



Course Title Marine Ecology and Conservation Mahidol University International College  
Course Code ICBI 440 Division Science

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**TQF 3 Course Specifications**  
**Section 1 General Information**

1. Course code and course title

Thai

English

Marine Ecology and Conservation

2. Number of credits

4 (4-0-8) (Lecture/Lab/Self-study)

3. Program and type of subject

3.1 Program

Undergraduate Degree (International Program)

3.2 Type of Subject

Elective course for Ecology and Conservation Module

4. Course Coordinator and Course Lecturer

4.1 Course Coordinator Dr Wayne Phillips

4.2 Course Lecturer Dr Wayne Phillips

5. Trimester/ Year of Study

5.1 Trimester

1

5.2 Course Capacity

Approximately...25 .students

6. Pre-requisite

ICBI 262 Practical Field Ecology and Conservation

7. Co-requisites

ICBI 442 Practical Marine Ecology and Conservation

ICBI 262 Practical Field Ecology and Conservation

8. Venue of Study

Mahidol University International College

9. Date of Latest Revision

01 April 2018

**Section 2 Goals and Objectives**

1. Course Goals

Upon successful completion of this course, students should be able to describe and explain the significance of natural disturbance; human activities; and disruptive global climate change on the biology and ecology of different habitats within the marine environment. Because marine ecosystems provide us with many economic; social; and environmental benefits students should be able to describe and explain best practices, codes of behaviour, agreements, rules and regulations for their protection and conservation.



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## 2. Objectives of Course Development/Revision

### 2.1 Course Objectives

- 2.1.1 Define, describe and explain the significance of abiotic conditions on primary and secondary production in marine habitats and ecosystems
- 2.1.2 Define, describe and explain the significance of biotic interactions in marine habitats and ecosystems
- 2.1.3 Evaluate the connections between the health of marine habitats and ecosystems and the health of human society
- 2.1.4 Evaluate the significance of global climate change on marine habitats; ecosystems; and human society
- 2.1.5 Evaluate methods and techniques for the restoration and conservation of marine habitats; ecosystems; and resources
- 2.1.6 Exercise intellectual curiosity, critical thinking and independent learning

### 2.2 Course-level Learning Outcomes: CLOs

By the end of the course, students will be able to (CLOs)

1. CLO 1 Possess knowledge in Marine Ecology and Conservation
2. CLO 2 Apply knowledge in Marine Ecology and Conservation
3. CLO 3 Comprehend qualitative, quantitative data and/or ideas
4. CLO 4 Draw meaningful conclusions from scientific data/materials (quantitative and qualitative)
5. CLO 5 Retrieve relevant scientific information independently
6. CLO 6 Demonstrate proficiency in oral communication of Marine Ecology and Conservation
7. CLO 7 Demonstrate proficiency in written communication of Marine Ecology and Conservation
8. CLO 8 Demonstrate accountability and responsibility
9. CLO 9 Able to set, plan and accomplish assigned project in a timely manner
10. CLO 10 Demonstrate systematic and logical thinking



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**Section 3 Course Management**

1. Course Description  
(Thai)

(English) Adaptations; behaviour; diversity; physiology; ecological roles; marine ecosystems; marine resources; trophic interactions; human activities; sustainable management; significance of global climate change; coral reef bleaching; reef rehabilitation & restoration ; mangrove deforestation/reforestation; conservation measures

2. Credit hours per trimester

Lecture (Hour(s))	Laboratory/field trip/internship (Hour(s))	Self-study (Hour(s))
48	0	96

3. Number of hours that the lecturer provides individual counseling and guidance.  
4 hours per week

**Section 4 Development of Students’ Learning Outcome**

1. Short summary on the knowledge or skills that the course intends to develop in students (CLOs)

By the end of the course, students will be able to

- CLO 1 Possess knowledge in Marine Ecology and Conservation
- CLO 2 Apply knowledge in Marine Ecology and Conservation
- CLO 3 Comprehend qualitative, quantitative data and/or ideas
- CLO 4 Draw meaningful conclusions from scientific data/materials (quantitative and qualitative)
- CLO 5 Retrieve relevant scientific information independently
- CLO 6 Demonstrate proficiency in oral communication of Marine Ecology and Conservation
- CLO 7 Demonstrate proficiency in written communication of Marine Ecology and Conservation
- CLO 8 Demonstrate accountability and responsibility
- CLO 9 Able to set, plan and accomplish assigned project in a timely manner
- CLO 10 Demonstrate systematic and logical thinking



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2. Teaching methods for developing the knowledge or skills specified in item 1 and evaluation methods of the course learning outcomes

CLO	Teaching methods	Evaluation Methods
CLO 1	Lecture; discussion; assignment	Assignment report; participation in discussions; written examination
CLO 2	Lecture; discussion; assignment	Assignment report; participation in discussions; written examination
CLO 3	Lecture; discussion; case study	Assignment report; participation in discussions; written examination
CLO 4	Lecture; discussion; case study	Assignment report; presentation; written examination
CLO 5	Lecture; demonstration; discussion	Assignment report; presentation; written examination
CLO 6	Lecture; discussion; case study	Participation in discussions; presentation
CLO 7	Lecture; discussion; case study	Assignment report; written examination
CLO 8	Discussion	Attendance
CLO 9	Lecture; discussion; case study	Assignment report
CLO 10	Lecture; discussion; case study	Assignment report; presentation



**Section 5 Teaching and Evaluation Plans**

1. Teaching plan

Week	Topic	Number of Hours		Teaching Activities/ Media	Lecturer
		Lecture Hours	Lab/Field Trip/Internship Hours		
1	The marine environment Local; regional; global significance	4	-	Lecture; discussion; assignment	WNP
2	Pelagic Ecosystems Abiotic/biotic interactions Primary & secondary production Significance of global climate change; and other human activities Protection and conservation measures	4	-	Lecture; discussion; assignment	WNP
3	Polar Seas Abiotic/biotic interactions Primary & secondary production Significance of global climate change; and other human activities Protection and conservation measures	4	-	Lecture; discussion; case study; assignment	WNP
4 5 6	Rocky and Sandy Shores Abiotic/biotic interactions Primary & secondary production Significance of global climate change; and other human activities Protection and conservation measures	12	-	Lecture; discussion; case study; assignment	WNP
7 8 9	Mangrove forests and Seagrass Meadows Abiotic/biotic interactions Primary & secondary production	12	-	Lecture; discussion; case study; assignment	WNP



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	Significance of global climate change; and other human activities Protection and conservation measures				
10 11 12	Coral Reefs Abiotic/biotic interactions Primary & secondary production Significance of global climate change; and other human activities Protection and conservation measures Presentation	12		Lecture; discussion; case study; assignment	WNP
Submission of Assignment Report					

2. Plan for Assessing Course Learning Outcomes

2.1 Assessing and Evaluating Learning Achievement

a. Formative Assessment

Participation rubrics

Attendance rubrics

Discussion rubrics



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b. Summative Assessment

(1) Tools and Percentage Weight in Assessment and Evaluation

Learning Outcomes	Assessment Methods	Assessment Ratio (Percentage)	
CLO 1	Assignment report	5	14
	Participation in discussions	5	
	Written examination	4	
CLO 2	Assignment report	3	11
	Participation in discussions	4	
	Written examination	4	
CLO 3	Assignment report	5	12
	Participation in discussions	3	
	Written examination	4	
CLO 4	Assignment report	5	19
	Written examination	4	
	Presentation	10	
CLO 5	Assignment report	3	13
	Presentation	8	
	Written examination	2	
CLO 6	Participation in discussions	6	16
	Presentation	10	
CLO 7	Assignment report	5	7
	Written examination	2	
CLO 8	Attendance	2	2
CLO 9	Assignment report	2	2
CLO 10	Assignment report	2	4
	Presentation	2	
Total		100	100



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(2) Grading System

100%-90%	A
89%-85%	B+
84%-80%	B
79%-75%	C+
74%-70%	C
69%-65%	D+
64%-60%	D
< 60%	F

(3) Re-examination (If course lecturer allows to have re-examination)

N/A - (Not applicable with MUIC)

3. Student Appeals

Students are able to submit appeals either in person or via email to course coordinator within 7 days of receiving the final grade.

**Section 6 Teaching Materials and Resources**

1. Textbooks and/or other documents/materials

Kaiser MJ et al. Marine Ecology: Processes, Systems, and Impacts. OUP Oxford, 2011  
Speight and Henderson. Marine Ecology. Wiley-Blackwell, 2010

2. Recommended textbooks and/or other documents/materials

1) Scientific articles chosen from relevant journals

3. Other Resources (If any)

Lecture handouts





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**Section 7 Evaluation and Improvement of Course Management**

1. Strategies for evaluating course effectiveness by students
  - 1.1 Student feedback of instructors, teaching methods and materials, and course content through MUIC student evaluation forms
  - 1.2 Written feedback submitted via Program Director
2. Strategies for evaluating teaching methods
  - 2.1 Evaluation of effectiveness based on student evaluation scores and comments
  - 2.2 Evaluation through peer observations by co-instructor or other Division faculty
3. Improvement of teaching methods
  - 3.1 Adjustments based on student feedback, personal observations, comments from peer observations and discussions with supervisor and/or other Division faculty in one-on-one and/or group meetings as specified by MUIC guidelines.
  - 3.2 Adjustments based on recommendations from peer-observation, co-instructor or other faculty members
4. Verification process for evaluating students' standard achievement outcomes in the course
  - 4.1 Verification through student performance on assessments based on MUIC/Division standards
5. Review and plan for improving the effectiveness of the course
  - 5.1 Course instructors (and coordinator/supervisor) will meet to discuss results of student evaluations and student performance based on learning outcomes in order to identify points for improvement
  - 5.2 Program instructors meet to discuss curriculum evaluation and improvement in the monthly Program meetings chaired by the Program Director



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**Appendix**  
**Alignment between Courses and Program**

Table 1 The relationship between course and Program Learning Outcomes (PLOs)

Course Name	Program Learning Outcomes (PLOs)					
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
Marine Ecology and Conservation						
ICBI 440	R	R	R	R	-	R

**Note:** Indicate the level of CLOs by letter I, R, P or M. Using the information as shown in the Curriculum Mapping of TQF2



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**Table 2** The relationship between CLOs and PLOs

(Course code) ICBI 440	Program Learning Outcomes (PLOs)					
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6
CLO 1	1.1					
CLO 2	1.2					
CLO 3		2.1				
CLO 4		2.2				
CLO 5		2.3				
CLO 6			3.1			
CLO 7			3.2			
CLO 8				4.2		
CLO 9				4.5		
CLO 10						6.3



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**Table 3** The description of PLOs and Sub Los of the course

PLOs	SubPLOs
PLO 1 Apply discipline-specific knowledge and technical skills in biological sciences	1.1 Possess knowledge in Marine Ecology and Conservation
	1.2 Apply knowledge in Marine Ecology and Conservation
PLO 2 Appraise scientific information critically	2.1 Comprehend qualitative, quantitative data and/or ideas
	2.2 Draw meaningful conclusions from scientific data/materials (quantitative and qualitative)
	2.3 Retrieve relevant scientific information independently
PLO 3 Demonstrate proficiency in oral and written communication of scientific concepts	3.1 Demonstrate proficiency in oral communication of Marine Ecology and Conservation
	3.2 Demonstrate proficiency in written communication of Marine Ecology and Conservation
PLO 4 Apply scientific integrity and professionalism	4.2 Demonstrate accountability and responsibility
	4.5 Able to set, plan and accomplish assigned project in a timely manner
PLO 6 Able to integrate different disciplines to formulate solutions for novel situations	6.3 Demonstrate systematic and logical thinking