

Federal State Budgetary Educational Institution of Higher Education
"Saint-Petersburg State University of Veterinary Medicine"

УТВЕРЖДАЮ:

Vice-Rector

for Academic and Youth Policy,

Professor

A.A. Sukhinin

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Department of Biology, Ecology and Histology

Supplementary educational program

«Features of the production of histological preparations from various organs and tissues»

Reviewed and adopted
at the department meeting
«29» August 2025 г.
Protocol № 1

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Saint-Petersburg,
2025

1. PROGRAM GOALS AND OBJECTIVES

1. GOALS

The primary goal of the program "Features of the production of histological preparations from various organs and tissues" (hereinafter referred to as the "program") is to provide participants with fundamental knowledge regarding the techniques for preparing and describing histological specimens, as well as to foster additional skills relevant to the "Veterinarian" qualification.

To achieve this goal, the following objectives must be met:

a) An educational objective: to provide participants with an in-depth understanding of the structural organization of animals at the tissue and cellular levels.

b) An applied objective: to address histological topics and establish a conceptual framework for interdisciplinary structural-logical connections, thereby developing clinical reasoning skills.

c) A specialized objective: to familiarize participants with modern methodological approaches used in histology and to master histological examination techniques.

2. PLANNED RESULTS

The intended learning outcomes are derived from the qualification profile of a veterinarian established by Order No. 547n of the Ministry of Labor and Social Protection of the Russian Federation dated August 23, 2018, "On Approval of the Professional Standard 'Veterinarian'."

Field of professional activity:

13 Agriculture

Types of professional tasks:

- Clinical/Medical practice;

The program's learning outcomes are aimed at enhancing competencies acquired during prior professional education based on Federal Educational Standards of Higher Professional Education in the specialty of "Veterinary Medicine," and at developing professional competencies regarding the preparation of histological specimens, which is achieved through the training process.

Characteristics of the professional competencies of a veterinarian to be acquired upon completion of the program:

A) General professional competencies:

OPK-4. Ability to use problem-solving methods involving modern equipment in the development of new technologies, and to employ modern professional methodology for conducting experimental research and interpreting the results.

OPK-4 ID-1 Knowledge of the technical capabilities of modern specialized equipment and of methods for solving professional tasks.

OPK-4 ID-2 Ability to apply modern technologies and research methods in professional practice and to interpret the results obtained.

OPK-4 ID-3 Proficiency in operating specialized equipment to carry out tasks during research and the development of new technologies.

Planned competency acquisition outcomes, taking into account professional standards

Competence	competency category	Categories			base
		Know	Be able to	To own	
OPK-4	General professional	Technical capabilities of modern specialized equipment, methods for solving professional tasks.	Apply modern technologies and research methods in professional practice, and interpret the results obtained.	skills in operating specialized equipment to carry out assigned tasks during research and the development of new technologies	PS 13.0 12

3. SYLLABUS

3.1. The maximum study load for a program participant is 16 hours, including: 16 hours of mandatory classroom instruction.

Вид учебной работы	Всего часов
Classroom sessions (total)	16
including:	-
Lectures, including interactive formats	4
Practical classes (PC), including interactive formats	12
Independent work (IW) (total)	-
Total labor intensity (hours)	16

3.2. Учебный план

№	Name of the supplementary education program	Competencies to be developed	Types of academic work, including independent work and workload (in hours)		
			Lectures	PC	IW
1	Specifics of Preparing Histological Specimens from Various Organs and Tissues	ОПК-4	4	12	0
2	Final Assessment				
TOTAL			4	12	0

4. КАЛЕНДАРНЫЙ УЧЕБНЫЙ ГРАФИК

ПЕРИОДЫ ОСВОЕНИЯ	КОЛИЧЕСТВО ЧАСОВ	ВИД ЗАНЯТИЯ
1 day	4	L
2 day	4	PC
3 day	4	PC
4 day	4	PC

L- Lectures, PC - Practical classes

5. PROGRAM CONTENT AND TYPES OF ACTIVITIES

№	Name of the course section	Competencies to be developed	Types of academic work, workload (in hours)	
			L	PC
1	Fundamentals of Histology. Modern Methods of Histological Research. Organization and Equipment of a Histology Laboratory.	ОПК-4	4	0
2	Sampling, excision, and processing of material for	ОПК-4	0	4

	histological examination. Paraffin embedding of the material.			
3	The microtome and its operation. Preparation of histological sections. Deparaffinization of paraffin sections. Histological staining. Mounting sections in an optically transparent medium.	OPK-4	0	4
4	Specifics of preparing histological sections of various tissues and organs. Microscopy.	OPK-4	0	4
TOTAL			4	12

6. MATERIAL AND TECHNICAL BASE

Program	Designation of specialized rooms and rooms for independent study	Equipment of specialized rooms and rooms for independent study
«Features of the production of histological preparations from various organs and tissues»	246 (196084, St. Petersburg, Chernigovskaya St., Building 5) Classroom for seminars, group and individual consultations, ongoing assessment, and interim evaluations.	<i>Specialized furniture:</i> teaching board, tables, chairs. <i>Technical teaching aids:</i> television, computer with a connected microscope and camera. <i>Visual aids and instructional materials:</i> histological specimens; microscopes, posters covering histology topics.
	218 (196084, St. Petersburg, Chernigovskaya St., Building 5) Histology Laboratory	<i>Специализированная мебель:</i> столы, стулья. <i>Технические средства обучения:</i> Микротом, микроскопы, термостаты, вытяжка, лабораторное оборудование

List of primary and supplementary literature required to complete the program

7. List of educational and methodological resources for students' independent work under the program

1. Мкртчян, М. Э. Цитология, эмбриология и общая гистология: учебно-методическое пособие / М. Э. Мкртчян, Д. И. Сафронов, Э. Н. Таймусова ; МСХ РФ, СПбГУВМ. - Санкт-Петербург: Изд-во СПбГУВМ, 2022. - 115 с. - URL: <https://search.spbguvm.informsystema.ru/viewer.jsp?aWQ9MTA0NiZwcz0xMTY> (date of access: 18.06.2025). - Access mode: for authorized users of the SPbGUVМ electronic library.

8. List of primary and supplementary literature required to complete the program

а) main literature:

1. Соколов, В. И. Цитология, гистология и эмбриология / В. И. Соколов, Е. И. Чумасов, В.С. Иванов. - Санкт-Петербург : Квадро, 2022. - 400 с. - URL: <https://elibrica.com/da322785-211b-4e45-8d67-900ee07c454ct> (date of access: 18.06.2025). - Access mode: for authorized users of ELS «Elibrica».

2. Кацнельсон, З. С. Практикум по цитологии, гистологии и эмбриологии: учебное пособие / З. С. Кацнельсон, И. Д. Рихтер. - 3-е изд., перераб. и доп. - Ленинград: Колос, Ленингр. отд-ние, 1979. - 312 с. - URL: <https://search.spbguvm.informsystema.ru/viewer.jsp?aWQ9MzYyJnBzPTE2MQ> (date of access: 18.06.2025). - Access mode: for authorized users of the SPbGUVМ electronic library.

б) additional literature:

1. Вракин, В. Ф. Морфология сельскохозяйственных животных. Анатомия с основами цитологии, эмбриологии и гистологии: учебник для вузов / В. Ф. Вракин, М. В. Сидорова. - Санкт-Петербург: Квадро, 2022. - 528 с. - URL: <https://elibrica.com/af3a328a-b733-40a7-b073-ec160fc1fcdbd> (date of access: 18.06.2025). - Access mode: for authorized users of ELS «Elibrica».

2. Гентен, Фрэнк. Атлас гистологии рыб: учебное пособие / Ф. Гентен, Э. Тервинге, А. Данги; пер. с англ. и науч. ред. В. А. Шутов. - Санкт-Петербург: Проспект Науки, 2021. - 216 с. - URL: <https://www.prospektnauki.ru/ebooks/books/atfhist.php> (date of access: 18.06.2025). - Access mode: for authorized users of ELS «Проспект Науки».

9. List of Internet resources required to complete the program

To prepare for practical classes and complete independent work, students may use the following online resources:

1. LUMEN: Histology Index - part of the Loyola University Medical Education Network (Chicago, USA). An extensive database of histological images covering cytology, tissue types, and organ systems, comprising 23 sections.
2. Cellsalve URL <https://lk.spbgavm.ru/course/view.php?id=193>
3. www.cytohistology.ru

Electronic library systems:

1. ELS «СПБГУВМ»
2. Educational platform «Юрайт» <https://urait.ru/>
3. Publisher's e-books «Прспект Науки» <http://prospektnauki.ru/ebooks/>
4. Collection «Сельское хозяйство. Ветеринария» publishing house «Квадро» <http://www.iprbookshop.ru/586.html>

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