Course Title Practical Marine Ecology and Conservation Mahidol University International College
Course Code ICBI 442 Division Science

QF 3 Course Specifications
Section 1 General Information

1. Course code and course title

Thai	
English	Practical Marine Ecology and Conservation
2. Number of credits	2 (0-4-2) (Lecture/Lab/Self-study)
3. Program and type of subject	
3.1 Program	Undergraduate Degree (International Program)
3.2 Type of Subject	Elective co-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 101 or its equivalent ICBI 262 Practical Field Ecology and Conservation
7. Co-requisites	ICBI 440 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

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Section 2 Goals and Objectives

1. Course Goals

Upon successful completion of this course, students should be able to describe, explain, safely perform and record the results of methods and techniques to analyse biotic interactions and abiotic conditions of marine ecosystems to assess their health and resilience in the face of disruptive global climate change. Students will contribute to the restoration and rehabilitation of the coral reefs of Pattaya Bay, Thailand.

2. Objectives of Course Development/Revision

2.1 Course Objectives

2.1.1 Define, describe, explain and safely perform the laboratory methods and techniques to investigate abiotic conditions of marine habitats and ecosystems

2.1.2 Define, describe, explain and safely perform the field methods and techniques to investigate biotic interactions in marine habitats and ecosystems

2.1.3 Define, describe, explain, measure and report on the impact of human activities on marine habitats and ecosystems

2.1.4 Define, describe and explain the steps necessary to improve marine ecosystem resilience in the face of global climate change

2.1.5 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 Practical Marine Ecology and Conservation
2. CLO 2 Apply knowledge in Practical Marine Ecology and Conservation
3. CLO 3 Possess technical skills in Practical Marine Ecology and Conservation
4. CLO 4 Apply technical skills in Practical Marine Ecology and Conservation
5. CLO 5 Draw meaningful conclusions from scientific data/materials (quantitative and qualitative)
6. CLO 6 Demonstrate proficiency in oral communication of Practical Marine Ecology and Conservation
7. CLO 7 Demonstrate proficiency in written communication of Practical Marine Ecology and Conservation
8. CLO 8 Demonstrate accountability and responsibility
9. CLO 9 Apply concept of laboratory safety and field study safety
10. CLO 10 Able to set, plan and accomplish assigned project in a timely manner

11. CLO 11 Formulate a process for data acquisition
12. CLO 12 Demonstrate systematic and logical thinking

Section 3 Course Management

1. Course Description

(Thai)

(English) Laboratory and field procedures; experimental design; measuring abiotic conditions; assessing biotic interactions; behaviour; communities; diversity indices; similarity indices; biotic interactions; evaluating anthropogenic impacts; coral reef restoration & rehabilitation; coral reef conservation

2. Credit hours per trimester

Lecture (Hour(s))	Laboratory/field trip/internship (Hour(s))	Self-study (Hour(s))
-	24	48

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 Practical Marine Ecology and Conservation
CLO 2 Apply knowledge in Practical Marine Ecology and Conservation
CLO 3 Possess technical skills in Practical Marine Ecology and Conservation
CLO 4 Apply technical skills in Practical Marine Ecology and Conservation
CLO 5 Draw meaningful conclusions from scientific data/materials (quantitative and qualitative)
CLO 6 Demonstrate proficiency in oral communication of Practical Marine Ecology and Conservation
CLO 7 Demonstrate proficiency in written communication of Practical Marine Ecology and Conservation
CLO 8 Demonstrate accountability and responsibility

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CLO 9 Apply concept of lab safety and field study safety
CLO 10 Able to set, plan and accomplish assigned project in a timely manner
CLO 11 Formulate a process for data acquisition
CLO 12 Demonstrate systematic and logical thinking

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	Discussion; laboratory; field study	Laboratory report; field report; assignment report; participation in discussions
CLO 2	Discussion; laboratory; field study	Laboratory report; field report; assignment report; participation in discussions
CLO 3	Discussion; demonstration; laboratory; field study	Laboratory report; field report; assignment report; participation in activities
CLO 4	Discussion; demonstration; laboratory; field study	Laboratory report; field report; assignment report; participation in activities
CLO 5	Discussion; case study	Laboratory report; field report; assignment report; presentation
CLO 6	Discussion; case study	Participation in discussions; presentation
CLO 7	Discussion; case study	Laboratory report; field report; Assignment report
CLO 8	Discussion	Attendance
CLO 9	Discussion; case study	Laboratory report; field report; Assignment report
CLO 10	Discussion; case study	Laboratory report; field report; Assignment report
CLO 11	Discussion; case study	Laboratory report; field report; Assignment report
CLO 12	Discussion, case study	Laboratory report; field report; Assignment report; presentation

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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 2	Sampling in marine ecosystems: Experimental design Selecting samples and parameters Practical considerations			Discussion; laboratory; case study; field study	WNP
3 4 5	Rocky and Sandy Shores: Abiotic conditions Biotic interactions Anthropogenic threats			Discussion; case study; field study	WNP
6 7 8	Mangrove forests and Seagrass Meadows: Abiotic conditions Biotic interactions Anthropogenic threats Restoration & Rehabilitation			Discussion; laboratory; case study; field study	WNP
9 10 11 12	Coral reefs: Abiotic conditions Biotic interactions Anthropogenic threats Restoration & Rehabilitation			Discussion; case study; field study	WNP
	Submission of Laboratory report; Field report and 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

b. Summative Assessment

(1) Tools and Percentage Weight in Assessment and Evaluation

Learning Outcomes	Assessment Methods	Assessment Ratio (Percentage)	
CLO 1	Laboratory report	2	7
	Field report	2	
	Assignment report	1	
	Participation in discussions	2	
CLO 2	Laboratory report	2	7
	Field report	2	
	Assignment report	1	
	Participation in discussions	2	
CLO 3	Laboratory report	2	15
	Field report	2	
	Assignment report	1	
	Participation in activities	10	
CLO 4	Laboratory report	2	20
	Field report	2	
	Assignment report	1	
	Participation in activities	15	
CLO 5	Laboratory report	2	12
	Field report	2	
	Assignment report	6	
	Presentation	2	
CLO 6	Participation in discussions	1	2
	Presentation	1	
CLO 7	Laboratory report	2	8
	Field report	2	
	Assignment report	4	
CLO 8	Attendance	5	5
CLO 9	Laboratory report	2	5
	Field report	2	
	Assignment report	1	
CLO 10	Laboratory report	2	5
	Field report	2	

	Assignment report	1	
CLO 11	Laboratory report	2	5
	Field report	2	
	Assignment report	1	
CLO 12	Laboratory report	2	9
	Field report	2	
	Assignment report	3	
	Presentation	2	
	Total	100	100

(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

Brower, Zar and von Ende. Field and Laboratory methods for general ecology. McGraw Hill, 1997

English, Wilkinson and Baker. Survey manual for tropical marine resources. AIMS, 1997

2. Recommended textbooks and/or other documents/materials

1) Scientific articles chosen from relevant databases

3. Other Resources (If any)

Lecture handouts

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

Appendix
Alignment between Courses and Program

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

Course Name	Program Learning Outcomes (PLOs)					
Practical Marine Ecology and Conservation	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
ICBI 442	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 388	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	1.3					
CLO 4	1.4					
CLO 5		2.2				
CLO 6			3.1			
CLO 7			3.2			
CLO 8				4.2		
CLO 9				4.4		
CLO 10				4.5		
CLO 11						6.2
CLO 12						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 Practical Terrestrial Ecology and Conservation
	1.2 Apply knowledge in Practical Terrestrial Ecology and Conservation
	1.3 Possess technical skills in Practical Terrestrial Ecology and Conservation
	1.4 Apply technical skills in Practical Terrestrial Ecology and Conservation
PLO 2 Appraise scientific information critically	2.2 Draw meaningful conclusions from scientific data/materials (quantitative and qualitative)
PLO 3 Demonstrate proficiency in oral and written communication of scientific concepts	3.1 Demonstrate proficiency in oral communication of Practical Terrestrial Ecology and Conservation
	3.2 Demonstrate proficiency in written communication of Practical Terrestrial Ecology and Conservation
PLO 4 Apply scientific integrity and professionalism	4.2 Demonstrate accountability and responsibility
	4.4 Apply concept of lab safety and field study safety
	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	6.2 Formulate a process for data acquisition
	6.3 Demonstrate systematic and logical thinking