

**SILABUS EDUCATIONAL COMPONENT
MICROBIOLOGY IN THE BASICS OF
EPIDEMIOLOGY**

(the name of the educational component)

for higher education students 2, 3 course of the day forms of education

educational program «Pharmacy»

(educational program name)

Specialty «_226 Pharmacy, Industrial pharmacy»

(code number, specialty name)

Knowledge fields «22 Health Care»

(code number, name of the field of knowledge)

Master level of higher education

(name of higher education level)

TEACHERS



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- 1. Name of the institution of higher education and department:** National University of Pharmacy, Department of Microbiology, Virology and Immunology.
- 2. Address:** Kharkiv, street Kulykivska, 12, 3rd floor, tel. 057-706-30-67.
- 3. Website:** <http://microbiology.nuph.edu.ua/>
- 4. Information about teachers:**

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ІСУ НФаУ

Редакція 02

Дата введення 01.09.2022 р.

Стор. 1 із 6

Doctor of Medical Sciences, Professor, Head of the Department of Microbiology, Virology and Immunology of the National University of Pharmacy. Experience of scientific activity - 37 years, experience of scientific pedagogical activity - 36 years. She teaches courses: "Microbiology, virology and immunology with microbiological diagnostics", "Microbiology with the basics of epidemiology", "Infectious diseases", "Epidemiology of diseases", "Tropical infections", "Epidemiology and tuberculosis" with evaluation of research results. Research interests: bacteriology, virology, pathophysiology, immunology, infectious diseases.

Tishchenko Iryna Yuriyivna

Ph.D. in Biological Sciences, Associate Professor of Microbiology, Virology and Immunology, National University of Pharmacy. Experience of scientific activity - 33 years, experience of scientific and pedagogical activity - 32 years. He teaches courses: "Microbiology, virology and immunology with microbiological diagnostics", "Microbiology with the basics of immunology", "Infectious diseases", "Epidemiology of diseases", "Tropical infections". Research interests: bacteriology, virology, pathophysiology, immunology, infectious diseases.

5. **Consultations:** These are conducted on a daily basis by the supervisor at the Department of Microbiology, Virology and Immunology.
6. **Brief annotation:** the discipline "Microbiology with the basics of epidemiology" is a mandatory discipline for the second (master's) level in the specialty 226 "Pharmacy, industrial pharmacy". Assessment form - credit and written exam.
7. **The purpose of the discipline:** the purpose of studying the discipline "Microbiology with the basics of epidemiology" is the formation of applicants for comprehensive theoretical and practical knowledge of morphology, physiology, genetics of sanitary-indicative microorganisms and pathogens of infectious diseases, methods of transmission, pathogenesis of infectious diseases, methods their laboratory diagnosis, treatment and prevention.
8. **Competence in accordance with the educational program:**
Hard-skills / Professional (special) competence (PC):
 PC 1. Ability to conduct sanitary and educational work among the population to prevent common diseases, prevent dangerous infectious, viral and parasitic diseases, as well as to facilitate the timely detection and maintenance of adherence to treatment of these diseases in accordance with their medical and biological characteristics and microbiological characteristics.
9. **Program results of training (PRT):**
 PLO 13. To carry out sanitary and educational work in professional activity in case of outbreaks of infectious, viral and parasitic diseases.
10. **Status of educational component:** Compulsory
11. **Prerequisites of the discipline:** Mastering the discipline "Microbiology with the basics of epidemiology" is based on the study of philosophy, pharmaceutical botany, biology, normal anatomy and human physiology, inorganic chemistry, Latin, biophysics, pathology, organic chemistry, organic chemistry;

12. Volume of educational component:

Number of ECTS credits	Number of hours per educational component			
	general	lectures	practical lessons	independent work
8,0	240	26	96	118

13. Organization of training:

Educational component format:

**Content of educational
component:MODULE 1.
General microbiology.**

Content module 1. *The concept of microbiology. Morphology of microorganisms. Physiology of microorganisms. Microflora of man and environment.*

Topic 1: *The concept of microbiology. Morphology of prokaryotes.*

Topic 2: *Morphology of eukaryotes.*

Topic 3: *Morphology and biology of viruses.*

Topic 4: *Physiology of Prokaryotes.*

Topic 5: *Genetics of microorganisms.*

Topic 6: *Action of physical, chemical and biological factors on microorganisms.*

Topic 7: *Microflora environment.*

Topic 8: *Human microbiocenoses. Eubiotycs.*

Content module 2. *Phytopathogenic microorganisms. Microbe deterioration of vegetable medicinal raw materials, microbe contamination of ready medical forms. Teaching about infection. Basic chemotherapies. Teaching about the immunity. Immuno-diagnostics, immunotherapy and immuno- prophylaxis of infectious diseases. Allergy.*

Topic 9: *Phytopathogenic microorganisms. Microbe deterioration of vegetable medicinal raw materials, microbe contamination of ready medical forms.*

Topic 10: *Teaching about infection. The concept of infectious and epidemiological processes.*

Topic 11: *Basic chemotherapies. Antibiotics.*

Topic 12: *Immunity. Immunossiology of infectious diseases.*

Topic 13: *Immunobiological preparations for prophylaxis and therapy of infectious diseases. Concept of immunobiotechnologies.*

Topic 14: *The concept of allergy.*

MODULE 2. Special microbiology.

Content module 3. *Pathogens of bacterial, rickettsial diseases.*

Topic 15. *Pathogens of tuberculosis, diphtheria, meningitis, pertussis, legionellosis.*

Topic 16. *Pathogens of Escherichia coli, Shigellosis, typhoid fever and paratyphoid fever A and B, foodborne toxic infections, cholera.*

Topic 17. *Pathogens of tetanus, anaerobic gas infection, botulism.*

Topic 18: *Pathogens of gonorrhoea, syphilis, chlamydia, mycoplasmosis.*

Topic 19: *Pathogens of zoonotic infections: plague, tularemia, anthrax, brucellosis, campylobacteriosis, leptospirosis.*

Topic 20: *Pathogens of typhoid fever, epidemic typhus and Brill-Zinsser disease, endemic typhus, tick-borne typhus (North Asian rickettsiosis).*

Topic 21. *Pathogens of purulent inflammatory and hospital infections: gram-positive pyogenic cocci (staphylococci, streptococci), opportunistic bacilli (S. pneumoniae, S. Proteus, Klebsiella)*

Content module 4. *Pathogens of viral, fungal and protozoan diseases.*

Topic 22. *Pathogens of influenza, parainfluenza, mumps, measles, respiratory syncytial virus*

Topic 23. *Rubella pathogen, adenoviruses, coronaviruses.*

Topic 24. *Pathogens of poliomyelitis, hepatitis A.*

Topic 25. *Pathogens of viral hepatitis B, C, D, pathogens of AIDS, herpes.*

Topic 26. *Pathogens of rabies, tick-borne encephalitis.*

Topic 27. *Pathogens of dermatomycoses, deep mycoses (chromomycosis, cryptococcosis), candidiasis, actinomycoses.*

Topic 28. *Pathogens of amoebiasis, balantidiosis, giardiasis.*

Topic 29. *Pathogens of trypanosomiasis, malaria.*

Topic 30. *Pathogens of trichomoniasis, toxoplasmosis, leishmaniasis.*

14. Types and forms of control:

Types and forms of control:

Current control: oral questioning, test tasks, solution of situation problems.

Control of content modules: Oral questioning, test tasks

Semester exam: Answers to theoretical questions, solution of situation problems.

Semester control form: Semester credit/semester examination

Conditions for the control of the content modules: To allow the control of the content module, a minimum number of points is required for the subject of the content module, and no hard-working passes of practical lessons are required.

Conditions of admission to the semester control: Current rating is more than 60 points, absence of unworked passes of practical, fulfillment of all requirements, which are provided by the working program of educational component.

15. Educational component assessment system:

Educational component assessment system::

The results of the semester control in the form of a semester check are estimated at 100-point, non-differentiated scale ("counted", "not counted") and at the ECTS scale.

The results of the semester control in the form of the semester exam are assessed on the ECTS scale, 100-point and four-point scale ("excellent", "good", "satisfactory", "unsatisfactory").

The educational component is calculated according to the following ratio:

Types of evaluation	Maximum number of points (% from the number of points per module - for content modules)
Module 1	
<p>Content module 1: <i>The concept of microbiology. Morphology of microorganisms. Physiology of microorganisms. Microflora of man and environment.</i> - assessment of topics (1-8) (work at lessons 1-8): work at lessons (oral questioning, test tasks, control of practical skills); - control of the content module 1 (test tasks, oral interview).</p>	50 (50 %)
<p>Content module 2: <i>Phytopathogenic microorganisms. Microbe deterioration of plant medicinal raw materials, microbe contamination of ready medical forms. Study about infection. Basic chemotherapies. Study about the immunity. Immuno- diagnostics, immunotherapy and immuno-prophylaxis of infectious diseases. Allergy.</i> - assessment of topics (9-14) (work at lessons 9-14): work at lessons (oral questioning, test tasks, solving situational tasks, control of practical skills); - control of the content module 2 (test tasks, oral interview).</p>	50 (50 %)
Semester control from module 1	100
Module 2	

Content module 3: <i>Pathogens of bacterial, rickettsial diseases</i> . - assessment of topics (15-21) (work at lessons 15-21): work at lessons (oral questioning, test tasks, solving situational tasks, control of practical skills); - control of the content module 3 (test tasks, oral interview).	50 (50 %)
Content module 4: <i>Pathogens of viral, fungal and protozoal diseases</i> - assessment of topics (22-30) (class work 22-30): class work (oral questioning, test tasks, solving situational tasks, control of practical skills); - control of content module 4 (test tasks, oral interview).	50 (50 %)
Semester control from module 1	100

Independent work of higher education students is evaluated during the current control and during the control of the content module

16. Policies of the educational component:

Policy on academic integrity. It is based on the principles of academic integrity, given in the POL "On measures to prevent cases of academic plagiarism in NUPh". Cheating when assessing the progress of a higher education applicant during control measures in practical classes, control of content modules and semester exams is prohibited (including using mobile devices). Abstracts must have correct text references to the literature used. Detection of signs of academic dishonesty in the written work of the student is the basis for its non-acceptance by the teacher.

Policy on attendance. The applicant for higher education is obliged to attend classes (POL "On the organization of the educational process of NUPh") according to the schedule (<https://nuph.edu.ua/rozklad-zanyat/>), to adhere to ethical standards of conduct.

Policy on deadlines, working out, rating increase, elimination of academic debt. Working out of missed classes by a higher education applicant is carried out in accordance with the Regulations "Regulations on working out of missed classes by students and the procedure for eliminating academic differences in curricula at NUPh" in accordance with the schedule of working out of missed classes established at the department. Raising the rating and elimination of academic debt on the educational component is carried out by applicants for education in accordance with the procedure specified in the Regulations "On the procedure for assessing the results of higher education applicants in NUPh". Applicants for higher education are obliged to comply with all deadlines set by the department for the implementation of types of written work on the educational component. Works that are submitted late without valid reasons are evaluated at a lower grade - up to 20% of the maximum number of points for this type of work.

Policy on appealing the assessment of the educational component (appeals). Higher education applicants have the right to appeal (appeal) the assessment of the educational component received during the control measures. Appeals are made in accordance with the Regulations on Appealing the Results of Semester Control of Knowledge of Higher Education Applicants at NUPh.

7. Information and educational and methodological support of the discipline:

Required reading	General microbiology: synopsis of lectures to laboratory classes. / N. I. Filimonova, M. M. Velika, NY Sheveleva.- Kharkiv: NUPh: Golden Pages, 2011. - 128 p. Microbiology: method. recommend. for in-class work of students / edited by .I.Filimonova/ - Kharkiv : NUPh, 2019/ - 98 p.
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<p>Additional literature for in-depth study of the educational component</p>	<p>Blinder O. O. General Microbiology and Basics of Immunology [Text] : textbook / O. O. Blinder, L. Y. Sydoruk, O. A. Olenovich ; Bukovinian State Medical University. — Chernivtsi : [s. n.], 2016. — 219 p.</p> <p>Medical Microbiology / ed. M. R. Barer [et al.]. — 19th ed.— Philadelphia : Elsevier, 2018. — XV, 7483 p. : il.</p> <p>MIMS' Medical Microbiology and Immunology/ R. V. Goering [et al.]. — 6th ed. — Edinburgh : Elsevier, 2019. — XV, 552 p. : il.</p> <p>Infectious diseases [Text] : textbook / O. A. Holubovska [etal.] ; ed. O. A. Holubovska. — Kyiv : Medicine, 2018. — 664 p. : il. — Approved by the Ministry of Education and Science of Ukraine (letter No 1/11-8095, 28 May 2012). Approved by the Ministry of Health of Ukraine (the letter No 23-01-8/130, 15 June 2012). — Bibliogr.: p. 655-660. — Index: p. 661-662. — ISBN 978-617-505-727-8</p>
<p>Actual electronic information resources (journals, websites, etc.) for in-depth study of the educational component</p>	<p>http://microbiolj.org.ua/ua/ Microbiological Journal http://mbt.onu.edu.ua/ Microbiology & Biotechnology https://imv-journal.kz/index.php/mav Microbiology and virology</p>
<p>Moodle distance learning system</p>	<p>https://pharmel.kharkiv.edu/moodle/course/view.php?id=3470 https://pharmel.kharkiv.edu/moodle/course/view.php?id=4035</p>

18. Material, technical and software support of the educational component:

*Multimedia device NEC V260, screen 240*180, personal computers, system VT Computers unit with INTEL Pentium G4400 CPU, HP LJ 1200 printer, PB-2610 microscopes, microscopes (MICROmed) XS-2610, binocular microscope GRANUM R40, microscopes MS-10, autoclave VK-75-1, steam steriliser Getidy KD-12-A, laminar flow steriliser, box AB-8, box for air filtration box SHLV-02, photoelectrocolourimeter KFC-2MP, photo-colourimeter KFC-3, ultrasonic device UZDN-A, laboratory scales WLC 0.2/C/1, device for membrane filtration, combined vertical refrigerator/freezer mod ML2625WN, cat. no. GSML2625W, TC-80 thermostats, SKM-1 colony counting device, DEN-1 densitometer, anaerostat, dry heat oven GP-80, aqua distiller DE-10.*

Application software and online services: a set of services for organising online and distance learning - Google Workspace for Education Standard, licence type – free licence for education, unlimited; software for organising video conferences ZOOM, licence type - free license for education for 1 year with the possibility of extension; modular object-oriented dynamic learning environment MOODLE 3.9.8, licence type - Open Source.