**Fish Diseases & Management (FDM. 417)**

**Overall aims of the Course:**

• Studying the most common infectious and non-infectious etiologies of fish diseases and their pathophysiological mechanisms.

• Assessing various predisposing factors of viral, bacterial, rickettsial, fungal and parasitic fish diseases.

• Teaching the most important indicators of fish health at farm / hatchery level.

• Reaching a final diagnosis through field (morbidity / mortality curves, disease history, clinical /PM exam) and lab diagnosis (conventional and non-invasive advanced diagnostic techniques e.g., histochemical, serological, cell line and molecular)

• Mastering the different recent methods for control / prophylaxis of the most common infectious and infectious diseases of fishes.

**Course contents:**

* Different forms of bacterial and viral / host relationships in aquatic environments (disease cycle - concurrent infection – carrier – reservoir – shedding -clinical…etc.)
* General Classification of Fish bacterial diseases
* Classification of fish pathogenic viruses.
* Fish and water Sampling
* External examination of fishes (naked eye exam, skin scraping, gill scraping).
* Different approaches for dissection of fishes
* Clinical and PM examination of fishes (lesions -compression smears)
* Aeromonads of Fish
* Pseudomonads of fish
* Vibriosis of fish
* RNA viruses: 1. Rhabdoviridae: SVC - VHS
* Bacteriological / Virological sampling, clinical examination, PM.
* Bact. Lab: Gram staining, impression smears isolation on selective bacteriological media, biochemical identification (conventional and semi-automated).
* Viral. Lab: Serology, Histopathology, Viral Isolation and Molecular Detection.
* Enteric infections of fish (Yersiniosis, Edwardsiella septicemia of catfish, Emphysematous putrefactive disease of catfish)
* RNA viruses- Orthomyxoviridae: ISA- Influenza viruses- Tilapia Lake virus (Tilv).
* Photobacterium damsela septicemia (pseudotuberculosis-pasteurellosis)
* RNA viruses: Nodaviridae: Betanoda viruses: VNN (VER).
* Streptococcus and Staphylococcus infections in fish
* Ricekettsial infection of fish
* DNA viruses: Herpesviridae: Carp Pox, Koi Herpes Virus
* Introduction to bacteremic and viral diseases of fish
* DNA Viruses: Iridoviridae: LCDV
* Localized bacterial diseases (Flavobacterial diseases):

 Columnaris Disease

 Coldwater Disease

 Bacterial Gill Disease

* DNA Viruses: Iridoviridae: LMBV
* Chronic granulomatous diseases (Actinomycetals):

 Mycobacteriosis

 Bacterial Kidney Disease

 Nocardiosis

* DNA Viruses: Iridoviridae: Red Seabream Iridovirus
* Discussing clinical /lab reports about actual fish bacterial / viral disease eruptions
* Fish farm visits
* Case reports of field cases
* Control, prevention and therapy of fish bacterial diseases.
* Control and prevention strategies for viral diseases
* Treatment trials for bacterial clinical cases
* Vaccine preparation trials (formalin killed bacterin)
* Different routes of vaccine administration