

**AMENDMENTS AND CHANGES TO THE CURRICULUM IN THE
EDUCATIONAL DISCIPLINE
«MICROBIOLOGY, VIROLOGY, IMMUNOLOGY»**

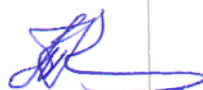
for the specialty 1-79 01 01 «General Medicine»
(experimental project)

2020/2021 academic year

Amendments and changes	Basis/Reason
1. Changes have been introduced into the thematic plan (Appendix 1)	Educational Plan for 2020/2021 academic year
2. The literature has been updated according to «The list of literature recommended for 2020-2021 academic year» (Appendix 2)	Meetings of Scientific-methodological council 29.05.2020, protocol No 9

The curriculum is revised and approved at the microbiology, virology, immunology department meeting (protocol № 15 of 12.06.2020 year)

Head of microbiology,
virology, immunology department,
PhD, associate professor



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APPROVED

Dean of the Medical Faculty of
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professor



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Thematic plan

Appendix 1

The section name		Hours	
		lectures	Laboratory classes
1th semester		18	54
1. General microbiology		9	30
1.1. Microbiology as a science. The world of microbes		1	–
1.2. Morphology of microorganisms		–	9
1.3. Physiology of microorganisms		2	6
1.4. Genetics of microorganisms		1	3
1.5. Ecology of microorganisms		1	3
1.6. Basics of infectology		2	3
1.7. Microbiological bases of chemotherapy and antiseptics of bacterial infections		2	3
2. Theoretical and applied medical immunology		9	24
2.1. Immunology. Immune system		1	–
2.2. Innate immunity		1	3
2.3. The immune response		2	6
2.4. An allergy and ecological immunology		1	3
2.5. Antiinfection immunity		1	–
2.6. Immunodiagnostics of infectious diseases		–	6
2.7. Immunoprophylaxis and immunotherapy of infectious diseases		1	3
2.8. Basics of clinical immunology		2	3
2nd semester		18	54
3. Special medical microbiology.		10	30
3.1. Gram positive cocci		1	2
3.2. Neisseriae		1	1
3.3. Aerobic and facultative anaerobic Gram negative rods		1	9
3.4. Aerobic and facultative anaerobic Gram positive rods and aktinomycetes		1	3
3.5. Causative agent of notifiable infections		1	3
3.6. Ecological group of anaerobic bacteria		1	3
3.7. Spirohetes		1	3
3.8. Rickettsia, chlamidia, mycoplasm		1	3
3.9. Basics of medical mycology		1	2
3.10. Basics of medical protozoology		1	1
4. General and special medical virology		6	18
4.1. General Virillogy		1	3
4.2. RNA-genomic viruses		1	6
4.3. Ecological group of arboviruses and roboviruses		1	3
4.4. DNA-genomic viruses		1	3
4.5. Heparitis viruses		1	2
4.6. Oncogenic viruses		1	1
5. Clinical microbiology		2	6

The section name	Hours	
	lectures	Laboratory classes
5.1. Opportunistic infections	1	6
5.2. Nosocomial infection	1	-
In total hours	36	108

List of lectures

1th semester:

1. Microbiology as a science. The world of microbes.
2. Metabolism and energy exchange in microorganisms.
3. Growth and reproduction of microorganisms.
4. Genetics of microorganisms.
5. Ecology of microorganisms.
6. Basics of infectology.
7. Pathogenicity factors of microorganisms.
8. Microbiological bases of chemotherapy and antiseptics of infectious diseases.
9. Antibiotics.
10. Immunology. Immune system.
11. Innate immunity.
12. The immune response. Antigens. T-lymphocytes. Cellular immune response
13. B-lymphocytes. Humoral immune response. Antibodies.
14. An allergy and ecological immunology.
15. Anti-infectious immunity.
16. Immunoprophylaxis and immunotherapy of infectious diseases.
17. Basics of clinical immunology. Immune status of an organism. Immunodeficiencies
18. Autoimmune diseases. Transplant immunity. Immunocorrection. Immunocorrection. Antitumor immunity.

2nd semester:

19. Special medical microbiology. Gram-positive cocci.
20. Neisseria. Bordetella, Hemophilus, Legionella, Coxiella
21. Enterobacteria
22. Actinomycetes. Mycobacterium. Corynebacteria. Nocardia. Listeria.
23. Obligate anaerobes. Campylobacter. Helicobacter
24. Extremely dangerous and highly contagious infections.
25. Spirochetes.
26. Rickettsia. Chlamydia. Mycoplasma.
27. General Virology
28. Orthomyxoviruses. Paramyxoviruses. Coronaviruses
29. Picornaviruses. Rotaviruses. Retroviruses. Human immunodeficiency virus (HIV).
30. Arboviruses. Rabies virus.

31. Hepatitis viruses (A, B, C, D, E)
32. Herpesviridae. Adenoviruses, Oncogenic viruses. Human papillomavirus
33. Clinical Microbiology. Opportunistic infections
34. Hospital-acquired infections. Non-fermenting Gram-negative bacteria
35. Fundamentals of medical Mycology
36. Fundamentals of medical Protozoology

List of laboratory classis

1th semester:

1. Methods in diagnostic microbiology. Microscopic method of examination. Basic morphological forms of bacteria. Simple methods of staining
2. Microscopic method of examination. The morphology and fine structure of bacteria. Differential methods of staining
3. Microscopic method of examination. The morphology of the spirochetes, actinomyces, rickettsiae, chlamydiae, mycoplasmas
4. Antimicrobial measures. Methods of sterilization and disinfection. Asepsis and antisepsis. Bacteriological method of laboratory diagnosis of infection diseases. Techniques of microbial pure cultures isolation and maintenance.
5. Bacteriological method of laboratory diagnosis of infection diseases. Techniques for pure culture identification.
6. Molecular Basis of Bacterial Genetics. Molecular methods of infection diseases diagnosis and bacterial genetic investigations
7. Ecology of microorganisms. Methods of human normal flora investigation. Infections.
8. Antibiotic susceptibility testing of microorganisms. application of laboratory animals in microbiology
9. Concluding test: "Morphology and physiology of microorganisms. Infection.
10. Immune system. Innate immunity. Methods for innate immunity factors evaluation
11. Humoral immune response
12. Serologic reactions
13. Serologic reactions, part II
14. Cellular immune response.
15. Allergy
16. Immunoprophylaxis and immunotherapy. Methods for vaccinal immunity evaluation
17. Basics of clinical immunology.
18. Concluding test: «Immunology. Immunity. Allergy»

2nd semester:

19. Microbiological diagnostics of diseases caused by Staphylococci, Streptococci, Neisseria
20. Microbiological diagnostics of acute enteric infections caused by Enterobacteria
21. Microbiological diagnostics of acute enteric diseases caused by Enterobacteria (continuation)

22. Microbiological diagnostics of diseases caused by Klebsiella, Iersinia, Campylobacter and Pseudomonada. Methods for food poisoning diagnostics
23. Microbiological diagnostics of diseases caused by Corynebacteria, bordetella, haemophilus, legionella, listeria
24. Methods of microbiological diagnosis of diseases caused by Mycobacteria and Actinomycetes. Methods of microbiological diagnostics anaerobic infections
25. Microbiological diagnostics of especially dangerous infections
26. Microbiological diagnostics of diseases caused by Spirochetes, Rickettsia, Chlamydia and Mycoplasma
27. Concluding test "Special microbiology"
28. Methods of investigations in virology. Bacteriophages
29. Virologic diagnostics of diseases caused by ortho- and paramyxoviruses
30. Methods of diagnostics for diseases caused by picornaviruses, rotaviruses and retroviruses.
31. Virological diagnostics of diseases caused by arboviruses and roboviruses. Oncogenic viruses. Slow infection
32. Virologic diagnostics of diseases caused by hepatitis viruses, herpes- and adenoviruses
33. Concluding test: «Virology»
34. Clinical microbiology. Microbiological diagnostics of sepsis and purulent infections of the skin
35. Microbiological diagnostics of opportunistic infections of respiratory and urinary tracts. Hospital-acquired infection
36. Microbiological diagnostics of fungal and protozoan infections

List of academic discipline «Microbiology, virology, immunology» literature
recommended for 2020-2021 academic year

Специальность 1-71 01 01 «Лечебное дело» (“General medicine”)

Основная литература:

1. Генералов, Игорь Иванович. Медицинская микробиология, вирусология и иммунология = Medical microbiology, virology and immunology : учеб. пособие для иностр. студентов учреждений высш. образования по спец. "Лечебное дело", "Стоматология", "Педиатрия". В 2 ч. Ч. 1 / Генералов, Игорь Иванович ; Витеб. гос. мед. ун-т. - (2-е изд., стереотип.). - Витебск : ВГМУ, 2020. – 284 с.

2. Генералов, Игорь Иванович. Медицинская микробиология, вирусология и иммунология = Medical microbiology, virology and immunology : учеб. пособие для иностр. студентов учреждений высш. образования по спец. "Лечебное дело", "Стоматология", "Педиатрия". В 2 ч. Ч. 2 / Генералов, Игорь Иванович ; Витеб. гос. мед. ун-т. - (2-е изд., стереотип.). - Витебск : ВГМУ, 2020. – 402 с.

Дополнительная литература:

1. Generalov I.I. Medical Microbiology, Virology & Immunology : Lecture Course for Students of Medical Universities. – Vitebsk : VSMU, 2016. P. I – 282 p.

2. Microbiology / Kayser F. H., Bienz K. A., Eckert J., Zinkernagel R. M. – Thieme, Shtuttgart, New York, 2005. – 725 p.

3. Ryan K. J., Ray C. G., Sherris J.C. Sherris medical microbiology. An introduction to infectious diseases, 4-th edition. - McGraw-Hill Medical Publishing Division, 2010. – 979 p.

4. Murray P. R., Rosenthal K. S., Pfaller M. A. Medical microbiology. – Elsevier Health Sciences, 2015. - 789 p.

5. Washington J. A. (ed.). Laboratory procedures in clinical microbiology. – Springer Science & Business Media, 2012.

6. Snyder L. et al. Molecular genetics of bacteria. – American Society of Microbiology, 2013.

7. McPherson R. A., Pincus M. R. Henry's clinical diagnosis and management by laboratory methods. – Elsevier Health Sciences, 2016.

8. Gillespie S. H. Medical microbiology illustrated. – Butterworth-Heinemann, 2014.

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