

Course Module

Landscape Analysis

Faculty of Forestry Mulawarman University

Module name	Landscape Analysis			
Module level, if applicable	Graduates Programme			
Code, if applicable	190401802P013			
Subtitle, if applicable				
Courses, if applicable	Regular			
Semester(s) in which the module is taught	II (two)			
Person responsible for the module	Dr. Heru Herlambang, S.Hut., M.P.			
Lecturer	Dr. Heru Herlambang, S.Hut., M.P. Kiswanto, S.Hut., M.P., Ph.D.			
Language	Indonesia			
Relation to curriculum	Programme, mandatory			
Type of teaching, contact hours	Lecture, 2 lecture contact hours			
Workload	Number of meetings per semester: 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination) 2 x 50 minutes lectures, 2 x 60 minutes structured assignment, 2 x 60 minutes individual activity, with a total time of 4760 minutes or equivalent to a total of 79.3 hours in 14 weeks per semester			
Credit points	2 SKS (3.18 ECTS) Details: 1 Credit = 170 min/week 1 Credit = 170 min x 14 week = 2,380 min/semester 1 ECTS = 25 h / semester 1 Credit = 2,380 / 60 / 25 = 1.59 ECTS 2 Credit = 1.59 x 2 = 3.18 ECTS			
Requirements according to the examination regulations	Have attended not less than 80% class meetings			
Recommended prerequisites				
Module objectives/intended learning outcomes	Intended Learning Outcomes			
	Knowledge and Understanding			
	ILO-1 : Applying scientific ethics, norms, and values of professionalism			
	Investigation			

ILO-3: Able to analyze current problems and issues, and assess the ecological, social, and economic impacts of implementing programs in the forestry and tropical environmental sectors.

Engineering Design and Practice

ILO-4: Develop research schemes based on inter or multidisciplinary approaches to tropical forestry and the environment, and communicate the results to the public.

Social Competences

ILO-5: Lead, work in a team, and be responsible for achieving group work results.

Course Learning Outcomes

Knowledge and Understanding

CLO-1: Students are able to understand and analyze ecological, social, and spatial concepts, components, and structures of regional landscapes.

Investigation

CLO-2: Students are able to apply landscape analysis methods, including remote sensing, land use analysis, and participatory approaches, to support sustainable regional planning and management.

Engineering Design and Practice

CLO-3:_Students are able to develop research schemes based on inter or multidisciplinary approaches to landscape analysis, and communicate the results to the public.

This course discusses the concepts, principles, and techniques of landscape analysis to comprehensively understand the characteristics, functions, and dynamics of the area. Students will study various aspects of the landscape, including structure, ecological function, fragmentation, land use, and landscape change. In addition, the course also covers remote sensing methods, participatory approaches, as well as zoning planning and ecosystem-based area management. Through case studies and spatial analysis, students are expected to be able to apply knowledge in supporting climate change mitigation, disaster risk management, and sustainable landscape management. This course provides a basis for understanding the important role of landscapes in the ecological, social, and spatial contexts that support regional sustainability.

After attending this course, students have the ability to:

- 1. Students understand the basic concepts of regional landscape analysis. (CLO-1)
- 2. Students are able to identify the components and structure of the regional landscape. (CLO-1)
- 5. Students are able to explain the ecological function of landscape. (CLO-1)

Content

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	analysis. (CLO-3) 12. Students are able to design area zoning based on landscape analysis. (CLO-3) 13. Students are able to develop ecosystem-based landscape management plans. (CLO-3) 14. Students are able to analyze case studies of landscape analysis implementation. (CLO-3)					
Study and examination requirements and forms of examination		Evaluation and assessment of the learning process are following scheme 5 in the Academic Regulations of Mulawarman University:				
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)		
	1	Affective	Participation	10		
	2	Assignment/Case study	Group presentation	25		
	3	Project	Presentation	25		
	4	Mid-semester test	Written test	15		
	5	Final semester test	Written test	25		
		TOTAL				
	Laptop, LCD					
Media employed	Laptop	, LCD				

- 1. Turner, M. G., & Gardner, R. H. (2023). Landscape Ecology in Theory and Practice: Pattern and Process (3rd ed.). Springer.
- 2. Forman, R. T. T. (2023). *Land Mosaics: The Ecology of Landscapes and Regions*. Cambridge University Press.
- 3. Wu, J., & Hobbs, R. J. (2023). *Key Topics in Landscape Ecology: Perspectives and Challenges*. Wiley-Blackwell.
- 4. Liu, Y., et al. (2024). "Spatiotemporal Dynamics of Landscape Change and Its Ecological Impact." *Journal of Environmental Management*, 341, 117854.
- 5. Haddad, N. M., et al. (2023). "The Effects of Habitat Fragmentation on Biodiversity: A Global Perspective." *Science Advances*, *9*(4), eabq2923.
- 6. Li, Z., et al. (2024). "Land Use and Cover Change: Implications for Sustainable Development Goals." *Environmental Research Letters, 19*(1), 015001.
- 7. Huang, C., et al. (2023). "Advances in Remote Sensing for Landscape Analysis." *International Journal of Remote Sensing*, 44(2), 223-241.
- 8. Magurran, A. E., & McGill, B. J. (2024). *Biological Diversity: Frontiers in Measurement and Assessment* (2nd ed.). Oxford University Press.
- 9. Griscom, B. W., et al. (2023). "Natural Climate Solutions for Mitigation and Resilience." *Nature Climate Change*, 13(7), 634-647.
- 10. Cutter, S. L., et al. (2024). "Landscape Vulnerability and Risk Assessment for Natural Hazards." *Progress in Disaster Science*, 15, 100213.
- 11. Reed, M. S., et al. (2023). "Participatory Landscape Planning: A Guide for Practice." *Ecology and Society*, 28(3), 45.
- 12. Geneletti, D., et al. (2024). Spatial Planning and Sustainable Development: Approaches for Urban and Regional Sustainability. Springer.
- 13. Sayer, J., & Maginnis, S. (2023). *Ecosystem-Based Management for Landscapes: Tools and Strategies*. IUCN.
- 14. Opdam, P., et al. (2023). "Integrating Science and Practice in Landscape Sustainability Case Studies." *Landscape and Urban Planning*, 238, 104391.