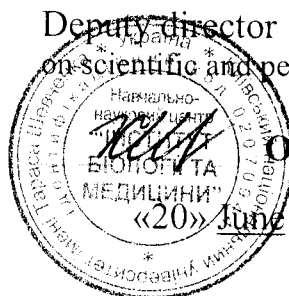


TARAS SHEVCHENKO NATIONAL UNIVERSITY OF KYIV
Educational scientific center «Institute of biology and medicine»
Department of Internal Medicine

«APPROVED BY»

Deputy director
on scientific and pedagogical work



Olga KHARCHENKO

«20» June 2023

EDUCATIONAL PROGRAM

**LABORATORY DIAGNOSIS OF VIRAL INFECTIONS IN
GASTROENTEROLOGY**

for students

branch of knowledge 22 «Healthcare»

specialty 222 «Medicine»

educational level «Master»

educational program «Medicine»

type of discipline mandatory

Form of study	<u>daytime</u>
The academic year	<u>2023/2024</u>
Semester	<u>10</u>
Number of credits ECTS	<u>3</u>
Language of teaching, learning and evaluation	<u>english</u>
Form of final control	<u>credit</u>

Teachers: _____

Prolonged: on 20__/20__ year st. _____ (_____) «__» 20__ year
(signature, name, date)

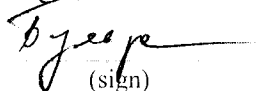
on 20__/20__ year st. _____ (_____) «__» 20__ year
(signature, name, date)

Kyiv – 2023

Developers: Barabanchyk O.V., PhD, assistant professor department of internal medicine

APPROVED

acting head of internal medicine chair


(sign)

Volodymyr BULDA

Protocol № 9 from «07» June 2023

**Approved by scientific and methodical commission of
Educational and Scientific Centre «Institute Of Biology and Medicine» of
Taras Shevchenko National University of Kyiv**

Protocol from «20» June 2023 № 6

Head of the scientific and methodical commission  **Natalia SKRYPNYK**

«20» June 2023

1. **The purpose of the discipline** - is to form the ability to apply the acquired knowledge, skills, abilities, and understanding of doctor typical tasks in the field of health care, the scope of which is provided by lists of syndromes and symptoms of viral diseases in gastroenterology and emergencies; as well as to raise the educational level of students on the diagnosis and treatment of viral gastrointestinal diseases in accordance with modern international standards.

2. Preliminary requirements for mastering or choosing a discipline:

1. Successful mastering of the disciplines "Medical biology", "Medical and biological physics", "Medical informatics", "Medical chemistry", "Biological and bioorganic chemistry", "Human anatomy", "Histology, cytology and embryology", "Physiology", "Microbiology, virology and immunology", "Life safety; basics of bioethics and biosafety", "Pathomorphology", "Pathophysiology", "Pharmacology", "Propaedeutics of internal medicine", "General surgery", "Internal medicine", "Neurology", "Psychiatry and narcology", "Surgery and anesthesiology", "Obstetrics and gynecology".

2. Ability to independently apply knowledge of medical biology, medical and biological physics, medical informatics, medical chemistry, biological and bioorganic chemistry, human anatomy, histology, cytology and embryology, physiology, microbiology, virology and immunology, life safety; basics of bioethics and biosafety, pathomorphology, pathophysiology, pharmacology, propaedeutics of internal medicine, general surgery, internal medicine, neurology, psychiatry and narcology, surgery and anesthesiology, obstetrics and gynecology and other educational disciplines for the solution of specific scientific and practical problems; work with scientific and methodological literature.

3. Owning elementary skills of system analysis.

3. Annotation of the discipline:

Educational discipline "Laboratory diagnosis of viral infections in gastroenterology" is a part of the cycle of training of specialists of educational level "Master" for the educational program "Medicine". "Laboratory diagnosis of viral infections in gastroenterology" is a discipline of choose, which studies the main etiological and pathogenic factors of viral gastrointestinal diseases; basics of clinical examination of the patient, main symptoms and syndromes of viral gastrointestinal diseases, methodological foundations of physical examination of the patient and etiological evaluation of the results of examination of the patient, clinical and diagnostic interpretation of the most important laboratory and instrumental studies in normal and in case of the viral diseases; basic principles of treatment, prognosis and prevention.

The subject of the discipline "Laboratory diagnosis of viral infections in gastroenterology" covers the study of etiopathogenesis, symptoms, principles in laboratory methodological approaches in case of virus gastrointestinal diseases. During the study of the discipline is given or demonstrated the practical application and importance of methods of laboratory investigation of virus infection.

The study of the discipline takes place in two logical stages - mastering the basic methods of physical, instrumental and laboratory examination of the patient, after which students master the basic symptoms and syndromes of the most common virus gastrointestinal diseases.

4. Tasks (training goals):

1. Collect data on patient complaints and according to the established algorithms conduct and evaluate the results of physical examination.
2. Identify the leading clinical symptom or syndrome, establish the most probable or syndromic diagnosis of the disease.
3. Assign and evaluate laboratory and instrumental studies.
4. Interpretate laboratory tests, provide differential diagnosis and establish a preliminary and clinical diagnosis
5. Prescribe treatment in accordance with international standards and guidelines.

According to the requirements of the project of the Standard of Higher Education of Ukraine (second (master's) level of higher education (NRC of Ukraine - level 8), field of knowledge 22 "Health care", specialty 222 "Medicine") the discipline "Laboratory diagnosis of viral infections in gastroenterology" provides acquisition by students of the following competencies:

integral:

The ability to solve typical and complex specialized tasks and practical problems in health care professional work or in a training process that involves research and / or innovation and is characterized by the complexity and uncertainty of conditions and requirements.

general:

- ✓ The ability to apply knowledge in practical situations.
- ✓ The ability to adapt and act in a new situation.
- ✓ The ability to work as a team.
- ✓ Ability to communicate in English.

special (professional, subject matter):

- ✓ Ability to determine the necessary mode of work and rest in the treatment of diseases.
- ✓ Emergency care skills.
- ✓ Ability to conduct an examination of ability to work.
- ✓ Ability to maintain medical records, including electronic forms.

5. Results of studying in a discipline:

Results of studying (1. to know; 2. to be able; 3. communication; 4 autonomy and responsibility)		Forms (and / or methods and technologies) of teaching and learning	Methods of evaluation	Percentage in the final evaluation of the discipline
Cod	Results of studying			
1	To know			
1.1.	Anatomy, physiology, pathophysiology and histological changes of gastrointestinal organs in case of virus infection. Standard patient survey and physical examination regimens.	Practical lesson independen t work	Module control work 1, 2; assessment of oral / written answers / additions;	7
1.2.	Algorithms of performing medical manipulations in case of virus diseases of digestive tract	Practical lesson independen t work	Module control work 1, 2; assessment of oral / written answers / additions;	7
1.3.	Algorithms in main diagnostic tools in virus gastrointestinal diseases	Practical lesson independen t work	Module control work 1, 2; assessment of oral / written answers / additions;	7
1.4.	Standard methods of laboratory examination with virus diseases of the digestive system	Practical lesson independen t work	Module control work 1, 2; assessment of oral / written answers / additions;	7
1.5.	Interpretate laboratory tests, provide criteria for diagnosis.	Practical lesson independen t work	Module control work 1, 2; assessment of oral / written answers / additions;	7
1.6.	Provide treatment according latest guidelines and prescribe laboratory controls if its necessary	Practical lesson independen t work	Module control work 1, 2; assessment of oral / written answers / additions;	7
2	To be able			
2.1.	Collect data on patient complaints	Practical lesson, independen t work	Module control work 1, 2; assessment of oral / written answers / additions; Demonstrate the skills of the practical skills considered in the course;	7
2.2.	Make an informed decision about the selection of the leading clinical symptom or syndrome in gastrointestinal diseases.	Practical lesson, independen t work	Module control work 1, 2; assessment of oral / written answers / additions;	7
2.3.	Assign laboratory examination for patient with possible virus disease.	Practical lesson, independen t work	Module control work 1, 2; assessment of oral / written answers / additions; Demonstrate the skills of the practical skills considered in the course;	9

2.4.	Provide differential diagnosis with others virus diseases	Practical lesson, independent work	Module control work 1, 2; assessment of oral / written answers / additions;	7
2.5.	Determine the principles of treatment, use unified clinical protocols	Practical lesson, independent work	Module control work 1, 2; assessment of oral / written answers / additions; Demonstrate the skills of the practical skills considered in the course;	9
2.6.	Be able to keep medical reports Adhere to the requirements of ethics, bioethics and deontology in their professional activities.	Practical lesson, independent work	Module control work 1, 2; assessment of oral / written answers / additions;	7
3	Communication			
3.1.	Demonstrate communication in dialogue with colleagues and with the patient; to effectively form a communication strategy in dealing with the patient	Practical lesson independent work	Assessment of oral answers / additions; Demonstrate the skills of the practical skills considered in the course;	7
4.	Autonomy and liability			
4.1.	To be guided by the fundamental questions and theories of nursing practice; to conduct selection and analysis of modern literature on this medical field, use it, as well as data processing programs for planning, obtaining and analyzing the results of its own research work	Independent work	Module control work 1, 2; assessment of oral / written answers / additions;	5

7. Rating scheme.

7.1. Form of student rating (control form):

- current rating (current control):

1. Intermediate control 1 – PH 1.1–1.5, 2.2–2.8 – 14 points / 7 points
2. Intermediate control 2 – PH 1.1–1.5, 2.2–2.8 – 16 points / 8 points
3. Presentations / reports - PH PH 1.1–1.5, 3.1, 4.1 – 20 points / 10 points
4. Verbal answers /additions - PH 1.1–1.4, 2.2–2.8, 3.1 – 18 points / 9 points
5. Practical tasks completion rating - PH 2.2–2.8 – 32 points / 16 points.

- final evaluation: in the form of credit

The final score of the educational component, the final form of control for which is credit, is defined as the sum of marks (points) for all successfully evaluated learning outcomes. Marks below the minimum threshold are not added to the final score.

Mandatory for a positive final score (60 points and above and "credited") is the completion of all practical classes.

It is not allowed to retake the semester control in order to improve the positive assessment.

7.2. Organization of evaluation:

Module control works 1 and 2 work are carried out after the completion of corresponding thematic lectures from Section 1 and 2.

The assessment of practical classes is made during the semester.

The assessment of presentations/reports, oral answers/additions is made during the lecture course and practical classes.

7.3. Validity Scale

Passed	60-100
Fail	0-59

8. Structure of the discipline. Thematic plan

№	Section titles and topics	Number of hours			
		Lectures	Practical lessons	Consultations	Independent work *
List of topics					
1.	Lecture 1. Viruses and diseases. Gastrointestinal tract and its microbiome.	2			
2.	Topic 1. Main symptoms and syndromes in gastroenterology. Complaints that help physicians and gastroenterologists differentiate viral infection.		3		
3.	Independent work. - Anatomy of gastrointestinal tract - Physiology of gastrointestinal tract				4
4.	Lecture 2. Patient management with infection and non-infection liver diseases	2			
5.	Topic 2. Laboratory methods of investigation in gastroenterology. Tests that should be perform in case of virus gastroenterological diseases.		3		
6.	Independent work. - Mastering the skills of interpreting the results of laboratory tests. - Principal differences in methods of laboratory tests.				4
7.	Lecture 3. New concept in treatment of hepatitis B infection	2			
8.	Topic 3. Instrumental methods of investigation in gastroenterology. Methods that should be perform in case of virus gastroenterological diseases.		3		
9.	Independent work. - Mastering the skills of interpreting the results of instrumental methods of investigation.				4
10.	Topic 4. Microbiome and its role in diseases		3		
11.	Independent work. - Laboaratory methods of microbiome investigation - Microbiome and liver diseases - Microbiome and intestinal diseases				4
12.	Topic 5. Hepatatis A and E. Interparatation of laboratory tests and treatment		3		
13.	Independent work. - Principles of diagnosis, treatment, prevention of a group of diseases with fecal-oral route.				4
14.	Topic 6. Hepatatis B and D. Interparatation of laboratory tests and treatment		3		
15.	Independent work. - Clinical features of hepatitis B and D, manifest symptoms				4

	- Vaccination as a method of prevention of infectious diseases.				
16.	Lecture 4. New concept in treatment of hepatitis C infection	2			
17.	Topic 7. Hepatitis C. Interpretation of laboratory tests and treatment		3		
18.	Independent work. - Prevention of hepatitis C. Pharmacological treatment, possible complications and controls after treatment				4
19.	Topic 8. Acute and chronic Cytomegalovirus (CMV) Hepatitis. Interpretation of laboratory tests and treatment		3		
20.	Independent work. - Clinical manifestations and treatment - Pharmacokinetics and pharmacodynamics of antiretrovirus drugs				4
21.	Lecture 5. Covid-associated gastrointestinal diseases.	2			
22.	Topic 9. Herpes Simplex Virus Hepatitis. Interpretation of laboratory tests and treatment		3		
23.	Independent work. - General Biology of Human Herpesviruses - Structure of herpesviruses - Classification of herpesviruses - Control of Herpesvirus Infections				4
24.	Topic 10. EBV and TTV virus infection in virus hepatitis.		3		
25.	Independent work. - Diagnosis, differential diagnosis and approaches to treatment.				4
26.	Lecture 6. Role of viruses in intestinal diseases	2			
27.	Topic 11. Hepatitis caused by yellow fever, rubella, measles viruses		3		
28.	Independent work. - Epidemiological features, etiology, pathogenesis and general clinical features of jungle fever, Dengue hemorrhagic fever, Ebola fever, Lassa fever, and Marburg fever. Treatment and prevention approaches.				4
29.	Topic 12. Covid associated liver diseases. Hepatitis and its clinical features, diagnostics approach and treatment		3		
30.	Independent work. - Post-covid syndrome, principles of patient rehabilitation.				4
31.	Topic 13. Covid associated intestinal diseases.		3		
32.	Independent work. - Other SARS: parainfluenza, adenovirus infection, RS-virus, rhinovirus infection.				4
33.	Topic 14. Enteric Viral Co-Infections: norovirus, rotavirus, astrovirus		3		
34.	Independent work. - Others Intestinal infectious diseases with a predominant colonic involvement.				4

	- Diarrheal syndrome in the clinical pattern of infectious diseases - Food toxicoinfection				
35.	Topic 15. Gastrointestinal disorders associated with HIV infection		3		
36.	Independent work. - Clinical, laboratory and instrumental diagnostics of HIV infection/AIDS. Principles of treatment and prevention.				4
37.	Module control work		3		
	Total	12	48	0	60

* If there are changes to the training schedule, see Appendix 1

The total amount of 120 hours, including:

Lectures – 12 hours.

Practical classes – 48 hours.

Independent work – 60 hours.

9. Recommended Sources:

Basic: (*Basic*)

- Davidson's Principles and Practice of Medicine 23rd Edition. Editors: Stuart Ralston, Ian Penman, Mark Strachan Richard Hobson. Elsevier. - 2018. – 1440p.
- Harrison's Principles of Internal Medicine, 20e. Publisher : McGraw-Hill Education / Medical; 20th edition (August 13, 2018), Hardcover : 4048 pages, ISBN-10 : 1259644030, ISBN-13 : 978-1259644030
- Zahid M, Ali N, Saad M, Kelly P, Ortiz A. Acute Cytomegalovirus (CMV) Hepatitis in an Immunocompetent Adult. *Am J Case Rep.* 2020;21:e925495. Published 2020 Jul 16. doi:10.12659/AJCR.925495
- Suo M, Ekladios A, SahebolaMRI M, Williams-Wyss O. Acute CMV hepatitis in an immunocompetent patient. *BMJ Case Rep.* 2020;13(12):e234811. Published 2020 Dec 12. doi:10.1136/bcr-2020-234811
- Then EO, Gayam V, Are VS, Sunkara T, Gaduputi V. Herpes Simplex Virus Hepatitis: A Brief Review of an Oft-overlooked Pathology. *Cureus.* 2019;11(3):e4313. Published 2019 Mar 25. doi:10.7759/cureus.4313
- Зайцев, I. A., & Кирченко, B. T. (2016). Hepatitis caused by herpes simplex virus. *Family Medicine*, (3(65), 127–131. [https://doi.org/10.30841/2307-5112.3\(65\).2016.80035](https://doi.org/10.30841/2307-5112.3(65).2016.80035)
- Doğan I, Ergün M, Cindoruk M, Unal S. Acute hepatitis induced by Epstein-Barr virus infection: a case report. *Turk J Gastroenterol.* 2007;18(2):119-121.
- Shula Schechter, MD; Laura Lamps, MD Epstein-Barr Virus Hepatitis: A Review of Clinicopathologic Features and Differential Diagnosis *Arch Pathol Lab Med* (2018) 142 (10): 1191–1195. <https://doi.org/10.5858/arpa.2018-0208-RA>
- Bassam Theodory, Meena Dopp, Austin R. Swisher, Roberto M. Flores, Paul M. Robb, Epstein-Barr virus induced acute hepatitis with hyperferritinemia: A rare presentation, IDCases, Volume 33, 2023, e01872, ISSN 2214-2509, <https://doi.org/10.1016/j.idcr.2023.e01872>.
- Khoo, A. Acute cholestatic hepatitis induced by Epstein–Barr virus infection in an adult: a case report. *J Med Case Reports* **10**, 75 (2016). <https://doi.org/10.1186/s13256-016-0859-x>