



NEAR EAST UNIVERSITY
Faculty of Veterinary Medicine Course Teaching Plan

1.	Name of the Course	AQUACULTURE AND DISEASES
2.	Course Code	VTE303
3.	Course Type	Compulsory
4.	Course Level	Undergraduate
5.	Year	3
6.	Semester/Term	Fall, 5VET
7.	ECTS credits	2
8.	National Credits	2
9.	Theory (hours/week)	1h/week
10.	Practice (hours/week)	2h/week
11.	Prerequisites	None
12.	Other Recommended Considerations for the Course	None
13.	Course Language	English
14.	Teaching type	Face to face/Online
15.	Course Coordinator	Prof. Dr. Mahmut Ali GÖKÇE
16.	Other Lecturers	Dr. Bilge Kaan TEKELİOĞLU
17.	Coordinator's Contact Information	mahmutali.gokce@neu.edu.tr
18.	Website of the course	

19.	Objectives of the Course	<p>I. Students should know the general and basic biological characteristics of fish,</p> <p>II. To know and recognize water quality parameters and filter systems used in aquaculture,</p> <p>III. To understand rainbow trout, sea bass and sea bream farming techniques,</p> <p>IV. To learn the bacterial, viral, fungal, parasitic, neoplastic diseases and feeding-related diseases of the aquatic animals reared,</p> <p>V. Gain knowledge and skills on the aetiology, epizootiology, pathogenesis, diagnosis and prevention-control of aquatic animal diseases,</p> <p>VI. It is aimed to learn up-to-date information about notifiable diseases and quarantine practices in aquatic animals and to be able to use the acquired knowledge practically.</p>
20.	Contribution of the Course to Professional Development	It is ensured that the students have sufficient knowledge of the biological characteristics of fish, environmental parameters and aquaculture techniques, and professional knowledge in the field of aquatic animals and aquaculture. An important infrastructure opportunity is provided for students to work in the entire fishing industry after graduation.

21.	Students' Learning Outcomes	LO1	Learns the basic biological characteristics of fish and preventive medicine practices for other aquatic animals;
		LO2	Gains information about optimal environmental conditions and water quality parameters in fish farming;
		LO3	Learns the farming techniques of rainbow trout, sea bass and sea bream;
		LO4	Learns bacterial, viral and fungal diseases of cultured aquatic animals. Gains knowledge and skills about diagnosis, treatment, prevention and control of these diseases;
		LO5	Learns the differential diagnosis of infectious, nutritional, metabolic, toxic and neoplastic diseases in cultured aquatic animals;
		LO5	Defines the lesions of the diseases seen in cultured aquatic animals, can express them verbally and written

22.	Course Content	WEEK	THEORETICAL COURSE CONTENT	PRACTICE CONTENT
		1.	Water quality criteria in rainbow trout, sea bream and bass fish farming	Classification of cartilaginous and bony fish and the differences between them
		2.	Water quality criteria in rainbow trout, sea bream and bass fish farming	Farming techniques and environmental demands of Rainbow Trout Sea Bream and Sea Bass
		3.	Basic techniques in rainbow trout, sea bream and bass fish farming	Sections and equipment used in fish farms

		4.	Systematic examination methods, taking morbid material and sending samples to the laboratory in cultured aquatic animals	Anaesthesia methods in aquatic animals, blood collection methods, points to be considered while taking morbid material and sending morbid materials to the laboratory
		5.	Factors causing stress in aquatic animals and prevention of stress, Etiology, epizootology, symptom, diagnosis, treatment and prevention-control in Motil Aeromonas Septicemia, Furunculosis, Pseudomonas, Vibriosis infections	Effects of stress on Motil Aeromonas Septicemia, Pseudomonas and Vibriosis infections and prevention and control of these diseases
		6.	Etiology, epizootology, symptom, diagnosis, treatment and prevention-control in Photobacteriosis, Flavobacteriosis, Yersiniosis, Salmonid rickettsial septicemia and Winter ulcer (Moritella viscosa) infections	Effects of stress on Photobacteriosis, Flavobacteriosis, Yersiniosis, Salmonid rickettsial septicemia and Winter ulcer (Moritella viscosa) infections, protection and control of these diseases
		7.	Etiology, epizootology, symptom, diagnosis, treatment and prevention-control in Lactococcosis, Streptococcosis, BKD (bacterial kidney disease) and Mycobacteriosis infections	Protection and control in Lactococcosis, Streptococcosis, BKD (bacterial kidney disease) and Mycobacteriosis infections
		8.	Diagnosis, treatment and prevention-control of diseases caused by alimentary diseases, neoplastic diseases and other non-microbiological factors in fish.	Diagnostic methods, treatment and preventive medicine practices in non-infectious diseases
		9.	Etiology, epizootology, symptoms, diagnosis, treatment and prevention-control in infections caused by RNA (VHS, IHN, SVC, IPN, ISA VNN) and DNA (EHN, Lymphocystis and Fish pox) viruses in cultured aquatic animals.	Sending virological samples to the laboratory in aquatic animals, preventive medicine practices in the control of viral diseases
		10.	Etiology, epizootology, symptom, diagnosis, treatment and prevention-control of fungal diseases seen in cultured aquatic animals.	Diagnostic methods, treatment and protection-control in fungal diseases of fish and other aquatic animals,

		11.	Immune system and vaccination methods in fish	Vaccination methods (injection, immersion and oral) in fish, advantages and disadvantages of vaccination methods
		12.	Diagnosis, treatment and protection-control of parasitic diseases in cultured fish	Preventive medicine practices in parasitic infections in aquatic animals
		13.	Global approaches to the control of aquatic animals	Measures to be taken to prevent the global spread of aquatic animal infections
		14.	Notifiable diseases in crustaceans and arthropods (Crayfish plague, Bonamia exitiosa, Perkinsus marinus, Microcytos mackini, Bonamia ostreae) etiology, symptom, diagnosis, prevention-control	Quarantine measures and disinfection in notifiable diseases in crustaceans and arthropods
23.	Textbooks, References and/or Other Sources	<ol style="list-style-type: none"> 1. Woo P. T. K., Leatherland John F., Bruno David W: Fish Diseases and Disorders, 3 cilt, 2. baskı Viral, Bacterial and Fungal Infections, CABI Publishing, UK, 2006, 903 s. 2. John F. Leatherland, P. T. K. Woo :Fish Diseases and Disorders, 2. Cilt, Non Infectious Disorders CABI Publishing, UK, 2010, 403 s. 3. Gudding, R., Lillehaug, A. and Evensen, O.: Fish vaccination 1. baskı John Wiley & Sons, Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK , 2016,373 s. 4. Buller, N.B : .Bacteria from Fish and Other Aquatic Animals , CABI Publishing, UK, 2004 5. Arda M., Seçer S., Sarıeyyüboğlu M.: Balık Hastalıkları, Medisan Yayın. No: 61; Ankara, 2005 6. Roberts RJ: Fish Pathology 40. baskı John Wiley & Sons, Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK , 2012,572 s. 7. Austin, B., Austin, D. A. 2016. Bacterial fish pathogens Disease of Farmed and Wild Fish (6. Basım). Switzerland: Springer International Publishing. 		

24.	Evaluation	SEMESTER STUDIES	NUMBER	PERCENTAGE OF CONTRIBUTION
		Midterm exam	1	40
		Quiz	-	
		Assignments, Performances	-	
		Final exam	1	60
		Total	2	100
		Evaluation Approaches	Exams are made in written form as multiple choice and/or classic (short answer) exams.	

25.	ECTS / Student's workload	Activity	NUMBER	Time [hours]	Total workload [hours]
		Class hours (theoretical)	14	1	14
		Practical hours	14	2	28
		Out of Class Study Time (Pre-study, reinforcement)	14	1	14
		Assignments, Performances	-	-	-
		Projects	-	-	-
		Field studies	-	-	-
		Midterm exams	1	2	2
		Other	-	-	-
		Final exams	1	2	2
		Total workload			60
		Total workload / 30 hours			60/30
		ECTS credits of the lecture			2