

College of Micronesia - FSM

COURSE MODIFICATION REQUEST

MR 201 Aquaculture (with lab)

Math and Science

Course Number and Title

Department

No Change

New Course Number and Title

Department

**New Course Objectives:**

None

**New Course Description:**

.....4 credits  
Prerequisite: a C or better in a college level science course.

This course focuses on the principles underlying culture of marine and freshwater organisms. Course topics include system designs, nutrition, disease problems, water quality, development and physiology. The laboratory includes water quality testing and trips to examine aquaculture operations.

**Justification for Revising the Course:**

Changes are required to make prerequisite consistent with updates in marine science courses and major. Changes are also required to make the course description better reflect what is currently taught:

\_\_\_\_\_  
Division Chairperson

5/28/99

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chairperson, Curriculum Committee

\_\_\_\_\_  
Date

6/7/99

\_\_\_\_\_  
Date

**College of Micronesia-  
FSM P. O. Box 159  
Kolonias, Pohnpei FM 96941**

**Course Outline Cover Page**

Aquaculture  
**Course Title**

MR 201  
**Department and Number**

**Course Description:**

An investigation of the principles underlying the culture of both marine and freshwater organisms. Pertinent aspects of the physiology of aquatic species will be covered as well as system design, water quality, nutrition, reproduction, and disease. An analysis of the constraints of the development of aquaculture will be made.

Coursed Prepared by: Dr. Teny Topalian

State Pohnpei-national campus

|                        | Hours per Week    |   | No. of Week       | = | Total Hours       | = | Semester Credits  |
|------------------------|-------------------|---|-------------------|---|-------------------|---|-------------------|
| Lecture                | <u>3</u>          | x | <u>16</u>         | = | <u>48/16</u>      | = | <u>3</u>          |
| Laboratory             | <u>3</u>          | x | <u>16</u>         | = | <u>16/16</u>      | = | <u>1</u>          |
| Workshop               | <u>          </u> | x | <u>          </u> | = | <u>          </u> | = | <u>          </u> |
| Total Semester Credits |                   |   |                   |   |                   |   | <u>4</u>          |

Purpose of Course: Degree Requirement \_\_\_\_\_  
Degree Elective \_\_\_\_\_  
Certificate \_\_\_\_\_  
Remedial \_\_\_\_\_  
Other (workshop) \_\_\_\_\_

**Prerequisite Course(s):** MR 120

---

Signature, Chairperson, Curriculum Committee

4/2/1998

Date Approved by Committee

4/17/98

Date Approved by President

Aquaculture - MR 201

Course Description: An investigation of the principles underlying the culture of both marine and freshwater organisms. Pertinent aspects of the physiology of aquatic species will be covered as well as system design, water quality, nutrition, reproduction, and disease. An analysis of the constraints of the development of aquaculture will be made.

Course Prepared by: Dr. Teny Topalian

## Course Outline

### I. Course Objectives

#### A. General

1. To develop an understanding of the principles of aquaculture.
2. To compare and contrast the benefits and problems of developing an aquaculture system.
3. To gain a knowledge of selection of species and sites for aquaculture.
4. To develop aquaculture projects for economic development.
5. To start a small, low technology aquaculture farm as a private enterprise.

#### B. Specific

Upon completion of the course the student will be able to:

- 1: Define aquaculture and mariculture.
2. List some of objectives of aquaculture development.
3. Explain the problems and restrictions of aquaculture.
4. Describe possible selection sites for aquaculture.
5. Explain the criteria for species selection.
6. Compare aquaculture in tropical and temperate regions of the world.
7. List the different species that are most commonly cultured in different parts of the world.
8. Describe different culture systems.
9. List different water sources and pretreatment methods.
10. Explain the importance of maintaining water quality in the system.
11. Know the physiology of different cultured species.

12. Describe the nutritional needs of cultured species.
13. Explain reproduction of different marine species.
14. Explain selective breeding and genetics of marine organisms.
15. List and describe the different disease, their causes and cures.
16. Propose a plan for an integrated health management plan.
17. Explain different methods of weed, pest and predator control.
18. Compare different harvesting methods of species.
19. Design and construct aqua farms.
20. Explain the economics of processing and marketing of cultured organisms.

## II. Course Contents

1. What is aquaculture?
2. Culture systems.
3. Water quality.
4. Nutrition and growth.
5. Reproduction and selective breeding.
6. Disease and parasites.
7. Harvesting and processing.
8. Economics of marketing.
9. Developing an aquaculture project.
10. Aquaculture and economic development.

## III. Textbook

Stickney, R. R. Principles of Warm water Aquaculture, John Wiley and Sons, 1979.

## IV. Required course materials

None

V. Reference materials

Brown, E. E. & Gratezek, J. B. Fish Farming Handbook, Van Nostrand, 1980.

Imai, T. Aquaculture in Shallow Seas, Pauls Press, 1982.

McVey, J.P. Handbook of Mariculture, CRC Press, 1991.

Pillay, T.V.R Aquaculture: Principles and Practices, Blackwell, 1990.

VI. Instructional costs

Field trips

Videos

Materials for aquafarm development projects

VII. Methods of Instruction

The course will be taught by lecture, debates, quest lectures, presentation of field trip reports, field trips to aquaculture farms, videos.

VIII. Evaluation

Research reports, field trip reports, project paper, tests, final exam. A scale of 90 - 100 = A, 80-89=B, 70-79=C,60-69=D,0-59=F will be used.

IX. Credit by Examination

None

X. Attendance

According to College Policy (refer to catalog).