

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
SUMY NATIONAL AGRICULTURAL UNIVERSITY  
Department of veterinary and sanitary examination,  
microbiology, zoohygiene and quality and safety of livestock products

T.Fotina, N.Avramenko, H.Fotina,  
O.Nechiporenko, A.Omelchenko

# **VETERINARY MICROBIOLOGY AND IMMUNOLOGY**

## **Part 1 Morphology and physiology of microbes**

Educational benefit  
for 2 year students of full-time study courses  
"Veterinary medicine"

Sumy, 2018  
"Sumy National Agrarian University", 2018

**Contributors:**

**Fotina T.**, DVM, professor, head of the department of veterinary-sanitary examination, microbiology, zoohygiene, safety, quality of animal products of the Sumy National Agrarian University;

**Avramenko N.**, PhD, associate professor the department of veterinary-sanitary examination, microbiology, zoohygiene, safety, quality of animal products of the Sumy National Agrarian University;

**Fotina H.**, DVM, professor the department of epizootology and parasitology of the Sumy National Agrarian University;

**Nechiporenko O.**, PhD, associate professors, dean of the faculty of veterinary medicine of the Sumy National Agrarian University;

**Omelchenko G.**, PhD, associate professor the department of normal and pathological anatomy and animal physiology of the Poltava State Agrarian Academy.

**Fotina T.**

F 80 Veterinary Microbiology and Immunology. Part 1: Morphology and physiology of microbes. Educational benefit / Sumy, «Sumy National Agrarian University», 2018, – 331 p.

The educational benefit is aimed at providing methodological assistance to students when studying the course "Veterinary Microbiology and Immunology". Contains terminology dictionary and recommended literature.

**Reviewers:**

**Zon G.**, PhD, professor, head of the department of virology, pathanatomy and poultry diseases of the Sumy National Agrarian University.

**Kascich V.**, DVM, professor, head of the department of epizootology and parasitology of the Sumy National Agrarian University.

**Kovalenko O.**, PhD, associate professors, director of the Sumy regional state laboratory of the State service of Ukraine for food safety and consumer protection

It is approved and recommended for publication by the educational-methodical council of the faculty of veterinary medicine. Protocol 5 from 14 may 2018.

It is approved and recommended for publication by the Methodological Council of the Sumy National Agrarian University. Protocol 7 from 11 June 2018.

It is approved and recommended for publication by the Academic Council of the Sumy National Agrarian University. Protocol 12 from 02 July 2018.

**Educational publication**

T.Fotina, N.Avramenko,  
H.Fotina, O.Nechiporenko, A.Omelchenko

**VETERINARY MICROBIOLOGY  
AND IMMUNOLOGY**

Part 1  
Morphology and physiology of microbes

Educational benefit

Signed up to print: 14.09.2018. Order № 17  
Format 60x90/16. Headset Times New Roman.  
Gen. publ. sh. 16,61 Cond. print sh. 19,32  
Circulation: 50 copies.

Publisher and manufacturer  
Sumy National Agrarian University  
H.Kondratiev Street, 160, Sumy  
tel. 0542 70 10 22, sau.sumy.ua@gmail.com  
Certificate of the subject of the publishing business  
ДК №832 від 28.02.2002 р.