

COLLEGE OF FISHERIES, KISHANGANJ
BIHAR ANIMAL SCIENCES UNIVERSITY, PATNA

Lecture Plan

Course code: AAHM- 211

Course Title: Fish Immunology

Credit hrs: 2 (1+1)

Programme: B.F.Sc.

Assigned Teachers: Dr Sudeshna Sarker

Theory	
Topics	No. of Classes
1. Introduction, brief history to immunology.	1
2. Types of immunity: Innate and adaptive immunity, cell mediated and humoral immunity	1
3. cells and organs of the immune system.	1
4. Antigens – structure and types, epitopes, haptenes.	1
5. Antibody – fine structure, classes with structure and functions, antigenic determinants on immunoglobulins.	1
6. MHC complex – types, structure, and functions.	1
7. Antigen-antibody interactions- principle, antigen recognition by B cells and T cells.	1
8. Antigen-antibody reaction - Precipitin reactions, agglutination reactions, Microorganisms associated with fishes in health and disease.	1
9. Defense mechanism in finfish and shellfish specific and non- specific immune system.	1
10. Pathogenicity and virulence. Sources of infection, transmission of disease producing organisms, portals of infection.	1
11. Immunity to bacteria, fungi and parasites.	1
12. Role of stress and host defense mechanism in disease development.	1
13. Vaccines - types of vaccines – whole cell vaccine, purified macromolecules, recombinant –vector, DNA vaccines and multivalent subunit vaccines, modes of vaccine administration.	1
14. Serological methods in disease diagnosis.	1
15. Immunostimulants –types, mechanism of action, modes of administration.	1
16. Immunoassays, immunodiffusion, ELISA, immunofluorescence, neutralization, radioimmunoassay, serotyping.	1
Total Number of classes: 16	
Practicals	
1) Collection, separation and identification of fish leucocytes.	2
2) Separation of blood plasma and serum.	1
3) Differential counting - RBC and WBC by Haemocytometer.	2
4) Study of different types of leukocytes.	2

5) Isolation of macrophages	1
6) Precipitin reactions - Agglutination test	1
7) Immuno-gel diffusion	1
8) Double immuno diffusion	1
9) Radial immuno diffusion assay	1
10) ELISA	1
11) Methods of vaccine preparation and techniques of fish immunization.	2
Total Number of classes: 15	

Course Instructor