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Marine Coastal and Delta Sustainability for Southeast Asia
(610327-EPP-1-2019-1-DE-EPPKA2-CBHE-JP)



TLM presentation

Marine Ecology

Dr. Hoang Xuan Ben
Institute of Oceanography
2021

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Overview of course

- Name: Marine Ecology
- Language: Vietnamese
- Coordinator: Institute of Oceanography
- Credits: 4,5 ECTs
- Lecturers: Hoang Xuan Ben
- Level: BSc.
- Host institution: Ho Chi Minh City University of Natural Resources and Environment
- Course duration: 1 semester (the classes will be scheduled in accordance with the university timetable)

Aims and objectives

The main course objective is to equip students with knowledge of:

- ❑ Understanding abundance of marine organisms.
- ❑ Understanding ecological processes in marine ecosystems.
- ❑ Understanding the effect of humans on marine ecosystem changes and its biogeographic contingencies.
- ❑ Improving scientific communication skills and teamwork

Content of course

- Provide an understanding of the patterns of abundance and diversity of marine organisms and the processes in marine ecosystems.
- Understand the complexity of marine systems and how to quantifying them.
- Understand how to design the experiments/ collect data for the development of theory and solutions to environmental and conservation problems in coastal/marine habitats.
- The field work.

Lecture Structure

Chapter 1: Outline of Marine Ecology

- ❑ Concept, objects, tasks
- ❑ The laws of ecology
- ❑ Principles of ecology
- ❑ Major habitats



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CHƯƠNG 1: ĐẠI CƯƠNG VỀ SINH THÁI HỌC BIỂN

1. KHÁI NIỆM, ĐỐI TƯỢNG, NHIỆM VỤ
2. CÁC QUY LUẬT SINH THÁI HỌC
3. NHỮNG NGUYÊN LÝ SINH THÁI HỌC
4. NHỮNG MÔI TRƯỜNG SỐNG CHỦ YẾU

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Lecture Structure

Chapter 2: Ecological Factors And Marine Habitat

- ❑ Some basic properties of water and sea water
- ❑ Contemporary ecological zoning
- ❑ Current systems in seas and oceans
- ❑ Sea water temperature
- ❑ Water column pressure
- ❑ Light intensity
- ❑ Seawater salinity and mineral composition
- ❑ Marine biological productivity



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CHƯƠNG 2

CÁC YẾU TỐ SINH THÁI VÀ MÔI TRƯỜNG SỐNG Ở BIỂN

TS. HOÀNG XUÂN BÈN
ThS. PHAN MINH THỤ
VIỆN HẢI DƯƠNG HỌC

1. Một số đặc tính cơ bản của nước và nước biển
2. Phân vùng sinh thái đại dương
3. Hệ thống dòng chảy ở biển và đại dương
4. Nhiệt độ nước biển
5. Áp lực cột nước
6. Cường độ ánh sáng
7. Độ mặn nước biển và thành phần các khoáng chất
8. Năng suất sinh học biển

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Lecture Structure

Chapter 3: Characteristic Marine Ecosystems

1. General characteristics of marine creatures

- 1.1. Diversity of species composition
- 1.2. Ecological and biological characteristics

2. Typical marine ecosystems

- 2.1. Tidal ecosystem
- 2.2. Estuarine ecosystem
- 2.3. Seagrass ecosystem
- 2.4. Mangrove Ecosystems
- 2.5. Coral reef ecosystem



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CHƯƠNG 3
CÁC HỆ SINH THÁI BIỂN ĐẶC TRƯNG

TS. HOÀNG XUÂN BÈN
ThS. PHAN MINH THỤ
VIỆN HẢI DƯƠNG HỌC

1. ĐẶC ĐIỂM CHUNG CỦA SINH VẬT BIỂN
1.1. Đa dạng thành phần loài
1.2. Đặc trưng sinh thái – sinh học


2. CÁC HỆ SINH THÁI BIỂN ĐIỂN HÌNH
2.1. Hệ sinh thái vùng triều
2.2. Hệ sinh thái cửa sông
2.3. Hệ sinh thái thảm cỏ biển
2.4. Hệ sinh thái rừng ngập mặn
2.5. Hệ sinh thái rạn san hô

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Lecture Structure

Chapter 4: Human Impact On Marine Ecosystems And Marine Conservation Issues

1. Human impact on ecosystems
 - 1.1. Exploitation of biological resources
 - 1.2. Activities that pollute the environment
2. Marine conservation issues
 - 2.1. System of marine protected areas in Vietnam
 - 2.2. Restore marine ecosystems



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CHƯƠNG 4
TÁC ĐỘNG CỦA CON NGƯỜI ĐỐI VỚI CÁC HỆ SINH THÁI BIỂN VÀ VẤN ĐỀ BẢO TỒN BIỂN

TS. HOÀNG XUÂN BÈN
ThS. PHAN MINH THỤ
VIỆN HẢI DƯƠNG HỌC

- 1. Tác động của con người đối với các hệ sinh thái**
 - 1.1. Khai thác nguồn lợi sinh vật*
 - 1.2. Các hoạt động gây ô nhiễm môi trường*
- 2. Vấn đề bảo tồn biển**
 - 2.1. Hệ thống các khu bảo tồn biển Việt Nam*
 - 2.2. Phục hồi các hệ sinh thái biển*

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Teaching and learning materials

- [1]. Textbook, Fisheries oceanography, Hoang Xuan Ben, 2021
- [2]. Lecture note, Fisheries oceanography, Hoang Xuan Ben, 2021
- [3]. [Duarte, C.M. \(2009\). Marine Ecology. EOLSS Publications, 474pp.](#)
- [\[4\]. Kaiser, M. J., Attrill, M. J., Jennings, S., Thomas, D. N., Barnes, D. K. A., Brierley, A. S., Graham, N. A. J., Hiddink, J. G., Howell, K., & Kaartokallio, H. \(2020\). Marine Ecology: Processes, Systems, and Impacts. \(3 ed.\) Oxford University Press.](#)
- [5]. Townsend, D.W. 2012. Oceanography and Marine Biology: An Introduction to Marine Science. Sinauer.
- [6]. Castro P, Michael E, Huber D 2015. Marine Biology. 10th. McGraw-Hill Education. ISBN: 9780078023064.
- [7]. Mitra A, Zaman S 2017. Basics of Marine and Estuarine Ecology. Springer. ISBN: 9788132227052
- [8]. Vũ Công Tạng. Cơ sở sinh thái học. Tái bản lần 2. NXB. Giáo dục.

Evaluation

- ❑ Progress assessment (40%):
- ❑ Class participate (10%)
- ❑ Homework (30%)
- ❑ Final assessment (60%):
- ❑ Grade:
 - A (8,5-10)
 - B (7,0 –8,4)
 - C (5,5 –6,9)
 - D (4,0 –5,4)



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Thank you

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