

Discipline abstract

Subjects	Chemistry
Teacher	Polishchuk Svitlana Anatoliivna Candidate of Agricultural Sciences Associate Professor of Chemistry
Course and semester in which the discipline is planned to be studied	1st year, 1st and 2nd semester
Faculties whose students are invited to study the discipline	Biological and technological
List of competencies and relevant learning outcomes provided by the discipline	<p>According to the requirements of the educational and professional program "Technology of production and processing of animal husbandry products", applicants must acquire the ability to acquire the following competencies:</p> <p style="padding-left: 20px;">GK 3. Ability to apply knowledge in practical situations.</p> <p style="padding-left: 20px;">GK 4. Knowledge and understanding of the subject area and understanding of professional activity.</p> <p style="padding-left: 20px;">GK 7. Ability to evaluate and ensure the quality of performed works.</p> <p style="padding-left: 20px;">GK 8. Efforts to preserve the environment.</p> <p style="padding-left: 20px;">GK 9. Ability to search, process and analyze information from various sources.</p> <p style="padding-left: 20px;">PC 10. Ability to apply knowledge of morphology, physiology and biochemistry of various species of animals to implement effective technologies for the production and processing of their products.</p> <p>The result of studying the discipline is the acquisition by students of the following knowledge and skills:</p> <ul style="list-style-type: none"> - to ensure the quality of the work performed (to know the main modern methods of biochemical analysis, be able to work individually and as part of a scientific group; to determine the content of proteins, fats, carbohydrates, vitamins, enzymes in biological material using modern biochemical methods); - to influence compliance with the requirements for environmental protection (to know the properties of individual chemical elements and their compounds, the structure of inorganic and organic substances, their forms in nature, methods of extraction and areas of application; to interpret the general laws underlying the use of inorganic and organic substances in agriculture; to understand the biotransformation of the main components of feed in the body of animals and their impact on the environment).
Description of the discipline	
Prerequisites required for the study of the discipline	The compulsory subject "Chemistry" belongs to the basic general education subjects and provides the formation of the foundation of knowledge and practical skills of a specialist, necessary for the study of professionally oriented and special disciplines. Chemistry is the theoretical basis for the study of biochemistry in animal husbandry, physiology of agriculture. animals, biotechnology and other disciplines of the agricultural industry.

The maximum number of students who can study at the same time	65 students
Topics of auditorial classes	<p><i>Content module 1. Fundamentals of inorganic chemistry</i></p> <p>Topic 1.1. Modern physicochemical research methods.</p> <p>Topic 1.2. Basic concepts of chemical kinetics and catalysis, classification and significance of catalysts in animal husbandry.</p> <p>Topic 1.3. Solutions, classification and colligative properties. Buffer solutions and their values in agriculture.</p> <p>Topic 1.4. Coordinating compounds in environmental chemistry.</p> <p>Topic 1.5. Biogenic characteristics: s-elements, p-elements, d-elements, their biological role.</p> <p>Topic 1.6. Analytical research methods. Qualitative and quantitative analysis.</p> <p><i>Content module 2. Fundamentals of physical and colloid chemistry</i></p> <p>Topic 2.1. Basic concepts of physical and colloid chemistry. Superficial phenomena.</p> <p>Topic 2.2. Adsorption and biological processes.</p> <p>Topic 2.3. Osmosis and osmotic pressure. The value of osmotic pressure for biological processes.</p> <p>Topic 2.4. Environmental reaction, methods for determining pH and significance in animal husbandry.</p> <p>Topic 2.5. General characteristics of colloidal systems, their classification, methods of production and purification.</p> <p>Topic 2.6. Properties of colloidal solutions - molecular kinetic, optical and electro-kinetic.</p> <p>Topic 2.7. Solutions of macromolecular compounds.</p> <p><i>Content module 3. Fundamentals of organic chemistry</i></p> <p>Topic 3.1. Theoretical foundations of organic chemistry. Classification and nomenclature of organic compounds.</p> <p>Topic 3.2. Saturated hydrocarbons. General characteristics, methods of production, and properties.</p> <p>Topic 3.3. Unsaturated and aromatic hydrocarbons. General characteristics, methods of production, and properties.</p> <p>Topic 3.4. Halogenated hydrocarbons. Characteristic. The use of hydrocarbons in agriculture.</p> <p>Topic 3.5. Alcohols, phenols. General characteristics and properties.</p> <p>Topic 3.6. Aldehydes and ketones. General characteristics and properties.</p> <p>Topic 3.7. Saturated and unsaturated carboxylic acids. General characteristics and properties.</p> <p>Topic 3.8. Amines, amides, amino acids. General characteristics and properties.</p> <p>Topic 3.9. Low molecular weight biologically active substances. Use in agriculture.</p> <p><i>Content module 4. Fundamentals of bioorganic chemistry</i></p> <p>Topic 4.1. Carbohydrates. Mono-, disaccharides. Characteristics and properties.</p> <p>Topic 4.2. Polysaccharides. Characteristics and properties.</p> <p>Topic 4.3. Ethers, esters, fats. General characteristics, physical and chemical properties.</p>

	Topic 4.4. Simple and complex lipids. Topic 4.5. Peptides. Proteins. General characteristics, physical and chemical properties. Topic 4.6. Heterocyclic compounds. General characteristics. Topic 4.7. Nucleic acids. General characteristics, properties and structural components.
Language	Ukrainian, English