COLLEGE OF THE MARSHALL ISLANDS

COURSE OUTLINE COVER SHEET

CIP No. 16.1301
SCI 235
Alpha Number

Tropical Marine Ecosystems
Course Title

Course Description

Introduces students to marine ecosystems of the tropical Pacific and explains their production cycles, discusses the natural and human factors affecting tropical marine ecosystems, and shows the importance of traditional and commercial fisheries. Introduces sustainable management strategies involving fishery management and aquaculture.

Course prepared by:  Dr. Larry Harris  
Math Science Department  
April 1998

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<th>Activity</th>
<th>Hours per Week</th>
<th>Number of Weeks</th>
<th>Total Hours</th>
<th>Credits</th>
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Total Credit Hours  4

Purpose of Course: Degree Requirement

Degree Elective  x
Certification
Developmental
Other

Prerequisite(s)  SCI 135

Last Date reviewed or revised: Sept. 2008
I. Tropical Marine Ecosystems

II. Course Objectives

A. General Outcomes

Students who complete this course will:
1. Understand tropical marine ecosystems and the factors that influence them (LA 3)
2. Identify the major plant & animal taxa that make up a reef system and the roles they play (LA 3)
3. Discover the types of reef systems and the environmental factors that shape them (LA 4)
4. Identify man's interactions with the marine ecosystems and the concepts of traditional and modern management approaches (LA 1, 4)
5. Discuss the impact of harvesting and concepts of sustainability in reef systems (LA 1)

B. Student Learning Outcomes

Upon completion of this course, the student will be able to:
1. Analyze the different reef systems as they occur in different regions of the world as well as the basic categories of reefs
2. Compare and contrast tropical marine ecosystems of different regions of the world
3. Plan and conduct a quantitative reef survey and analyze data collected
4. Prepare a report inducing analysis and interpretation of data collected concerning man's interactions with the marine ecosystems and the concepts of traditional and modern management approaches
5. Analyze the impact of harvesting and concepts of sustainability in reef systems

III. Course Content

This course introduces students to the concepts underlying tropical marine ecosystems and the impacts caused by humans and nature.

1. Coral reef morphology, types, use as proxy for ancient climate
2. Coral geography, diversity
3. Polyp and corallite morphology
4. Variation in colony shape
5. Coral life cycle: recruitment to death
6. Coral taxonomy
7. Bioerosion and cryptobiota: enemies and neighbors of coral
8. Symbiosis on the reef
9. Reef fish biology: feeding guilds, spawning, recruitment
10. Fish taxonomy
11. Assessing reef health
12. Reef food web dynamics
13. Mechanisms of reef degradation: eutrophication, siltation, overfishing, climate change
14. Quantitative reef survey techniques
15. Mangroves
16. Regional interdependence of ecosystems
17. Introduction to management and restoration options including mariculture and artificial reefs

IV. Methods of Instruction

1. Lecture
2. Laboratory, including field trips
3. Small groups

V. Equipment and Materials

1. VCR/DVD
2. Computers
3. LCD projector
4. Snorkel gear

VI. Suggested Methods of Evaluation

1. Exams
2. Written lab reports
3. Individual or group project

Letter grades will be assigned per CMI Grading System.
Course History Summary

Course Number: SCI 235 Tropical Marine Ecosystems (4)

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