Undergraduate Program Mahidol University International College Science Division
Course Title Practical Field Ecology and Conservation Course Code ICBI 262

TQF 3 Course Specifications
Section 1 General Information

1. Course code and course title

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English	Practical Field Ecology and Conservation

2. Number of credits 4 (3-2-7) (Lecture/Lab/Self-study)
3. Program and type of subject
   - 3.1 Program: Undergraduate Degree (International Program)
   - 3.2 Type of Subject: General Requirement
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: 1,2,3
   - 5.2 Course Capacity: 25 students (work will be conducted in the field following all relevant COVID protocols)
6. Pre-requisite: ICBI 101 or equivalent
7. Co-requisites: N/A
8. Venue of Study: Mahidol University International College
9. Date of Latest Revision: Apr 2022

Section 2 Goals and Objectives

1. Course Goals

Upon successful completion of this course, students should be able to describe and explain how to plan and then successfully implement an investigation of local ecosystems for conservation purposes. Students should be able to objectively analyse & interpret ecological information and effectively communicate simple steps for the protection and conservation of our natural environment and resources.

2. Objectives of Course Development/Revision
   - 2.1 Course Objectives
     - 2.1.1 Formulate aims, objectives and hypotheses to design and safely perform ecological research
     - 2.1.2 Evaluate the practical considerations of ecological research including how to collect samples safely and lawfully
     - 2.1.3 Evaluate different sampling methods and techniques for static and mobile organisms
     - 2.1.4 Explore the objective collection, analysis and interpretation of ecological information for conservation purposes
     - 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 Field Ecology and Conservation
2. CLO 2 Apply knowledge in Practical Field Ecology and Conservation
3. CLO 3 Possess technical skills in Practical Field Ecology and Conservation
4. CLO 4 Apply technical skills in Practical Field 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 Field Ecology and Conservation
7. CLO 7 Demonstrate proficiency in written communication of Practical Field Ecology and Conservation
8. CLO 8 Demonstrate accountability and responsibility
9. CLO 9 Apply concept of lab 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

Section 3 Course Management

1. Course Description

(English) ecological investigations; reviewing the literature; formulating research questions; characterizing sites; sampling approaches, methods, protocols and requirements; sampling in different environments; statistical techniques and objective interpretation of data; unambiguous communication of results. Field project work is included.

2. Credit hours per trimester

Lecture (hrs)	Tutorial (hrs)	field work hrs	Self-study (hrs)
36	1	24	84

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

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

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CLO	Teaching methods	Evaluation Methods
CLO 1	Lecture; discussion; assignment	Assignment; presentation; field report
CLO 2	Lectures; discussion; assignment; field work	Assignment, participation in discussions
CLO 3	Demonstration; discussion; field work	Participation in activities
CLO 4	Demonstration; discussion; field work	Participation in activities
CLO 5	Lecture; discussion; field work	Assignment; presentation; field report
CLO 6	Lecture; discussion, case study	Participation in discussions; presentation
CLO 7	Lecture; discussion, case study; published literature	Assignment; field report
CLO 8	Discussion, field work	Attendance; Participation in discussions; Participation in activities
CLO 9	Lectures; discussion; field work	Assignment; field report
CLO 10	Lectures; discussion; case study; field work	Assignment; field report
CLO 11	Lectures; case study; discussion; field work	Assignment; field report

Section 5 Teaching and Evaluation Plans

1. Teaching plan

Week	Topic	Lectures
1	Course expectations, evaluation, and grading rubric. Course overview – levels of organisation	3
2	The climate – local, regional, global	3
3 4	Designing ecological research for conservation purposes – conceptual frameworks Ethics, rights, and safety of access considerations	6
5	Ecological and evolutionary interactions I Profiling biotic conditions	3
6 7	Ecological and evolutionary interactions II Population density, demographics, and dispersion. Sampling mobile organisms	6
8	Ecological and evolutionary interactions III Community interactions and biodiversity	3
9	Ecological and evolutionary interactions IV The evolution of behaviour through natural selection	3
10	Energy flow and connectivity Sampling static organisms for conservation purposes.	3
11	Objective Analysis, interpretation and communication of ecological information - Measuring success	3
12	Group discussion Coral reef conservation plan	3
1-12	Field work	24
	Total lecture contact hrs	**36**
	Total field work hrs	**24**

2. Plan for Assessing Course Learning Outcomes

2.1 Assessing and Evaluating Learning Achievement

a. Formative Assessment: *Participation, attendance, discussion rubrics*

b. Summative Assessment

(1) Tools and Percentage Weight in Assessment and Evaluation

Learning Outcomes	Assessment Methods	Assessment Ratio	
CLO 1	Assignment	5	*10*
	Field report	2.5	
	Participation in discussions	2.5	
CLO 2	Assignment	2.5	*10*
	Participation in discussions	2.5	
	Field report	5	
CLO 3	Participation in activities	10	*10*
CLO 4	Participation in activities	20	*20*
CLO 5	Assignment	10	*20*
	Field report	5	
	Participation in discussions	5	
CLO 6	Participation in discussions	5	*5*
CLO 7	Assignment	2	*5*
	Field report	3	
CLO 8	Participation in discussions and group work	3	*5*
	Participation in activities	2	
CLO 9	Assignment	2.5	*5*

	Field report	2.5	
CLO 10	Assignment	2.5	*5*
	Field report	2.5	
CLO 11	Assignment	2.5	*5*
	Field report	2.5	
	TOTAL	**100**	**100**

(2) Grading System

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

Wheater, Bell and Cook. Practical Field Ecology. A Project Guide. Wiley-Blackwell, 2011

Gardener M. Statistics for ecologists using R and Excel: Data collection, exploration, analysis and presentation. Pelagic Publishing, 2012

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 Practical Field Ecology and Conservation	Program Learning Outcomes (PLOs)					
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
ICBI 262	P	P	R	R	I	P

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 262	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

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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 Field Ecology and Conservation
	1.2 Apply knowledge in Practical Field Ecology and Conservation
	1.3 Possess technical skills in Practical Field Ecology and Conservation
	1.4 Apply technical skills in Practical Field 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 Field Ecology and Conservation
	3.2 Demonstrate proficiency in written communication of Practical Field Ecology and 8 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