

1. INFORMATION OF COURSE AND LECTURER

- 1.1. Course name and code: Fish Health Management
- 1.2. Course specification: 3 Cred. (Theory: 2; Assignment: 0; Practice: 1), 60 hours (T: 30; A: 0; P: 30)
- 1.3. Prerequisites courses:
Water quality management in tropical aquaculture systems; Physiology of aquatic organisms
- 1.4. Responsible Department: Aquatic pathology
- 1.5. Information of lecturer:
Name: Dang Thi Hoang Oanh
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Co-teaching lecturer:
Name : Tran Thi Tuyet Hoa
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2. COURSE DESCRIPTION

This course includes theoretical part which introduces the advanced knowledge related to diseases and health management in aquaculture. In addition, it also introduced research directions and advanced applications in prevention and treatment of aquatic animal diseases. The practical part will provide master students a change to improve their practical knowledge and personal skills to perform sampling, technical analysis, detection and diagnosis of the most important diseases in major aquaculture species in the tropic.

3. COURSE EXPECTED LEARNING OUTCOMES

Theoretically:

- Know the causes and conditions which lead to the arising of diseases in aquatic animals and the effect of diseases to the aquaculture system.
- Understand pathological and epidemiological characteristics of important diseases in tropical aquaculture.
- Understand the principles of use of drugs and chemicals in prevention and treatment of aquatic animal diseases
- Application of health monitoring and disease management in aquaculture.

Practically:

- Understand and be able to manipulate correctly some lab procedures for detection/diagnostic some important diseases in economical important aquaculture species.

4. COURSE CONTENTS

Chapters	Hours (T/A/P)
<p>Chapter 1: General introduction to aquatic animal health management</p> <p><i>This chapter will provide general knowledge on aquatic animal health management:</i></p> <p>1.1. Effect of diseases to Aquaculture 1.2. Why new diseases occur? 1.3. Factors related to the outbreak and spread 1.4. The origin of infectious diseases in aquatic animals</p> <p><i>In order to understand well this chapter, students should read references of [4], [5].</i></p>	5/0/0
<p>Chapter 2: Update of major diseases in some important cultured species in the Mekong River Delta, Vietnam</p> <p><i>This chapter will provide updated knowledge on common diseases in some important cultured species in the Mekong river delta of Vietnam Focus on pathological features (causative agents and conditions which cause disease outbreak), epidemiology and effective prevention and treatment methods.</i></p> <p><i>2.1 Major diseases, epidemiology, prevention and treatment of diseases in cultured shrimp</i></p> <p><i>2.2 Major diseases, epidemiology, prevention and treatment of diseases in diseases in tra catfish</i></p> <p><i>2.3 Major diseases, epidemiology, prevention and treatment of diseases in diseases in in tilapia</i></p> <p><i>2.4 Major diseases, epidemiology, prevention and treatment of diseases in diseases in in brackish and marine finfish</i></p> <p><i>2.5. Practical sections: field sampling and disese diagnoses at farm level.</i></p> <p><i>In order to understand well this chapter, students should read references of [1], [2], [3].</i></p>	10/0/10
<p>Chapter 3: Use of drugs and chemical in aquaculture health management</p> <p><i>This chapter will introduce the mechanism of action of drugs and chemicals on aquatic pathogens, mechanisms of drug resistance. Besides, chemical and drugs which are commonly used in the prevention and treatment of aquatic diseases will also be mentioned. In addition, methods for antibiotic sensitivity test and MIC determination for antibiotics and chemicals used in disease prevention and treatment will be included.</i></p> <p>1.1. Mechanism of action of drugs and chemicals on aquatic pathogens</p>	5/0/0

<p>1.2. Mechanisms of drug resistance in bacteria and favorable factors for the spread of resistant strains</p> <p>1.3. Antibiotic sensitivity test and determination of minimal inhibitory concentration for antibiotics and chemicals used in disease prevention and treatment</p> <p>1.4. The principle use of antibiotics</p> <p>1.5. Classification of drugs and chemicals used in aquaculture</p> <p><i>In order to understand well this chapter, students should read references of [1], [4].</i></p>	
<p>Chapter 4: Use of immunostimulants and vaccines in aquaculture</p> <p><i>This chapter will introduce general knowledges in fish immunology and the use of immunostimulants and vaccines in disease prevention in aquaculture</i></p> <ol style="list-style-type: none"> 1. general knowledges in fish immunology 2. Fish immunity 3. Shrimp immunity 4. Use of immunostimulants in disease prevention in aquaculture 5. Vaccinations in aquaculture 6. <i>Practical sections in the laboratory: Determination of specific and non-specific immune parameters.</i> <p><i>In order to understand well this chapter, students should read references of [3], [4].</i></p>	5/0/5
<p>Chapter 5: Diagnosis of disease in aquaculture</p> <p><i>This chapter will introduce the principal and diagnosis techniques which are used to detec/diagnosis diseases in aquaculture.</i></p> <ol style="list-style-type: none"> 1. Detection of diseases in aquaculture 2. Bacteriological methods 3. Histopathology 4. Molecular techniques (PCR, RT-PCR, mPCR and qPCR analysis) 5. <i>Practical sections in the laboratory: detection of shrimp viruses and fish bacteria by PCR and RT-PCR methods</i> <p><i>In order to understand well this chapter, students should read references of [2], [4].</i></p>	5/0/15

5. TEACHING METHODS AND ASSESSMENT

5.1. Teaching methods:

Course will be conducted by a combination of lecturers and seminar on selected topics (30 credits), practical part in the laboratory (30 credit).

5.2. Assessment methods:

Seminar on selected topic: 20%, practical part: 30% and final exam: 50%.

6. READING REFERENCES

- [1] A Handbook of shrimp Pathology and Diagnostic Procedures for Diseases of Cultured Penaeid Shrimp. Lightner, D.V. 1996.
- [2] Asia Diagnostic guide for aquatic animal disease. FAO fisheries technical paper 402/2
- [3] Bacterial fish Pathogens: Disease of farmed and wild fish. 3rd Edition. Austin, B. & D.A. Austin, 1999.
- [4] Fish Disease: Diagnosis and Treatment. Edward J. Noga. 2010.
- [5] Health management in shrimp pond. 3rd Edition. AAHRI, 1998

Date:

Lecturer