

НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ ВОДНОГО ГОСПОДАРСТВА ТА ПРИРОДОКОРИСТУВАННЯ

Навчально-науковий інститут агроекології та землеустрою



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National University of Water
and Environmental
Engineering

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СИЛАБУС	Санітарний контроль, стандартизація та сертифікація продукції рибництва	
SYLLABUS	Fish products sanitary control, standardization and certification	
Шифр за ОП Code in Degree Programme	OK 12	
Освітній рівень Level of Education	Магістерський (другий) Master's (second)	
Галузь знань Field of Knowledge	20	Аграрні науки та продовольство Agricultural Sciences and Food
Спеціальність Field of Study	207	Водні біоресурси та аквакультура Aquatic Bioresources and Aquaculture
Освітня програма Degree Programme	Охорона, відтворення та раціональне використання гідробіоресурсів Protection, reproduction and rational use of hydrobioresources	

Рівне 2024

The syllabus of the educational component " Fish products sanitary control, standardization and certification " for master's degree students of the educational program "Protection, reproduction and rational use of hydrobioresources", specialty 207 Aquatic bioresources and aquaculture. Rivne. NUWEE. 2024. 12 p.

Educational Program (EP) on the university website:
<http://ep3.nuwm.edu.ua/id/eprint/28749>

Syllabus developers:

Poltavchenko Tatyana, Ph.D., Associate Professor, Head of the Department of Water Bioresources;

Kucherova Alla, Senior Lecturer, Agricultural Chemistry, Soil Science and Farming Department named after S.T. Vozniuk

Syllabus was approved at the meeting of the Department of Water Bioresources. Protocol No.12 dated 24.04.2024

Head of the department: *Tatyana Poltavchenko, Ph.D., Associate Professor.*

Syllabus was approved at the meeting of Agricultural Chemistry, Soil Science and Farming Department named after S.T. Vozniuk. Protocol No. 13 dated 22.04. 2024

Head of the department: *Tetyana Kolesnyk, Ph.D., Associate Professor*

The head (guarantor) of the EP: *Vasyl Sondak, Doctor of Biology Science, Professor of the Department of Water Bioresources*

Approved by the scientific and methodical quality council of the Institute of Agroecology and Land Management

Protocol No. 16 dated 23.04.2024

Head of the Scientific and Methodological Council for the Quality:

Alla Pryshchepa, Doctor of Agricultural Sciences, Professor, Director the Institute of Agroecology and Land Management


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PROGRAM	
Fish products sanitary control, standardization and certification	
General information	
Degree of higher education	<i>Master</i>
Educational program	<i>Protection, reproduction and rational use of hydrobioresources</i>
Specialty	<i>207 Aquatic Bioresources and Aquaculture</i>
Study year, semester	<i>1st year of study, 2nd semester</i>
Number of credits	<i>4 ECTS credits</i>
Lectures:	20
Practical /Laboratory classes:	20
Independent work:	80
Coursework:	-
Form of education	<i>full-time/part-time</i>
Form of final control	<i>test</i>
Language of teaching	<i>Ukrainian</i>

INFORMATION ABOUT THE DEVELOPER(S)

<p>Lecturer</p> 	<p><i>Poltavchenko Tatyana, Ph.D., Associate Professor, Head of the Department of Water Bioresources</i></p>
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<p>Assistant of lecturer</p> 	<p><i>Kucherova Alla, Senior Lecturer, Agricultural Chemistry, Soil Science and Farming Department named after S.T. Vozniuk</i></p>
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INFORMATION ABOUT THE EDUCATIONAL COMPONENT

Purpose and tasks

The purpose is to study modern schemes for conducting veterinary and sanitary expertise to assess the quality of fish and other aquatic organisms, as well as products from them. The main tasks of the course are: 1) to learn the general rules and norms for assessing the quality of fish, fish and non-fish products; international standards in the field of fish farming; 2) to study laboratory methods for examining fish, fish and non-fish products (physicochemical, biochemical, microbiological, organoleptic); 3) to be able to develop, organize and conduct a comprehensive assessment of the quality of fish and fish products; to carry out laboratory studies of fish, fish and non-fish products and to give an expert opinion.

A link to the placement of the educational component on the Moodle educational platform, on the platform of educational programs and their educational components

<https://exam.nuwm.edu.ua/course/view.php?id=865>

Study prerequisites

(the place of the educational component in the structural and logical scheme)

EC ``Fish products sanitary control, standardization and certification`` is based on learned such educational components: World fisheries. Protection and reproduction of hydrobiological resources. Theoretical foundations of fish farming.

Competencies

GC1. The ability to use information and communication technologies
GC7. The ability to evaluate and ensure the quality of performed works

PC7. The ability to implement measures to protect aquatic biological resources and maintain fish health and prevent their mass disease

Program learning outcomes (PLO)

PLO2. Fluently present and discuss orally and in writing the results of research and innovation, other issues of professional activity in the state and foreign languages.

PLO4. Make effective decisions, take responsibility and work in critical conditions

PLO7. Develop and implement scientific and applied projects on aquatic bioresources and aquaculture and related interdisciplinary projects, taking into account production, legal, economic and environmental aspects.

PLO16. Be able to develop, implement and apply measures to ensure the safety of aquaculture food products in accordance with European legislation, including the identification and control of hazards and critical points.

The structure and content of the educational component

Module 1

Basic principles and methods of sanitary control in fish farming and the role of standardization in ensuring the quality and safety of fish products

TOPIC 1: Introduction. Basic principles and methods of sanitary control in fish farming

lectures - 2;
 practical - 2; independent work - 8
PLO4, PLO2, PLO16
 References: : [1, 4, 5, 8, 9, 11,12, 13]

Understanding the subject "Sanitary control in fish farming. Standardization and certification of finished fish products", Sanitary control begins with the identification of potential risks associated with the various stages of fish production, transportation and storage. This may include risks associated with water pollution, environmental contamination or improper handling of products.

TOPIC 2: Key indicators of quality and safety of aquaculture products

lectures - 2; practical - 2;
 independent work - 8
PLO4, PLO7, PLO16
 References: [1, 3, 4, 6, 8, 9,11, 12, 13]

Harmful microorganisms and chemicals that may be present in fish products and their impact on consumer health. Procedures for identifying and eliminating sanitary violations in the production of fish products.

TOPIC 3. The role of standardization in ensuring the quality and safety of fish products

lectures - 2; practical-2
 independent work - 8
PLO4, PLO7, PLO16
 References: [1, 3, 4, 6, 8, 9,11, 12, 13]

Key national and international quality standards for fish products. The process of developing and setting quality standards for different types of fish products.

TOPIC 4. - Certification to confirm compliance of fish products with established standards

lectures - 2; practical-2 independent work - 8 PLO7, PLO16 References: [1, 3, 4, 6, 8, 9,11, 12, 13]	Requirements of regulatory and technical documentation. Rules and regulations for organoleptic evaluation of raw materials of aquatic origin. Procedures for obtaining certificates of conformity and their role in marketing and promotion of products on the market. International certification systems and their mutual recognition.
TOPIC 5: Key laws and regulations governing fisheries and food safety.	
lectures - 2; practical - 2; independent work - 8 PLO7, PLO16 References: [1, 3, 4, 6, 8, 9,11, 12, 13]	Legal requirements for sanitary control, standardization and certification of fish products.
Module 2 Implementation of the HACCP (Hazard Analysis Control Critical Points) quality system	
TOPIC 6. Risk analysis and management	
lectures - 2; practical-2; independent work - 8 PLO7, PLO16 References: [1, 2, 3, 4, 6, 8,9, 11, 12, 13]	Assessment of the quality of live commercial fish (organoleptic indicators, microbiological indicators, safety indicators). General principles of organizing and conducting veterinary examination of live fish. Legislative framework. Sanitary rules and regulations.
TOPIC 7. Main provisions of the regulatory and legal framework regarding the safety of aquaculture products	
lectures - 2; practical-2; independent work - 8 PLO7, PLO16 References: [1, 2, 4, 6, 18, 9,11, 12, 13]	Product safety and quality as essential components of Standards. IFS Standards as uniform global safety and quality standards that provide transparency and comparability along the entire post-farm supply chain. National legislation regarding the safety of aquaculture products.
TOPIC 8. Legislation of the European Union on food safety	
lectures - 2; practical -2; independent work - 8 PLO7, PLO8 References: [1, 3, 4, 6, 8, 9,11, 12, 13]	EU food safety policy. Farm-to-fork food chain regulation EU. EC and EFSA approvals, assessments and authorisations. General Food Law. Transparency Regulation. Food Safety Assessment. Environmental risk assessment. Selection of applicable European legislation: 178/2002 (General principles of food law), 852/2004 (General Food Hygiene), 853/2004 (Food of Animal Origin), 854/2004 (Official controls) etc.
TOPIC 9. Food safety guarantee system - HACCP	
lectures - 2; practical work - 2; independent work - 8 PLO7, PLO16 References: [1, 3, 4, 6, 8, 9,11, 12, 13]	Principles defined by HACCP. Hazard Analysis. Critical Control Points (CCP). Critical Limits . Monitoring System for each CCP. Corrective Actions when a CCP is not under control. HACCP System Verification Procedures. Documentary System of Procedures and Records.
TOPIC 10. Application of prerequisite programs during the implementation of the HACCP system	

lectures - 2; practical work - 2; independent work - 8 PLO4, PLO7, PLO16 References: [1, 3, 4,5, 6, 8, 9,11, 12, 13]	Proper planning of production, auxiliary and domestic premises to avoid cross-contamination. Requirements for the condition of premises, equipment. Safety of materials for processing of food products, objects and materials in contact with food. Cleanliness of surfaces. Health and hygiene of personnel. Protection of products from foreign impurities; waste management. Pest control, identification of the type, prevention of their appearance, means of prevention and control. Storage and use of toxic compounds and substances. Specifications (requirements) for raw materials and control over suppliers; Storage and transportation. Control of technological processes. Food labeling and consumer awareness.
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Forms and methods of education

Explanations, interactive lectures, discussion, practical work, illustration methods, method of modeling specific situations. Problematic presentation of lecture material, presentation, situational analogy and comparison, dialogic technologies, independent work of a search nature. Students have the opportunity to make a public speech with a presentation. Practical classes involve consideration of possible practical situations and discussion. Students are encouraged to discuss problematic issues, for example, "What are the benefits of certification in Ukraine and the European Union?", "What are the quality systems in the fisheries industry and processing?", etc. To receive additional points, students have the opportunity to make a public presentation on a topic of their choice within the educational component. The form of professional training is practical classes held in the specialized laboratory of the Department of Aquatic Biological Resources, equipped with microscopes, devices for electricity and water supply, and containers for keeping aquatic bionts (aquariums, plastic pallets, baths).

The research method is used when students complete individual assignments. Involvement of students in the research work of the department, preparation of scientific articles and reports at scientific conferences and round tables.

Tools, equipment, software

Multimedia projector, laptop, collection materials on fish anatomy and morphology, research equipment of integrated multitrophic aquaculture laboratory created under the AFISHE project

The procedure for evaluating program learning outcomes/learning outcomes

The forms of control in the context of the course include: oral questioning, review of practical work reports, computer testing.

The educational component ends with a test, the points for practical and independent work are summed up (60 points in total).

The results of two module tests (20 + 20 = 40 points) during the semester can be counted as a credit if they are passed in time and successfully.

A total of 100 points is possible. For successful passing, the sum of the current and module control must be more than 60 points.

Module controls are held in the form of testing on the university's MOODLE learning platform.

The intermediate (current) control is carried out on the NUWEE learning platform in the form of two modules.

The current module test #1 consists of 24 random test tasks of three difficulty levels: Level 1 (choose one correct answer among the proposed ones): 20 x 0.5 points = 10 points; Level 2 (select one, two or more correct answers among the proposed ones, identify an incorrect statement among the proposed ones): 3 x 2.0 points = 6 points; Level 3 (find out the name and function of the compound from the image, the task is to calculate the protein content in the body of a migratory fish species before and after spawning): 1 x 4.0 points = 4 points.

The current module test #2 consists of 24 random test tasks of three difficulty levels: Level 1 (choose one correct answer among the proposed ones): 20 x 0.5 points = 10 points; level 2 (one, two or more correct answers among the proposed ones, identify the wrong statement among the proposed ones, establish the correspondence, the task on the duration of caviar incubation): 3 x 2.0 points = 6 points; Level 3 (identify an incorrect statement among the proposed ones): 1 x 4.0 points = 4 points.

Recommended literature (main, secondary)

Basic

1. Veterinary and sanitary examination of fish, marine mammals and invertebrates: a textbook / T. I. Fotina, A. V. Berezovsky, R. V. Petrov, N. V. Gorchanok. — Vinnytsia: New Book, 2013. — 120 p. (in Ukrainian).
2. Bernyk I.M., Farionik T.V., N.V. Novgorodskaya. Veterinary and sanitary examination of products of animal and plant origin. Textbook. Vinnytsia. Publishing center of VNAU, 2020. 232 p. (in Ukrainian).
3. Metrology, standardization, certification and quality management in the food industry: a textbook. For higher educational institutions / Bilenka I.R., Verkhivker Ya.G., Dyakonova A.K.; General editor I.R. Bilenka; Odessa National Academy of Food Technologies. – Odessa: Poligraf, 2008 – P. 52-98. (in Ukrainian).
4. Veterinary and sanitary examination. Workshop. Textbook (re-edition) / Zazharska N.M., Kutsak R.S., Biben I.A., Kuneva L.V. – Dnipro, 2017. – 193 p. (in Ukrainian).
5. Features of the implementation of the HACCP system at meat, dairy and fish processing enterprises of Ukraine: Textbook / [N.M. Bogatko, N.V. Bukalova, V.V. Sakhnyuk, V.I. Zhmil]. – Bila Tserkva, 2016. – 266 p. (in Ukrainian).

Secondary

6. Tymofeeva L.A., Putyatina L.I. International and European systems of standardization and certification: Lecture notes. – Kharkiv: UkrDAZT, 2012. – 70 p. (in Ukrainian).
7. Certification of products and services: a course of lectures / L. O. Strikha, T. V. Pidpala, S. V. Fomina. – Mykolaiv: MNAU, 2018. – 66 p. (in Ukrainian).
8. Law of Ukraine “On fish, other aquatic living resources and food products from them”. – 2004. (in Ukrainian).
9. V. M. Kovbasenko. Veterinary and sanitary examination with the basics of technology and standardization of livestock products: Textbook: In two volumes. – Kyiv: Firma “INKOS”, 2005. – T.1 –416 p., T.2 – 536 p. (in Ukrainian).
10. O. V. Naydich, M. S. Khimych, O. V. Onishchenko. “Veterinary and sanitary examination of products of hydrobiont processing”: lecture notes. – Odessa: Ecology, 2012. – 81 p. (in Ukrainian).

Methodological support

11. 05-03-120M Poltavchenko, T. V. (2024) Methodological instructions for performing practical and independent work on the course " Fish products sanitary control, standardization and certification " (part 1) for applicants for higher education of the second (master's) level in the educational and professional program "Protection, reproduction and rational use of hydrobioresources" specialty 207 "Aquatic bioresources and aquaculture" full-time and part-time education. <https://ep3.nuwm.edu.ua/30078/>(in Ukrainian).
12. 05-03-121M Poltavchenko, T. V. (2024) Methodological guidelines for performing practical and independent work on the course " Fish products sanitary control, standardization and certification " (part 2) for applicants for higher education of the second (master's) level in the educational and professional program "Protection, reproduction and rational use of hydrobioresources" specialty 207 "Aquatic bioresources and aquaculture" full-time and part-time forms of study <https://ep3.nuwm.edu.ua/30094/> (in Ukrainian).
13. Test task packages for each topic and for the entire course of the discipline.

Information resources on the Internet

1. Institute of Fisheries of the National Academy of Sciences of Ukraine <https://if.org.ua/index.php/uk/>.
2. Scientific electronic library of periodicals of the National Academy of Sciences of Ukraine. Browsing by topic [Electronic resource]. – Access mode: <http://dspace.nbuv.gov.ua/handle/123456789/236>.
3. Website of the Scientific and Technological Center "LEONORM" [Electronic resource]. – Access mode: <http://www.leonorm.com.ua/Default.php?Page=stlist&ObjId=939&CatId=1;>
4. Website of the journal "Fisheries Science of Ukraine". [Electronic resource]. – Access mode: <http://fsu.ua/index.php/uk/arkhiv-zhurnalu>.

Combination of teaching and research

Students have the opportunity to join the department's scientific topics, research into the problems of fisheries and aquaculture with the subsequent presentation of the results at the All-Ukrainian competitions of student scientific works, competitions, scientific publications, in particular in the Bulletin of the National University of Fisheries and Aquaculture, round tables and conferences at the university, regional and all-Ukrainian levels. Participation in circles at the Department of Aquatic Bioresources. The requirements for participation and the design of works can be found on the page of the student scientific work sector <https://nuwm.edu.ua/naukova-dijalnistj/stud-science>, and on the announcements page <https://nuwm.edu.ua/university/ads/nov202009041041>.

Higher education students are involved in the implementation of scientific research topics in the process of working with fishery products, standards, orders, legislative framework, to obtain individual initial data for practical work, as well as in the case of choosing a topic for the final qualification work, or including individual sections in its content in accordance with the course topic. The educational process uses the obtained individual and collective scientific achievements of the lecturer, which are related to the content of the educational component: 1) Monitoring the quality and safety of marine fish and marine aquatic organisms; 2) Introduction of the HACCP system at fish processing and fish-producing enterprises of Ukraine; ensuring the safety of fish products; 3) Ensuring the quality and safety of freshwater live fish using the HACCP system; 4) A method for determining the moisture-holding capacity of fish meat at different degrees of heat treatment.

TEACHING AND LEARNING POLICIES

List of social, "soft" skills (soft skills)

The components of the module contribute to the development of universal skills that enable quick adaptation to new conditions, changing fields of employment, and solving non-standard tasks in production and environmental protection: critical thinking, environmental literacy, curiosity, determination, perseverance, teamwork, responsibility, creativity, and self-directed learning for professional and personal growth.

Deadlines and rescheduling

Announcements regarding deadlines for submitting parts of an academic discipline are published on the page of this discipline on the MOODLE platform according to the calendar: <https://exam.nuwm.edu.ua/calendar/view.php?view=month&course=839>

The deadlines for submitting intermediate control modules and the final control (exam) are established according to the Regulation on the semester's current and final control of educational achievements of higher education students. Link: <http://ep3.nuwm.edu.ua/15311/>. Retaking of modules is carried out in accordance with the rules of the Center for Independent Assessment, announcement by the link: <https://exam.nuwm.edu.ua/mod/forum/view.php?id=1>. Retaking of modules is allowed with the permission of the dean's office in the presence of valid reasons (e.g., medical leave). Elimination of academic debt and re-study of the discipline are carried out in accordance with the "Procedure for the elimination of academic debts at NUWEE". Link: <http://ep3.nuwm.edu.ua/4273/>. If a student disagrees with the assessment results, an appeal can be submitted to the Institute of Agroecology and Land Management dean's office on the day the test is taken, clearly stating the nature of the issue. A printed copy of all the student's answers during the attempt must be attached to the appeal. The director of the institute convenes an appeal commission to consider the complaint, to which the student and a representative of the Center for Independent Assessment are invited, in accordance with the Procedure for appeals from students and other individuals studying at the National University of Water and Environmental Engineering <http://ep3.nuwm.edu.ua/15467/>.

Non-formal and informal education (if needed)

Students have the right to re-enroll learning outcomes acquired in non-formal and informal education in accordance with the relevant provision <http://ep3.nuwm.edu.ua/18660/>. In particular, an online course on the Prometheus platform "Food Safety: Modern Legislation, a Conscientious Producer, a Responsible Consumer" is open, which is dedicated to the basics of food quality systems and can be enrolled as part of the educational component (in case of obtaining a certificate). Link: https://courses.prometheus.org.ua/courses/coursev1:MinAgro+HACCP101+2019_T2/about.

Rules of academic integrity

The principles of academic integrity are outlined on the NUWEE "Education Quality Department" website: <https://nuwm.edu.ua/sp/akademichna-dobrochesnistj>. It is prohibited to cheat or discuss questions with fellow students during all control measures, including modular and final assessments. If such violations are detected, the student loses the right to continue performing tasks, which may result in a reduction of the overall grade or the failure to pass the entire course, necessitating the re-study of the educational component. Information on academic integrity, plagiarism, the student honor code, etc., is provided on the website of the National Agency for Quality Assurance of Higher Education <https://naqa.gov.ua/>; and on the NUWEE "Quality of Education" page <http://nuwm.edu.ua/sp/akademichnadobrochesnistj>.

Attendance requirements

It is mandatory to make up missed classes without valid reasons (e.g., medical leave, mobility, etc.). This can be done during consultations, the schedule of which is published on the Department of Water Bioresources page: <https://nuwm.edu.ua/nni-az/kaf-vb/hrafik-konsultatsii>. With a medical certificate or a certificate of academic mobility, the student is exempted from making up missed practical classes. Missed lectures must be independently studied by students on the educational platform on the page of the relevant educational component <https://exam.nuwm.edu.ua/course/view.php?id=839>. During classes, students may use mobile devices only to search for information related to the module and calculators for solving tasks, except during control measures.

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