

Course Syllabus

SCBE 209 Ecological monitoring and the assessment of bioresources

During 16 June – 14 July 2021

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 สุกนธปฏิกาค	MU-KACB
Lect.Dr.Pornwiwan Pothasin	อ.ดร.พรวิวรรณ โพธิาสินธุ์	MU-KACB
Assist.Prof.Dr.Chalita Kongrit*	ผศ.ดร.ชลิตา คงฤทธิ์	MU-SCBI
Assist.Prof.Dr.Ekgachai Jiratthitikul	ผศ.ดร.เอกชัย จิรัฏฐิติกุล	MU-SCBI
Lect.Dr.Toemthip Poolpak	อ.ดร.เต็มทิพย์ พูลภักตร์	MU-SCBI
Lect.Dr.Intanon Kolsartsanee	อ.ดร.อินทนนท์ กลศาสตร์เสนี	MU-SCBI
Ms.Anuttara Nathalang	คุณอนุดตรา ณ ถลาง	BIOTEC
*course coordinator (e-mail: piyathip.piy@mahidol.edu; chalita.kon@mahidol.edu)		
Teaching assistant:	Mr.Thanapat Klubchum (ธนภัทร กลัฒชุม)	MUKA-SOU
Lab staff/lab preparation:	Ms.Krissana Parkpoomkamol (กฤษณา ภาควงมิมล)	MUSC-MDL

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

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

BIOTEC = Ecology Laboratory, Bioresources Technology Unit, National Center for Genetic Engineering and Biotechnology

4. Semester 3rd semester
- Academic year 2020
5. Pre-requisite None
6. Location Mahidol University, Salaya Campus
Field trip at Khao Yai National Park, Nakornrachasima Province

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	45 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 Wednesday 16 Jun 2021	09.00-12.00 Lecture room	Course orientation Ecology and biodiversity monitoring and assessment	Piyathip Chalita
	13.00-16.00 Computer room	Database for ecological and biodiversity monitoring In-class activity	
	Day 2 Thursday 17 Jun 2021	09.00-12.00 self-study	
13.00-16.00 self-study		Assignment, individual presentation preparation	
Day 3 Friday 18 Jun 2021	09.00-12.00 Lecture room	Individual presentation	Piyathip Chalita
	13.00-16.00 Lecture room	Individual presentation	
Day 4 Monday 21 Jun 2021	09.00-12.00 Lecture room	Vegetation survey: sampling plot for trees/herbaceous/shrubs Vegetation parameters (DBH, height, canopy cover etc.)	Pornwiwan Chalita
	13.00-16.00 MLC, SC bldg.	Fieldworks around MLC and SC bldg. Lab assignment/report	
Day 5 Tuesday 22 Jun 2021	09.00-12.00 Lecture room MLC, SC bldg.	Vegetation survey: community structure (diversity, density, etc.) Estimation of ecological services: aboveground biomass and carbon storage	Pornwiwan Chalita
	13.00-16.00 Computer room	Fieldworks around MLC and SC bldg. Lab assignment/report	
Day 6 Thursday 24 Jun 2021	09.00-12.00 Lecture room	Habitat description and location Using topography map, compass, GPS	Chutamas Intanon
	13.00-16.00 MLC, SC bldg.	Fieldworks around MLC and SC bldg. Lab assignment/report	
Day 7 Friday 25 Jun 2021	09.00-12.00 Lecture room	Introduction to GIS Using GIS for biodiversity and ecological monitoring	Chutamas Intanon
	13.00-16.00 Computer room	GIS exercise (Computer laboratory)	
Day 8 Monday 28 Jun 2021	09.00-12.00 MLC, SC bldg.	Surveying birds and their habitats Bird watching equipment, and bird identification	Chutamas Piyathip
	13.00-16.00 Lecture room	Bird list and discussion	TA: Thanapat
Day 9 Tuesday 29 Jun 2021	09.00-12.00 Computer room	Bird and habitat mapping (GIS exercise)	Chutamas Piyathip
	13.00-16.00 Computer room	Presentation	TA: Thanapat
Day 10 Thursday 1 July 2021	09.00-12.00 Lecture room	Aquatic ecosystem	Toemthip
	13.00-16.00 MLC, SC bldg.	Fieldworks around MLC and SC bldg.	
Day 11 Friday 2 July 2021	09.00-12.00 SC3 bldg.-MDL2	Aquatic environmental parameters measurement: Laboratory	Toemthip
	13.00-16.00 Lecture room	Lab assignment/report	

Day/Date	Time/Room	Topic	Lecturer
Day 12 Monday 5 Jul 2021	09.00-12.00	Insect survey methods	Ekgachai
	Lecture room	Insect specimens preparation and insect identification	
	13.00-16.00 SC3 bldg.-MDL2	Fieldworks around MLC and SC bldg. Lab assignment/report	
Day 13 Tuesday 6 Jul 2021	09.00-12.00	Genetic monitoring of wildlife populations	Chalita
	13.00-16.00 Computer room	Evaluation of genetic diversity for wildlife populations	
Day 14 Wednesday 7 Jul 2021	09.00-12.00	Course summary	Piyathip Chalita
	13.00-16.00 Lecture room	Field trip preparation	
Day 15	8-10 July 21 or 12-14 July 21	Depart from Mahidol-Salaya campus to KYNP Learning about NP management	Piyathip Chalita
		Tracks and signs study	
		Location-trail mapping and GIS field practice	
Day 16		BIOTEC long-term plot for forest ecology study	Anuttara Piyathip Chalita
		Bird watching Grassland ecosystem	
Day 17		Bird watching	Piyathip Chalita
		Depart from KYNP to Mahidol-Salaya campus	

11. Course evaluation

No.	Evaluation methods	Days	Proportions
1.	Lab practice/fieldworks/assignment and report	1-14	77%
2.	Field trip activities and report	15-17	18%
3.	In-class participation	1-14	5%

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