MINISTRY OF EDUCATION
AND TRAINING
CAN THO UNIVERSITY

COURSE SYLLABUS

1. INFORMATION OF COURSE AND LECTURER

1.1. Course name and code: Applied immunology in aquaculture
1.2. Course specification: 2 Cred. (Theory: 2; Assigment: 0; Practice:), 30 hours (T: 30; A: 0; P: 0)
1.3. Prerequistes courses:
1.4. Responsible Department: Department of Aquatic Animal Pathology, College of Aquaculture and Fisheries, Can Tho University
1.5. Information of lecturer:

Name: Bui Thi Bich Hang
Email: btbhang@ctu.edu.vn
Co-teaching lecturer:
Name : LHPhuoc
Email:
Name : NNPhuoc
Email:

2. COURSE DESCRIPTION

The course aims to give students the opportunity to develop a knowledge in immunology, immune system of aquatic animal and the application of immunological techniques in aquaculture. Moreover, the course also explain the mechanism of immunostimulant action and vaccination to help the student apply effectively immunostimulant and vaccination in aquaculture.

3. COURSE EXPECTED LEARNING OUTCOMES

On successful completion of this couse, students can understand and discussion all topic of application immunology in aquaculture as well as in disease diasgnosis for aquatic animal. The student can also application of immunological techniques in experimental research or in commercial aquaculture.

4. COURSE CONTENTS

Chapters	Hours (T/A/P)
Chapter 1: GENERAL OF IMMUNOLOGY *This chapter will provide knowledge of bacsic immunology.* 1.1. Definition, basic concepts of immunology 1.2. Non-specific immunology system 1.3. Specific immunology system *In order to understand well this chapter, students should read references of [1].*	3/0/0
Chapter 2: IMMUNE SYSTEM OF AQUATIC ANIMAL *This chapter will provide knowledge of immune system of aquatic animal*	3/0/0

2.1. Immune system of Crustacean 2.2. Immune system of fish *In order to understand well this chapter, students should read references of [2].*	
Chapter 3: APPLICATION OF IMMUNOSTIMULANT IN AQUACULTURE *This chapter will provide knowledge of immunostimulant in aquaculture* 3.1. General of immunostimulant 3.2. Principle mechanism of immunostimulant action in aquacuture. *3.3.* The results of using immunostimulants in aquaculture. *In order to understand well this chapter, students should read references of [3], [4].*	5/0/5
Chapter 4: APPLICATION OF VACCINE IN AQUACULTURE *This chapter will provide knowledge of application vaccine in aquaculture* Chương 4: Sử dụng vaccine trong nuôi trồng thủy sản 4.1. General of vaccination 4.2. Technology of vaccine production 4.3. Method of vaccine administration in aquaculture 4.4. Standard for vaccine evaluation. 4.4. Advantage and disadvantage of vaccination. *In order to understand well this chapter, students should read references of [3], [5].*	5/0/5
Chapter 5: APPLICATION OF IMMUNOLOGICAL TECHNIQUES IN DISEASE DIAGNOSIS OF AQUATIC ANIMAL *This chapter will provide knowledge of application of immunological techniques in disease diagnosis of aquatic animal* 5.1. Definition and basic concepts 5.2. Antigent and antibody 5.3. Priciple mechanism of application immunological techniques in disease diagnosis of aquatic animal. 5.4. Immunological techniques in disease diagnosis of aquatic	5/0/5

animal: immnue agglutination, Western blot, Immunohistochemistry, ELISA, … *In order to understand well this chapter, students should read references of [2], [3].*	

5. TEACHING METHODS AND ASSESSMENT

5.1. Teaching methods:

The course is 30 hrs of theory. During the course, the students will do assignment and group presentaion.

5.2. Assessment methods:

Assignment and group presentation: 30%
Final exam: 70%

6. READING REFERENCES

[1] Vu Trieu An and Jean Claude Homberg, 2001. Immunology. Medicine publishing.

[2] Đang Thi Hoang Oanh, Đoan Nhat Phuong, 2007. Textbook of Immunology of Aquatic animal. Cantho University.

[3] Charles A. Janeway, Jr., Travers P., Walport M., Shlomchik, M.J., 2001. Immunobiology 5. Garland Publishing.

[4] Shyam Narayan Labh and Shubha Ratna Shakya, 2014. Application of immunostimulants as an alternative to vaccines for health management in aquaculture. International Journal of Fisheries and Aquatic Studies 2(1): 153-156.

[5] Roar Gudding, Atle Lillehaug, Øystein Evensen, 2014. Fish vaccination. Wiley Blackwell Publishing.

Date:
Lecturer