MODULE HANDBOOK

	UNIVERSITAS PADJADJARAN **FACULTY OF MATHEMATICS AND NATURAL SCIENCES** **BACHELOR OF BIOLOGY PROGRAMME**	**COURSE CODE:** **D10D-601021**
Module designation	Pest-Control Management	
Semester in which the module is taught	5	
Person(s) responsible for the module	1. Dr. Melanie, S.Si., M.Si 2. Prof. Dr. Wawan Hermawan, MS	
Medium of instruction	Indonesian	
Relation to curriculum	Elective course	
Teaching methods	Lectures, discussions, cooperative learning, project based learning and inquiry learning	
Workload	Total workload : 5440 minutes = 90.67 hours Lectures, discussions, cooperative learning, and inquiry learning : 2 x 50 minutes x 16 weeks = 1600 minutes = 26.67 hours Exercises : 2 x 60 minutes x 16 weeks = 1920 minutes = 32 hours Self-study : 2 x 60 minutes x 16 weeks = 1920 minutes = 32 hours	
Credit points	2,00 (3,62 ECTS)	
Required and recommended prerequisites for joining the module	-	
Module objectives/intended learning outcomes	1. Describe the diversity of plants that are sources of biopesticides, natural enemies, insect pest predators, parasitoids, and entomopathogens of insect pests 2. Identify the ecological and economic roles of plants that are sources of biopesticides, natural enemies, insect pest predators, parasitoids, and entomopathogens of insect pests 3. Analyzing observations and studies on the use of plant-based biopesticides and natural enemies of insect pests applied by local communities 4. Examining the prospects for utilizing natural enemies, predators, pathogens, parasites, and nematodes in biological control for sustainable agriculture 5. Analyzing the negative impacts of synthetic pesticide use and implementing alternative biopesticide solutions and biological control to improve quality of life 6. Evaluating strategies for managing biological resources and the environment based on research findings and proposing evidence-based improvements	
Contents	1. Interactions between herbivores (OPT) and plants 2. Theories and concepts of biopesticides and biological control 3. The potential and diversity of natural product-producing plants as sources of plant-based biopesticides 4. Diversity and ecological role of natural enemies: predators 5. Diversity and ecological role of natural enemies: pathogens (viruses, fungi, and bacteria) 6. Diversity and ecological role of natural enemies: parasites and nematodes 7. Negative impacts of synthetic pesticides on humans and the environment 8. Studies and research on the use of biopesticides and natural enemies 9. Important prospects for biopesticides and biological agents to support sustainable development	
Examination forms	Quiz, midterm exam, assignment, and final exam	
Study and examination requirements	The minimum attendance in lectures is 80%. Final grades are evaluated based on quiz (10%), midterm exam (15%), assignment (10%), final exam (15%), project and participation (50%)	
Reading lists	1. Pedigo, L (1999) Entomology and Pest Management, MacMillan Pub.Co 2. Metcalf, R.L., & W.L.Luckmann (1999) Introduction to Insect Pest Management, 3rd. ed. John Wiley & Sons. 3. Purnomo, H.(2010) Pengantar Pengendalian Hayati. Penerbit Andi. Yogyakarta 4. Debach, P (1991) Biological Control by Natural Enemies 2nd Edition, Cambridge University Press, Cambridge 5. Natawigena,H (1990) Entomologi pertanian. Penerbit Orba Sakti, Bandung 6. Matsumura, F., 1985. Toxicology of Insecticides. 2nd ed. Plenum Press. 7. Singh, H. B., Keswani, C., & Reddy, M. S. (Eds.). (2019). *Biopesticides in organic farming: Recent advances*. CRC Press. 8. Sangeetha, J., Thangadurai, D., & Islam, S. (Eds.). (2022). *Plant biostimulants and biopesticides: Sources,*	

	production, and applications. Apple Academic Press.