

	Module Description/Course Syllabi Study Programme : Magister of Soil Science Department of Soil Science and Land Resources Faculty of Agriculture Universitas Andalas
1. Course number and name	
MIT 81218 Soil and Environment	
2. Credits and contact hours/Number of ECTS credits allocated	
3 scs (2-1) / 3.62	
3. Instructors and course coordinator	
1. Prof.Dr.Ir. Hermansah, MS.MSc; 2. Prof. Dr.Ir. Syafrimen Yasin, MS.MSc	
4. Text book, title, author, and year	
1. Anwar and Sudadi. 2012. Soil Chemistry Introduction, IPB Press. (PDF) Kimia Tanah (academia.edu) 2. Bohn, N.B.L. and G.A.O Connor. 2001. Soil chemistry. John Wiley and Sons, New York Soil chemistry : Bohn, Hinrich L., 1934- : Free Download, Borrow, and Streaming : Internet Archive 3. Peraturan Pemerintah No. 37 Tahun 2012. Pengelolaan Daerah Aliran Sungai 9. Himpunan Peraturan Perundang-Undangan Bidang AMDAL. Seri III. Keputusan Kepala 4. Hermansah, dan tim. 2014. Strategi dan Rencana Aksi REDD plus(SRAP)REDD di Sumatra Barat 5. Huang.PM, Iskandar IK. Soils and Ground Water Pollution and Remedition. 6. John L.Havlin. James D Beaton. Samuel L. Tisdale. Werner L.Nelson.1999.Soil Fertilityand Fertilizers. An Introduction to Nutrient Management 7. Malcolm E. Sumner, 1999. Soil Science Handbooks, manuals. ISBN0-8493-3136-6 8. Manahan, Stanley.E. 2000. Envoronmntal Chemistry 9. Ministry of Environment, Republic of Indonesia. 2023. Soil and groundwaterPollution Remediation 10. El Azzouzi, H., M. El Madani, M. Mekkaoui, M. A. El Belghiti, M. El M'Rabet, H. Mountacer, A. El Hourch, A. Zrineh, M. El Azzouzi. (2010). ResearchGate 11. Stevenson, F.J. (1994). <i>Humus Chemistry, Genesis, Composition, Reactions</i>. 2nd ed. John Wiley & Sons, Inc., USA Humus chemistry : genesis, composition, reactions : Stevenson, F. J. : Free Download, Borrow, and Streaming : Internet Archive 12. Sudirja R., Mahfud Arifin, dan Benny Joy. (2015). Adsorpsi	

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13. Tan K.H. 2011. Principle of Soil Chemistry, ed. IV, Marcel Dekker, N.Y
[Principles of Soil Chemistry, Fourth Edition - Kim H. Tan - Google Buku](#)
14. Tan, KH. 2014. Humic Matter in Soil and the Environment. Marcel Dekker, N.Y.
[Humic Matter in Soil and the Environment - Google Books](#)
15. Research in Agroforestry. Charlie Pye-Smith. [Agroforestry a global land use](#). 2009. www.worldagroforestry.org .
16. Hakim, Luchman. 2021. [Agroforestry Kopi](#). Malang. Media Nusa Creative
17. Nair, P.K Ramachandran. 2021. [An Introduction to Agroforestry](#).
https://doi.org/10.1007/978-3-030-75358-0_1
18. Hairiah, Kurniatun, dkk. 2003. [Pengantar Agroforestry](#). Bogor: World Agroforestry Centre (ICRAF)
19. Ignacio Santa-Regina. 2017. [Forest Ecology and Conservation](#). National and University Library in Zegreb.
20. Peter D. Moore. 2008. [Ecosystem Tropical Forests](#).
21. Han Dolman. 2019. [Biogeochemical Cycles and Climate](#). Oxford University Press

5. Specific course information

A. Brief description of the content of the course (catalog description)

In this course, students learn about the understanding and principles of ecology, ecosystems, agroecology, problems and threats of land and environmental degradation, biogeochemical cycles, deforestation and its impact on soil and the environment, soil, water and air conservation, factors affecting water systems , sustainable farming systems and land management. In various typologies (rice fields, dry land and peat), predicting soil and environmental damage, students learn to observe and formulate soil and environmental problems and make solutions and can write them in a paper and presentations and discussions.

B. Course Content

- 1 Introduction Basic principles of ecology, ecosystem, and agroecology
- 2 Formation an development of Soil in the tropical region
- 3 Forest ecosystems: classification and function. 4 Biogeochemical and hydrologica cycles
- 5 Deforestation: the process and the impact on soil and environment
- 6 Air pollution: the causes and the impact on soil, vegetation, andenvironment
- 7 Agroforestry farming system
- 8 Mid exam
- 9 Sustainable farming system
- 10 Sustainable dry land management
- 11 Sustainable acid sulphate soil management
- 12 Sustainable lowland management
- 13 Peat land management
- 14 Management of ex. mining land
- 15 Sustainable and Integrated pest management
- 16 Final exam

C. Semester when the course unit is delivered

Even Semester
D. Mode of delivery (face-to-face, distance learning)
Face to face
6. Intended Learning Outcomes (CPL)
ILO 1 : An ability to analyze and interpretate nature and characteristics of many soils in determining the potency and the threat of the land and environment resources PI 3 :An ability to interpretate soil data
ILO 2 : An ability to classify soil, to evaluate land capability and suitability, as well as todetermine the alternative utilization for sustainable agriculture and environment PI 1 : An ability to classify soil properties PI 3 : An ability to determine suitable land use management
7. Course Learning Outcomes (CPMK) ex. The student will be able to explain th significance of current research about a particular topic.
1. Students will be able to interpretate data of many soils 2. Students will be able to use soil data to classify soils based on some methods of soil classification Students will be able to determine suitable land management to reach sustainabl agriculture and environment
8. Learning and teaching methods
Cooperative learning
9. Language of instruction
Bahasa Indonesia and English (English Class)
10. Assessment methods and criteria
Summative Assessment : 1. Tasks : 5% 2. Quiz : 5 % 3. Mid Semester : 25% 4. Final Semester : 25% 5. Practicum :30% 6. Attendance : 5% Formative Assessment: 1. Minutes paper