

### COURSE OUTLINE DETAILS

**1. Course: Aquaculture Economics (Kinh tế thủy sản)**

- **Code number:** AQ312C

- **Credits:** 3

- **Hours:** 45 theory hours, and 90 self-study hours.

**2. Management Unit:**

- **Department:** Fisheries Management and Economics

- **Faculty:** College of Aquaculture and Fisheries

**3. Requisites:**

- **Prerequisites:** No

- **Corequisites:** No

**4. Course objectives:**

| Objectives | Descriptions  | Program Outcomes |
|------------|---|------------------|
| 4.1        | Giving students concepts of economics, financial management, investment analysis, marketing management as well as applying this knowledge to aquaculture activities.        | 2.1.3a           |
| 4.2        | Training students several skills in management of aquaculture farm production, market research, marketing of products and production planning in aquaculture and fisheries. | 2.2.1b           |
| 4.3        | Training students some skills such as working independently and teamwork.   | 2.2.2            |
| 4.4        | Educating students to be active in work and eager to learn spirit.  | 2.3              |

**5. Course learning outcomes:**

| COs | Descriptions  | Objectives | POs    |
|-----|---|------------|--------|
|     | <b>Knowledge</b>  |            |        |
| CO1 | Learners will apply theories of economics and business into the aquaculture industry.   | 4.1        | 2.1.3a |
| CO2 | The students are able to list financial indicators, analyze investment factors and manage marketing in aquaculture activities.                  | 4.1        | 2.1.3a |
| CO3 | Learners can analyse the domestic policies that affect aquaculture and policies related to the international export market of aquatic products. | 4.1        | 2.1.3a |

| COs | Descriptions   | Objectives | POs    |
|-----|--|------------|--------|
|     | <b>Knowledge</b>   |            |        |
| CO4 | Learners have the ability to choose management models, production economics, marketing, and business strategies based on the market for the company. | 4.1        | 2.1.3a |
|     | <b>Skills</b>  |            |        |
| CO5 | Evaluating the current situation of production and management of aquaculture farms.  | 4.2        | 2.2.1b |
| CO6 | Having skills of market research, costs and benefits analysis and decision making in business.   | 4.2        | 2.2.1b |
| CO7 | Training students the skills of decision making on the market and practical production.  | 4.2        | 2.2.1b |
| CO8 | Organizing group working and preparing presentations   | 4.3        | 2.2.2  |
|     | <b>Attitudes/Autonomy/Responsibilities</b>   |            |        |
| CO9 | Educating students to be active in work and eager to learn spirit  | 4.4        | 2.3    |

Note: "COs" means Course Outcomes; "POs" means Program Outcomes

## 6. Brief description of the course:

The course provides knowledge on principal economic factors affecting the production of aquaculture commodities, management of the firm, and financial structure of successful aquaculture operations. Theoretical concepts presented include supply-demand derivations and measurement, fiscal management, marginal analysis, market structure, price determination, economic interface with biological production, farm management, capital investment and aquaculture policy analysis.

## 7. Course structure:

### 7.1. Theory:

|                   | Content   | Hours    | COs                |
|-------------------|---|----------|--------------------|
| <b>Chapter 1.</b> | <b>Course Overview</b>  | <b>3</b> |                    |
| 1.1.              | Course objectives and scope   | 1        | CO1, CO2           |
| 1.2.              | The role of aquaculture in world food production and consumption                      | 1        | CO1, CO2           |
| 1.3.              | Overview of economics concepts, and the application on seafood consumption and demand | 1        | CO1, CO2           |
| <b>Chapter 2.</b> | <b>Concepts of aquaculture economics</b>  | <b>3</b> |                    |
| 2.1.              | Definition and scope of micro- and macro economics                                    | 1        | CO1, CO2, CO3, CO5 |
| 2.2.              | Micro- and macro- aspects of aquaculture economics                                    | 1        | CO1, CO2, CO3, CO5 |



|                   |  |           |                                   |
|-------------------|--|-----------|-----------------------------------|
| 2.3               | Methods of economic research and application of aquaculture economics  | 1         | CO1, CO2, CO3, CO5                |
| <b>Chapter 3.</b> | <b>Analysis of demand, supply and price</b>  | <b>12</b> |                                   |
| 3.1.              | Analysis of demand: (1) definition of demand (2) Individual and market demand curve; (2) Theoretical demand curve; (3) Differences between change of demand and change of demanded quantity; (4) Factors that affecting on the demand for fish | 2         | CO4, CO5, CO6, CO7                |
| 3.2.              | Definition and calculation of various elasticities (1) elasticity of Demand by price: (2) cross elasticity of demand; (3) elasticity of demand by income; (4) other elasticities   | 2         | CO4, CO5, CO6, CO7                |
| 3.3.              | Market demand curve: (1) definition and derivation of demand curve; (2) movement of demand curve, its factors and effects on market equilibrium (3) application of market demand curve on the real-world fish markets                          | 2         | CO4, CO5, CO6, CO7                |
| 3.4               | Market supply curve: (1) definition and derivation of supply curve; (2) movement of supply curve, its factors and effects on market equilibrium (3) application of supply curve on the real-world fish markets                                 | 2         | CO4, CO5, CO6, CO7                |
| 3.5.              | Determination of market price: (1) market mechanism, (2) determination of equilibrium price and quantity. (3) non-economic factors in the market and its effect  | 2         | CO4, CO5, CO6, CO7                |
| 3.6.              | Calculate a demand function and forecast the change of demand for a type of aquatic product. Calculate the change of market demand and supply when market situation changes for a type of aquatic product                                      | 2         | CO1, CO2, CO4, CO6, CO7, CO8, CO9 |
| <b>Chapter 4.</b> | <b>Production Theory</b>   | <b>12</b> |                                   |
| 4.1.              | Definition and factors of production: (1) production factors (2) productivity of factors (3) production function: input-output relationship  | 3         | CO2, CO3, CO4, CO5, CO6, CO7      |
| 4.2.              | Cost theory: (1) definition and categories of cost (2) calculation of production cost (3) change of cost; (4) economy of scale   | 3         | CO2, CO3, CO4, CO5, CO6, CO7      |

|  |   |          |                                   |
|--|---|----------|-----------------------------------|
| 4.3.   | The factor-factor relationship (1) substitution of various production factors (2) decision making of factors combination for minimal production cost  | 4        | CO2, CO3, CO4, CO5, CO6, CO7      |
| 4.4.   | Calculation of profit and earning;<br>(1) Change of cost and revenue;<br>(2) Change of profit and optimal control of production<br>Total, average and marginal product                        | 2        | CO1, CO2, CO4, CO6, CO7, CO8, CO9 |
| <b>Chapter 5. Management of Fish Farm</b>                |   | <b>9</b> |                                   |
| 5.1.   | Introduction  | 0.5      | CO3, CO4, CO6, CO7                |
| 5.2.   | Factors to Consider when Planning a Fish Farm   | 1        | CO3, CO4, CO6, CO7                |
| 5.3.   | Farm Income and Budget Analysis   | 1        | CO3, CO4, CO6, CO7                |
| 5.4.   | Farm Record Keeping   | 1        | CO3, CO4, CO6, CO7                |
| 5.5.   | The Farm Budget   | 1        | CO3, CO4, CO6, CO7                |
| 5.6.   | Capital Budgeting: (1) factors influencing on investment decisions; (2) time value of money and discount; (3) discounted cash flow methods  | 1.5      | CO3, CO4, CO6, CO7                |
| 5.7  | Utilization of linear program: (1) maximal profit situation; (2) minimal cost situation;<br>Judgement for feasible investment: (1) Net present value (NPV); (2) Internal Rate of Return (IRR) | 3        | CO1, CO2, CO4, CO6, CO7, CO8, CO9 |
| <b>Chapter 6. Marketing of fisheries and aquaculture</b> |   | <b>6</b> |                                   |
| 6.1.   | Marketing concept   | 1        | CO3, CO4, CO5, CO7                |
| 6.2.   | The marketing function  | 1        | CO3, CO4, CO5, CO7                |
| 6.3.   | Distribution and marketing channels   | 1        | CO3, CO4, CO5, CO7                |
| 6.4.   | New product development   | 1        | CO3, CO4, CO5, CO7                |
| 6.5.   | Promotion   | 1        | CO3, CO4, CO5, CO7                |
| 6.6.   | Integration of marketing strategies   | 1        | CO3, CO4, CO5, CO7                |

## 7.2. Practice: No



## 8. Teaching methods:

- Theoretical presentation in class is applied in this course. Students perform group exercises and presentations for group discussion (3-5 students/group); During the course, the students will prepare the content of the lessons and the assignment as required.

- Practical in class will be conducted in the computer room.

## 9. Duties of student:

Students have to do the following duties:

Each student will develop an aquaculture farm plan. The purpose of this project is to apply the methods and tools of economic analysis to an aquaculture enterprise. Each student will pick one species to analyze, such as catfish, tilapia, hard clams, oysters, shrimp, or trout, using a suitable production system, i.e., pond, raceway, pen or bottom culture.

The farm plan will include detailed biological, technological, marketing and economic considerations. Information can be obtained through the library and internet. A report will be prepared to include:

- Farm description
- Biology of selected species
- Technology of production system
- Marketing plan
- Economic analysis (to include enterprise budget, cash flow statement and sensitivity analysis)

You must discuss the project with the instructor. The project will be on-going through the semester and periodic updates will be presented to the instructor. A final written paper on your aquaculture farm project will be due the last day of class and a presentation will be made in the last class.

## 10. Assessment of course learning outcomes:

### 10.1. Assessment

| No. | Point components                             | Rules and Requirements   | Weights | COs   |
|-----|--|--|---------|---|
| 1   | Group discussion                             | Students participates in group discussions as required by the lecturer | 10%     | CO7, CO8, CO9                               |
| 2   | Two times mid-exam, one in the computer room | One in the classroom and one in the computer room for the test.        | 40%     | CO1, CO2, CO3, CO4, CO5, CO6                |
| 3   | Final test                                   | Attended on the class<br>Take the final exam                           | 50 %    | CO1, CO2, CO3, CO4, CO5, CO6, CO7, CO8, CO9 |

## 10.2. Grading

- Grading components and final test scores will be marked on a scale of 10 (0 to 10), rounded to one decimal place.
- Subject score is the sum of all the components of the evaluation multiplied by the corresponding weight. The subject score is marked on a scale of 10 and rounded to one decimal place, then is converted to A-B-C-D score and score on a scale of 4 under the academic provisions of the University.

## 11. Learning materials:

| Learning materials information  | Barcode number                      |
|---|-------------------------------------|
| [1] Aquaculture Economic Analysis: An introduction/ Yung C. Shang - Advances in world aquaculture, Volume 2. The world aquaculture society. Louisiana, US, 1990 | TS.002210<br>TS.002955<br>TS.003790 |
| [2] The Economic of Fisheries Management/ Lee G. Anderson - Agriculture Publishing. 2004. 1990.639.31/ Y94  | TS.005539                           |
| [3] Aquaculture and fisheries Economic: for aquaculture students/ Le Xuan Sinh - Cantho university, 2010. 338.3713 / S312                                       | MOL.065824<br>TS.001855             |

## 12. Self-study Guide:

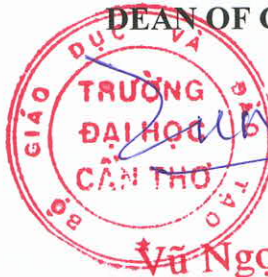
| Week | Content   | Theory (hours) | Practice (hours) | Student's Tasks  |
|------|---|----------------|------------------|--|
| 1    | <b>Chapter 1: Course Overview</b><br>1.1. Course objectives and scope<br>1.2. The role of aquaculture in world food production and consumption<br>1.3. Defining aquaculture and growth of aquaculture<br>1.4. Overview of economics concepts, and the application on seafood consumption and demand | 6              |                  | Study on the documents/Textbook bellow:<br>[1] Part 1 (P 1-21)<br>[2] Chapter 1 (p 15-32)<br>[3] Chapter 1 (p 1-20)    |
| 2    | <b>Chapter 2: Concepts of aquaculture economics</b><br>2.1. Definition and scope of micro- and macro economics<br>2.2. Micro- and macro-aspects of aquaculture economics<br>2.3. Methods of economic research and application of aquaculture economics  | 6              |                  | Study on the documents/Textbook bellow:<br>[1] Part 1 (P 24-69)<br>[2] Chapter 2 (p 40-60)<br>[3] Chapter 2 (p 33- 71) |



|      |   |    |   |
|------|---|----|---|
| 3-6  | <p><b>Chapter 3: Analysis of demand, supply and price</b></p> <p>3.1. Analysis of demand: (1) definition of demand (2) Individual and market demand curve; (2) Theoretical demand curve; (3) Difference between change of demand and change of quantity demanded; (4) Factors of affecting the demand for fish.</p> <p>3.2. Definition and calculation of various elasticities (1) Price Elasticity of Demand: (2) cross elasticity of demand; (3) Income elasticity of demand; (4) other elasticities.</p> <p>3.3. Market demand curve: (1) definition and derivation of demand curve; (2) movement of demand curve, its factors, and effects on market equilibrium (3) Application of market demand curve on the real-world fish markets</p> <p>3.4. Market supply curve: (1) definition and derivation of supply curve; (2) movement of supply curve, its factors and effects on market equilibrium (3) Application of supply curve on the real-world fish markets</p> <p>3.5. Determination of market price: (1) market mechanism, (2) determination of equilibrium price and quantity. (3) non-economic factors in the market and its effect</p> | 24 | Study on the documents/Textbook bellow:<br>[1] Part 2 (P 95-119)<br>[2] Chapter 3 (p 61-90)<br>[3] Chapter 1 (p 15- 32) |
| 7-10 | <p><b>Chapter 4: Production Theory</b></p> <p>4.1 Definition and factors of production: (1) production factors (2) productivity of</p>  | 24 | Study on the documents/Textbook bellow:<br>[1] Part 1 (P 55-87)<br>[2] Chapter 3 (p 61-90)                              |

|       |  |    |  |  |
|-------|--|----|--|--|
|       | <p>factor (3) production function: input-output relationship</p> <p>4.2. Cost theory: (1) definition and categories of cost (2) calculation of production cost (3) change of cost; (4) economy of scale</p> <p>4.3. The factor-factor relationship (1) substitution of various production factors (2) decision making of factors combination for minimal production cost</p> |    |  | [3] Chapter 3 (p 72- 119)  |
| 11-13 | <p><b>Chapter 5: Management of the Fish Farm</b></p> <p>5.1. Introduction</p> <p>5.2. Factors to Consider when Planning a Fish Farm</p> <p>5.3. Farm Income and Budget Analysis</p> <p>5.4. Farm Record Keeping</p> <p>5.5. The Farm Budget</p> <p>5.6. Farm Income and Budget Analysis</p>  | 18 |  | <p>Study on the documents/Textbook bellow:</p> <p>[1] Part 2 (P 141-183)</p> <p>[2] Chapter 4 (p 91-120)</p> <p>[3] Chapter 6 (p 210- 271)</p> |
| 14-15 | <p><b>Chapter 6: Marketing in Fisheries and Aquaculture</b></p> <p>6.1. The Marketing Concept</p> <p>6.2. The Marketing Function</p> <p>6.3. Distribution and marketing channels</p> <p>6.4. New Product Development</p> <p>6.5. Promotion</p> <p>6.6. Integration of marketing strategies</p>   | 12 |  | <p>Study on the documents/Textbook bellow:</p> <p>[1] Part 2 (P 133-138)</p> <p>[2] Chapter 2 (p 40-60)</p> <p>[3] Chapter 1 (p 15- 32)</p>    |

ON BEHALF OF RECTOR  
DEAN OF COLLEGE

 *Vũ Ngọc Út*  
Vũ Ngọc Út

Can Tho, 30/.../2022  
HEAD OF DEPARTMENT

  
Huỳnh Văn Hiến