MODULE HANDBOOK

ECOLOGY					
Module/Course Title **8720202022**	**Student Workload** **2 CU X 16 X 170'= 90,6618**	**Credits** 2 CU / 3.18 ECTS	**Semester** 3Th SEMESTER	**Frequency** ONCE YEAR	**Duration** 1 SEMESTER
1	**Types of courses** LECTURES	**Contact hours** (2CU X 1,59 ECTS) X{(50:170')X 28,51 Workhours= 26,64	**Independent Study** (2CU X 1,59 ECTS) X{(60:170')X 28,51 Workhours= 31,96	**Structured Study** (2CU X 1,59 ECTS) X{(60:170')X 28,51 Workhours= 31,96	**Class size** MAX 35 STUDENT
2	**Prerequisites for participation (if applicable)** None				
3	**PROGRAM LEARNING OUTCOMES**				
	PLO-3 Able to process, analyze, present geosphere data and information by using geospatial technology for geography learning and research				
	PLO-5 Have knowledge of the basic concepts and scope of ecology as a basis for the analysis of environmental dynamics.				
	PLO-6 Able to make appropriate decisions in the context of solving problems in the field of geography and geography education, based on the results of the analysis of information and data.				
	PLO-9 Able to apply regional theory for sustainable regional planning and development				
	PLO-11 Have a responsible and reliable attitude in describing environmental problems and their solutions with the basic concepts of ecology and ecological scope.				
	COURSE LEARNING OUTCOME				
	CLO-3				

	Able to process, analyze, present geosphere data and information by using geospatial technology for geography learning and research of ecology as a basis for analysis of environmental dynamics by utilizing information technology to access ecological information, ecosystem chains of environmental problems.
	CLO-5 Have knowledge of basic material and ecological scope as an analysis of environmental dynamics.
	CLO-6 Able to make appropriate decisions in the context of solving problems in the field of geography and geography education, based on the results of the analysis of information and data with the basic concepts of ecology.
	CLO-9 Able to apply regional theory for sustainable regional planning and development of ecology
	CLO-11 Have a responsible and reliable attitude in solving environmental problems and solutions with basic ecological concepts.
4	**Subject aims/Content** 1. Basics of ecology 2. Autekology and synekology 3. Ecosystem and ecosystem components 4. Law of conservation of energy in ecosystems, cycles of matter – minerals 5. Law of conservation of energy in ecosystems, cycles of matter – minerals 6. Cycle C, S, N and P 7. Cycle C, S, N and P
5	**Teaching methods** *Project Base Learning, SelfDirection Learning, Small Group Discussion*
6	**Assessment methods** *Portofolio, paper test*
7	**This module/course is used in the following study programme/s as well** -
8	**Responsibility for module/course** COMPULSORY/~~ELECTIVE~~*/
9	1. Akhadi, M, 2009, *Ekologi Energi*, Graha Ilmu, 2. Alikodra, H., 2008, *Global warming*, Nuansa Cendekia, 3. Anonimous, 2010, *Laporan pembangunan dunia, pembangunan dan perubahan iklim*, Salemba 4, 4. Ghufron, M. 2012. *Ekosistem Mangrove*. Rineka cipta 5. Indriyanto, 2006, *Ekologi hutan*, Bumi Aksara 6. Irwan, Z.D., 2007, *Prinsip-prinsip ekologi, ekosistem, lingkungan dan pelestariannya*, Bumi Aksara, 7. I Made P., 2014, *Konsep-Konsep Dasar Ekologi,* Alfabeta 8. Kristanto, P., 2004, *Ekologi Industri*, LPPM, Universitas Kristen Petra, 9. Leksono, A.S., 2007, *Ekologi, pendekatan deskritif dan kuantitatif*, Bayumedia, 10. Murdiyarso, D., 2003, *Konvensi perubahan iklim*, Kompas, 11. Murdiyarso, D., 2005, *Protokol Kyoto, implikasinya bagi negara berkembang*, Kompas, 12. Odum, E.P., 1996, *Dasar-dasar Ekologi*, UGM Press, 13. Sharma, P.D., 1981, *Elements of Ecology*, Rastogi Publication, Meerut, India 14. Soemarwoto, O., 2005, 2004, *Ekologi, lingkungan hidup dan pembangunan,* Djambatan,

15. Sulistinah, 1997, *Ekologi*, IKIP Sby Press,
16. Wellburn, A., 1994, *Air pollution and climate exchange, the biological impact*, Longman,
17. Wirakusumah, S., 2003, *Dasar-dasar ekologi menopang pengetahuan ilmu-ilmu lingkungan*, UI Press,
18. Wirakusumah, S., 2003, *Dasar-dasar ekologi bagi populasi dan komunitas*, UI Press,
19. Vernon, L.S., 1976. Water Chemistry. John Wiley & Sons