MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION,
MINISTRY OF SCIENCE, HIGHER EDUCATION AND INNOVATION
KYRGYZ REPUBLIC

Kyrgyz-Russian Slavic University
named after the first President of the Russian Federation B.N. Yeltsin

APPROVED
Директор ИКМиБМТ
Абилова С.С.
04.11.2026 г.

Hematology

work program of the discipline (module)

Assigned to the **Therapies**

Syllabus 310501_23_4 ld in.plx
Specialty 560001 - KR General Medicine
(for international students)

Qualification **doctor**

Form of study **Intramural (full-time)**

Total labor intensity **2 credit point**

Hours according to the 72

including:

classroom activities 32

independent work 39.7

Types of control in semesters:
credit 8

Distribution of course hours by semester

Semester (<Course>.<Semester in the course>)	8 (4.2)		Total	
Weeks	17			
Type of activity	UP	RP	UP	RP
Lectures	16	16	16	16
Practical	16	16	16	16
Contact work during the theoretical training period	0.3	0.3	0.3	0.3
Including int.	2	2	2	2
Total auditorium	32	32	32	32
Contact work	32.3	32.3	32.3	32.3
The work itself	39.7	39.7	39.7	39.7
Total	72	72	72	72

The program was compiled by:
teacher, Bayramkulova Ayi Aznaurovna; teacher, Sverdlov Nikolay Alexandrovich

Reviewer(s):

Doctor of Medical Sciences, Professor, Head. department faculty therapy with a course of endocrinology KSMA named after I.K. Akhunbaeva, Polupanov A.G.

Agreed by the ROP:

Work program of the discipline

Hematology

developed in accordance with Federal State Educational Standard 3++:

Federal State Educational Standard of Higher Education - Specialist Degree in Specialty 31.05.01 General Medicine (Order of the Ministry of Education and Science of Russia dated September 21, 2021, No. 1578/1)

compiled on the basis of the curriculum:

Specialty 560001 - KR General Medicine
(for international students)

approved by the Academic Council of the University on June 26, 2026, protocol No. 11.

The work program was approved at the meeting department of therapy

Protocol No. 1 dated August 26, 2026
The program is valid for the 2023-2028 academic year.
Head of the department: Sabirov I.S.

CHANGE REGISTRATION SHEET
to the working program of the discipline (module)

Hematology

_____ *name of the discipline*

Item No.	Reasons for making changes	Section/Clause	Contents of the change
1.			
2.			
3.			
4.			
5.			

1. OBJECTIVES OF LEARNING THE DISCIPLINE	
1.1	The main goal of teaching hematology is to study by students various variants of the course of the main nosological forms of diseases of the blood system, as well as relatively rare hematological nosologies.

2. PLACE OF DISCIPLINE IN THE STRUCTURE OF THE OOP	
OOP cycle (section):	B1.V.DV.06
2.1	**Requirements for preliminary preparation of the student:**
2.1.1	Normal Physiology (Professional Cycle)
2.1.2	Clinical Pharmacology (Professional Course)
2.1.3	Propaedeutics of Internal Medicine (Professional Cycle)
2.1.4	Pathological Anatomy (Professional Cycle)
2.1.5	Pathophysiology, clinical pathophysiology (Professional cycle)
2.1.6	Faculty Therapy (Professional Cycle)
2.1.7	B2.O.01(U). General care of medical patients
2.1.8	Histology, embryology, cytology (Professional course)
2.2	**Disciplines and practices for which mastering this discipline (module) is necessary as a prerequisite:**
2.2.1	Family Medicine (Professional Cycle)
2.2.2	Outpatient therapy (Professional cycle)
2.2.3	Hospital Therapy (Professional Cycle)
2.2.4	Oncology, radiation therapy (Professional cycle)
2.2.5	Gerontology (Professional Cycle)

3. STUDENT COMPETENCIES DEVELOPED AS A RESULT OF LEARNING THE DISCIPLINE (MODULE)	
PC-5: Able and ready to conduct and interpret interviews, physical examinations, clinical examinations, results of modern laboratory and instrumental studies, and write medical records for outpatient and inpatient patients of adults and children.	
Know:	
Level 1	Methodology for clinical examination of patients with blood disorders: algorithms for conducting anamnesis and physical examination (inspection, palpation, percussion, auscultation) for adults and children. Anatomical and physiological characteristics: normal and abnormal organs and the hematopoietic system. Clinical symptoms: the main symptoms and syndromes of the most common diseases. Methods for diagnosing blood disorders and their interpretation.
Level 2	
Level 3	
Be able to:	
Level 1	Collect a medical history from a hematological patient: conduct a detailed interview with the patient (or their legal guardian, if the patient is a child), identifying complaints and the disease history. Conduct a physical examination: perform a complete objective examination of organ systems in adults and children of different ages.
Level 2	
Level 3	Conduct differential diagnosis of blood diseases between themselves and pathologies of other systems and organs
Own:	
Level 1	Clinical reasoning skills: the ability to compare data from a survey, examination, and laboratory and instrumental diagnostics to establish a preliminary or definitive diagnosis in a patient with a blood disorder. Physical examination techniques: practical skills in palpation, percussion, and auscultation (e.g., auscultation of the heart and lungs, abdominal palpation). Skills in analyzing laboratory and instrumental data in a hematological patient.
Level 2	
Level 3	

PC-16: Able and ready to use the algorithm for making a diagnosis (primary, concomitant, complications) taking into account the ICD, to perform basic diagnostic measures to identify urgent and life-threatening conditions.

Know:	
Level 1	Algorithms of nosological diagnostics: principles and sequence of formulating a diagnosis (identification of the underlying disease, its complications and concomitant pathology).
Level 2	
Level 3	
Be able to:	
Level 1	Formulate a comprehensive hematological diagnosis: reflect the form, stage (cytogenetic/molecular subvariant), nature of the disease, and the severity of manifestations (e.g., degree of anemia or cytopenia). Recognize hematological catastrophes: promptly differentiate signs of acute DIC syndrome, severe hemolysis, or incipient septic shock due to agranulocytosis.
Level 2	
Level 3	
Own:	
Level 1	Algorithm for differential diagnosis of critical conditions in hematology: experience of rapid recognition of the causes of hemorrhagic or anemic shock in hematological patients.
Level 2	
Level 3	

PC-17: Capable and ready to perform basic treatment measures for the most common diseases and conditions in adults and children in outpatient and inpatient settings.	
Know:	
Level 1	Principles of hematological disease therapy: current standards and clinical guidelines for the treatment of anemias of various origins, hemoblastoses (leukemia, lymphoma), myeloproliferative diseases, and coagulopathies in adults and children. Pharmacotherapy in hematology: mechanisms of action, dosage regimens, side effects, and contraindications for the main drug groups. Fundamentals of transfusion medicine: indications, contraindications, and guidelines for blood transfusions.
Level 2	
Level 3	
Be able to:	
Level 1	Prescribe pathogenetic treatment: develop a conservative therapy plan for the most common diseases. Organize transfusion support.
Level 2	
Level 3	
Own:	
Level 1	Algorithms for choosing treatment tactics: experience in making clinical decisions between outpatient treatment and emergency/planned hospitalization in a hematology hospital. Skills for managing acute conditions: experience providing first aid and specialized care for hematological complications (management of hemorrhagic syndrome in hemophilia or thrombocytopenia, treatment of acute hemolytic crisis).
Level 2	
Level 3	

PC-18: Capable and ready to provide medical care in acute illnesses, conditions, and exacerbations of chronic diseases that are not accompanied by a threat to the patient's life and do not require emergency medical care.	
Know:	
Level 1	Clinical manifestations of exacerbations of chronic hematological diseases: symptoms of decompensation of chronic anemia (iron deficiency, B12 deficiency), exacerbations of immune thrombocytopenia, planned course of hemoblastoses and myelofibrosis. Principles of emergency (but not urgent) therapy in hematology:
Level 2	
Level 3	
Be able to:	
Level 1	Assess the severity of the exacerbation: differentiate non-life-threatening deterioration of the condition (e.g., a decrease in hemoglobin to 80 g/L or platelets to 50 x 10^9/L) from terminal critical conditions. Prescribe and adjust symptomatic therapy.
Level 2	
Level 3	
Own:	

Level 1	Algorithms for managing elective hematological patients with decompensation: experience in selecting individualized treatment regimens at the outpatient stage. Skills in interpreting laboratory test dynamics: experience in evaluating clinical and biochemical blood tests over time to monitor the effectiveness of outpatient treatment for exacerbations.
Level 2	
Level 3	

As a result of mastering the discipline, the student must

3.1	**Know:**
3.1.1	Anatomical and physiological foundations: patterns of normal hematopoiesis, age-related evolution of the blood system in children and adults, as well as hemostasis mechanisms. Etiology and pathogenesis: modern concepts of the development of anemia, hemoblastoses (leukemia, lymphoma), myeloproliferative and lymphoproliferative diseases, hereditary and acquired coagulopathies (including hemophilia, von Willebrand disease, thrombophilia). Clinical symptomatology: classic clinical syndromes in hematology (anemic, hemorrhagic, sideropenic, lymphoproliferative, tumor intoxication, immunodeficiency/cytopenic).
3.1.2	Classification and standards: International Classification of Diseases (ICD) for hematopoiesis pathology, current clinical guidelines for the diagnosis and treatment of blood diseases. Diagnostic methods: principles, diagnostic value, and indications for laboratory and instrumental studies in hematology (clinical blood test with reticulocyte and platelet count, myelogram, trephine biopsy, coagulogram, cytogenetic, molecular genetic, and immunophenotypic studies).
3.1.3	Principles of therapy: the basics of protocol chemotherapy, targeted and immunotherapy, suppressive and accompanying therapy (prevention of infections, tumor lysis syndrome, emetogenicity), as well as rules and indications for transfusion of blood components (erythrocyte, platelet mass, FFP).
3.1.4	Life-threatening conditions: diagnostic criteria and principles of treatment of emergency conditions in hematology (DIC syndrome, febrile neutropenia, septic shock, hyperleukocytosis and leukostasis, tumor lysis syndrome, acute hemolytic crisis, massive bleeding).
3.2	**Be able to:**
3.2.1	Conduct a clinical examination: collect a targeted anamnesis, conduct a detailed physical examination (assessment of pallor/icterus of the skin, identification of petechiae and ecchymoses, palpation of all groups of lymph nodes, liver and spleen) in adults and children.
3.2.2	Serve a diagnostic algorithm: draw up a well-founded examination plan, formulate a detailed preliminary and final clinical diagnosis (primary, complications, concomitant) indicating the stage, severity, cytogenetic variant and ICD code.
3.2.3	Interpret test results: analyze peripheral blood parameters (identify anemia, pancytopenia, blastemia), coagulograms (assess the risks of hypo- and hypercoagulation), sternal puncture and biopsy results. Prescribe and adjust treatment: select treatment regimens for common hematological diseases (iron deficiency, B12-deficiency anemia, immune thrombocytopenia) in outpatient and inpatient settings, calculating drug doses; determine indications for planned, urgent, or emergency hospitalization. Recognize and manage critical conditions: promptly identify markers of life-threatening complications, provide first and emergency medical care for subacute exacerbations and critical hematological situations.
3.2.4	Maintain documentation: prepare medical records for outpatients and inpatients (including blood component transfusion protocols, prescription sheets, diaries, and medical reports).
3.3	**Own:**
3.3.1	Clinical thinking: skills of differential diagnosis of hematological syndromes with similar masks of other somatic diseases.
3.3.2	Methods of physical examination of the hematopoietic organs: practical skills of palpation and percussion of the spleen (determination of size according to Kurlov) and liver, assessment of the musculoskeletal system (percussion on the sternum and tubular bones). Algorithms for emergency diagnostics: skills for rapid evaluation of the hemogram and coagulogram in conditions of time pressure for recognizing hemorrhagic shock, DIC syndrome, or agranulocytosis.
3.3.3	Transfusion support skills: experience in determining the patient's blood group and Rh factor, conducting individual compatibility tests (on a plane, biological test) at the patient's bedside.
3.3.4	Local hemostasis techniques: skills in stopping accessible external and nasal bleeding (anterior tamponade, use of local hemostatic agents). Experience in managing hematological patients: skills in long-term monitoring of therapy effectiveness, assessment of hematological and non-hematological drug toxicity, and correct coding of nosologies according to the ICD.

4. STRUCTURE AND CONTENT OF THE DISCIPLINE (MODULE)								
Lesson code	**Name of sections and topics /type of lesson/**	**Semester/Course**	**Hours**	**Competent-tions**	**Literature**	**Inte ract.**	**Pr. prep.**	**Note**

	Section 1. Section 1. Physiology and pathophysiology of the blood system. Clinical and laboratory diagnostics of blood diseases. Anemia. Leukemia.							
1.1	Clinical and laboratory evaluation of patients with hematological diseases. Anemia: a diagnostic approach /Lek/	8	2					
1.2	Physiology and pathophysiology of blood: hematopoiesis, hemostasis. Clinical and laboratory evaluation of patients with hematological diseases. /Pr/KrTO/ /Pr/	8	2	PC-5	L1.1 E1	1		
1.3	Anemia: Iron deficiency anemia (IDA). B12 deficiency anemia, Folate deficiency anemia. /Lek/	8	2					
1.4	Anemias: Iron deficiency anemia (IDA). Definition, etiology, pathogenesis, clinical picture, diagnosis and treatment, and prevention of IDA. B12-deficiency anemia. Folic acid deficiency anemia. /Pr/KrTO/ /Pr/	8	2	PC-5 PC-16	L1.1 E1			
1.5	Hemolytic and aplastic anemia /Lek/	8	2					
1.6	Hemolytic anemias: hereditary spherocytosis, paroxysmal nocturnal hemoglobinuria, sickle cell anemia, thalassemia. Aplastic anemia: etiology and pathogenesis, diagnosis, and treatment. /Pr/KrTO/ /Pr/	8	2	PC-5 PC-16PC-17	L1.1 E1			
1.7	Acute leukemia: clinical picture, diagnosis and treatment principles /Lecture/	8	2					
1.8	Acute leukemia: clinical picture, diagnosis and treatment principles. /Pr/	8	2	PC-5	L1.1 E1	1		
1.9	Chronic leukemia: clinical picture, diagnosis and treatment principles /Lek/	8	2					
1.10	Chronic leukemia: clinical picture, diagnosis and treatment principles. /Pr/	8	2	PC-5 PC-17	L1.1 E1			

1.11	Anemia of chronic diseases: etiology, pathogenesis, clinical features, diagnosis, and treatment. Iron poisoning: pathogenesis, clinical features, and first aid. The impact of external factors on hematopoiesis (lead anemia, radiation sickness). The impact of toxins and drugs on hematopoiesis (arsenic and benzene poisoning; hematotoxic drugs - chloramphenicol, tetracycline, quinine). Fanconi anemia: etiology, pathogenesis, clinical features, diagnosis, and treatment. Pathophysiology of disseminated intravascular coagulation (DIC): triggers, stages, and principles of laboratory monitoring. Bone marrow puncture: indications, contraindications, technique, and interpretation of results. Bone marrow transplantation: indications, contraindications, technique, and complications.	8	14	PC-5 PC-16PC-17	L1.1 E1			
1.12	Physiology and pathophysiology of the blood system. Clinical and laboratory diagnostics of blood diseases. Anemias: Iron deficiency anemia (IDA). Definition, etiology, pathogenesis, diagnosis and treatment, prevention of IDA. B12-deficiency anemia. Folate deficiency anemia. Hemolytic anemias: hereditary spherocytosis, paroxysmal nocturnal hemoglobinuria, sickle cell anemia, thalassemia. Aplastic anemia, etiology and pathogenesis, diagnosis, treatment of aplastic anemia. Acute leukemia: clinical picture, diagnosis and treatment principles. Chronic leukemia: clinical picture, diagnosis and treatment principles. /KrTO/	8	0.2		L1.1 E1			

	Section 2. Section 2. Lymphomas. Monoclonal gammopathies. Multiple myeloma. Hemostasis disorders. Emergency hematology. Transfusiology							
2.1	Lymphomas. Multiple myeloma. Monoclonal gammopathies. /Lek/	8	2					
2.2	Lymphomas - Hodgkin's and non-Hodgkin's lymphomas. Monoclonal gammopathies. Multiple myeloma. Definition, etiology, pathogenesis, diagnosis and treatment. /Pr/KrTO/ /Pr/	8	2	PC-5 PC-16PC-17	L1.1 E1			
2.3	Hemostasis disorders: thrombocytopenia, coagulopathy, thrombophilia /Lek/	8	2					
2.4	Thrombocytopenia - immune thrombocytopenic purpura. Thrombophilia. DIC syndrome. Coagulopathies: antiphospholipid syndrome, hemophilia, von Willebrand disease. /Pr/	8	2	PC-16 PC-17	L1.1 E1			
2.5	Bone marrow aspiration: indications, contraindications, technique, and interpretation of results. Bone marrow transplantation: indications, contraindications, technique, and complications. Hemangiomas: etiology, pathogenesis, clinical features, diagnosis, and treatment. Modern targeted drugs in the treatment of leukemia. Blast crisis in chronic myeloid leukemia: etiology, pathogenesis, clinical features, diagnosis, and emergency treatment.	8	11.7	PC-5 PC-16PC-17	L1.1 E1			
2.6	Emergency conditions in hematology and supportive therapy of hematological patients /Lecture/	8	2					
2.7	Fundamentals of transfusiology: principles of blood transfusion, blood substitutes, blood groups. Emergencies in hematology and supportive care of hematological patients. /Pr/	8	2	PC-5 PC-16PC-17	L1.1 E1			

2.8	Acquired hemophilia A. Bernard-Soulier syndrome. Features of hemorrhagic syndrome in senile purpura. The AB0 blood group system and the Rh factor: history of discovery, biological significance, and compatibility rules for transfusion. Modern rules for performing hemotransfusion: a step-by-step algorithm from determining the blood type at the patient's bedside to administering the component. Blood and blood component donation: how modern blood services work, who can donate, and how donor blood is tested for safety. Blood substitutes in modern medicine: classification, indications for use, and the role of saline and colloidal solutions in acute blood loss. Complications of blood transfusion: why hemolytic shock occurs, how to recognize it, and how to provide first aid.	8	14	PC-5 PC-16PC-17	L1.1 E1			
2.9	Lymphomas - Hodgkin's and non-Hodgkin's lymphomas. Monoclonal gammopathies. Multiple myeloma. Definition, etiology, pathogenesis, diagnosis and treatment. Thrombocytopenia - immune thrombocytopenic purpura. Thrombophilia. DIC syndrome. Coagulopathies: antiphospholipid syndrome, hemophilia, von Willebrand disease. Fundamentals of transfusion medicine: principles of blood transfusion, blood substitutes, blood groups. Emergencies in hematology and supportive care of hematological patients. /KrTO/	8	0.1					

5. ASSESSMENT TOOLS FUND

5.1. Test questions and tasks

1. Structure and functions of the blood system (hematopoietic system)
2. Clinical manifestations of hematological diseases
3. Interpretation of a complete blood count
4. Diagnostic value of MCV, MCH, MCHC, RDW and reticulocyte count;
5. Basic coagulation tests
6. Indications for bone marrow examination
6. Diagnostic approach for anemia, leukocytosis, leukopenia, thrombocytopenia and pancytopenia
7. Definition and classification of anemia
8. Clinical manifestations of anemia
9. Iron metabolism
10. Causes and stages of iron deficiency

11. Laboratory diagnostics of iron deficiency anemia
12. Oral and intravenous iron therapy;
13. Causes of Vitamin B12 and Folic Acid Deficiency
14. Clinical manifestations of vitamin B12 and B9 deficiency
15. Therapy for anemia caused by deficiency of vitamins B12 and B9
16. Classification of hemolytic anemias
17. Intravascular and extravascular hemolysis
18. Hereditary and acquired hemolytic disorders
19. Autoimmune hemolytic anemia
20. Diagnostic markers of hemolysis, Coombs test
21. Aplastic anemia and bone marrow failure
22. Differential diagnosis of pancytopenia
23. Principles of treatment of hemolytic anemia
24. Indications for hematopoietic stem cell transplantation
25 Classification of leukemia
26. Acute myeloid leukemia;
27. Acute lymphoblastic leukemia;
28. Clinical manifestations and complications of acute leukemia
29. Blood picture in acute leukemia, diagnostic criteria
30. The role of bone marrow examination, immunophenotyping, cytogenetic and molecular genetic studies in acute leukemia

31. General principles of chemotherapy and targeted therapy of acute leukemia
32. Chronic myeloid leukemia;
33. Chronic lymphocytic leukemia;
34. Clinical manifestations and complications of chronic leukemia
35. Blood picture in chronic leukemia, diagnostic criteria
36. The role of bone marrow examination, immunophenotyping, cytogenetic and molecular genetic studies in chronic leukemia

37. General principles of chemotherapy and targeted therapy for chronic leukemia
38. Hodgkin's lymphomas and non-Hodgkin's lymphomas
39. Physical examination for lymphadenopathy
40. Lymph node biopsy: diagnostic role, indications, contraindications, technique
41. Basic principles of lymphoma staging
42. Multiple myeloma
43. Monoclonal gammopathy
44. Clinical and laboratory manifestations of plasma cell disorders
45. Electrophoresis of blood serum proteins and immunofixation
46. Principles of treatment and supportive care for lymphomas
47. Primary and secondary hemostasis
48. Diagnostic approach to bleeding
49. Immune thrombocytopenia
50. Hemophilia
51. Von Willebrand disease;
52. Interpretation of PT, INR, APTT, fibrinogen and D-dimer
53. Disseminated intravascular coagulation syndrome
55. Hereditary thrombophilia
56. Acquired thrombophilia
57. Basic principles of anticoagulant and hemostatic therapy
58. Severe symptomatic anemia
59. Acute bleeding
60. Febrile neutropenia;
61. Tumor lysis syndrome
62. Hyperleukocytosis and leukostasis
63. Thrombotic thrombocytopenic purpura
64. Hyperviscosity syndrome
65. Transfusion of red blood cells, platelets and plasma

5.2. Topics of coursework (projects)

Coursework is not provided.

5.3. Assessment Fund

Example of situational tasks:
1. Patient S., 64 years old. About five years ago, he underwent a subtotal gastrectomy for a peptic ulcer. He did not regularly follow the recommendations for prophylactic vitamin administration. Over the past few months, he began to notice a progressive deterioration in his health.

Complaints: Severe general weakness, shortness of breath, and palpitations with minimal physical exertion, as well as a burning sensation in the tip and edges of the tongue (especially when consuming sour or spicy foods). She also complains of a crawling sensation, numbness in

- general condition - moderate severity
- skin - pale
- respiratory system - respiratory rate - 25, vesicular breathing, without wheezing
- CVS - HR - 110 beats/min, soft systolic murmur at the apex of the heart
- digestive system - the tongue is bright red, the abdomen is soft and painless
- neurological examination - decreased sensitivity in the feet

Complete Blood Count (CBC): 2.1 x 10^{12}/L, Hemoglobin (Hb): 84 g/L, Color Index: 1.2, MCV (mean corpuscular volume): 118 fl, MCH (mean corpuscular hemoglobin): 40 pg, MCHC (mean corpuscular hemoglobin concentration): 338 g/L, RDW (red blood cell distribution width): 19.2%, WBC: 3.2 x 10^9/L, PLT: 125 x 10^9/L, Reticulocytes: 0.2%, ESR: 22 mm/h

Vitamin B12 test: Active B12 - 10 pmol/L, Total B12 - 100 pmol/L

Questions:

1 - Can you make a clinical diagnosis?

2 - What additional diagnostic methods should be performed on this patient?

3 - Prescribe therapy for this patient

Sample answer:

DS - Moderate B12-deficiency anemia. Funicular myelosis

To rule out combined B12-B9 anemia, order a folic acid test. To rule out arrhythmias associated with vitamin B12 deficiency, perform an ECG.

Treatment: Cyanocobolamine - 400-500 mcg/day subcutaneously daily for the first week, then with intervals between administrations of up to 5-7 days until the B12 level in the blood is normalized; during remission, the maintenance dose is 100 mcg/day twice a month; in the presence of neurological symptoms - 200-400 mcg 2-4 times a month

2. A 61-year-old patient. About a year ago, he began noticing painless "nodes" in his neck and armpits, which gradually increased in size. He did not seek medical attention, attributing this to age. Over the past month, he noted the onset of a low-grade fever in the evenings and profuse sweating, prompting him to consult a doctor. Complaints: Moderate general weakness, fatigue by the end of the day, increased sweating (especially at night, requiring him to change his underwear), and a sensation of swollen lymph nodes in the neck, armpits, and groin.

Data on examination of systems: General condition: satisfactory. Consciousness is clear. The skin and visible mucous membranes are of normal color, clean. There are no hemorrhages or rashes. Lymphatic system: symmetrically enlarged anterior and posterior cervical, axillary, elbow and inguinal lymph nodes are palpated. The sizes vary from 2.0 to 4.0 cm in diameter. The nodes are of a doughy-elastic consistency, completely painless, mobile, not fused with each other and with the skin ("packets" of lymph nodes). Respiratory system: Respiratory rate is 16 per minute. Vesicular breathing, no wheezing. Cardiovascular system: heart sounds are rhythmic, heart rate is 78 beats per minute. Blood pressure is 130/80 mmHg. Digestive system: tongue is moist, clean. The abdomen is soft and painless in all areas. The liver is palpable at the costal margin. The spleen is clearly palpable, protruding 3.5 cm from the left hypochondrium, firm, elastic, and painless. The urinary system is normal. The percussion sensation is negative on both sides. Neuropsychiatric status is unremarkable.

Complete blood count (CBC): 4.1 x 10^{12}/L, Hemoglobin (Hb): 124 g/L, White blood cells (WBC): 42.0 x 10^9/L, Blast cells: 0%, Promyelocytes, myelocytes, metamyelocytes: 0%, Segmented neutrophils: 12%, Eosinophils: 1%, Basophils: 0%, Lymphocytes: 85%, Monocytes: 2%, Botkin-Gumprecht shadows: found in large numbers, Platelets (PLT): 175 x 10^9/L, ESR: 25 mm/h

Blood biochemistry data: Total bilirubin: 14.0 μmol/l, ALT: 28 U/l, AST: 24 U/l, Lactate dehydrogenase (LDH): 480 U/l, Total protein: 62 g/l, Albumins: 38 g/l

Myelogram data (bone marrow aspirate): The aspirate is rich in cellular elements. The lymphoid hematopoietic lineage is significantly

on the trunk and limbs even after minor bruises.
The child is the result of a normal first pregnancy. The first signs of increased bleeding appeared at 10 months of age, when the boy began actively crawling (subcutaneous hematomas appeared on his shins and forearms). After teething, prolonged capillary bleeding was noted. The current deterioration of the condition developed 24 hours ago after the child tripped and fell on his knee while playing. The joint rapidly increased in size and became hot, and the boy cried in pain.

Family history: The mother's brother (the child's uncle) had similar problems since childhood: frequent nosebleeds, hemorrhages in large joints, which is why by the age of 25 he became disabled and moves with a cane.

Examination data: General condition: moderate (due to pain syndrome). Skin: moderately pale. Multiple large ecchymoses (bruises) of varying degrees of maturity ("blooming") are visible on the skin of the back, buttocks, and thighs, as well as dense, painful subcutaneous hematomas. Local status (right knee joint): the joint is significantly enlarged in volume, its contours are smoothed. The skin over the joint is hyperemic, hot to the touch. Palpation is sharply painful. Movement (both active and passive) is practically impossible due to pain. A protective flexed position of the limb (contracture) is recorded. The symptom of patellar ballottation is positive.

Coagulogram - Platelet count: 240 × 10^9/L. Bleeding time (according to Duke): 3 minutes. Prothrombin index (PTI) / INR: PTI - 95%, INR - 1.05. Thrombin time: 16 seconds. Activated partial thromboplastin time (APTT): sharply prolonged - 78 seconds.

Instrumental examinations: Ultrasound and radiography of the right knee joint: a large volume of free fluid in the joint cavity (blood), widening of the joint space, thickening of the synovial membrane are revealed.

Determination of coagulation factor activity: Factor VIII activity (8): 0.8%. Factor IX activity (9): 95%. Von Willebrand factor activity (vWF:Ag): 102%.

1 - Make a clinical diagnosis

5.4. List of types of assessment tools

Basic list of types of assessment tools:
- Oral survey
- Tasks
- Independent work of students (Abstracts/presentations)
- Modules

6. EDUCATIONAL, METHODOLOGICAL AND INFORMATIONAL SUPPORT OF THE DISCIPLINE (MODULE)

6.1. Recommended literature

6.1.1. Primary Literature

	Authors,	Title	Publisher, year
L1.1	Bobusheva G.S., Sabirov I.S.,	Differential diagnosis and	Bishkek: KRSU Publishing House 2019

6.2. List of resources of the information and telecommunications network "Internet"

E1	Hematology Medicine (playlist)/ Ninja Nerd/	https://www.youtube.com/watch?v=KelJAPQGlyg&list=PLTF9h-T1TcJggPpvX_JHtzxfLN_yySpAy

6.3. List of information and educational technologies

6.3.1 Competency-oriented educational technologies

6.3.1.1	List of information reference systems and software:
6.3.1.2	https://www.hematology.org/
6.3.1.3	https://ashpublications.org/
6.3.1.4	https://www.islh.org/web/index.php
6.3.1.5	https://www.leukemia-net.org/
6.3.1.6	Electronic Library of KRSU (www.lib.krsu.kg)
6.3.1.7	A course of lectures on hematology on the YouTube.com platform, author - the Ninja Nerd channel (https://www.youtube.com/watch?v=yF22BfXEO5g&list=PLTF9h-T1TcJh9T57G0nls2uGPzzHKMxxh)

6.3.1.8	A course of lectures on hematology on the YouTube.com platform, author - the Osmosis channel (https://www.youtube.com/watch?v=_QVO75CihYQ&list=PLV13skIgjLkOiu7Pu9Hdond8nyM_BaGS8)
6.3.2 List of information reference systems and software	
6.3.2.1	Recommended reading:
6.3.2.2	Bobusheva G.S., Sabirov I.S., Urumbaev R.K., et al. Differential diagnostics and treatment of major syndromes in hematology. Study guide. - Bishkek: Kyrgyz-Russian Slavic University (KRSU), 2019. - 162 p. - ISBN 978-9967-19-611-7.
6.3.2.3	Kaushansky, K., Lichtman, M. A., Prchal, J. T., Levi, M. M., Burns, L. J., & Linch, D. C. (Eds.). (2021). Williams hematology(10th ed.). McGraw Hill.
6.3.2.4	Hoffbrand, A. V., Chowdary, P., Collins, G., & Loke, J. (2024). Hoffbrand's Essential Haematology (9th ed.). Wiley-Blackwell.
6.3.2.5	Raimzhanov A.R. Acute leukemia: methodological recommendations / A.R. Raimzhanov, E.K. Makimbetov, I.A. Tsopova et al. Bishkek: KRSU Publishing House, 2006. 31 p.
6.3.2.6	

7. LOGISTICS AND TECHNICAL SUPPORT OF THE DISCIPLINE (MODULE)	
7.1	Computer and multimedia equipment.
7.2	Electronic library.
7.3	The course is taught at the NCCT building.
7.4	Addresses of specialized websites on hematology.
7.5	There are 6 standardly equipped classrooms (tables, chairs, hangers, boards), 65 seats; a lecture hall with 60 seats.

8. METHODOLOGICAL INSTRUCTIONS FOR STUDENTS ON MASTERING THE DISCIPLINE (MODULE)

Methodological recommendations for studying the discipline.
Recommendations for using the materials of the educational and methodological complex.
The specificity of studying hematology lies in the use of basic teaching and methodological techniques: students' work in lectures, practical classes, when studying individual topics, the use of visual aids (posters, dummies, multimedia slides), followed by a demonstration of thematic patients, as well as analysis and supervision of thematic patients.

Methodological recommendations for independent extracurricular work of students in studying the discipline:
The study of the theoretical part of the discipline is intended not only to deepen and consolidate the knowledge acquired in the classroom, but also to promote the development of students' creative skills, initiative, and the organization of their free time.

The student's independent work in studying the discipline includes:
- reading recommended literature, internet sources and mastering the theoretical material of the discipline;
- preparation for various forms of control (survey, situational task, test, laboratory analysis, biopsy data/histological report);

Students must plan the time required to study the subject throughout the semester, while ensuring regular repetition of the material.

Working with educational literature is considered as a type of academic work in a discipline within the hours allocated for it.
Study (in the independent work section).
Each student is provided with access to the library collections of the University and the department.
Student work in a group develops a sense of collectivism and communication skills.
Teaching students helps them develop ethical and deontological skills for communicating with patients.
The initial level of students' knowledge is determined by a knowledge assessment, ongoing monitoring of the mastery of the discipline, as well as oral questioning during classes, during clinical analyses, and when solving typical situational problems.

Preparing a report for class.
The main stages of preparing a report: choosing a topic; consulting with the instructor; preparing a report outline; working with sources and literature, collecting material; writing the report text; preparing the manuscript and submitting it to the instructor before the start of the report, which determines the student's readiness to present; delivering the report, answering questions.

ABSTRACT
Recommendations for writing an abstract.
1. The topic of the essay is chosen in accordance with the interests of the student and must correspond to the given example
list. paragraph 5.3
2. The abstract should be based on the study of several sources additional to the main literature.
(monographs, articles).
3. The outline of the paper should be the author's own. It reflects the author's approach, opinion, and analysis of the problem.
4. All facts and borrowed ideas presented in the abstract must be accompanied by references to the source.
information.
5. It is unacceptable to simply assemble an abstract from pieces of borrowed text. All quotations must be presented in

quotation marks with the source and page number indicated in parentheses. The absence of quotation marks and references constitutes plagiarism and, according to
established scientific ethics, is considered a gross violation of copyright.
6. The abstract is formatted as text on standard-size sheets (A4) using Times New Roman font, 14 point. It begins with a title page, which indicates the name of the university, the academic discipline, the topic of the abstract, the student's last name and initials, and the year and geographic location of the university. This is followed by a table of contents indicating the page numbers of the sections. The text of the abstract itself should preferably be divided into sections: chapters, subchapters, and titles. The use of quantitative data and illustrations (graphs, tables, diagrams, and figures) in the abstract is encouraged.

7. The abstract concludes with the "Conclusion" and "Bibliography" sections. The conclusion presents the main findings, clearly stated in thesis form and usually numbered.

8. The list of references must be compiled in full compliance with the current standard (rules), including
a special arrangement of punctuation marks. In general, the most commonly used order in our country is
The bibliographic references are as follows:
Author I.O. Book title. Place of publication: Publisher, Year of publication. Total number of pages in the book.
Second I.O. Title of the article // Title of the journal. Year of publication. Volume __. No __. Pages from __to _____.
Author I.O. Title of article / Title of collection. Place of publication: Publisher, Year of publication. Pages from __to ____.
Approximate content of the work: Title: Volume: 13-15 pages.
PRESENTATION in Microsoft PowerPoint
A presentation provides an opportunity to clearly present innovative ideas, developments, and plans. Educational presentation
is the result of independent work of students, with the help of which they clearly demonstrate
materials for a public speech in front of an audience. A computer presentation is a file with the necessary
materials, which consists of a sequence of slides. Each slide contains a complete meaning
information, since it is not automatically carried over to the next slide, unlike in a text document. One of
The main program for creating presentations in world practice is the PowerPoint program from Microsoft.
Presentation structure:
It is possible to hold the active attention of listeners for no more than 15 minutes, and therefore, with an average calculation of time
viewing time – 1 minute per slide, the number of slides should not exceed 15. The first slide of the presentation should
contain the topic of the work, the last name, first name and patronymic of the performer, the number of the study group, as well as the last name, first name, patronymic,
The position and academic degree of the teacher. On the second slide, it is advisable to present the objective and summary
presentation. Subsequent slides should be divided into sections according to the points of the work plan. For the final
The slide displays the most important and essential content of the presentation.
Recommendations for designing presentations in Microsoft PowerPoint:
For visual perception, the text on presentation slides should be at least 18 pt, and for headings – at least 24 pt.
The presentation layout should be designed in a consistent color scheme. The background should not be too bright or colorful.
Text should be easy to read. The same elements on different slides should be the same color. Slide space
(screen) should be used to the maximum, for example by increasing the scale of the drawing. In addition,
opportunities need to occupy the top ¾ of the slide (screen) area, since the bottom of the screen is poorly
viewed from the last rows. Each slide must have a title. There is no period at the end of the titles.
Headings should reflect the conclusion of the information presented on the slide. Headings should be formatted in capital letters.
Letters can only be used if they are short. No more than 5-6 lines should be placed on a slide, and no more than 5-7
words in a sentence. The text on the slides should be easy to read. When adding pictures, diagrams, charts, and screenshots
(screenshots) It is necessary to check the text of these elements for errors. Do not overload slides with animations.
effects - this distracts listeners from the semantic content of the slide. Use the same one to change slides.
animation effect.