

Annotation of the selective educational component

Academic discipline	Cultivation of non-fish objects
Lecturer	Yurii Kunovskyi Candidate of Agricultural Sciences, Associate Professor Department of Aquaculture and Applied Hydrobiology
The course and semester, when the discipline is planning to study	2 nd course, 2 nd semester
Faculties whose students are invited to study discipline	Faculty of Ecology
List of competencies and learning-related outcomes that discipline provides	<p>According to the requirements of the educational and professional program "Aquatic bioresources and aquaculture", students must acquire the ability to acquire the following competencies:</p> <ul style="list-style-type: none"> • Ability to solve complex specialized tasks and practical problems in the field of aquatic bioresources and aquaculture or a learning process characterized by complexity and uncertainty of conditions, and involves the application of theories and methods of biology and applied sciences • Knowledge and understanding of the subject area and professional activities • Ability to classify fish, and teach morphology, and biology of fish and fish. • Ability to absorb new knowledge in the field of aquatic bioresources and aquaculture and integrate it with existing ones. <p>The result of training in the discipline is the acquisition by students of the following knowledge and skills:</p> <ul style="list-style-type: none"> • Be able to master modern knowledge. • To be able to use the acquired knowledge in the preparation of an independent individual scientific research topic. • To be able to prepare nutrient media for the cultivation of higher aquatic plants, protozoa, worms, and crustaceans. • Know the composition of nutrient media and the method of their preparation for the cultivation of microalgae and higher aquatic plants; • Know the methods of cultivation of the simplest rotifers and oligochaetes, Drosophila; • Know the methods of cultivating Artemia and Daphnia on different nutrient media; know the device of devices for incubation of eggs of Artemia; • Be able to analyze the conditions of the aquatic environment of natural origin, including anthropogenic impacts, in terms of fundamental principles and knowledge of aquatic biological resources and aquaculture. • Learn to absorb new knowledge about aquatic bioresources and aquaculture and integrate it with existing knowledge. • Know the biological characteristics of living organisms - objects of cultivation; • Be able to investigate biochemical, hydrobiological, hydrochemical, genetic, and other changes in aquatic biological resources and aquaculture and habitats. • Be able to use methods for determining the growth of

	biomass and the number of plants and animals.
Description of the discipline	
Preconditions necessary for the study of the discipline	Educational components preceding the study of the specified: "Introduction to the profession", "Zoology", "Biological basis of fisheries", as well as interconnected with "Hydrobiology"
The maximum number of students who can study simultaneously	Lectures - 50 students Practical - 25 students
Lesson plans	<p>Lectures</p> <p>Topic 1. Cultivation of microalgae and protozoa. Topic 2. Cultivation of rotifers and branchial crustaceans. Topic 3. Cultivation of pinniped crustaceans. Topic 4. Cultivation of the California red worm (Eiseniaandrei). Topic 5. Cultivation of chironomids. Topic 6. Cultivation of nematodes (Pangellus redivivus Good). Topic 7. Cultivation of the grape slug (Nelix potato). Topic 8. The technology of freshwater crayfish cultivation in ponds.</p> <p>Practical classes</p> <p>Topic 1. Introduction. Safety equipment. Academic integrity. Use of non-fish objects in the national economy and as feed for fish. (Natural fodder base, its role in feeding fish). Topic 2. Cultivation of microalgae. (Principle of operation of open cultivators; Principle of operation of closed cultivators;). Topic 3. Cultivation of protozoa. (Methods of cultivation of ciliates;). Topic 4. Cultivation of rotifers. (Breeding rotifers in concrete pools; Calculation of the need for fertilizers, mother culture for breeding rotifers in concrete pools). Topic 5. Cultivation of branchial crustaceans. (Methods of cultivating daphnia according to M.M. Bryzkina, M.K. Askerova, I.B. Bagatova; Calculation of the number of products obtained, consumption of fertilizers, mother culture for breeding daphnia by the pool method, in polyethylene cages, in pits). Topic 6. Cultivation of pinniped crustaceans. (Cultivation of Artemia salina; Collection of artemia eggs; Determination of collection quality; Storage and activation (decapsulation) of artemia eggs; Calculation of the required amount of reagents for decapsulation of artemia eggs). Topic 7. Cultivation of the California red worm (Eiseniaandrei). (Breeding Eiseniaandrei in a closed and open way). Topic 8. Cultivation of chironomids (Collection of biomass; Storage of products; Breeding of mosquito larvae at home). Topic 9. Cultivation of nematodes (Species; Cultivation methods and scheme). Topic 10. Cultivation of white enchytraeus (Enchytraeu solidus). (Breeding oligochaetes in the soil) Topic 11. Maggot cultivation. (Collection and harvesting of maggot biomass). Topic 12. Cultivation of the grape slug (Nelix potato).</p>

Teaching language	<p>(Cultivation in open areas; Cultivation in closed rooms; Mixed cultivation).</p> <p>Topic 13. Breeding ampullaria. (Cultivation methods).</p> <p>Topic 14. The technology of freshwater crayfish cultivation in ponds. (Pond cultivation method; Factory cultivation method).</p> <p>Ukrainian, English</p>
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