

# National Pirogov Memorial Medical University, Vinnytsya

**“ AGREED ”**

Vice -Rector of higher education  
institution for Research, Education and  
Teaching professor of HEI  
Oksana SEREBRENNIKOVA

“ 31 ” 08 2022 year

**“ AGREED ”**

Head of department of Pediatric №2  
professor of HEI Veronika DUDNYK

“ 31 ” 08 2022 year

## SYLLABUS of academic discipline

### “ Fundamentals of pediatric hematology ” (elective course for 6th year students)

Specialty	222 Medicine
Educational level	The second (master's) level
Educational programme	EPP Medicine, 2021
Academic year	2022-2023
Department	<i>Pediatric №2</i>
Contact information	<i>pediatric2@vnmu.edu.ua, Department of Pediatric №2, Communal Nonprofit Enterprise “Vinnytsia Regional Children's Clinical Hospital of Vinnytsia Regional Council”, 108, Khmelnytske shosse Str, Vinnytsya, 21029 Tel (0432)560819</i>
Syllabus compiler	Ass-prof. Korol T.

## 1. Status and structure of the discipline

Discipline status	Elective
Discipline code in EPP/discipline place in EPP	EC 1.30, discipline of professional training
Course / semester	6 <sup>th</sup> year (XI-XII semesters)
The amount of discipline (the total number of hours / number of credits ECTS)	60 hours / 2 credit ECTS
Number of content modules	1 module
The structure of the discipline	Practical classes 24 hours Independent work 36 hours
Language of study	English
Form of study	Full-time ( <i>or remote full-time by order</i> )

## 2. Description of the discipline

**Short annotation of the course, relevance.** The subject direction of the discipline is to obtain knowledge of the elective discipline of professional training, the study of which is necessary for the successful assimilation of successful professional activity. The main goal of the course is to improve theoretical knowledge and practical skills for 6th year students in the field of pediatric hematology. The subject area of the program is the main, most common hematological diseases of childhood. The program focuses on knowledge of etiology, pathogenesis, classification, diagnostic criteria, differential diagnosis, principles of treatment, emergency care and prevention of major hematological diseases of childhood. The general concept of teaching the basics of pediatric hematology in higher medical institutions is to integrate the knowledge and clinical thinking of the future doctor.

In this regard, pedagogical activities should be aimed primarily at helping students to actively understand the use of previously acquired theoretical knowledge of pediatric hematology in clinical practice, replenishment of knowledge of pediatric hematology, especially modern problems of diagnosis, treatment and prevention of hematological pathology .

**Prerequisites.** For successful mastering of discipline the student needs the knowledge received in the course of studying of the following disciplines of the general preparation: anatomy, normal and pathological physiology, which give the concept of physiological processes of the organism and the pathogenesis of diseases. Anatomy and histology indicate the features of hematopoietic organs in children. Clinical pharmacology studies the mechanism of action and side effects, features of application, interaction of drugs, which allows the appointment of adequate therapy for various hematological diseases of childhood. Propaedeutics of internal and pediatric diseases gives an understanding of the etiology and pathogenesis of the disease, teaches the student a careful history taking, practical skills of objective

examination of the patient and the ability to interpret the results of additional research methods.

**The purpose of the course and its significance for professional activities.** The purpose of the discipline is to deepen theoretical knowledge and practical skills for 6th year students in the field of pediatric hematology.

**Postrequisites.** In the process of studying the discipline, knowledge is acquired necessary for the successful mastering of training disciplines, namely: pediatrics, pediatric infectious diseases, internal medicine, and other clinical disciplines, which involves the integration of teaching with these disciplines and the application of knowledge, skills and abilities. training and professional activities. Students study the discipline in the form of differential diagnosis of the most common hematological diseases of childhood, practical skills of diagnosis and treatment of emergencies on the basis of simulation classes.

### **3. Learning outcomes.**

After successful study of the discipline the applicant will be able to:

- Know non-invasive and invasive examination methods in pediatric hematology and how to explain the results;
- Be able to classify and distinguish clinical syndromes, know the methods of diagnosis, principles of treatment and emergency care for various types of anemia in children;
- Be able to classify and distinguish the features of the clinical course, know the methods of diagnosis, principles of treatment and emergency care for coagulopathies, thrombocytopathy and thrombocytopenia in children;
- Know the classification, clinical features, diagnostic methods, principles of treatment and emergency care of leukemia, lymphoma and other conditions in which the leading is lymphoproliferative syndrome;
- Develop an algorithm for transfusion therapy in hematological practice in children and provide emergency care in case of post-transfusion reactions.

### **4. Content and logistic of the discipline**

Module 1 «Fundamentals of pediatric hematology»	XI or XII semesters, 60 hours / 2 credit ECTS	Practical classes № 1-5
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The course includes 5 topics that are part of one module.

#### **Module 1. "Fundamentals of Pediatric Hematology"**

Topic 1. Non-invasive and invasive methods of examination in pediatric hematology, interpretation of the results. Clinical cases of anemia in childhood, emergency care.

Topic 2. Clinical cases of hemorrhagic syndrome in children. Thrombocytopenia. Thrombocytopathy. Coagulopathies. Disseminated intravascular coagulation syndrome. Emergency aid.

Topic 3. Clinical cases of leukemia and lymphoproliferative disorders in children. Emergency aid.

Topic 4. Indications and carrying out transfusion therapy in hematological practice. Determination of posttransfusion reactions and emergency aid. Maintaining documentation for transfusions in children. Counseling clinical cases.

Topic 5. The novel methods of treatment in pediatric hematology: targeted therapy, SCT, CAR-T therapy. Module (preparation and defense of the thematic patient).

Practical classes provide a theoretical justification of the main issues of the topic and the learning of the following practical skills:

- Ability to identify the main clinical syndromes in diseases of the blood system in children;
- to make a differential diagnosis and make a preliminary clinical diagnosis;
- to make plan of examination and interpret the results;
- to determine the tactics of treatment of the patient with diseases of the blood in children;
- to diagnose emergency situations and provide emergency aid;
- to demonstrate the ability to keep medical records and follow-up of children with diseases of the hematopoietic system.

In practical classes, students formulate conclusions on the topic and solve clinical cases.

The student's independent work involves preparation for practical classes and the development of practical skills, the study of scientific literature. Control of mastering the topics is carried out on the final control of the discipline.

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

Route of receiving materials: Department of Pediatrics №2 / Student / Full-time study / Medicine / 6th year / Educational and methodical materials.

Access to materials is provided from the student's corporate account [s000XXX@vnmU.edu.ua](mailto:s000XXX@vnmU.edu.ua).

## **5. Forms and methods of monitoring academic performance**

Current control in practical studies	Methods: oral or written survey, electronic survey, solving situational problems, working with pedigree diagrams and karyograms, their interpretation and evaluation of results (registration of the protocol in the workbook)
Final semester control (credit) at the end of 9 or 10 semesters	According to the Regulation of the Academic process in VNMU named after M.I. Pirogov (link <a href="https://www.vnmU.edu.ua/General">https://www.vnmU.edu.ua/General</a> information)

Learning success diagnostic tools	Theoretical questions, tests, clinically-oriented situational tasks, practical skills.
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## 6. Assessment criteria

Knowledge assessment is carried out in accordance with the Regulations of the Academic process in VNMU named after M.I. Pirogov (link <https://www.vnmu.edu.ua/General> information)

Continuous assessment	On a four point system of traditional assessments: 5 «excellent», 4 «good», 3 «satisfactory», 2 «unsatisfactory»
Final control of the discipline	On a 200-point scale (the arithmetic average grade for the semester is converted into points) Credited: 120 to 200 points Not credited: less than 120 points (See Grading Scale)
Discipline assessments:	On a 200-point scale (the arithmetic average grade for the semester is converted into points) Credited: 120 to 200 points Individual work - from 6 to 12 points From 122 to 200 points in total.

### Discipline Score Scale: National and ECTS

The sum of grades for all types of educational activities	Score ECTS	Score on a national scale	
		For exam, course project (work), practice	for credit test
180-200	<b>A</b>	Excellent	credited
170-179,9	<b>B</b>	Good	
160-169,9	<b>C</b>		
141-159,9	<b>D</b>	Satisfactory	
122-140,99	<b>E</b>	Satisfactory	-
120-140,99	<b>E</b>	-	Credited
119-61	<b>FX</b>	unsatisfactory with the possibility of reassembly	is not credited with the possibility of reassembling
1-60	<b>F</b>	unsatisfactory with a mandatory reexamination of discipline	is not credited with mandatory reexamination of discipline

## **Criteria for student knowledge assessment**

### **Assessment of oral / written response during the current assessment**

The grade "excellent" is given to a student who has deeply and comprehensively mastered the theoretical material, competently and logically teaches it. He is fluent in Latin terminology, clearly answers non-standard questions on the topic of the lesson, is able to link the material of the topic with previously studied sections, which indicates knowledge of the recommended literature and the ability to analyze the material studied, and clearly demonstrates the importance of theoretical knowledge for practice. Medicine

The grade "good" is given to a student who knows and has a good theoretical material, teaches it correctly, does not allow inaccuracies in the answer, is able to reveal the topic from the standpoint of its medical significance and practical application, but the answers do not go beyond the textbook, guidelines.

A grade of "satisfactory" is given to a student who knows the basic concepts and definitions of the studied topic, but admits significant inaccuracies or has difficulty in formulating the answer, does not understand the medical aspects of the topic, can not relate theoretical material to practice.

The grade "unsatisfactory" is given to a student who does not know the theoretical foundations of the topic, makes gross mistakes in answering, does not understand the basic concepts and definitions, can not explain the importance of theoretical material for practical medicine.

### **Assessment of practical skills during the current assessment**

The grade "excellent" is given to a student who knows the course and sequence of independent learning to perform a practical task, seeks the best options for diagnosis, and demonstrates the correct implementation of the necessary practical skills, and true with clear formulations of conclusions.

A grade of "good" is given to a student who makes inaccuracies in describing the patient with blood disorders, but is able to identify errors and can demonstrate the implementation of practical skills in general, accurately explain the results of the additional tests in the notebook.

Assessment of "satisfactory" is given to a student who knows the basics of the practical task, but has difficulty in performing this, cannot demonstrate the correct sequence of practical skills to describe the patient with blood disorders, cannot correctly analyze results of additional examination, prescribe treatment.

The grade "unsatisfactory" is given to a student who cannot demonstrate practical skills, has significant difficulties in describing the patient with blood disorders, cannot correctly analyze results of additional examination and prescribe treatment.

### **Assessment of independent student work**

The student's independent work is assessed during the final classes of the module of the discipline through an oral interview on topics that are not included in the plan. Evaluation of prepared messages, presentations on the selected topic is carried out by traditional evaluation

The grade "excellent" is given to a student who has deeply and comprehensively revealed the problem, logically stated the main issues, give examples from medical informative sources. He is able to connect the material of this topic with the

previously studied sections, which indicates the ability to analyze the studied material, as well as clearly demonstrates the importance of the acquired theoretical knowledge for practical medicine.

The grade "good" is given to a student, who knows and is well versed in theoretical material, competently revealed the main issues of the topic and its medical significance, but did not go beyond the textbook, guidelines.

A grade of "satisfactory" is given to a student who has revealed the basic concepts and definitions of the recommended topic, but has not fully disclosed it, does not understand the medical aspects of the topic, and combine theoretical material with practice.

The calculation of individual points is carried out on the basis of the Regulation of the Academic process in National Pirogov Memorial Medical University (link <https://www.vnmu.edu.ua/General> information).

12 points - added to the assessment of the discipline for a student who won a prize at the interuniversity competitions in the discipline or a prize at the Ukrainian competition of student research reports or a prize at the interuniversity / international scientific conference with the published work;

11 points - are added to the assessment of the discipline for a student who won the first prize at the intra-university Olympiad in the discipline or the first place at the student scientific conference with the published work, or participated in the Ukrainian competition of student research papers;

10 points - are added to the assessment of the discipline for a student who won a prize (II-III) at the intra-university Olympiad in the discipline or at the student scientific conference with the availability of printed work; or for participation (without a prize place) in interuniversity competitions in the discipline or a prize place in an interuniversity / international scientific conference with the availability of published work.

9 points - are added to the assessment of the discipline for a student who participated (without a prize) in the intra-university Olympiad in the discipline or student scientific conference with the presence of published work

8 points - are added to the assessment of the discipline for a student who actively participated in the student scientific group, published a paper with results of scientific and practical research, but did not personally participate in the student scientific conference, prepared a poster report.

6 points - are added to the assessment of the discipline for a student who has made tables, or an educational video, thematic illustrated presentation to replenish the visual support of teaching the discipline (taking into account the volume and importance of work performed).

### **Assessment of the oral answer during the final control**

The grade "Excellent" is given for the work in which the student answered all the questions correctly. The answers are deep, meaningful and specific. The student must know the features of clinical manifestations of diseases of blood system, general principles of diagnosis and treatment.



The grade "Good" is given for the work in which the student correctly answered 75% of the questions and showed a fairly substantial knowledge of those issues that reflect the main sections of the curriculum. The student must know the features of clinical manifestations of childhood diseases of blood system, general principles of diagnosis, treatment and prevention.

The grade "Satisfactory" is given for the work in which the student correctly answered 50% of the questions. The answers are incomplete, mostly limited to a simple list of components, features, without the details. The student must have a minimum of theoretical and practical knowledge of diseases of blood system.

The grade "Unsatisfactory" is given for work in which the student did not give any correct answer or gave only an approximate answer to two questions. The student does not have the required minimum knowledge of diseases of blood system.

## **7. Policy of discipline / course**

The student has the right to receive high-quality educational services, access to contemporary scientific and educational information, qualified tutoring during the study of discipline and mastering practical skills. The policy of the department during the providing of educational services is a student-centered, based on normative documents of the Ministry of Education and the Ministry of Health of Ukraine, the Statute of the University and the Procedure for the Providing of Educational Services regulated by the main principles of the organization of the educational process in National Pirogov Memorial Medical University and the principles of academic integrity (link <https://www.vnmu.edu.ua/General> information).

### **Adherence to the rules of National Pirogov Memorial Medical University, safety techniques in practical classes.**

Occupational safety instruction with students during labor, professional training in health care institutions is conducted by the head of the structural unit of the institution or the student's immediate supervisor. Before the beginning of practical classes in the first lesson (at the beginning of each semester) the teacher, according to the requirements of the Job description, conducts instruction on labor protection (including rules of personal hygiene, sanitary regime, danger during supervision of patients, etc.). Targeted instruction is conducted with students in the case of organization outside of educational activities (competitions, conferences, etc.).

**Requirements for preparation for practical classes.** The student must be prepared for a practical lesson, situational tasks for the current topic should be solved in a workbook. They should come to class on time, without delay. A student who is late more than 10 minutes for class is not allowed to be present and must rework it in the prescribed manner.

In practical classes, the student must be dressed in a work uniform (medical gown, hat, medical mask, changeable shoes). Students who do not have a work uniform are not allowed to study.

The student must follow safety rules during practical classes and in the hospital.

When discussing theoretical issues, students should demonstrate tolerance and respect for their colleagues and the teacher.



**Usage of mobile phones and other electronic devices.**

The use of mobile phones and other electronic devices in the classroom is allowed only during electronic testing or surveys.

**Academic integrity.** When studying the discipline, the student must be guided by the Code of Academic Integrity and Corporate Ethics of National Pirogov Memorial Medical University (link: <https://www.vnmu.edu.ua/General> information)/ Code of Academic Integrity).. In case of violation of the norms of academic integrity during the current and final controls student receives a grade of "2" and must work it out to his teacher in the prescribed manner within two weeks after receiving an unsatisfactory assessment).

**Missed classes.** Missed classes are reworked in the manner prescribed by the Regulations on the organization of the educational process in National Pirogov Memorial Medical University (link <https://www.vnmu.edu.ua/> General information / Basic documents) at the time specified in the schedule (published on the website of the department <https://www.vnmu.edu.ua/> Department of Pediatrics №2 #) to the teacher who conducts a practical lesson. To complete the missed lesson, the student must answer questions of the topic writing or orally.

**The procedure for admission to the discipline final control** is giving by the Regulations on the organization of the educational process in National Pirogov Memorial Medical University (link <https://www.vnmu.edu.ua/> General information / Basic documents). Students who do not have missed practical classes and lectures and received an average traditional grade of at least "3" are allowed to pass final control.

**Additional points.** Individual points in the discipline that student can receive for individual work, the amount of which is published on the website of the department in the teaching materials of the discipline and is determined by the results of his individual work according to Regulation of the Academic process in National Pirogov Memorial Medical University (link <https://www.vnmu.edu.ua/General> information).

**Conflict resolution.** In case of misunderstandings and complaints to the teacher because of the quality of educational services, knowledge assessment and other conflict situations, student should submit his / her claims to the teacher. If the issue is not resolved, the student has a right to apply to the head of the department according to Complaints Consideration Procedure (<https://www.vnmu.edu.ua/> General information / Basic documents).

**Politics in time of remote learning.** Distance learning regulated by the Regulations of the elements of remote learning in in National Pirogov Memorial Medical University (<https://www.vnmu.edu.ua/> General information). The main training platforms for studying are Microsoft Team and Google Meets. Practical classes and lectures, exercises and consultations during distance learning is published on the website of the department (<https://www.vnmu.edu.ua/> Department of Pediatrics№2/Student or <https://www.vnmu.edu.ua/Department of Pediatrics№2/> News).

**Feedback from teachers** is via messengers (Viber, Telegram, WhatsApp) or e-mail (at the teacher's choice) during working hours.

**8. Educational resources.**

Educational and methodological support of the discipline is published on the website of the department (<https://www.vnmue.edu.ua/> Department of Pediatrics №2/ To students).

## **Literature.**

Main.

1. Nelson textbook 20<sup>th</sup> Edition by Robert M. Kliegman, MD, Richard E. Behrman, MD, Hal B. Jenson, MD and Bonita F. Stanton, MD. - SAUNDERS

Additional.

1. [Hoffman](#) R. (2018). Hematology. Basic Principles and Practice, 7<sup>th</sup> edition.
2. American Society of clinical oncology educational book. American Society of clinical oncology. Annual Meeting. 2014. — 441 p. DOI: 10.14694/EdBook\_AM.2014
3. Transfusion Medicine and Scientific Developments. Edited by A.W.M.M. Koopman-van Gemert. 2017. 126 p. DOI: 10.5772/66265.
4. World Health Organization Obesity and Overweight. 2017 <http://www.who.int/en/news-room/fact-sheets/detail/obesity-and-overweight> (last accessed June 12, 2018)

## **Information resources**

### **General**

Medscape Pediatrics: <https://www.medscape.com/pediatrics>

Pubmed portal: <https://pubmed.ncbi.nlm.nih.gov/>

UpToDate: <https://www.uptodate.com/home>

British Medical Journal *Learning*: <https://new-learning.bmj.com/>

<https://www.cdc.gov/>

<https://www.mdcalc.com/>

### **Websites of pediatric associations:**

The European Academy of Paediatrics: <https://www.eapaediatrics.eu/>

The American Academy of Pediatrics: <https://www.aappublications.org/>

European Paediatric Association/Union of National European Paediatric Societies and Associations: <http://www.epa-une psa.org/>

European Society for Paediatric Research (ESPR): <https://www.espr.eu/>

European Society for Paediatric Endocrinology: <https://www.eurospe.org/>

The European Society For Paediatric Infectious Diseases: <https://www.espid.org/>

American Heart Association: <https://www.heart.org/>

European Resuscitation Council: <https://www.erc.edu/>

European Academy of Allergy & Clinical Immunology: <https://www.eaaci.org/>

The European Respiratory Society: <https://www.ersnet.org/>

[Society for Endocrinology](#): <https://www.endocrinology.org/>

International Society of Endocrinology: <https://www.isendo.org/>

The European Hematology Association: <https://ehaweb.org/>

American Society of Hematology <https://www.hematology.org/>

**European Society for Blood and Marrow Transplantation:** <https://www.ebmt.org/>

**The American Society of Pediatric Hematology/Oncology:** <http://aspho.org/>

European Renal Association - European Dialysis and Transplant Association: <https://www.era-edta.org/en/>

The European Respiratory Society: <https://www.ersnet.org/>  
 Society for Endocrinology: <https://www.endocrinology.org/>  
 International Society of Endocrinology: <https://www.isendo.org/>  
 The European Hematology Association: <https://ehaweb.org/>  
 American Society of Hematology <https://www.hematology.org/>  
 European Society for Blood and Marrow Transplantation: <https://www.ebmt.org/>  
 The American Society of Pediatric Hematology/Oncology: <http://aspho.org/>  
 European Renal Association - European Dialysis and Transplant Association:  
<https://www.era-edta.org/en/>  
 International Society of Nephrology: <https://www.theisn.org/>  
 American Society of Nephrology: <https://www.asn-online.org/>  
 European Society of Cardiology: <https://www.escardio.org/>  
 American College of Cardiology:  
<https://www.acc.org/#sort=%40commonsortdate%20descending>  
 The European Society for Paediatric Gastroenterology Hepatology and Nutrition  
 (ESPGHAN): <https://www.espghan.org/>  
 International Society for Pediatric and Adolescent Diabetes (ISPAD):  
<https://www.ispad.org/page/ELearningPortal>

9. **The schedule and distribution of groups** by teachers is published on the website of the department (<https://www.vnmue.edu.ua/> Department of Pediatrics №2 / Student).
10. **Questions for the final control** (differential test in the discipline are published on the web page of the department (<https://www.vnmue.edu.ua/> Department of Pediatrics №2 / Student).

The syllabus of the discipline «Fundamentals of pediatric oncohematology», elective course for 6th year students, was discussed and approved at the meeting of the department Pediatric №2 (record №1, dated " 30 " 08 2022)

Responsible for the academic  
discipline «Fundamentals of pediatric hematology»

 Ass-prof. Korol T.

Head of the Department  
of Pediatrics №2

 Prof. Dudnyk V.