

Ministry of Education and Science of Ukraine  
Sumy National Agrarian University  
Biological and technological faculty  
Department of Animal Genetics, Breeding and Biotechnology

**Work program (syllabus) of the educational component**  
Fisheries Technology and Evaluation of Fisheries Resources  
(**mandatory/ selective**)

It is implemented within the educational program Technologies in Aquaculture  
in specialty 204 - Technology of production and processing of animal husbandry products  
at the second (master's) level of higher education

Sumy – 2024

**Developer:**  **Tetiana KUCHKOVA**, assistant of the Department of Animal Genetics, Breeding and Biotechnology

Considered, approved and approved at the meeting of the department Animal genetics, breeding and biotechnology	protocol from <u>24.06.2024</u> . No. <u>18</u>
	Head department <u></u> <b>Olga BORDUNOVA</b>

**Agreed:**

Guarantor of the educational program  **Viktoriia VECHORKA**  
 (signature) (surname)

Dean of the faculty where the educational program is implemented  **Viktoriia VECHORKA**  
 (signature) (surname)

Review of the work program (attached) provided:

(surname)

(surname)

Methodist of the Education Quality Department, licensing and accreditation  (**N. Baranik**)  
 (signature) (surname)

Registered in the electronic database: date: 14.08 2024.

## Information on viewing the work program (syllabus):

The academic year in which the changes are made	The number of the annex to the work program with a description of the changes	The changes were reviewed and approved		
		Date and number of the protocol of the meeting of the department	Head of Department	Guarantor of the educational program

## 1. GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

1.	Name of OK	Fisheries Technology and Evaluation of Fisheries Resources							
2.	Faculty/department	Biological and technological / genetics, breeding and biotechnology of animals							
3.	The status is	Selective							
4.	Program/Specialty (programs), which is a component of OK for (to be filled in for mandatory OK)								
5.	OK can be offered for (to be filled in to select OK)	204 Technology of production and processing of animal husbandry products							
6.	NRK level	7							
7.	Semester and duration of study	The second, 11 weeks							
8.	Number of ECTS credits	5							
9.	The total number of hours and their distribution	Contact work (class)						Independent work	
		Lectures		Practical/seminar		Laboratory			
		daytime	extramural	daytime	extramural	daytime	extramural	daytime	extramural
		22	-	-	-	22	-	106	-
10.	Language	Ukrainian							
11.	Teacher/Coordinator of the educational component	Tetiana KUCHKOVA							
11.	Contact Information	Assistant of the Department of Animal Genetics, Breeding and Biotechnology E-mail: Kuchkova1992@ukr.net consultations: 316g, every Tuesday 14 <sup>00</sup> -15 <sup>00</sup>							
12.	General description of the educational component	<p>The study of the discipline "Fish farming technology and assessment of fish resources" is very important, because today fish farming is an integral part of the food sector of Ukraine, one of the most significant areas that allows obtaining high-protein products and provides the population with food products. At the same level as meat, fish products provide the human body with the necessary amount of protein, as well as useful trace elements.</p> <p>In the process of studying the discipline, students have the opportunity to familiarize themselves with the technologies of fish farming in more detail; with fish farming and fishing products; with concepts and strategies of fisheries development; with the improvement of the state of fisheries and vectors of development of fisheries activities.</p> <p>The application of the acquired knowledge and the implementation of the acquired strategies, after studying this course, will allow solving a number of</p>							

		<p>problems that currently exist in the fishing industry, in particular: increasing the productivity of fishing farms; renewal of fisheries infrastructure; greening of the fishing industry; increasing social responsibility and culture of fishing and fish farming; implementation of a set of measures to strengthen international cooperation related to the management and sustainable use of aquatic biological resources; formation and implementation of state policy in the field of fisheries in accordance with international obligations of Ukraine, recommendations of the Fisheries Committee of the Food and Agricultural Organization of the United Nations (FAO) and best practices of the European Union.</p>
13.	Goal	<p>The main goal of the course is to study the current state of development of fisheries technologies, assessment of fish resources, improvement of production technologies; increasing production productivity; introduction of world technologies.</p>
14.	Prerequisites for studying OK, connection with other educational components of OP	<p>The student must have a sufficient level of general and professional competences.</p>
15.	Policy of academic integrity	<p>The policy of academic integrity at SNAU is governed by the Code of Academic Integrity: <a href="http://docs.snau.edu.ua/documents/education/quality/kodeks_akadem_dobrochnosti.pdf">http://docs.snau.edu.ua/documents/education/quality/kodeks_akadem_dobrochnosti.pdf</a></p> <p>In accordance with it, the requirements for the student to observe academic integrity during the study of the educational component are as follows: to be responsible for one's duties, to fulfill the tasks prescribed by the educational program on time and in good faith; to be present at all classes; perform independent work; honestly and responsibly prepare for current, modular and final control; submit for assessment only self-made work.</p> <p>It is unacceptable for a student to:</p> <p>show a disrespectful and incorrect attitude towards the teacher; being late for classes and missing them without valid reasons; during the educational process, use hints, other people's work, telephones; provide and receive assistance from third parties during current, modular and final control; receive or offer a bribe for receiving any benefits in educational activities.</p> <p>For violating the rules of academic integrity, students may be held liable for the following forms of responsibility:</p> <ul style="list-style-type: none"> <li>- repeated assessment (test, exam, credit, etc.);</li> <li>- repeated completion of the training course;</li> <li>- warning.</li> </ul>
16.	Link to the course in the Moodle system	<p><a href="https://cdn.snau.edu.ua/moodle/course/view.php?id=5710">https://cdn.snau.edu.ua/moodle/course/view.php?id=5710</a></p>

## 2. LEARNING RESULTS UNDER THE EDUCATIONAL COMPONENT AND THEIR RELATIONSHIP WITH PROGRAM LEARNING OUTCOMES

<b>Study results for OK:</b> <b>After studying the educational component, the student is expected to be able to...</b>	<b>How RND is estimated</b>
LR 1. Having analyzed the current state of fisheries in Ukraine, introduce promising directions for the development of fisheries in Ukraine.	Intermediate certification – multiple choice test, written control of knowledge, performance of an individual task, credit
LR 2. After getting acquainted with the basic concepts of aquaculture: fish farming facilities, breeding facilities in fish ponds and having studied the current state of selection and breeding work in fish farming, propose rational technologies of aquaculture: reproduction of pond fish, cultivation of fish stocking material, cultivation of marketable fish.	Intermediate attestation – multiple-choice test, performance of an individual task, oral survey, assessment
LR 3. To investigate the current state of fishing in Ukraine and in the world. After getting acquainted with the consequences of the military aggression of the Russian Federation for the fishing industry in Ukraine, implement recommendations for solving existing problems in the fishing industry.	Intermediate certification – multiple choice test, performance of calculation tasks (situational cases) credit
LR 4. Assess the state of fish resources of Ukraine. To predict the problems of greening of fish farming in Ukraine. Develop selection and breeding programs in fish farming. Classify fish products. Find out the importance of fish in nature and human nutrition. To analyze promising areas of aquaculture.	Intermediate certification – multiple-choice test, presentation of a written review (report with presentation) credit

## 3. CONTENTS OF THE EDUCATIONAL COMPONENT (COURSE PROGRAM)

Topic. List of issues to be considered within the topic	Distribution within the general time budget								Recommended Books
	Auditory work						Independent work		
	Lectures		Practical		Laboratory				
	d.	e.	d.	e.	d.	e.	d.	e.	
<b>Topic 1. Analysis of the current state and development trends of the fishery industry in Ukraine, justification of the need to solve the identified problems</b> 1. Introduction. 2. The concept of fishing industry. 3. The main sources of supply of aquatic biological resources.	2	-	-	-	2	-	8	-	1,2,3,4,5,6,7,8,9

<p>4. Consequences of military aggression of the Russian Federation for the fishing industry of Ukraine.</p> <p>5. Consumption of fish and seafood.</p> <p>6. Production of commercial and food fish products.</p>									
<p><b>Topic 2. Fish farming as a branch of agricultural production</b></p> <p>1. History of pond fish farming.</p> <p>2. Concept of aquaculture (fish farming).</p> <p>3. The main objects of fish farming.</p> <p>4. The main objects of breeding in fish ponds.</p> <p>5. Current state of selection and breeding work in fish farming.</p> <p>6. Regulations in pond fish farming.</p> <p>7. Natural and general fish productivity of ponds.</p>	2	-	-	-	2	-	8	-	1,2,3,4,5,6,7,8,9
<p><b>Topic 3. General information about fish farms</b></p> <p>1. Types of aquaculture farms and fish farming systems.</p> <p>2. Types of ponds.</p> <p>3. Forms of organization of production and turnover of fish farming.</p> <p>4. Pond aquaculture management cycles.</p> <p>5. Pond fund, structural features and exploitation.</p> <p>6. Calculation of pond areas of the main categories for a full-system fishery.</p>	2	-	-	-	2	-	10	-	1,2,3,4,5,6,7,8,9
<p><b>Topic 4. Pond fish reproduction technology</b></p> <p>1. Organization of the spawning campaign in fish farms.</p> <p>2. Conditions for keeping broodstock through the pre-spawning period.</p> <p>3. Planting broodstock for spawning.</p> <p>4. Calculation of the required amount of carp breeding material for farms of a certain capacity when growing marketable fish.</p>	2	-	-	-	2	-	8	-	1,2,3,4,5,6,7,8,9
<p><b>Topic 5. Technology of growing fish planting material</b></p> <p>1. Concept of fish planting material.</p>	2	-	-	-	2	-	8	-	1,2,3,4,5,6,7,8,9

<p>2. Cultivation of this year in polyculture.</p> <p>3. Wintering of fish.</p> <p>4. Study of the growth rate of fish in the first, second and third year of life. Determination of fatness of fish.</p>									
<p><b>Topic 6. Technology of commercial fish cultivation</b></p> <p>1. Intensification of production processes of commercial fish farming technology.</p> <p>2. Technology of commercial fish production with a two-year turnover.</p> <p>3. Technology of commercial fish production for a three-year turnover.</p>	2	-	-	-	2	-	8	-	1,2,3,4,5,6,7,8,9
<p><b>Topic 7. Analysis of the current state of fishing in the world and its development in the historical aspect in Ukraine</b></p> <p>1. Concept of industrial fishing.</p> <p>2. Current state of fishing in the world.</p> <p>3. The main stages of development of fishing.</p> <p>4. History of fishing in Ukraine.</p> <p>5. Consequences of military aggression of the Russian Federation for the fishing industry in Ukraine.</p>	2	-	-	-	2	-	8	-	1,2,3,4,5,6,7,8,9
<p><b>Topic 8. Tools and methods of industrial fishing</b></p> <p>1. Principle of action and classification of fishing gear.</p> <p>2. Classification of fishing gear.</p> <p>3. The main structural elements of fishing gear.</p> <p>4. The structure of the fishing gear zone.</p> <p>5. Field of application of fishing gear.</p>	2	-	-	-	2	-	8	-	1,2,3,4,5,6,7,8,9
<p><b>Topic 9. Fishing technology</b></p> <p>1. General characteristics of fishing.</p> <p>2. Construction of pond nets for fishing.</p> <p>3. Technology of fishing.</p> <p>4. Organization of fishing.</p> <p>5. Ways of increasing the efficiency of fishing.</p>	2	-	-	-	2	-	8	-	1,2,3,4,5,6,7,8,9



<b>Topic 10. The current state of fish resources of Ukraine</b> 1. Analysis of the current state of fish resources of Ukraine. 2. Strategic problems of greening the fishery of Ukraine. 3. Selection and breeding work in fish farming.	2	-	-	-	2	-	8	-	1,2,3,4,5,6,7,8,9
<b>Topic 11. Evaluation of Fisheries Resources</b> 1. Consumer properties of fish products. 2. Importance of fish in nature and human life. 3. Classification of fish products. 4. Classification of industrial invertebrates.	2	-	-	-	2	-	8	-	1,2,3,4,5,6,7,8,9
<b>Topic 12. Sports fishing</b> 1. Concept of sport fishing. 2. Rules of sport and recreational fishing.	-	-	-	-	-	-	8	-	1,2,3,4,5,6,7,8,9
<b>Topic 13. Prospective objects of aquaculture</b> 1. Tilapia. 2. Trout. 3. Eel. 4. Sturgeons. 5. Jade perch	-	-	-	-	-	-	8	-	1,2,3,4,5,6,7,8,9
<b>Total</b>	<b>22</b>				<b>22</b>		<b>106</b>		

#### 4. TEACHING AND LEARNING METHODS

LO	Teaching methods (work to be carried out by the teacher during classroom classes, consultations)	Number of hours	Learning methods (what types of learning activities should be performed by the student independently)	Number of hours
LO 1	Lecture, laboratory work, presentation	4	Elaboration of the outline of lectures, literary sources, preparation of an individual task, intermediate attestation, assessment	8
LO 2	Lecture, laboratory work, presentation	20	Elaboration of lecture notes, literary sources, calculation tasks (situational cases), intermediate attestation, credit	42
LO 3	Lecture, laboratory work, presentation	12	Elaboration of the outline of lectures, literary sources, preparation of a literature review, preparation of a presentation, oral survey, intermediate attestation, assessment	24
LO 4	Lecture, laboratory work, presentation	8	Elaboration of a synopsis of lectures, literary sources, written control of knowledge, preparation of an individual task, intermediate attestation, credit	32

## 5. EVALUATION BY THE EDUCATIONAL COMPONENT

### 5.1. Diagnostic assessment (specified as necessary)

### 5.2. Summative assessment

#### 5.2.1. To assess the expected learning outcomes, it is provided

No	Methods of summative assessment	Points / Weight in the overall assessment	Completion date (indicate the number of the week on which the assessment will be conducted)
1.	Intermediate attestation (multiple choice test)	15 points /15%	2 semester 5 week
2.	Execution of calculation tasks (situational cases)	15 points /15%	2 semester 6 week
3.	Presentation of literary review (report with presentation)	20 points /20%	2 semester 9 week
4.	Individual task on topic 1	15 points /15%	2 semester 2 week
5.	Individual task on topic 2	15 points /15%	2 semester 3 week
6.	Written control of knowledge	10 points /10%	2 semester 8 week
7.	Oral survey	10 points /10%	2 semester 10 week

#### 5.1.1. Evaluation criteria

Component	Unsatisfactorily	Satisfactorily	Fine	Perfectly
<b>Intermediate attestation (multiple choice test)</b>	0-8 points	10 points	11-14 points	15 points
	Fewer than 8 correct answers out of 15	10 correct answers out of 15	11-14 correct answers out of 15	15 correct answers out of 15
<b>Execution of calculation tasks (situational cases)</b>	0-9 points	10 points	11-13 points	14-15 points
	Performance requirements not met	Most of the requirements have been met, but individual components are missing or insufficiently disclosed	All performance requirements have been met	All the requirements for performance have been met, and a proper solution to the problem in several ways has been proposed
<b>Presentation of literary review (report with presentation)</b>	0-14 points	15-17 points	18 points	19-20 points
	Performance requirements not met	The task was completed with errors or with the absence of individual components	All requirements for the assignment have been met, fluency in the material has been demonstrated	All the requirements of the task were fulfilled, the presentation was creatively prepared and presented, and one's views on the specified issues were offered
	0-9 points	10 points	11-13 points	14-15 points

<b>Individual task on topic 1</b>	Performance requirements not met	Most of the requirements have been met, but some items are incompletely disclosed or not at all	All requirements for writing a resume have been met and an oral self-presentation has been prepared	All requirements are met with a deep analysis of the issues, own opinions are highlighted, advantages and disadvantages are highlighted, whatever points would be used from own experience
<b>Individual task on topic 2</b>	0-9 points	11 points	12-13 point	14-15 points
	Performance requirements not met	Requirements are met without analysis of the proposed approach	All performance requirements have been met	All requirements are met with a deep analysis of the issues, own opinions are highlighted, advantages and disadvantages are highlighted, whatever points would be used from own experience
<b>Written control of knowledge</b>	0-5 points	6-8 points	9 point	10 points
	Performance requirements not met	The requirements were met with errors	Requirements are fully met	The requirements are fully met with the expression of one's own point of view
<b>Oral survey</b>	0-5 points	6-8 points	9 points	10 points
	There is no correct answer to the question	The answers to the questions contain errors	Answers with minor errors	All answers are correct

### 5.2. Formative assessment:

To assess the current progress in learning and understand the directions for further improvement is provided

№	Елементи формативного оцінювання	Дата
1.	«Brainstorming» after studying the topics	At the next practical session after the presentation of the material on the topic
2.	Verbal feedback from the teacher when performing situational tasks, writing an analytical review	During the semester
3.	«Learning while learning»	In practical classes during the implementation of calculation tasks (situational cases)
4.	Verbal feedback from the teacher and students after the presentation of completed tasks	During the semester
5.	Verbal feedback from the teacher after completing the tasks	During the semester


## 6. EDUCATIONAL RESOURCES (LITERATURE)

### List of recommended literature

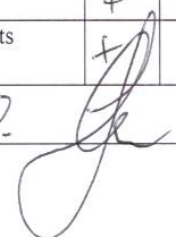
1. Andryushchenko A.I. Pisciculture. Volume 1. Textbook. Kyiv: LLC «CP «COMPRINT». 2019. 410 p.
2. Andryushchenko A.I. Pisciculture. Volume 2. Textbook. Kyiv: LLC «CP «COMPRINT» 2019. 612 p.
3. Intensive technologies in aquaculture. Tutorial. R. V. Kononenko, P. G. Shevchenko, V. M. Kondratyuk, I. S. Kononenko. Kyiv: "Educational Literature Center". 2016. 410 p.
4. Tovstyk V. F. Fish farming. Tutorial. Kharkiv. Espada 2004. 272 p.
5. Khvesyk M.A., Ryzhova K.I. Fisheries of Ukraine (ecological and economic aspect). Kyiv. PBIIC of Ukraine National Academy of Sciences of Ukraine. 2004. 53 p.
6. Sherman I. M. Fish farming. Kyiv. 2002. 192 p.
7. Sharylo Yu.E., Vdovenko N.M., Fedorenko M.O. Modern aquaculture: from theory to practice. Kyiv. 2016. 119 p.
8. Sherman I. M. Pond fishery. Kyiv. 2008. 336 p.
9. Sherman I. M., Rylov V. G. Fish farming production technology. Kyiv. Higher education, 2005. 351 p.

## Review of the work program (syllabus)

The parameter by which the work program (syllabus) of the educational component is evaluated by the guarantor or a member of the project group	Yeas	No	Comment
Learning outcomes for the educational component (DRN) correspond to the NRC	+		
The results of the study by the educational component (DRN) correspond to the prescribed PRN (for mandatory OKs)	+		
Learning outcomes by educational component provide an opportunity to measure and evaluate the level of their achievement	+		

Member of the OP project group Rubtsov Igor   
(Name)

The parameter by which the work program (syllabus) of the educational component is evaluated by the teacher of the corresponding department	Yeas	No	Comment
General information about the educational component is sufficient	+		
Learning outcomes for the educational component (DRN) correspond to the NRC	+		
The results of training according to the educational component (DRN) provide an opportunity to measure and evaluate the level of their achievement	+		
Learning outcomes (LRE) refer to students' competencies, not the content of the discipline (contain knowledge, skills, abilities, and not the topics of the discipline's curriculum)	+		
The content of the OK is formed in accordance with the structural and logical scheme	f		
Educational activity (teaching and learning methods) enables students to achieve the expected learning outcomes (LEIs)	f		
The educational component involves learning through research that is appropriate and sufficient for the relevant level of higher education	f		
The assessment strategy within the educational component is in accordance with University/faculty policy	f		
The provided assessment methods make it possible to assess the degree of achievement of learning outcomes by educational component	f		
The workload of students is adequate to the volume of the educational component	f		
The recommended learning resources are sufficient to achieve the learning outcomes (LEOs)	f		
The literature is relevant	+		
The list of educational resources contains the software products necessary to achieve the DRN	+		

Reviewer (teacher of the department) Kyselov O.   
(Name)