Coral Reef Ecosystems in a Changing World (OCEAN 5097)

Information

Time: Tuesday 13:20- 16:20 (Spring Semester - odd year)

Lecturers: Vianney DENIS

Credits: 3

References

Dai CF, Horng S (2009a) Scleractinia Fauna of Taiwan. I. The Complex Group. National Taiwan University.

Dai CF, Horng S (2009) Scleractinia Fauna of Taiwan. II. The Robust Group. National Taiwan University.

Denis V, Soto D, De Palmas S, Lin YTV, Benayahu Y, et al. (2019) Taiwan. In: Loya Y, Puglise KA, Bridge T (eds) Mesophotic coral ecosystems. Springer, Cham. pp 249-264. doi:%5B10.1007/978-3-319-92735-0_14](https://link.springer.com/chapter/10.1007/978-3-319-92735-0_14)

Dubinsky Z, Stambler N (2011) Coral Reefs: An Ecosystem in Transition. Springer, Dordrecht,552p. doi: %5B10.1007/978-94-007-0114-4_1](https://link.springer.com/book/10.1007%2F978-94-007-0114-4)

Outline

The rapid decline of coral reefs around the world motivates studies to better understand how these complex ecosystems will respond to future environmental changes. This course will make an up-to-date review on the knowledge of reef organisms and ecosystems, and the factors responsible for reef degradation. Information will further serve to understand the population dynamics and resilience abilities observed on reefs throughout the world with a perspective of conservation. Many examples will be based on the present reef conditions around Taiwan. According to their availability, speakers may be invited to illustrate a particular topic.

This course is an introduction to coral reefs and only requires basic knowledge in marine life, biology, and ecology Few classes about coral physiology could be a bit more challenging, but overall a strong curiosity about coral reefs is the most important to enjoy this course.

Objectives

- Basic knowledge of reef organisms and coral ecosystem
- Highlight research priority in the context of global changes
- Implication for reef management and conservation

Schedule

Subject to changes.

Week	Content
1	Introduction
2	History and future challenges in coral research
3	The paleoecology and distribution of coral reefs
4	Coral taxonomy and evolution
5	Anatomy and biology of scleractinian corals
6	The photosynthesis in zooxanthellate corals
7	Coral calcification: from cells to reefs, response to ocean acidification
8	Coral bleaching: causes and consequences
9	Presentation papers
10	Coral reef algae: biology, taxonomy, diversity
11	Invertebrates and their roles in coral reef ecosystems
12	Reef fish biology and ecology
13	The impact of global changes on coral reef ecosystems
14	Acclimatization and adaptation of reef corals
15	Resilience of coral reefs and its implications for reef management
16	Role of MPA for the conservation of coral reef ecosystem
17	Pathology and etiology of disease in reef corals
18	Final - essay

Evaluation

Presence in class is compulsory. Apply online (myNTU) for leaves of absence.

20% Participation in class - Quiz (kahoot) **30%** Midterm presentation - assigned reading **50%** Final essay - exam

Contact

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