Agricultural Zoology

Obligatory module or Selective module	**Agricultural Zoology**	**PNH 2104**
Semester	III	
Module level	Undergraduate	
Module Coordinator	Dr. Ir. Nugroho Susetya P., M.Si	
Lecturer(s)	Prof. Dr. Edhi Martono, M.Sc. Dr. Ir. Arman Wijonarko, M.Sc. Dr. Alan Soffan, SP., MSc. Dr. Ir. Nugroho Susetya P., M.Si	
Type of Module	Lecture: 1 hour and 40 minutes Laboratory work and field observation: 3 hours	
Status	C (compulsory courses)	
Exam	Written	
Number of participants	64	
Credit Points:	2/1 (5.02 ECTS)	
Description:	This lecture provides knowledge about the principles and concepts of zoology in agricultural ecosystems. The lecture is divided into four parts, namely (1) introduction: basic principles and concepts about bioecology, the role and function of animals in agricultural ecosystems, (2) classification of animals found in agricultural ecosystems, (3) concepts of population dynamics and factors that play a role, and (4) sustainable management of animals found in agricultural ecosystems.	
Academic goal (competency):	Students are able to understand the basic concepts and principles of zoology, the roles and functions of animals found in agricultural ecosystems, and strategies for managing animal populations both beneficial and detrimental to the environment and are sustainable.	

Course outcomes:

CO1= Understanding the basic concepts and principles of zoology
CO2= Understanding the role functions of animals found in agricultural ecosystems
CO3= Understanding the strategies for managing animal populations both beneficial and detrimental to the environment and are sustainable

Contents:

- Introduction: Basic concepts and principles of zoology
1. Biology (morphology, anatomy, physiology, and behavior)
2. Interaction of animals with abiotic and biotic environments
- The role and function of animals in agricultural ecosystems
1. Herbivore: pests and pollinators
2. Natural enemies
3. Remodel organic matter

4. Tillage
5. Pathogen vector
- Animal Classification:
1. Vertebrates
2. Invertebrates
- Bioecology and classification of Nematodes
- Bioecology and classification of Arthropods
- Bioecology and classification of Mollusca
- Bioecology and classification of Vertebrate
- Bioecology and classification of Annelids
- Impact of abiotic factors on animals: soil, water, climate (macro and micro), the issue of Global Warming
- Impact of biotic factors on animals: feed / host, natural enemies, and competitors
- The principle of population dynamics in animals:
1. Factors causing: emigration, immigration, birth, and death
2. Patterns and mechanisms of population dynamics
- Ecology of animal communities in agricultural ecosystems
- Invasive nature and potential damage by animals to plants
- Useful and dangerous animal management strategies in agricultural ecosystems

Which previous course required? Plant Protection

Literature:

1. Dempster, J.P., 1975. *Animal population ecology*. Academic Press.
2. Hickman, C.P. et al., 2017. *Integrated principles of zoology*. 7th edition. McGraww-Hill Education, New York.
3. Miller, S.A. et al., 2004. *Zoology*. McGraw-Hill Science. New York.
4. Another journals

Materials provided: Hand out of weekly materials and related papers

Requirements for exam: 75% attendance set by the Faculty of Agriculture

Teaching method(s)	Classes, Discussion, Assignments

Workload (hrs).

1. Theoretical of course: 14 times
2. Lab and field works: 7 times
3. Independent study: reading related to the topic discussed in the class