

Course Syllabus

SCBE 209 Ecological monitoring and the assessment of bioresources

Academic year 2024 (9th June – 9th July, 2025)

- 1. Course** SCBE 209 Ecological monitoring and the assessment of bioresources
- 2. Credits** 4 (3-3-6)
- 3. Instructors**

Lect.Piyathip Piyapan*	อ.ปิยทิพย์ ปิยพันธุ์	MU-KACB
Lect.Dr.Chutamas Sukonthapatipak	อ.ดร.จุฑามาศ สุขนธปฏินาค	MU-KACB
Lect.Dr.Pornwiwan Pothasin	อ.ดร.พรวิวรรณ โพธิาสินธุ์	MU-KACB
Assist.Prof.Dr.Chalita Kongrit*	ผศ.ดร.ชลิตา คงฤทธิ์	MU-SCBI
Assoc.Prof.Dr.Ekgachai Jiratthitikul	รศ.ดร.เอกชัย จิรัฏฐิติกุล	MU-SCBI
Lect.Dr.Toemthip Poolpak	อ.ดร.เต็มทิพย์ พูลภักตร์	MU-SCBI
Assist.Prof.Dr.Intanon Kolsartsanee	ผศ.ดร.อินทนนท์ กลศาสตร์เสนี	MU-SCBI

*Course coordinator (e-mail: piyathip.piy@mahidol.edu; chalita.kon@mahidol.edu)

Teaching assistants

Pakorn Komkam	ปกรณ์ คมขำ	MU-SCBI
Budda Chotimanvijit	บุตดา โชติมานวิจิตร	MU-SCBI
Pichsinee Sapparojpattana	พิชญ์สินี สรรพโรจน์พัฒนา	MU-SCBI
Inthiporn Malijan	อินทิพร มลิจันทร์	MU-SCBI

MU-KACB = Conservation Biology Program, Mahidol University, Kanchanaburi Campus

MU-SCBI = Department of Biology, Faculty of Science, Mahidol University

- 4. Semester** 3rd semester
- Academic year** 2024
- 5. Pre-requisite** None
- 6. Location** Onsite at Mahidol-Salaya and Khao Yai National Park

7. Course description

General methods in monitoring, collecting data and materials of the areas/ environments for detecting a particular environmental change. In this course, general methods are included in lectures, field exercises, quizzes, excursions, and reports.

8. Total hours

Lecture	Laboratory/Field Works	Self-study
45 hours	38 hours	90 hours

9. Course objectives

- 1) Explain the necessary concepts and methods for ecological and bioresources monitoring.
- 2) Explain the significances and application of ecological and bioresources monitoring on the conservation and management program.
- 3) Demonstrate the necessary laboratory and field techniques ecological and bioresources monitoring.

10. Course schedule

Day/Date	Time/Room		Topic	Lecturer
Day 1 Monday 9 Jun 2025	09.00-12.00 SC2-159	Lecture	Course orientation Ecology and biodiversity monitoring and assessment	Piyathip Chalita
	13.00-16.00 SC2-159	Lecture	Database for ecological and biodiversity monitoring	Piyathip Chalita
Day 2 Wednesday 11 Jun 2025	9.00-12.00 SC2-159	Lecture	Assessment of biodiversity IUCN red list	Piyathip Chalita
Day 3 Thursday 12 Jun 2025	09.00-12.00 SC2-159	Lecture	Vegetation survey: sampling techniques Vegetation parameters (DBH, height, canopy cover etc.)	Pornwiwan
	13.00-16.00 On Campus	Lab	Lab: Vegetation 1	Pornwiwan Pakorn (TA)
Day 4 Friday 13 Jun 2025	09.00-12.00 SC2-159	Lecture	Vegetation survey: community structure, diversity indices Ecological services: aboveground biomass and carbon storage	Pornwiwan
	13.00-16.00 On Campus	Lab	Lab: Vegetation 2	Pornwiwan Pakorn (TA)
Day 5 Monday 16 Jun 2025	09.00-12.00 SC2-159	Lecture	Aquatic ecosystem 1	Toemthip
	13.00-16.00 On Campus	Lab	Lab: Data and sample collection from aquatic habitats	Toemthip Inthiporn (TA)
Day 6 Tuesday 17 Jun 2025	09.00-12.00 SC2-159	Lecture	Aquatic ecosystem 2	Toemthip
	13.00-16.00 On Campus	Lab	Lab: Physical and biological factors in aquatic habitats	Toemthip Inthiporn (TA)
Day 7 Friday 20 Jun 2025	9.00-12.00 SC2-159	Lecture	Genetic monitoring of wildlife populations	Chalita
	SC2-159	Lab	Lab: Genetic diversity	Chalita
Day 8 Monday 23 Jun 2025	09.00-12.00 SC2-159	Lecture	Habitat description and location Using topography map, compass, GPS	Chutamas
	13.00-16.00 On Campus	Lab	Lab: Habitat mapping	Chutamas Pakorn (TA)
Day 9 Tuesday 24 Jun 2025	09.00-12.00 SC2-159	Lecture	Surveying birds and their habitats Bird watching equipment, and bird identification	Chutamas
	13.00-16.00 On Campus	Lab	Lab: Bird watching	Chutamas Pakorn (TA)
Day 10 Thursday 26 June 2025	09.00-12.00 SC2-159	Lecture	Introduction to GIS Using GIS for biodiversity and ecological monitoring	Intanon
	13.00-16.00 Computer room	Lab	Lab: GIS	Intanon Budda (TA)
Day 11 Friday 27 June 2025	09.00-12.00 SC2-159	Lecture	Insect survey technique and identification	Ekgachai
	13.00-16.00 SC2-342	Lab	Lab: Insect survey and identification	Ekgachai Pichsinee (TA)
Day 12 Tuesday 1 July 2025	09.00-12.00 SC2-159	Lecture	Evaluation KY trip preparation	Piyathip Chalita

Day/Date	Time/Room		Topic	Lecturer
Day 13 – 15	3-5 July 2025		Khao Yai National Park	Piyathip Chalita Pornwiwan Jakkrit Pakorn (TA)
Day 16 Wednesday 9 July 2025	09.00-12.00 SC2-159	Lecture	Filed trip presentation Course summary	Piyathip Chalita

11. Course evaluation

No.	Evaluation methods	Proportions
1.	Lab practice/assignment/quiz/participation	55%
2.	Final Exam	35%
3.	Khao Yai field practice, presentation and report	10%

Grading criteria

Percentage	0-49.9	50-54.9	55-59.9	60-64.9	65-69.9	70-74.9	75-79.9	80-100
Grade	F	D	D+	C	C+	B	B+	A

12. References

- Hill D., Fasham M., Tucker G., Shewry M., Shaw P. (ed.). (2005). Handbook of Biodiversity Methods: Survey, Evaluation, and Monitoring. Cambridge University Press.
- Larsen T.H. (ed.). (2016). Core Standardized Methods for Rapid Biological Field Assessment. Conservation International, Arlington, VA.
- Philip Wheeler C., Bell J.R., Cook P.A. (2011) Practical Field Ecology: A Project Guide. A John Wiley & Sons, Ltd., Publication

SCBE 209 Ecological monitoring and the assessment of bioresources
Field practice at Khao Yai National Park
3rd – 5th July 2025

3 July 25

Time	Activities	Lecturers	จำนวนชั่วโมงสอน
9:30	Depart from Salaya		
12:00	Lunch		
14:00	Arrive Khao Yai National Park		
14:00-17:00	Learning history and biodiversity of Dong Payayen at visiting center	Piyathip Chalita	Lab (3 hours)
	Conservation & management: Haew Na-rok Waterfall	Jakkrit	
	Bird watching 1 hr.	Pakorn (TA)	
18:00	Dinner		
19:30	Nocturnal animals		

4 July 25

Time	Activities	Lecturers	จำนวนชั่วโมงสอน
7:00-8:00	Breakfast		
9:00-12:00	Long-term ecological study plot at Mo Singto	Pornwiwan	Lecture (3 hours)
12:00-13:00	Lunch		
13:00-16:00	Habitat management: Nong-Pak Chee	Piyathip Chalita	Lab (3 hours)
	Footprint and animal survey: Salt licks	Jakkrit	
	Habitat mapping: Training center/Nong Pak Chee	Pakorn (TA)	
18:00-19:00	Dinner		
19:00-21:00	Nocturnal animals		

4 July 25

Time	Activities	Lecturers	จำนวนชั่วโมงสอน
6:30-8:30	Bird Watching and Fig trees	Piyathip Chalita Pornwiwan Jakkrit Pakorn (TA)	Lab (2 hours)
8:30	Breakfast		
9:30-10:30	Trip summary		
11:00	Depart from Khao Yai National Park		
12:00	Lunch		
16:30	Arrive Mahidol-Salaya		