

MINISTRY OF HEALTH OF UKRAINE
BUKOVINIAN STATE MEDICAL UNIVERSITY

"APPROVE"

Vice-rector for scientific and pedagogical work
Associate Professor I.V. Gerush
" 24 " 2021

**STUDENT GUIDE
(SYLLABUS)
of studying the discipline**

Phthisiology

Field of knowledge 22 Healthcare
(code and name of the field of knowledge)

Specialty 221 Dentistry
(code and name of the specialty)

Educational degree master
(master, bachelor, junior bachelor)

Educational year IV


Form of study full-time
(full-time, part-time, distance)

Department Department of Phthisiology and Pulmonology
(name of the department)

Approved at the methodical session of the department of Phthisiology and Pulmonology
"25" of March 2021 (Protocol № 8)

Head of the Department  L.D. Todoriko
(signature)

Approved by the subject methodical commission on Therapeutic disciplines
"31" of March 2021 (Protocol № 6)

Chairman of the subject methodical
commission  V.K. Taschuk
(signature)

Chernivtsi – 2021

1. GENERAL INFORMATION ABOUT SCIENTIFIC AND PEDAGOGICAL WORKERS WHO TEACH THE SUBJECT

Department	Department of Phthisiology and Pulmonology
Surname, name of scientific and pedagogical staff, scientific degree, academic status	- Yeremenchuk Inha - PhD, Assistant Professor - Semianiv Ihor – PhD, Assistant Professor - Pidverbetska Olena – PhD, Assistant
Web page of the department on the official website of the university	https://www.bsmu.edu.ua/ftiziatriyi-ta-pulmonologiyi/
Department website	http://kfp.bsmu.edu.ua/
E-mail	pulmonology@bsmu.edu.ua
Address	Ukraine, 58000, Chernivtsi, I. Bohuna, 18 str.
Contact phone	(0372) 55-53-80

2. GENERAL INFORMATION ABOUT THE DISCIPLINE

Status of the discipline	normative
Number of credits	3
Total amount of hours	90
Lectures	10
Practical lessons	30
Individual work	50
Type of final control	final module control

3. DESCRIPTION OF THE DISCIPLINE (ABSTRACT)

"Phthisiology" is a clinical discipline, during the study of which students get basic theoretical knowledge and practical approaches to the revealing, diagnostics, treatment and prevention of tuberculosis, diagnostics of tuberculosis complications that require emergency care. Assimilation of theoretical material is accompanied by the acquisition of appropriate integrated, general and professional competencies.

The subject of study of the discipline is the theoretical foundations and practical approaches to the revealing, diagnostics, treatment and prevention of tuberculosis.

4. POLICY OF THE SUBJECT

4.1. List of normative documents:

- Regulations on the organization of the educational process (<https://www.bsmu.edu.ua/wp-content/uploads/2020/03/polozhennya-pro-organizacziyu-osvitnogo-proczesu-u-vidnu-bukovinskij-derzhavnij-medichnij-universitet.pdf>);
- Instructions for assessing the educational activities of BSMU students in the implementation of the European credit transfer system of the educational process (<https://www.bsmu.edu.ua/wp-content/uploads/2020/03/bdmu-instrukcziya-shhodo-oczinyuvannya-%D1%94kts-2014-3.pdf>);
- Regulations on the procedure for reworking missed and uncredited classes (<https://www.bsmu.edu.ua/wp-content/uploads/2019/12/reworks.pdf>);
- Regulations on the appeal of the results of the final control of knowledge of higher education (<https://www.bsmu.edu.ua/wp-content/uploads/2020/07/polozhennya-pro-apelyacziyu-rezultativ-pidsumkovogo-kontrolyu-znan.pdf>);
- Codex of Academic Integrity (https://www.bsmu.edu.ua/wp-content/uploads/2019/12/kodeks_academic_faith.pdf);
- Moral and ethical codex of students (https://www.bsmu.edu.ua/wp-content/uploads/2019/12/ethics_code.docx);
- Regulations on the prevention and detection of academic plagiarism (<https://www.bsmu.edu.ua/wp-content/uploads/2019/12/antiplagiat-1.pdf>);

- Regulations on the procedure and conditions for students to choose elective courses (https://www.bsmu.edu.ua/wp-content/uploads/2020/04/nakaz_polozhennyz_vybirkovi_dyscypliny_2020.pdf);
- Rules of internal labor regulations of the Higher State Educational Institution of Ukraine "Bucovynian State Medical University" (<https://www.bsmu.edu.ua/wp-content/uploads/2020/03/17.1-bdmu-kolektivnij-dogovir-dodatok.doc>).

4.2. Policy on adherence to the principles of academic integrity of higher education students:

- independent performance of educational tasks of current and final controls without the use of external sources of information;
- cheating during control of knowledge is prohibited;
- independent performance of individual tasks and correct registration of references to sources of information in case of borrowing of ideas, statements, information.

4.3. Policy on adherence to the principles and norms of ethics and deontology by higher education students:

- actions in professional and educational situations from the standpoint of academic integrity and professional ethics and deontology;
- compliance with the rules of internal regulations of the university, to be tolerant, friendly and balanced in communication with students and teachers, medical staff of health care institutions;
- awareness of the importance of examples of human behavior in accordance with the norms of academic integrity and medical ethics.

4.4. Attendance policy for higher education students:

- attendance at all training sessions (lectures, practical classes, final modular control) is mandatory for the purpose of current and final assessment of knowledge (except for respectable reasons).

4.5. Deadline policy and completion of missed or uncredited classes by higher education students:

- reworks of missed classes are held according to the schedule of missed or uncredited classes and consultations.

5. PRECISIONS AND POST-REQUIREMENTS OF THE EDUCATIONAL DISCIPLINE (INTERDISCIPLINARY RELATIONS)

List of disciplines, on which the study of academic discipline is based	List of academic disciplines, for which the basis is laid as a result of studying the discipline
Clinical Anatomy	Internal Medicine
Physiology	Surgery
Pathophysiology	Otorhinolaryngology
Histology	Urology
Pathomorphology	Gynecology
Microbiology	Neurology
Immunology	Infectious Diseases
Radiology	Epidemiology
Pharmacology	Pediatrics
Propaedeutics of Internal Medicine	Pediatric Infections
Propaedeutics of Pediatrics	Oncology
Hygiene and Ecology	—

6. PURPOSE AND TASKS OF THE EDUCATIONAL DISCIPLINE:

- 6.1. The purpose of studying the discipline is to acquaint students with the main problems in modern tuberculosis, mastering the knowledge of the organization of medical care for patients with tuberculosis, forming the basics of clinical thinking in students, acquiring of

professional competencies of examination of patients with tuberculosis, diagnostics, treatment and emergency medical care in patients with tuberculosis.

6.2. The main tasks of studying the discipline are to master the skills of diagnostics, treatment and prevention of tuberculosis, diagnostics of complications of tuberculosis that require emergency care, to get the skills of the medical care organization for patients with tuberculosis at primary, secondary and tertiary levels.

7. COMPETENCIES, THE FORMATION OF WHICH IS CONTRIBUTED BY THE DISCIPLINE:

7.1. Integral competence:

- an ability to solve typical and complex specialized tasks and practical problems in professional activity in the field of the health care or in the process of training, which involves research and/or innovation and is characterized by the complexity and uncertainty of conditions and requirements;

7.2. General competencies:

- ability to abstract thinking, analysis and synthesis;
- ability to learn and master modern knowledge;
- ability to apply knowledge in practical situations;
- knowledge and understanding of the subject area and understanding of professional activity;
- ability to adapt and act in a new situation;
- ability to make reasonable decisions;
- ability to work in a team;
- interpersonal skills;
- ability to communicate in the state language both orally and in writing;
- ability to communicate in a foreign language;
- skills of using information and communication technologies;
- determination and perseverance in relation to the set tasks and responsibilities;
- ability to act socially responsibly and consciously;
- desire to preserve the environment;
- ability to plan and manage time;
- ability to act on the basis of ethical considerations (motives).

7.3. Professional (special) competencies:

- skills of interviewing and clinical examination of the patient;
- ability to determine the necessary list of laboratory and instrumental studies and evaluate their results;
- ability to conduct differential diagnosis;
- ability to diagnose the disease;
- ability to prescribe treatment;
- ability to diagnose emergencies;
- skills of providing emergency medical care;
- skills of performing medical manipulations;
- ability to keep medical records;
- ability to carry out sanitary and hygienic and preventive measures.

8. RESULTS OF STUDYING THE DISCIPLINE.

As a result of studying the discipline student must:

8.1. Know:

- the main indicators that characterize the epidemic situation of tuberculosis in the world and in Ukraine;
- factors and risk groups of tuberculosis development;
- features and evolution of the causative agent of tuberculosis;
- classification of the pathogen by the profile of the chemoresistance, the concept of multidrug-resistant tuberculosis;

- characteristics of the tuberculosis epidemic process: source of infection, ways of transmission, susceptible organisms;
- immunopathogenesis of tuberculosis infection;
- criteria for latent tuberculosis infection;
- criteria for active tuberculosis;
- clinical classification of tuberculosis;
- clinical signs of tuberculosis and the concept of screening questionnaire;
- the conception of primary and secondary forms of tuberculosis;
- basic approaches to the detection and diagnosis of tuberculosis;
- the principle of microscopic diagnosis of tuberculosis: indications, advantages and disadvantages;
- the principle of cultural research on a liquid and solid medium in the diagnosis of tuberculosis: indications, advantages and disadvantages;
- the role of culture tests of drug sensitivity in the management of patients with tuberculosis;
- the role of molecular genetic research in the diagnosis of tuberculosis, in particular - in the diagnosis of multidrug-resistant forms of the disease;
- the role of radiological methods of research and the main radiological syndromes in the tuberculosis clinic;
- diagnostic algorithms for diagnosing tuberculosis at the primary, secondary, tertiary level of medical care;
- features of tuberculosis on the background of HIV-infection and algorithms for diagnosis and treatment of tuberculosis in HIV-positive patients;
- basic principles of treatment of patients with tuberculosis;
- standard regimens of antimycobacterial therapy of tuberculosis with preserved sensitivity to antibacterial drugs and chemoresistant tuberculosis;
- basics of infectious control over tuberculosis: administrative, engineering measures, measures of individual control of respiratory organs defense;
- basics of tuberculosis prevention;
- indications for the treatment of the latent tuberculosis infection (chemoprophylaxis of tuberculosis), chemoprophylaxis regimens;
- indications and contraindications to BCG vaccination.

8.2. Be able to:

- identify risk factors for tuberculosis;
- conduct patients survey to determine the symptoms that may indicate tuberculosis;
- apply the algorithm of examination of patients with symptoms that may indicate tuberculosis at the stage of primary care and develop a clinical route for the patient;
- determine the options for tactical actions of the doctor in accordance with the data of bacterioscopic examination of sputum, X-ray examination and other diagnostic methods;
- interpret the data of microscopic, molecular-genetic, bacteriological methods of detection of the causative agent of tuberculosis;
- evaluate the results of basic laboratory, radiological, instrumental methods of diagnostics and tuberculin skin test;
- perform a differential diagnosis of cough;
- to make a differential diagnosis of intoxication, bronchopulmonary syndrome and the most typical changes on the chest radiograph in patients with symptoms that may indicate tuberculosis;
- formulate a diagnosis of tuberculosis according to the current classification;
- organize the treatment of tuberculosis under direct supervision;
- form and maintain the patient's commitment to the treatment of tuberculosis;
- prescribe standardized medical treatment for patients with sensitive tuberculosis and determine the results of treatment;
- prescribe treatment to patients with drug-resistant tuberculosis;
- prescribe treatment to patients with tuberculosis in combination with HIV-infection;

- monitor the contacts of patients with tuberculosis;
- carry out chemoprophylaxis of tuberculosis;
- organize measures of administrative infection control of tuberculosis infection;
- organize measures to control the indoor air;
- correctly use and select individual respiratory protection;
- analyze the effectiveness of measures to combat tuberculosis, including the principles of cohort analysis of the effectiveness of treatment.

8.3. Demonstrate:

- detailed collection of the complaints and the anamnesis;
- collection the patient's epidemiological anamnesis;
- the conduction of screening survey of patients with suspected tuberculosis;
- physical examination of the patient;
- description of the radiological picture of different clinical forms of tuberculosis;
- performance of an intradermal Mantoux test, its evaluation the results;
- giving recommendations to a specific patient on current disinfection (collection and disinfection of sputum, disinfection of linen, sanitary items, food residues, etc.)
- filling the urgent message card to the sanitary substation for final disinfection;
- prescribing a chemoprophylaxis;
- prescription and interpretation of laboratory examination methods (general blood test, analysis of sputum, tuberculin skin tests, Quantiferon test)
- formulation a detailed clinical diagnosis according to the modern clinical classification of tuberculosis;
- making a treatment plan for a patient with susceptible and drug-resistant tuberculosis;
- prescribing anti-TB drugs;
- prescribing an adequate pathogenetic treatment to a specific patient;
- evaluation of the effectiveness of treatment of a particular patient.

9. INFORMATIONAL SCOPE OF THE DISCIPLINE

Description of each module of the discipline:

8.1. Specific objectives of the module (content modules).

Module 1. Phthisiology.

Content module 1. General issues of tuberculosis.

Specific objectives:

- to know the causative agent of tuberculosis, its types and forms of existence, properties, types of its chemoresistance;
- to know the epidemiology of tuberculosis in Ukraine and the world;
- to know the main epidemiological indicators of the prevalence of tuberculosis and their assessment;
- to know epidemic process in tuberculosis: source of tuberculosis infection, routes of transmission, susceptible organisms.
- to learn to identify TB risk groups;
- to know the pathogenesis and pathomorphology of tuberculosis, to understand the features of immunity in tuberculosis;
- to have the concept of latent tuberculosis infection;
- to distinguish between primary and secondary tuberculosis.

Content module 2. Detection and diagnosis of tuberculosis.

Specific objectives:

- to identify people at high risk for tuberculosis for questionnaires and examinations;
- to identify clinical signs of tuberculosis;
- to analyze the main radiological syndromes in the tuberculosis clinic;

- to interpret the results of the sputum examination;
- to determine the type of MBT resistance according to bacteriological examination.
- interpret the result of the skin tuberculin test and the quantiferon test.

Content module 3. Clinical forms of tuberculosis.

Specific objectives:

- to diagnose various clinical forms of tuberculosis on the basis of anamnestic, clinical-radiological, laboratory data;
- to carry out differential diagnosis of tuberculosis with other diseases;
- to formulate a clinical diagnosis of tuberculosis according to the classification.

Content module 4. Treatment of tuberculosis. Palliative and hospice care.

Specific objectives:

- to apply in practice the basic principles of treatment of patients with tuberculosis;
- to prescribe standard regimens of antimycobacterial therapy depending on the category of treatment;
- to diagnose the side effects of anti-TB drugs and determine measures for their prevention;
- to determine the criteria for the treatment efficacy and cure for tuberculosis.

Content module 5. Tuberculosis prevention.

Specific objectives:

- to identify persons for screening;
- to identify individuals for chemoprophylaxis;
- to prescribe chemoprophylaxis to adults and children according to the indications;
- to determine the indications and contraindications to BCG vaccination;
- to diagnose complications of BCG vaccination;
- to determine the epidemiological danger of foci of tuberculosis infection;
- to organize work in the centers of tuberculosis infection.

Content module 6. Tuberculosis in combination with HIV and other diseases. Complications of tuberculosis.

- to diagnose complications of tuberculosis;
- to provide emergency care in emergencies in patients with tuberculosis;
- to conduct cases of tuberculosis combined with other diseases and conditions;
- to determine the terms of prescribing antituberculosis and antiretroviral therapy for HIV/tuberculosis co-infection;
- to diagnose and determine the tactics of the immune system recovery syndrome in patients with HIV/tuberculosis co-infection.

8.2. Thematic structure of the module (content modules).

Module 1. Phthisiology.

Content module 1. General issues of tuberculosis.

Topic 1. Epidemiology of tuberculosis. Etiology, pathogenesis of tuberculosis. Immunity in tuberculosis. Tuberculosis risk groups. Clinical classification of tuberculosis.

Pathogen of tuberculosis, structure, metabolism, variability, sustainability in the environment. Classification. Pathogenicity and virulence of Mycobacterium tuberculosis. The main epidemiological indicators of tuberculosis infection and their evaluation. Epidemiology of tuberculosis in Ukraine and the world. Tuberculosis risk groups. The problem of multidrug-resistant and HIV-associated tuberculosis in Ukraine. Epidemic process in tuberculosis: source of tuberculosis infection, ways of transmission, susceptible organisms. Pathogenesis and pathomorphology of tuberculosis. Immunity in tuberculosis. Pathomorphosis of tuberculosis: changes in the epidemic process and course of tuberculosis in recent decades. The course of multidrug-resistant and HIV-associated tuberculosis. Prevalence of extrapulmonary tuberculosis. Clinical classification of tuberculosis. The concept of latent tuberculosis infection. Primary and

secondary tuberculosis. Pulmonary, extrapulmonary, mixed localizations of tuberculosis. Generalized (miliary) tuberculosis.

Content module 2. Detection and diagnostics of tuberculosis.

Topic 2. Detection and diagnostics of tuberculosis.

International standards for tuberculosis control, the 3rd edition. Modern approaches to the detection and diagnosis of tuberculosis: detection of tuberculosis by screening and seeking medical help. The role of primary health care in the detection of tuberculosis. Sputum smear microscopy and X-ray examination as methods of the first step of examination. Implementing a practical approach to lung health. Standardization of clinical care. Coordination within the health sector. Simultaneous detection of tuberculosis and other common lung diseases: COPD, pneumoconiosis, bronchial asthma, etc. Symptoms that may indicate tuberculosis. Screening survey for these symptoms as a method of active detection of tuberculosis. The route of a patient with a cough at the stage of primary care. The place of laboratory methods in the detection of tuberculosis. Indications, techniques, advantages and disadvantages of microscopic method of tuberculosis diagnostics. Cultural methods for the Mycobacterium tuberculosis detection on a liquid and solid medical medium. Drug sensitivity tests. Molecular genetic diagnostics of tuberculosis. Xpert MTB/RIF and GenoTypeMTBDRplus methods: application features, indications, advantages and disadvantages, interpretation of results. Application of X-ray examination in the diagnosis of tuberculosis. X-ray semiotics of pulmonary and extrapulmonary tuberculosis. The role of computed tomography and magnetic resonance imaging in the diagnosis and differential diagnosis of tuberculosis. The role of instrumental and invasive methods in confirming the diagnosis. Tuberculin diagnosis. The principle of the method, indications. The role of tuberculin testing in the detection of latent tuberculosis infection.

Content module 3. Clinical forms of tuberculosis.

Topic 3. Clinical forms of pulmonary and extrapulmonary tuberculosis (primary and secondary).

Pulmonary tuberculosis: prevalence, clinical and epidemiological significance, diagnosis. Generalized (miliary) tuberculosis. Pleural tuberculosis. Lymph node tuberculosis. Bone tuberculosis. Tuberculosis of the urogenital organs. Tuberculosis of the CNS. Tuberculosis of other localizations. Tuberculosis in children. The effect of mass immunization against tuberculosis on the pathomorphosis of tuberculosis in children. The course of tuberculosis in vaccinated and unvaccinated children.

Content module 4. Treatment of tuberculosis. Palliative and hospice care.

Topic 4. Treatment of tuberculosis. Palliative and hospice care.

Basic principles and methods of treatment of patients with pulmonary tuberculosis. TB drugs: classification, indications, side effects. Standard chemotherapy regimens for patients with drug-sensitive tuberculosis. The concept of chemoresistance: mono-, poly-, multidrug-resistant tuberculosis, advanced resistance. Standard, individual, empirical regimens of chemotherapy for chemoresistant tuberculosis. Treatment of extrapulmonary tuberculosis. Adjuvant therapy. Side effects of tuberculosis chemotherapy, strategies for overcoming them. Treatment monitoring, evaluation of effectiveness. Determining the results of tuberculosis treatment. Treatment under direct supervision. Forms of organization. Advantages of outpatient treatment of tuberculosis. Indications for hospitalization. Commitment to treatment. Methods of forming and maintaining commitment. The role of socio-psychological support. Methods of surgical treatment of pulmonary and extrapulmonary tuberculosis.

Content module 5. Prophylaxis of tuberculosis.

Topic 5. Prophylaxis of tuberculosis. Tuberculosis infection control.

Tuberculosis prevention. Ways to break the chain of infection transmission: detection, isolation, effective treatment of sources of infection, infection control, BCG vaccination, chemoprophylaxis. The concept of infection control and its scope. Administrative infection control. Distribution of patient flows, the concept of high, medium, low risk areas. Respiratory hygiene. Indoor air condition control: natural, artificial ventilation. Air filtration. UV irradiation: irradiator designs. Individual respiratory protection: types of respirators, rules of selection and application. The concept of contact persons, foci of tuberculosis infection. Contact tracking. BCG vaccination: terms, contraindications, technique. The course of the post-vaccination period. Complications of BCG. Indications for chemoprophylaxis of tuberculosis. Chemoprophylaxis regimens. Curation of patients.

Content module 6. Tuberculosis in combination with HIV and other diseases. Complications of tuberculosis.

Topic 6. Tuberculosis in combination with HIV-infection, other diseases and conditions. Emergencies in the tuberculosis clinic, diagnostics, emergency care.

HIV-associated tuberculosis: the significance of the problem in Ukraine and the world. Pathogenesis of tuberculosis on the background of HIV-infection. The importance of tuberculosis as an opportunistic infection. The course of co-infection with TB/HIV. Diagnosis of tuberculosis in HIV-positive patients: diagnostic algorithms used in an outpatient setting and in severe patients. Treatment of co-infection TB/HIV. Terms of appointment of anti-tuberculosis and antiretroviral therapy. Determining the prognosis of the disease. Immune reconstitution inflammatory syndrome in patients with HIV-infection, its impact on the course of tuberculosis. Significance of other concomitant pathology in the course of tuberculosis: diabetes mellitus, pneumoconiosis, kidney disease, treatment with immunodepressants, tumor necrosis factor. Tuberculosis and pregnancy. Emergencies in the tuberculosis clinic: spontaneous pneumothorax, pulmonary hemorrhage, bronchospasm, anaphylactic shock. Diagnosis, emergency care.

10. STRUCTURE OF EDUCATIONAL DISCIPLINE

Names of content modules and topics	Amount of hours				
	Total	including			
		Classroom		Individual work	Independent students' work
		Lectures	Practicals		
1	2	3	4	5	6
Module 1. Phthisiology					
Content module 1. General issues of tuberculosis					
Topic 1. Epidemiology of tuberculosis. Etiology, pathogenesis of tuberculosis. Immunity in tuberculosis. Tuberculosis risk groups. Clinical classification of tuberculosis.	9	2	4	–	3
Total on the content module 1	9	2	4	–	3
Content module 2. Detection and diagnosis of tuberculosis					
Topic 2. Detection and diagnostics of tuberculosis.	16	2	5	2	7
Total on the content module 2	16	2	5	2	7
Content module 3. Clinical forms of tuberculosis					
Topic 3. Clinical forms of pulmonary and extrapulmonary tuberculosis (primary and secondary).	23	2	5	–	16

Total on the content module 3	23	2	5	–	16
Content module 4. Treatment of tuberculosis. Palliative and hospice care					
Topic 4. Treatment of tuberculosis. Palliative and hospice care.	15	2	4	2	7
Total on the content module 4	15	2	4	2	7
Content module 5. Prophylaxis of tuberculosis.					
Topic 5. Prophylaxis of tuberculosis. Tuberculosis infection control.	13	1	4	4	4
Total on the content module 5	13	1	4	4	4
Content module 6. Tuberculosis in combination with HIV and other diseases. Complications of tuberculosis					
Topic 6. Tuberculosis in combination with HIV-infection, other diseases and conditions. Emergencies in the tuberculosis clinic, diagnostics, emergency care.	12	1	4	2	3
Total on the content module 6	10	1	4	2	3
Individual work (if present)	–	–	–	10	–
Final module control	4		4	–	–
TOTAL HOURS	90	10	30	10	40

11. THEMATIC PLAN OF LECTURES

No	Name of topic	Amount of hours
1	Determination of tuberculosis as a scientific and practical problem. Epidemiology of tuberculosis in Ukraine and in the world. The problem of multidrug-resistant and HIV-associated tuberculosis. Epidemic process in tuberculosis. Pathogenesis of tuberculosis infection.	2
2	Detection and diagnosis of tuberculosis.	2
3	Clinical variants of pulmonary, extrapulmonary, combined localization of tuberculosis.	2
4	General principles and methods of treatment of patients with tuberculosis.	2
5	Tuberculosis prevention. Infectious control of tuberculosis infection. Combined disease TB/HIV-infection.	2
	Total	10

12. THEMATIC PLAN OF PRACTICAL CLASSES

No	Name of topic	Amount of hours
1	Epidemiology of tuberculosis. Etiology, pathogenesis of tuberculosis. Immunity in tuberculosis. Tuberculosis risk groups. Clinical classification of tuberculosis.	4
2	Detection and diagnostics of tuberculosis.	5
3	Clinical forms of pulmonary and extrapulmonary tuberculosis (primary and secondary).	5
4	Treatment of tuberculosis. Palliative and hospice care.	4
5	Prophylaxis of tuberculosis. Tuberculosis infection control.	4
6	Tuberculosis in combination with HIV-infection, other diseases and conditions. Emergencies in the tuberculosis clinic, diagnostics, emergency care.	4
	Total	30

13. THEMATIC PLAN OF INDIVIDUAL WORK

№	Name of topic	Amount of hours
1.	Preparation for practical classes - theoretical training and mastering of practical skills	18
2.	Elaboration of topics that are not included in the classroom plan	
	Surgical treatment of tuberculosis	2
	Pleural tuberculosis	2
	Tuberculosis of the kidneys and urinary tract	2
	Tuberculosis of the male genitalia	2
	Tuberculosis of a woman's genitals	2
	Tuberculosis of the abdominal cavity	2
	Tuberculosis of bones and joints	2
	Tuberculosis of other localizations	2
	International standards for tuberculosis control, 3rd edition	2
	Implementing a practical approach to lung health	2
	Differential diagnosis of pulmonary dissemination, infiltrative changes, focal and rounded shadows, cavities in the lungs	2
3.	Individual independent student`s work	
	Compilation of an infection control plan for a hospital	2
	Compilation of an algorithm for the diagnostics of tuberculosis at the primary care level	2
	Development of an algorithm for the diagnostics of tuberculosis in an HIV-positive patient on an outpatient basis	1
	Development of an algorithm for diagnostics of tuberculosis in an HIV-positive patient in a severe condition	1
	Writing a medical case history	4
Total		50

14. LIST OF INDIVIDUAL TASKS (*if provided*)

1. Compilation of an infection control plan for a hospital.
2. Compilation of an algorithm for the diagnostics of tuberculosis at the primary care level.
3. Development of an algorithm for the diagnostics of tuberculosis in an HIV-positive patient on an outpatient basis.
4. Development of an algorithm for diagnostics of tuberculosis in an HIV-positive patient in a severe condition.
5. Writing a medical case history.
6. Publication of scientific materials in the form of abstracts in periodicals (journals, collections of scientific papers).
7. Publication of scientific materials in the form of articles in periodicals (journals, collections of scientific papers).
8. Participation in scientific conferences with reports.

15. LIST OF THEORETICAL TASKS TO THE FINAL MODULE CONTROL

1. The causative agent of tuberculosis: structure, metabolism, variability, sustainability in the environment.
2. Classification, pathogenicity and virulence of *Mycobacterium tuberculosis*.
3. The main epidemiological indicators of tuberculosis infection and their evaluation.
4. Epidemiology of tuberculosis in Ukraine and the world.
5. Tuberculosis risk groups.
6. Types of drug-resistance. Definition of multidrug-resistant tuberculosis.

7. Epidemic process of tuberculosis: source of tuberculosis infection, routes of transmission, susceptible organisms.
8. Pathogenesis of tuberculosis infection.
9. The elements of tuberculous granuloma.
10. Clinical classification of tuberculosis.
11. The concept of latent tuberculosis infection.
12. The concept of the primary tuberculosis.
13. The concept of the secondary tuberculosis.
14. Tuberculosis in children. The course of tuberculosis in vaccinated and unvaccinated children.
15. Pulmonary, extrapulmonary, combined localization of tuberculosis.
16. Pathomorphosis of tuberculosis in modern conditions.
17. Symptoms that may indicate tuberculosis.
18. Clinical manifestations of pulmonary tuberculosis.
19. Simultaneous detection of tuberculosis and other common lung diseases: COPD, pneumoconiosis, bronchial asthma, etc.
20. Features of the course of tuberculosis on the background of HIV-infection.
21. Methods of diagnostics of tuberculosis at the primary care level.
22. The method of sputum smear microscopy: the role in the detection of tuberculosis, advantages and disadvantages.
23. Cultural method of examination of sputum on a liquid and solid medium: the role in the detection of tuberculosis, advantages and disadvantages.
24. Xpert MTB/RIF method: features of application, indications, advantages and disadvantages, interpretation of results.
25. GenoTypeMTBDRplus method: features of application, indications, advantages and disadvantages, interpretation of results.
26. Methods of radiological diagnostics of tuberculosis.
27. Methods of instrumental diagnostics of tuberculosis.
28. Diagnostics of latent tuberculosis.
29. Diagnostics of tuberculosis on the background of HIV-infection.
30. Emergency care for pulmonary hemorrhage.
31. Emergency care for spontaneous pneumothorax.
32. Methods of determination and types of drug resistance of the causative agent of tuberculosis.
33. Classification of anti-TB drugs.
34. Basic principles of treatment of patients with pulmonary tuberculosis.
35. Standard treatment of patients with tuberculosis sensitive to basic anti-tuberculosis drugs.
36. Standard treatment of patients with multidrug-resistant tuberculosis.
37. Organization of outpatient treatment of a patient with tuberculosis.
38. Indications for hospitalization of a patient with tuberculosis.
39. Treatment of patients with co-infection TB/HIV-infection. Terms of appointment of antituberculous and antiretroviral therapy.
40. The concept of the immune reconstitution inflammatory syndrome, its impact on the course of tuberculosis.
41. Methods of surgical treatment of tuberculosis.
42. Palliative care for patients with tuberculosis.
43. Generalized (miliary) tuberculosis: features of the course, diagnostics, treatment.
44. Tuberculosis of the CNS: features of the course, diagnostics, treatment.
45. Lymph node tuberculosis: features of the course, diagnostics, treatment.
46. Pleural tuberculosis: features of the course, diagnostics, treatment.
47. Tuberculosis of bones and joints: features of the course, diagnostics, treatment.
48. Tuberculosis of the urinary tract: features of the course, diagnostics, treatment.
49. Tuberculosis of the female genital organs: features of the course, diagnostics, treatment.
50. Tuberculosis of the male genitalia: features of the course, diagnostics, treatment.
51. Tuberculosis of the abdominal cavity: features of the course, diagnostics, treatment.

52. Tuberculosis of other localizations: features of the course, diagnostics, treatment.
53. The role of infection control in the prevention of tuberculosis.
54. The concept of administrative infection control.
55. The concept of indoor air control.
56. Respiratory protection of the medical worker: rules of selection, putting on and use of a respirator.
57. Tracking the contacts of a patient with tuberculosis.
58. Chemoprophylaxis of tuberculosis: regimens, indications, contraindications.
59. BCG vaccination: timing, technique, contraindications.
60. Complications of BCG vaccination: frequency, classification, treatment.

16. LIST OF PRACTICAL SKILLS AND TASKS TO THE FINAL MODULE CONTROL

1. To identify risk factors for tuberculosis.
2. To conduct a screening survey for symptoms that may indicate tuberculosis.
3. To determine the clinical symptoms of tuberculosis.
4. To interpret the results of bacterioscopic examination of sputum.
5. To interpret the results of bacteriological examination of sputum.
6. To interpret the results of molecular genetic studies of sputum.
7. To determine the criteria of patients recovery from tuberculosis.
8. To plan the patient's route of detection and diagnostics of tuberculosis.
9. To diagnose and provide emergency care in emergencies in patients with tuberculosis.
10. To prescribe treatment to a patient with tuberculosis.
11. To make medical records about a patient with tuberculosis.
12. To determine contraindications to BCG vaccination.
13. To prescribe chemoprophylaxis of tuberculosis.
14. To carry out tracking and medical supervision of contacts of the patient with tuberculosis.
15. To plan infection control measures.
16. To interpret a chest X-ray.
17. To interpret the result of the tuberculin skin test.

17. METHODS AND FORMS OF IMPLEMENTATION OF THE CONTROL

Forms of control and assessment system are carried out in accordance with the requirements of the discipline program and “Instructions for assessing the educational activities of BSMU students in the implementation of the European credit transfer system of the educational process” (approved by the Academic Council of May 29, 2014, protocol 9).

Control of the initial level of knowledge is conducted on the first practical lesson by solving 60 computer tests.

Current control is carried out at each practical lesson in accordance with the specific objectives of the topic. The control of the knowledge, abilities, practical skills acquired by students is carried out by means of testing, practical cases solving, the description of radiographs, oral answering, checking of written histories of illness.

The final module control is carried out upon completion of the study of all topics of the module at the last lesson of the module. Students who have fully attended the classroom classes in the discipline that are provided by the curriculum, and scored a number of points not less than the minimum during the study of the relevant module are allowed to the final control. A student who has not completed all types of work provided for in the curriculum, for good reason, adjustments are made to the individual curriculum and are allowed to work off academic debt until a certain date. For students who missed classes without good reason, the decision to complete them is made individually by the dean of the faculty. Forms of final control should be standardized and include control of theoretical and practical training.

Final control is carried out in 4 stages:

1. Passing test control (performance of 30 test tasks of selective type with one correct answer within 30 minutes).

2. Interpretation of 3 radiographs orally.
3. Interpretation of blood tests, sputum analysis and results of the Mantoux test.
4. Answer to three questions from the list of questions for preparation for the final module control and solving of 1 situational patients` case.

The maximum number of points of the final module control is **80**.

The final module control is considered credited if the student has scored **at least 50 points**.

18. EVALUATION OF THE LEVEL OF STUDENT TRAINING IN THE DISCIPLINE

Assessment of current educational activities, module control and discipline in general is carried out in accordance with the "Instructions for assessing the educational activities of students of Bukovinian State Medical University in the implementation of the European credit transfer system of educational process" (approved by the Academic Council of May 29, 2014, protocol 9).

The grade for the module is determined on the basis of the sum of grades of current educational activity (in points) and the grade of final module control (in points), which is set when assessment of theoretical knowledge and practical skills according to the lists defined by the discipline program is made.

The current assessment of students` knowledge on the relevant topics is carried out on practical classes according to the traditional 4-point system (excellent, good, satisfactory, unsatisfactory) with subsequent conversion into a multi-point scale.

The grade **"excellent"** is given in the case when the student fully knows the content of the lesson and lecture material, illustrates the answers with various examples; gives comprehensively accurate and clear answers without any leading questions; spreads the material without errors and inaccuracies; freely solves problems and performs practical tasks of varying complexity.

The grade **"good"** is given when the student knows the content of the lesson and understands it well, answers the questions correctly, consistently and systematically, but they are not exhaustive, although the student answers additional questions without errors; solves all problems and performs practical tasks, but has difficulties only in the most severe cases.

The grade **"satisfactory"** is given to the student on the basis of his knowledge of the whole content of the lesson and with a satisfactory level of his understanding. The student is able to solve modified (simplified) problems with the help of leading questions; solves problems and performs practical skills, experiencing difficulties in simple cases; is not able to state the answer on his own systematically, but answers directly asked questions correctly.

The grade **"unsatisfactory"** is given in cases when the student's knowledge and skills do not meet the requirements of "satisfactory" grade.

Distribution of points assigned to students

Number of module number of study hours / number of credits ECTS	Number of content modules, their numbers	Number of practical classes	Conversion into point of the traditional scale				Scores for individual task	Minimum score *
			Traditional scale					
			"5"	"4"	"3"	"2"		
Module 1 90/3,0	6 (№№ 1-6)	6	19	16	13	0	6	78

The weight of each topic within one module is the same.

The maximum number of points that a student can score for the current activity during the study of the module is **120 points**. It is calculated by multiplying the number of points corresponding to the grade "5" by the number of topics in the module (last topic - final module

control is not taken into account) with the addition of points for an individual students` task (6 classes × 19 points + 6 points).

The minimum number of points that a student must score for the current activity during the study of the module and for admission to the final module control is calculated by multiplying the number of points corresponding to "3" by the number of topics in the module and is **78 points** (6 classes × 13 points).

Assessment of individual student tasks

Points for individual tasks are awarded to the student only under conditions of their successful implementation. The number of points awarded for different types of individual tasks depends on their volume and significance. They are added to the amount of points earned by the student for the current academic activity. The maximum number of points for individual independent work - 6 points, the minimum number of points - 4 points: for publication of scientific materials in the form of abstracts in periodicals (journals, collections of scientific papers) – 4 points; for publication of scientific materials in the form of articles in periodicals (journals, collections of scientific papers) – 5 points; participation in scientific conferences with reports – 6 points.

Assessment of students' independent work

Students' independent work, which is provided by the topic of the lesson along with the classroom work, is assessed during the current control of the topic in the relevant lesson. Assimilation of topics that are submitted only for independent work is checked during the final module control.

Final modular control

The final modular control is carried out after the completion of the study of all topics of the module at the last control lesson.

Students who have attended all the classes provided by the discipline curriculum and received positive marks ("5", "4", "3"), as well as scored the number of points during the study of the module, not less than minimal.

The final module control of module 1 "Phthisiology" involves 4 stages with the following evaluation criteria:

1. For the test control the student receives (maximum 10 points):
 - 10 points - if the student gave the correct answers by at least 80%.
 - 8 points - if the student gave the correct answers by at least 70%.
 - 6 points - if the student gave the correct answer by at least 60%.
2. For the correct interpretation of 3 radiographs the student receives (maximum 15 points):
 - 15 points - for completely correct interpretation of all radiographs;
 - 12 points - for the correct interpretation of radiographs with some inaccuracies;
 - 10 points - for partially correct interpretation of radiographs.
3. According to the results of the practical part (interpretation of blood and sputum analysis and evaluation of the Mantoux test) the student receives (maximum 15 points):
 - 15 points - for the correct answers by at least 80%;
 - 12 points - for the correct answers by at least 70%;
 - 10 points - for the correct answer by at least 60%.
4. For the answer to each of the three questions from the list of questions for preparation for the final module control and 1 situational task the student receives (maximum 10 points for each question or situational task):
 - 10 points - complete correct and comprehensive answer;
 - 8 points - if the student gave the correct answer by at least 70%;
 - 6 points - if the student gave the correct answer by at least 60%.

A total of 40 points for complete comprehensive answers to each question and situational task.

The maximum number of points that a student can receive during the modular control is 80 (maximum score for test control - 10 points, for the description and interpretation of radiographs

- 15 points, for interpretation of blood and sputum analysis and evaluation of Mantoux test - 15 points, for oral answer to 3 questions and solution of 1 situational problem - 40 points).

The final module control is credited if the student scored **at least 50 points** (at least 6 points for test control, 10 points - for the description and interpretation of radiographs, 10 points - for the interpretation of blood and sputum and Mantoux test, 24 points - for oral answer to 3 questions and solution of 1 situational task).

Assessment of the module and discipline

The grade for the module is defined as the sum of the final score for the current educational activity and the score for the final module control and is displayed on a 200-point scale.

The maximum number of points assigned to students when mastering module 1 (credit) – **200 scores**, including for current educational activities - 120 points (60%), according to the results of the modular final control - 80 points (40%).

The number of points that a student scored in the discipline "Phthisiology" is determined by the number of points for module 1. Points in the discipline are independently converted into a four-point scale and the ECTS scale.

Evaluation according to the 200-point scale(balls)	Evaluation according to the traditional 4-point scale
From 180 up to 200 scores	“5”
From 150 up to 179 balls scores	“4”
From 149 up to minimal number of scores that a student must collect	“3”
Less than the minimum number of points that a student must collect	“2”

Marks of discipline "FX», «F» («2») are exhibited for students who have not passed the discipline module after the study completion.

Mark "FX" is put to students who have received a minimum number of points for current educational activities but who have not passed the final module control. This category of students shall be entitled to retake the final module control according to the approved schedule (but no later than until the beginning of the next semester). Rearrangement of the final module control is allowed two times maximum.

Mark «F» is put to students who have visited all auditorium classes of the module, but do not meet the minimum number of points for current educational activities and is not admitted to the final testing. This category of students has the right to re-study module.

19. RECOMMENDED LITERATURE

19.1 Basic

1. Phthisiatry: tuberculosis diagnostics update: a teaching manual of English for foreign students / L. Todoriko, V. Shapovalov, I. Semianiv: edited by prof. L. Todoriko. – Chernivtsi: Meduniversity, 2016. – 138 p.

19.2. Auxillary

1. 1. Todoriko L., Semianiv I., Yeremenchuk I. Modern Aspects of Treatment and Prevention of Tuberculosis: The teaching manual in English for foreign students / L. Todoriko, I. Semianiv, I. Yeremenchuk, edited by Prof. L. Todoriko. Chernivtsi: HSEE of Ukraine «Bukovinian State Medical University»; 2019. 193 p.
2. Todoriko L. Topical issues of current phthisiology / L.Todoriko, V. Shapovalov, I.Semianiv; by general editionship of Professor L.Todoriko. – Lambert Academic Publishing, – 2015. – 353 p.

19.3 Information resources

1. www.moodle.bsmu.ua
2. <http://www.who.int/tb/en>
3. <https://www.tballiance.org/>

20. COMPILERS OF THE STUDENT HANDBOOK (SYLLABUS)

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