



SYLLABUS OF AN ACADEMIC DISCIPLINE «Organic chemistry»

Academic degree - Master
Specialty 211 Veterinary Medicine
Academic programme «Veterinary Medicine»
Year of study 1, semester 2
Form of study full-time
Number of ECTS credits 4
Language(s) of instruction English

Lecturer of the discipline

Ph.D., Associate Professor Viktoria Krotenko

Lecturer's contact information (e-mail)
URL of the e-learning course on the NULES e-learning portal

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<https://elearn.nubip.edu.ua/course/view.php?id=2920>

ACADEMIC DISCIPLINE DESCRIPTION

The aim of the discipline "Organic Chemistry" is to form students' theoretical foundations of organic chemistry, practical skills in working with different types of organic compounds, studying the specific features of their behavior in chemical reactions, gaining experience in a chemical laboratory to solve specific practical problems, ability to work with scientific literature. The course of organic chemistry should be the basis for the study of special disciplines: biochemistry, animal physiology, genetics, etc.

A master's degree student must be able to identify patterns of relationship between the structure and structure of chemical compounds; also be able to establish the relationship between the constituent parts of the substance, as well as individual components in mixtures; know the laws of chemical processes; to develop skills and abilities to use modern achievements of organic chemistry in veterinary medicine.

Competences of the discipline:

Integral competence (IC):

The ability to solve complex tasks and problems in the field of veterinary medicine, which involves conducting research and/or implementing innovations and is characterized by the uncertainty of conditions and requirements.

General competences (GC):

- GK2. Ability to apply knowledge in practical situations.
- GK3. Knowledge and understanding of the subject field and profession.
- GK6. Skills in using information and communication technologies.
- GK7. Ability to conduct research at an appropriate level.
- GK8. Ability to learn and master modern knowledge.

Special (professional) competences (SC):

SK7. Ability to organize and conduct laboratory and special diagnostic studies and analyze their results.

Expected Learning Outcomes (ELO):

To determine the essence of physico-chemical and biological processes that occur in the body of animals in normal and pathological conditions.

ACADEMIC DISCIPLINE STRUCTURE

| Topic | Hours (lectures/ laborator y, practical, seminars) | Learning outcomes | Tasks | Assessment |
|---|--|---|--|--|
| Module 1 | | | | |
| Topic 1. Introduction. The most important theoretical principles of organic chemistry. Aliphatic hydrocarbons. | 4/4 | Learn the basic concepts of the subject. Learn the rules of safety when working in a chemical laboratory. | Make a lab work №1 and 2. Do homework on this topic and send them to the elearn | Up to 15 points for laboratory work and homework. Up to 5 additional points for other types of tasks (abstracts, presentations) |
| Topic 2. Arenes. Terpenes, halogen derivatives, cycloalkanes | 4/4 | To study the chemical properties of arenes and terpenes. Get acquainted with the chemical reactions that are characteristic of aromatic hydrocarbons. Get acquainted with the methods of production and chemical properties of halogenated hydrocarbons. | Make a lab work №3 and 4. Do homework on this topic and send them to the elearn | Up to 15 points for laboratory work and homework. Up to 5 additional points for other types of tasks (abstracts, presentations) |
| Module 2 | | | | |
| Topic 3. Hydroxyl organic substances: alcohols, phenols | 4/4 | To study the chemical properties of alcohols, phenols. Master the method of determining them with the help of qualitative reactions | Make a lab work №5. Do homework on this topic and send them to the elearn | Up to 10 points for laboratory work and homework. Up to 5 additional points for other types of tasks (abstracts, presentations) |
| Topic 4. Carbonyl and carboxyl compounds: aldehydes, ketones, carboxylic acids, fats | 6/6 | To study the properties of aldehydes, carboxylic acids, fats. Master the method of obtaining soap from fat. | Make a lab work №6 and 7. Do homework on this topic and send them to the elearn | Up to 10 and 15 points, respectively, for laboratory work and homework Up to 5 additional points for other |

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|---|-----|--|---|---|
| | | | | types of tasks (abstracts, presentations) |
| Topic 5. Carbohydrates | 4/4 | To study the chemical properties of mono- and polysaccharides. Master the method of determining them with the help of qualitative reactions. | Make a lab work №8 and 9. Do homework on this topic and send them to the elearn | Up to 10 points for laboratory work and homework. Up to 5 additional points for other types of tasks (abstracts, presentations) |
| Module 3 | | | | |
| Topic 6. Amines. Amino alcohols. Amino acids. Proteins. | 6/6 | To study the chemical properties of aromatic amines, amino acids and proteins. Master the method of determining them with the help of qualitative reactions. | Make a lab work №8 and 9. Do homework on this topic and send them to the elearn | Up to 20 points for laboratory work and homework. Up to 5 additional points for other types of tasks (abstracts, presentations) |
| Topic 7. Heterocyclic compounds. Nucleic acids | 2/2 | To study the chemical properties of heterocyclic compounds and learn to isolate them from natural sources. | Make a lab work №12. Do homework on this topic and send them to the elearn | Up to 20 points for laboratory work and homework. Up to 5 additional points for other types of tasks (abstracts, presentations) |
| Total 1 sem | | | | 70 |
| exam | | | | 30 |
| Total | | | | 100 |

ASSESSMENT POLICY

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|---|---|
| <i>Deadlines and exam retaking policy:</i> | <i>EXAMPLE</i> Works that are submitted late without valid reasons will be assessed with a lower grade. Module tests may be retaken with the permission of the lecturer if there are valid reasons (e.g. a sick leave). |
| <i>Academic integrity policy:</i> | <i>EXAMPLE</i> Cheating during tests and exams is prohibited (including using mobile devices). Term papers and essays must have correct references to the literature used |

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| Attendance policy: | EXAMPLE Attendance is compulsory. For good reasons (e.g. illness, international internship), training can take place individually (online by the faculty dean's consent) |
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SCALE FOR ASSESSING STUDENTS 'KNOWLEDGE AND SKILLS

| Student's rating, points | National grading of exams and credits | |
|--------------------------|---------------------------------------|---------|
| | exams | credits |
| 90-100 | excellent | pass |
| 74-89 | good | |
| 60-73 | satisfactorily | |
| 0-59 | unsatisfactorily | fail |

RECOMMENDED SOURCES OF INFORMATION

1. Berezhnyi E., Krotenko V., Kovshun L., Zhyla R.S. Organic chemistry. Tutorial. Підручник англійською мовою. К.: Видавничий центр НУБіПУ, 2019. – 409 с.
2. Berezhnyi E., Krotenko V., Kovshun L. Organic, bioorganic, physical and colloid chemistry: навчальний посібник англ. мовою, друге видання. К.: Видавничий центр НУБіПУ, 2022. – 557 с.
3. V.V.Krotenko, O.I.Khyzhan, R.S.Boiko, L.O.Kovshun. Organic chemistry. Methodical instructions for laboratory works for students specialising in 211 - Veterinary medicine. Навчальне видання англійською мовою. К.: Видавничий центр НУБіПУ, 2023. – 156 с.
4. https://www.yakaboo.ua/ua/organic-chemistry-an-acid-base-approach-second-edition.html?gad_source=1&gclid=CjwKCAjwvIWzBhAlEiwAHHWgvYPn9vWbbxmcliFuuJUo1HgtXpPLP8jlN2IH1DmrzIDzL6oIRcYLIxoC0ZcQAvD_BwE
5. https://www.yakaboo.ua/ua/practice-makes-perfect-organic-chemistry.html?gad_source=1&gclid=CjwKCAjwvIWzBhAlEiwAHHWgvfNqk9Q31r6CPy1qL8wPptnPowSEhtJzKUsLiiALboVfw0X93u_49xoC1cMQAvD_BwE