**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.

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

**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

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/InternshipHours |  |
| 1 | The marine environmentLocal; regional; global significance | 4 | - | Lecture; discussion; assignment | WNP |
| 2 | Pelagic EcosystemsAbiotic/biotic interactionsPrimary & secondary productionSignificance of global climate change; and other human activitiesProtection and conservation measures | 4 | - | Lecture; discussion; assignment | WNP |
| 3 | Polar SeasAbiotic/biotic interactionsPrimary & secondary productionSignificance of global climate change; and other human activitiesProtection and conservation measures | 4 | - | Lecture; discussion; case study; assignment | WNP |
| 456 | Rocky and Sandy ShoresAbiotic/biotic interactionsPrimary & secondary productionSignificance of global climate change; and other human activitiesProtection and conservation measures | 12 | - | Lecture; discussion; case study; assignment | WNP |
| 789 | Mangrove forests and Seagrass MeadowsAbiotic/biotic interactionsPrimary & secondary productionSignificance of global climate change; and other human activitiesProtection and conservation measures | 12 | - | Lecture; discussion; case study; assignment | WNP |
| 101112 | Coral ReefsAbiotic/biotic interactionsPrimary & secondary productionSignificance of global climate change; and other human activitiesProtection and conservation measuresPresentation | 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

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 |

(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

**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 NameMarine Ecology and Conservation | Program Learning Outcomes (PLOs) |
| PLO1 | PLO2 | PLO3 | PLO4 | PLO5 | PLO6 |
| 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

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 |

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 |