

MODUL HANDBOOK ECOLOGY AND ENVIRONMENTAL POLLUTION



MASTER PROGRAM OF ENVIRONMENTAL SCIENCE
SCHOOL OF POSTGRADUATE STUDIES
DIPONEGORO UNIVERSITY

Module Description:

Module designation	Ecology and Environmental Pollution
Semester(s) in which the module is taught	1 st semester
Person responsible for the module	Dr. Jafron Wasiq Hidayat, M.Sc. Dr. Faud Muhammad, S.Si., M.Si. Prof. Mochamad Arief Budihadrjo, S.T., M.Eng., Env. Eng. Ph.D Dr. Mussadun, S.T., M.Si.
Language	Indonesian and English
Relation to curriculum	Compulsory
Teaching methods	Mix Method or Blended Learning by incorporating Lecture Based-Learning, Student Centred-Learning and Technological Learning • Lecture Based-Learning: teacher lead a lesson by using presentation, showing visual • Student Centred-learning: teacher promote individual learning so that student can exploring individual idea • Technological Learning, teacher leads to use high technology in information such as by exploring, utilizing internet/searching engine and social media.
Workload (incl. contact hours, self-study hours)	• Lecture, 3 hours per week • Discussion and presentation (Q&A), 1,5 hours per week • Individual assignment, 5 hours per week • Total workload for semester = 150 hours
Credit points	3 Credits / 6 ECTS
Required and recommended prerequisites for joining the module	No required prerequisite
Module objectives/intended learning outcomes	• Able to formulate environmental management theory, especially theory of ecology resilience concerning to the pollution and environmental degradation • Able to formulate environmental management policies, especially to avoid the pollution and environmental degradation
Content	The Ecology and Environmental Pollution course is a compulsory subject in the Environmental Science master's program. The material presented includes an explanation of history and ecological approaches, the concept of environmental factors and their effects on living things, habitats and niches, responses and adaptations, populations, communities, ecosystems, and environmental pollution.

Examination forms	• Closed book or Open book • Essay, • Individual and group assignments
Study and examination requirements	Lecture attendance at least 75%.
Reading list	1. Raven, PH, et al. 2022. Environment, 9th Edition 9th Edition. Wiley 2. Jorgensen, S. E. (2017). Handbook of environmental and ecological modeling. CRC Press. 3. Perreault, T., Bridge, G., & McCarthy, J. (Eds.). (2015). The Routledge handbook of political ecology. Routledge. 4. Singh, JS, Singh, SP, and Gupta, SR 2014. Ecology and Environmental Science and Conservation. India: S. Chand Publishing. 5. Campbell, Neil A. 2012. Biology. Issue 8. Erlangga, Jakarta. 6. Sharma, P. D., & Sharma, P. D. (2012). Ecology and environment. Rastogi Publications. 7. Bharti, KP and Chauhan, A. 2012. Environmental Pollution and Biodiversity 8. Odum, E.P. and G. W. Barrett. 2005. <i>Fundamentals of Ecology, Fifth Edition</i>. Brooks/Cole Cengage Learning. USA