/\_\_/20\_\_ .

Head of the department \_\_\_\_\_

Revised and approved at the meeting of the department of simulation medical technologies  
Protocol No. \_\_ dated \_\_/\_\_/20\_\_ .

Head of the department \_\_\_\_\_

## 1. Description of the academic discipline:

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the academic discipline
The total number of: Credits of ECTS: 3 Hours: 90	Field of knowledge 22 "Health care"  Specialty 222 "Medicine"  Level of higher education second (master's degree)	<i>Full-time (day) education — elective discipline</i>
		<i>Course: 5</i>
		<i>Semesters IX — X</i>
		<i>Lectures (0 hours)</i>
		<i>Seminars (0 hours)</i>
		<i>Practical classes (30 hours)</i>
		<i>Laboratories (0 hours)</i>
		<i>Individual work (60 hours)</i>
		<i>including individual tasks (0 hours)</i>
		<i>Final control form — test</i>

## 2. The aim and tasks of the academic discipline, competencies, program learning outcomes

**Aim:** formation and improvement of practical skills in diagnostics, management and social care for patients with rare congenital and acquired diseases in children and adults and implementation of practical skills acquired in the study of previous disciplines.

### **Task:**

1. Formation and improvement of the ability to diagnose and develop a treatment plan for the most common rare diseases encountered in the practice of doctors of various specialties.
2. Improving the ability to apply diagnostic and laboratory techniques that assist in decision-making regarding the management, treatment, and prevention of orphan diseases.
3. Improving the ability to make decisions about the management of patients with rare diseases based on the principles of evidence-based medicine.
4. Mastering knowledge about the main drugs used to treat "orphan diseases" based on relevant clinical and pharmacological principles.

The process of studying the discipline is aimed at forming elements of the following **competencies:**

### • **General (GC):**

- GC1. Ability to abstract thinking, analysis and synthesis
- GC2. Ability to learn and master modern knowledge
- GC3. Ability to apply knowledge in practical situations
- GC4. Knowledge and understanding of the subject area and understanding of professional activity
- GC5. Ability to adapt and act in a new situation
- GC6. Ability to make informed decisions
- GC7. Ability to work in a team
- GC8. Ability to interpersonal interaction
- GC12. Determination and persistence in relation to assigned tasks and assumed responsibilities
- GC16. Ability to make decisions and act in accordance with the principle of non-admissibility

### • **Special (SC):**

- SC1. Ability to collect medical information about the patient and analyze clinical data

SC2. Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results

SC3. Ability to establish a preliminary and clinical diagnosis of the disease

SC10. Ability to perform medical manipulations

SC11. Ability to solve medical problems in new or unfamiliar environments with incomplete or limited information, taking into account aspects of social and ethical responsibility, including an early intervention system

SC24. Adherence to ethical principles when working with patients and laboratory animals

**Program learning outcomes (PLO):**

PLO1. Have thorough knowledge of the structure of professional activity. To be able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, the ability for further professional training with a high level of autonomy

PLO2. Understanding and knowledge of fundamental and clinical biomedical sciences, at a level sufficient for solving professional tasks in the field of health care

PLO4. Identify and identify leading clinical symptoms and syndromes (according to list 1); according to standard methods, using preliminary data of the patient's history, data of the patient's examination, knowledge about the person, his organs and systems, establish a preliminary clinical diagnosis of the disease (according to list 2)

PLO5. Collect complaints, history of life and diseases, assess the psychomotor and physical development of the patient, the state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information about the diagnosis (according to list 4), taking into account the age of the patient

PLO6. To establish a final clinical diagnosis by making a reasoned decision and analyzing the received subjective and objective data of clinical, additional examination, carrying out differential diagnosis, observing the relevant ethical and legal norms, under the control of the managing physician in the conditions of the health care institution (according to the list 2)

PLO7. Assign and analyze additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) (according to list 4) of patients with diseases of organs and body systems for differential diagnosis of diseases (according to list 2)

PLO8. Determine the main clinical syndrome or symptom that determines the severity of the victim's condition (according to list 3) by making a reasoned decision about the person's condition under any circumstances (in the conditions of a health care facility, outside its borders), including in conditions of emergency and hostilities, in field conditions, in conditions of lack of information and limited time

PLO9. Determine the nature and principles of treatment (conservative, operative) of patients with diseases (according to list 2), taking into account the patient's age, in the conditions of a health care institution, outside its borders and at the stages of medical evacuation, including in field conditions, on the basis of a preliminary clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes, in case of the need to expand the standard scheme, be able to substantiate personalized recommendations under the control of the head physician in the conditions of a medical institution

PLO17. Perform medical manipulations (according to list 5) in the conditions of a medical institution, at home or at work on the basis of a previous clinical diagnosis and/or indicators of the patient's condition by making a reasoned decision, observing the relevant ethical and legal norms

**As a result of studying the academic discipline, the student of higher education must:**

**To know:**

- Anatomical structure of organs and systems in adults and children of different ages

- Methods of general examination
- Algorithm for conducting diagnostic tests in patients with rare diseases
- Pathological changes in organs and systems in adults and children of all ages with orphan diseases
- Pharmacokinetics, pharmacodynamics and side effects of drugs used in the treatment of patients with orphan diseases
- Algorithms and protocols for treating patients with orphan diseases
- Principles of medical ethics
- Concepts, indications, contraindications, technique, algorithm and complications of manipulations:
  1. registration of a standard ECG in 12 leads
  2. administration of medicinal substances (intravenous jet and drip, intraosseous), in particular in field conditions
  3. provision of peripheral venous and intraosseous access
  4. blood pressure measurement
  5. pulse oximetry
  6. assess the patient's anthropometric parameters (body weight, height, waist circumference)
  7. assessment of pulse on peripheral arteries
  8. auscultation of the heart and blood vessels
  9. percussion and auscultation of the lungs
  10. palpation of the abdomen

**Be able to:**

- Orientate yourself in the anatomical structure of organs and systems in adults and children of different ages
- Be able to conduct a general examination
- Name the pathological changes in organs and systems of a person with orphan diseases
- Be familiar with the dosages, pharmacokinetics, pharmacodynamics, and side effects of drugs used in the treatment of patients with orphan diseases
- Perform the necessary manipulations
- Monitor the patient's condition after performing a practical skill
- Provide psychological assistance to patients
- Solve deontological problems related to professional activities
- Have professional communication skills

### **3. Content of the academic discipline**

#### **Topic 1. The most common orphan diseases in Ukraine**

Phenylketonuria: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care. Homocystinuria: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care. Oncological and oncohematological diseases: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care.

#### **Topic 2. The most common orphan diseases in the practice of a pediatrician**

Mucoviscidosis: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care. Primary immunodeficiencies: concept, epidemiology, possible causes, frequency, genetic risk,

pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care. Epidermolysis bullosa: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care.

**Topic 3. The most common orphan diseases in the practice of a general practitioner**

Pituitary dwarfism: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care. Hemophilia: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care. Congenital coagulopathies: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care.

**Topic 4. Phenylketonuria. Cystic fibrosis. Pulmonary hypertension**

Phenylketonuria: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care. Cystic fibrosis: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care. Pulmonary hypertension: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care.

**Topic 5. Spinal muscular atrophy (SMA). Hemophilia**

Spinal muscular atrophy (SMA): concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care. Hemophilia: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care.

**Topic 6. Crohn's disease. Juvenile rheumatoid arthritis**

Crohn's disease: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care. Juvenile rheumatoid arthritis: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care.

**Topic 7. Gaucher disease. Pompe's disease. Mucopolysaccharidosis**

Gaucher disease: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care. Pompe disease: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care. Mucopolysaccharidosis: concept, epidemiology, possible causes, frequency, genetic risk, pathogenesis, clinical

manifestations, modern methods of diagnosis, treatment, prevention, observation and registration in the genetic center. Psychological care.

### Topic 8. Final lesson

#### 4. The structure of the academic discipline

Names of topics	Number of hours					
	Total	including				
		lectures	seminars	practical classes	laboratories	Individual work
Topic 1. The most common orphan diseases in Ukraine	10	0	0	4	0	6
Topic 2. The most common orphan diseases in the practice of a pediatrician	12	0	0	4	0	8
Topic 3. The most common orphan diseases in the practice of a general practitioner	12	0	0	4	0	8
Topic 4. Phenylketonuria. Cystic fibrosis. Pulmonary hypertension	12	0	0	4	0	8
Topic 5. Spinal muscular atrophy (SMA). Hemophilia	12	0	0	4	0	8
Topic 6. Crohn's disease. Juvenile rheumatoid arthritis	12	0	0	4	0	8
Topic 7. Gaucher disease. Pompe's disease. Mucopolysaccharidosis	12	0	0	4	0	8
Topic 8. Final lesson	8	0	0	2	0	6
<b>Total hours</b>	<b>90</b>	<b>0</b>	<b>0</b>	<b>30</b>	<b>0</b>	<b>60</b>

## 5. Topics of lectures/ seminars/ practical classes / laboratories

### 5.1. Topics of lectures

Lectures are not provided.

### 5.2. Topics of seminar classes

Seminar classes are not provided.

### 5.3. Topics of practical classes

№	Topic	Hours
1.	Topic 1. Practical lesson 1. The most common orphan diseases in Ukraine	2
2.	Topic 1. Practical lesson 2. The most common orphan diseases in Ukraine	2
3.	Topic 2. Practical lesson 3. The most common orphan diseases in the practice of a pediatrician	2
4.	Topic 2. Practical lesson 4. The most common orphan diseases in the practice of a pediatrician	2
5.	Topic 3. Practical lesson 5. The most common orphan diseases in the practice of a general practitioner	2
6.	Topic 3. Practical lesson 6. The most common orphan diseases in the practice of a general practitioner	2
7.	Topic 4. Practical lesson 7. Phenylketonuria. Cystic fibrosis. Pulmonary hypertension	2
8.	Topic 4. Practical lesson 8. Phenylketonuria. Cystic fibrosis. Pulmonary hypertension	2
9.	Topic 5. Practical lesson 9. Spinal muscular atrophy (SMA). Hemophilia	2
10.	Topic 5. Practical lesson 10. Spinal muscular atrophy (SMA). Hemophilia	2
11.	Topic 6. Practical lesson 11. Crohn's disease. Juvenile rheumatoid arthritis	2
12.	Topic 6. Practical lesson 12. Crohn's disease. Juvenile rheumatoid arthritis	2
13.	Topic 7. Practical lesson 13. Gaucher disease. Pompe's disease. Mucopolysaccharidosis	2
14.	Topic 7. Practical lesson 14. Gaucher disease. Pompe's disease. Mucopolysaccharidosis	2
15.	Topic 8. Practical lesson 15. Final lesson	2
	<b>Total</b>	<b>30</b>

### 5.4. Topics of laboratories

Laboratories are not provided.

## 6. Individual work of the student

№	Topic	Hours
1.	Topic 1. Down syndrome: concept, possible causes, frequency, genetic risk, diagnosis, treatment, prevention, observation and registration in the genetic center. Edwards syndrome: concept, possible causes, frequency, genetic risk,	10



	diagnosis, treatment, prevention, observation and registration in the genetic center. Patau syndrome: concept, possible causes, frequency, genetic risk, diagnosis, treatment, prevention, observation and registration in the genetic center	
2.	Topic 2. Swyer syndrome: concept, possible causes, frequency, genetic risk, diagnosis, treatment, prevention, monitoring and registration in the genetic center. De la Chapelle syndrome: concept, possible causes, frequency, genetic risk, diagnosis, treatment, prevention, monitoring and registration in the genetic center	10
3.	Topic 3. Marfan syndrome: concept, possible causes, frequency, genetic risk, diagnosis, treatment, prevention, observation and registration in the genetic center. Klinefelter syndrome: concept, possible causes, frequency, genetic risk, diagnosis, treatment, prevention, observation and registration in the genetic center. Shereshevsky-Turner syndrome: concept, possible causes, frequency, genetic risk, diagnosis, treatment, prevention, observation and registration in the genetic center	10
4.	Topic 4. Crouzon syndrome: concept, possible causes, frequency, genetic risk, diagnosis, treatment, prevention, observation and registration in the genetic center. Asperger syndrome: concept, possible causes, frequency, genetic risk, diagnosis, treatment, prevention, observation and registration in the genetic center. Tourette syndrome: concept, possible causes, frequency, genetic risk, diagnosis, treatment, prevention, observation and registration in the genetic center	10
5.	Topic 5. Preparation for practical classes	20
	<b>Total</b>	<b>60</b>

## 7. Teaching methods

**Practical classes:** conversation, role-playing, solving clinical situational problems, practicing and controlling practical skills on simulation models and mannequins (according to list 5), passing simulation scenarios, solving test tasks.

**Individual work:** individual work with the recommended basic and additional literature, electronic information resources, individual work with the bank of test tasks, preparation for practical classes.

## 8. Forms of control and evaluation methods (including criteria for evaluating learning outcomes)

**Ongoing control:** oral survey, testing, assessment of performance of practical skills on simulation models and mannequins, assessment of communication skills during simulation scenarios, solution of situational clinical tasks, assessment of activity in class.

**Final control:** test.

### Evaluation of the current educational activity in a practical lesson:

- Evaluation of theoretical knowledge on the subject of the lesson:
  - methods: survey, solving a situational clinical problem
  - the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.
- Evaluation of practical skills and manipulations on the subject of the lesson:
  - methods: assessment of the correctness of the performance of practical skills
  - the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.
- Evaluation of work with a patient simulator on the subject of the lesson:

- methods: assessment of: a) communicative skills of communicating with a patient simulator; b) correctness of appointment and assessment of laboratory and instrumental studies; c) compliance with the differential diagnosis algorithm; d) substantiation of the clinical diagnosis; e) drawing up a treatment plan;
- the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.

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.

### Criteria of ongoing assessment at the practical class

Rating	Evaluation criteria
Excellent "5"	The applicant takes an active part in the lesson; demonstrates deep knowledge, gives complete and detailed answers to questions. Thoroughly and comprehensively knows the content of theoretical issues, fluent in professional and scientific terminology. Thinks logically and constructs an answer, freely uses acquired theoretical knowledge when analyzing practical tasks. When solving a clinical problem, he correctly interprets the anamnesis data, the results of clinical, laboratory and instrumental studies, correctly answers all the questions and convincingly substantiates his point of view, can propose and justify an alternative version of the decision on individual issues. When solving a practical task according to the OSCE type, he correctly demonstrates the performance of practical skills on simulation models and mannequins, strictly adheres to the algorithm of their implementation
Good "4"	The acquirer participates in the class; knows the material well; demonstrates the necessary knowledge, but answers the questions with some errors. He knows the content of theoretical issues deeply and comprehensively, and has professional and scientific terminology. Thinks logically and constructs an answer, uses acquired theoretical knowledge when analyzing practical tasks. But when teaching some questions, there is not enough depth and argumentation, it makes insignificant mistakes, which are eliminated by the student himself when the teacher points them out. When solving a clinical problem, minor errors or inaccuracies are assumed in the interpretation of anamnesis data, results of clinical, laboratory and instrumental studies, he answers all the questions without significant errors, fully substantiates his point of view, but proposals for an alternative option cause difficulties. When solving a practical task according to the OSCE type, minor errors in the algorithm and technique of performing skills on simulation models and mannequins are corrected at the instruction of the teacher
Satisfactory "3"	The acquirer sometimes participates in the activity; partially speaks and asks questions; makes mistakes when answering questions. Possesses a basic amount of theoretical knowledge, uses professional and scientific terminology inaccurately. Experiences significant difficulties in constructing an independent logical answer, in applying theoretical knowledge in the analysis of practical tasks. There are significant errors in the answers. When solving a clinical problem, he interprets the history data, the results of clinical, laboratory and instrumental studies with errors, does not know individual details, allows inaccuracies in the answers to questions, does not adequately justify his answers and interprets the wording, experiences difficulties in completing tasks and proposing alternative options. When solving a practical task according to the OSCE type, significant errors are assumed in the algorithm and technique of performing skills on simulation models and mannequins

Unsatisfactory "2"	The acquirer does not participate in the lesson, is only an observer; never speaks or asks questions, disinterested in learning the material; gives incorrect answers to questions. Has not mastered the basic amount of theoretical knowledge, shows a low level of mastery of professional and scientific terminology. Answers to questions are fragmentary, inconsistent, illogical, cannot apply theoretical knowledge when analyzing practical tasks. There are a significant number of gross errors in the answers. When solving a clinical problem, he cannot interpret the received history data, the results of clinical, laboratory and instrumental studies, answer the questions, or makes significant mistakes in the answers; could not justify his decisions or does it unconvincingly. It does not offer alternative options. When solving a practical task according to the OSCE type, gross errors and errors in the algorithm and technique of performing skills on simulation models and mannequins will not be demonstrated or assumed
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Test is given to the applicant who completed all tasks of the work program of the academic discipline, took an active part in practical classes, completed and defended an individual assignment and has an average current grade of at least 3.0 and has no academic debt.

Test is carried out: at the last lesson before the beginning of the examination session — at ribbon system teaching, on to the last occupation — with a cyclical system of education. The test score is the arithmetic mean of all components on a traditional four-point scale and has a value that is rounded using the statistical method with two decimal places after the decimal point.

### 9. Distribution of points, obtained by the students

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

#### Conversion table of a traditional to multi-point scale

National score for the discipline	The sum of scores for the discipline
Excellent ("5")	185 – 200
Good ("4")	151 – 184
Satisfactory ("3")	120 – 150
Unsatisfactory ("2")	Less than 120

Multi-point scale (200-point scale) characterizes the actual success rate of each applicant in mastering the educational component. The conversion of the traditional grade (average score for the academic discipline) into a 200-point grade is performed by the information and technical department of the University.

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

The ECTS scale is a relative-comparative rating, which establishes the applicant's belonging to the group of better or worse among the reference group of fellow students (faculty, specialty). An "A" grade on the ECTS scale cannot be equal to an "excellent" grade, a "B" grade to a "good" grade, etc. When converting from a multi-point scale, the limits of grades "A", "B", "C", "D", "E" according to the ECTS scale do not coincide with the limits of grades "5", "4", "3" according to the traditional scale. Acquirers who have received grades of "FX" and "F" ("2") are not included in the list of ranked acquirers. The grade "FX" is awarded to students who have obtained the minimum number of points for the current learning activity, but who have not

passed the final examination. A grade of "F" is given to students who have attended all classes in the discipline, but have not achieved a grade point average (3.00) for the current academic activity and are not admitted to the final examination.

Applicants who study in one course (one specialty), based on the number of points scored in the discipline, are ranked on the ECTS scale as follows:

#### **Conversion of the traditional evaluation and ECTS scores**

<b>Score on the ECTS scale</b>	<b>Statistical indicator</b>
A	The best 10% students
B	Next 25% students
C	Next 30% students
D	Next 25% students
E	Next 10% students

#### **10. Methodological support**

- Working program of the academic discipline
- Syllabus of the academic discipline
- Methodological recommendations for the practical classes in the discipline
- Methodological recommendations for the individual work of students
- Simulation scenarios
- Mannequins and simulators

#### **11. Questions for the final control**

**The list of practical skills that are learned during the study of the discipline (according to list 5):**

1. registration of a standard ECG in 12 leads
2. administration of medicinal substances (intravenous jet and drip, intraosseous), in particular in field conditions
3. provision of peripheral venous and intraosseous access
4. blood pressure measurement
5. pulse oximetry
6. assess the patient's anthropometric parameters (body weight, height, waist circumference)
7. assessment of pulse on peripheral arteries
8. auscultation of the heart and blood vessels
9. percussion and auscultation of the lungs
10. palpation of the abdomen

#### **12. Recommended literature**

##### **Main:**

1. Genetics. Lecture course. Kandyba N.M., 2023. - p. 397
2. Genetics. Sichniak O.L., Kaprelyants L.V., Kylymenchuk O.O., 2018. - p. 148
3. Molecular genetics and genome research technologies. Gil M.I., Smetana O.Yu., Yulevych O.I. et al., 2019. - p. 320
4. Clinical laboratory diagnostics: textbook / L.E. Lapovets, G.B. Lebed, O.O. Yastremska and others. - 2nd edition. 2021. - p. 472
5. Prescript 641/84 of 31.12.2003 On the improvement of medical and genetic assistance in Ukraine

**Additional:**

1. Histology. Cytology. Embryology. National textbook // Lutsyk O.D., Chaikovskiy Yu.B. (eds.). 2018. - p. 592
2. Digestive diseases in family medicine: a textbook / L.S. Babinets, I.O. Borovyk, L.V. Andriyuk. 2021. - p. 328
3. Respiratory diseases in family medicine: a textbook / L.S. Babinets, I.O. Borovik, L.V. Andriyuk. 2019. - p. 312
4. Clinical pharmacogenetics. Yakovleva O.O. 2011. - p. 160
5. Trofymenko O. L. Population genetics: textbook / O. L. Trofymenko, M. I. Gil, O. Yu. Smetana; edited by Professor M. I. Gil; MNAU. – Mykolaiv: Helvetica Publishing House, 2018. – 254 p.
6. Medical embryology with the basics of teratology. Silkina Yu.V. 2019. - p. 208
7. Medical genetics: textbook (Higher Education University I—III grades) / G.Y. Putintseva. — 2nd ed., revised and supplemented. 2008. - p. 392

**13. Electronic information resources**

1. <http://moz.gov.ua> — Ministry of Health of Ukraine
2. <http://www.nbuv.gov.ua/> — National Library of Ukraine
3. [www.ama-assn.org](http://www.ama-assn.org) — American Medical Association
4. [www.who.int](http://www.who.int) — World Health Organization
5. [www.dec.gov.ua/mtd/home/](http://www.dec.gov.ua/mtd/home/) — State Expert Center of the Ministry of Health of Ukraine
6. <http://bma.org.uk> — British Medical Association
7. [www.gmc-uk.org](http://www.gmc-uk.org) — General Medical Council (GMC)
8. [www.bundesaerztekammer.de](http://www.bundesaerztekammer.de) — German Medical Association