



Universitas Negeri Surabaya
Faculty of Social Sciences and Law
Geography Education Undergraduate Study Program

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Ecology	8720202022	Compulsory Curriculum Subjects	T=2	P=0	ECTS=3.18	2	July 17, 2024
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator	
	- National						
	Dr. Fahmi Fahrudin Fadirubun, M.Pd./ Dr. Muzayanah, M.T.		Dr. Nugroho Hari Purnomo, S.P., M.Si.			Dr. Nugroho Hari Purnomo, S.P., M.Si.	

Learning model	Project Based Learning																																																																																																					
Program Learning Outcomes (PLO)	PLO study program that is charged to the course																																																																																																					
	PLO-8	Able to obtain, process, analyze, present geosphere data and information using geospatial technology in integrated geographic studies with in-depth urban studies that support regional sustainability																																																																																																				
	Program Objectives (PO)																																																																																																					
	PO - 1	Demonstrate a responsible attitude towards work in the field of ecology independently																																																																																																				
	PO - 2	Able to make appropriate decisions in the context of solving problems in the field of ecology and ecological education, based on the results of information and data analysis																																																																																																				
	PO - 3	Able to apply regional theory based on ecology for sustainable regional planning and development																																																																																																				
	PO - 4	Able to process, analyze, present ecological data and information using geospatial technology for geographical ecological learning and research																																																																																																				
	PLO-PO Matrix																																																																																																					
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PO Matrix at the end of each learning stage (Sub-PO)																																																																																																						
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Short Course Description Understanding and studying ecological concepts, including principles and concepts of ecosystems, individuals, populations, communities, biotic and abiotic environments, succession, terrestrial and aquatic ecosystems. The study is linked to environmentally sound development and actions that can be taken every day in order to minimize the impact of development. Learning is carried out for 1 semester using presentation, discussion and group assignment methods. Assessment is carried out by written tests, participation and portfolios.

References	Main :

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. Kristanto, P., 2004 . Ekologi Industri . LPPM Universitas Kristen Petra,
8. Leksono, A.S., 2007. Ekologi, pendekatan deskriptif dan kuantitatif . Bayumedia,
9. Murdiyarso, D., 2003 . Konvensi perubahan iklim . Kompas,
10. Murdiyarso, D., 2005 . Protokol Kyoto, implikasinya bagi negara berkembang . Kompas.
11. Odum, E.P., 1996 . Dasar-dasar Ekologi . UGM Press.
12. Sharma, P.D., 1981 . Elements of Ecology . Rastogi Publication. Meerut, India.
13. Soegiyanto, A., 2010, Ekologi Air Tawar . Airlangga University Press.,
14. Soemarwoto, O., 2005, 2004 . Ekologi, lingkungan hidup dan pembangunan . Djambatan
15. Wellburn, A., 1994 . Air pollution and climate exchange, the biological impact . Longman,
16. Wirakusumah, S., 2003 . Dasar-dasar ekologi menopang pengetahuan ilmu-ilmu lingkungan . UI Press,
17. Wirakusumah, S., 2003 . Dasar-dasar ekologi bagi populasi dan komunitas . UI Press,
18. Vernon, L.S., 1976. Water Chemistry . John Wiley & Sons.

Supporters:

Supporting lecturer

Drs. Bambang Hariyanto, M.Pd.
Dr. Muzayanah, S.T., M.T.
Dr. Fahmi Fahrudin Fadirubun, M.Pd

Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [Estimated time]		Learning materials [References]	Assessment Weight (%)
		Indicator	Criteria & Form	Offline (offline)	Online (online)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Students are able to understand the concepts and definitions of ecology	Able to describe basic ecological concepts	Criteria: Exact > 65 Form of Assessment : Participatory Activities	Presentation, discussion and reflection on assignment 1 2 X 50		Material: Understanding ecology References: <i>Odum, EP, 1996 . Basics of Ecology. UGM Press.</i> Material: basic concepts of ecology. References: <i>Wirakusumah, S., 2003 . The fundamentals of ecology underpin knowledge of the environmental sciences. UI Press,</i>	5%
2	Students are able to analyze the law of conservation of energy	Accurate analysis of the law of conservation of energy and giving examples in everyday life	Criteria: Exact > 65 Form of Assessment : Assessment of Project Results / Product Assessment, Practices / Performance	Presentation, Discussion, Reflection on assignment 1 2 X 50		Material: - Understanding Conservation Laws References: <i>Akhadi, M, 2009. Energy Ecology. Science House,</i>	5%
3	Students are able to analyze biogeochemical cycles	Accuracy of biogeochemical cycle analysis	Criteria: Exact > 65 Form of Assessment : Assessment of Project Results / Product Assessment, Practices / Performance	Presentation, discussion and reflection on assignment 1 2 X 50		Material: -C Cycle -S Cycle -N Cycle -P Cycle Reference: <i>Odum, EP, 1996. Basics of Ecology. UGM Press.</i>	5%

4	Students are able to analyze population ecology	Accuracy of population ecological analysis	Criteria: Exact > 65 Form of Assessment : Assessment of Project Results / Product Assessment, Practices / Performance	Presentation, discussion and reflection on assignment 2 2 X 50		Material: Understanding Basic Concepts of Population Ecology References: <i>Wirakusumah, S., 2003. Ecological foundations for populations and communities . UI Press,</i>	5%
5	Students are able to understand forest ecology	Accuracy of forest ecological analysis	Criteria: Exact > 65 Form of Assessment : Project Results Assessment / Product Assessment	Presentation, discussion and reflection on assignment 2 2 X 50		Material: - Understanding Forest - Understanding forest ecosystems Reference: <i>Indriyanto, 2006. Forest ecology. Literary Earth.</i>	10%
6	Students are able to analyze the ecology of land waters	Accuracy of ecological analysis of inland waters	Criteria: Exact > 65 Form of Assessment : Assessment of Project Results / Product Assessment, Practices / Performance	Presentation, discussion and reflection on assignment 2 2 X 50		Material: - Land ecosystem - Dynamics of land ecosystem Reference: <i>Ghuffron, M. 2012. Mangrove Ecosystem. Rineka creates</i>	10%
7	Students are able to understand land water pollution	Accuracy of land water pollution analysis	Criteria: Exact > 65 Form of Assessment : Project Results Assessment / Product Assessment	Presentation, discussion and reflection on assignment 2 2 X 50		Material: Inland Water Pollution Reference: <i>Irwan, ZD, 2007. Principles of ecology, ecosystems, the environment and their conservation. Literary Earth.</i>	10%
8	UTS Midterm Exam	The accuracy of the analysis of landscape ecological concepts	Criteria: Exact > 65 Form of Assessment : Test		Sidia 2 x 50	Material: ecological concept Reference: <i>Odum, EP, 1996 . Basics of Ecology. UGM Press.</i>	4%
9	Students are able to analyze mangrove ecology	Accuracy of mangrove ecological analysis	Criteria: Exact > 65 Form of Assessment : Participatory Activities	Presentation, discussion and reflection on assignment 3 2 X 50		Material: Understanding the Mangrove Ecosystem Reference: <i>Ghuffron, M. 2012. Mangrove Ecosystem. Rineka creates</i>	5%

10	Students are able to analyze marine ecology	Accuracy of marine ecological analysis	Criteria: Exact > 65 Form of Assessment : Assessment of Project Results / Product Assessment, Practices / Performance	Presentation, discussion and reflection on assignment 3 2 X 50		Material: Water Ecosystems, Water Ecosystem Dynamics References: <i>Irwan, ZD, 2007. Principles of ecology, ecosystems, the environment and their conservation. Literary Earth.</i>	5%
11	Students are able to analyze the ecology of the savanna	Accuracy of savanna ecological analysis	Criteria: Exact > 65 Forms of Assessment : Project Results Assessment / Product Assessment, Practical Assessment, Practice / Performance	Presentation, discussion and reflection on assignment 3 2 X 50		Material: Understanding Savanna Ecology Reference: <i>Odum, EP, 1996 . Basics of Ecology. UGM Press.</i>	5%
12	Students are able to analyze industrial and energy ecology	The accuracy of industrial ecological analysis	Criteria: Exact > 65 Form of Assessment : Participatory Activities, Project Results Assessment / Product Assessment	Presentation, discussion and reflection on assignment 3 2 X 50		Material: - Industrial Ecology - Energy Library: <i>Akhadi, M, 2009. Energy Ecology. Science House,</i>	5%
13	Students are able to analyze air pollution	Accuracy of air pollution analysis	Criteria: Exact > 65 Form of Assessment : Participatory Activities, Project Results Assessment / Product Assessment	Presentation, discussion and reflection on assignment 4 2 X 50		Material: Air Pollution Reference: <i>Wirakusumah, S., 2003 . The fundamentals of ecology underpin knowledge of the environmental sciences. UI Press,</i>	5%
14	Students are able to analyze global warming	Accuracy of global warming analysis	Criteria: Exact > 65 Form of Assessment : Participatory Activities, Project Results Assessment / Product Assessment	Presentation, discussion and reflection on assignment 4 2 X 50		Material: - Understanding Global Warming - Causes of Global Warming - Impact of Global Warming Reference: <i>Alikodra, H., 2008. Global Warming. Scholarly Nuance,</i>	5%
15	Students are able to analyze the role of local wisdom in protecting the environment	Accurate analysis of the role of local wisdom in protecting the environment	Criteria: Exact > 65 Form of Assessment : Project Results Assessment / Product Assessment	Presentation, discussion and reflection on assignment 4 2 X 50		Material: - Local Wisdom - Environmental Conservation References: <i>Irwan, ZD, 2007. Principles of ecology, ecosystems, the environment and their conservation. Literary Earth.</i>	10%

16	UAS	UAS Final Semester Exam	Criteria: Exact > 65 Form of Assessment : Test		Sidia 2 x 50	Material: application of landscape ecology Reference: <i>Irwan, ZD, 2007. Principles of ecology, ecosystems, the environment and their conservation. Literary Earth.</i>	5%
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Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	17.5%
2.	Project Results Assessment / Product Assessment	54.17%
3.	Practical Assessment	1.67%
4.	Practice / Performance	16.67%
5.	Test	9%
		99.01%

Notes

- Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
- The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
- Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
- Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
- Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
- Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
- Forms of assessment:** test and non-test.
- Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
- Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
- Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
- The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
- TM=Face to face, PT=Structured assignments, BM=Independent study.