



Universitas Negeri Surabaya
Faculty of Mathematics and Natural Sciences
Master of Science Education Study Program

Document
Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight	SEMESTER	Compilation Date												
Science Study 1	8410102206		T=2 P=0 ECTS=4.48	2	July 17, 2024												
AUTHORIZATION	SP Developer		Course Cluster Coordinator	Study Program Coordinator													
	Dr. Eko Hariyono, S.Pd., M.Pd.													
Learning model	Case Studies																
Program Learning Outcomes (PLO)	PLO study program which is charged to the course																
	Program Objectives (PO)																
	PLO-PO Matrix																
		P.O															
	PO Matrix at the end of each learning stage (Sub-PO)																
	P.O	Week															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Course Description	This course discusses the characteristics of living things, ecosystems, survival, organ function structure and plant responses as well as photosynthesis, in humans and animals including locomotion, digestive system, respiratory system, circulatory system, excretory system, nervous system, respiratory system. reproduction, inheritance and biotechnology. Lecture activities are carried out with discussions, practicums and presentations																
References	Main :																
	1. Biggs, A. 2004. Biology The Dynamic of Life. New York : Glencoe McGraw-Hill Mc. Lennan A. Andy Bates. Phil Turner. Mike White. 2012. Moleculer Biology ed. 3. New York : Taylor n Francis. Subowo. 2015. Biologi Sel ed. 7. Indonesia Tropp B.E. 2012. Moleculer Biology. New York : Quen College City Univ.																
	Supporters:																
Supporting lecturer	Dr. I Gusti Made Sanjaya, M.Si. Prof.Dr. Yuni Sri Rahayu, M.Si. Dr. H. Sunu Kuntjoro, S.Si., M.Si. Beni Setiawan, S.Pd., M.Pd., Ph.D.																
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	Communicate concepts related to the characteristics of living things, develop these concepts and use these concepts and use the concepts to explain events in everyday life	a. Describe the characteristics of living creatures b. Identify misconceptions about the characteristics of living creatures c. Teach the concept of the characteristics of living things from the worksheet produced.	Form of Assessment : Participatory Activities	Reference studies, assignments, discussions and 2 X 50 percentages			10%										

2	Present concepts related to ecosystems, develop these concepts and use concepts to explain events in everyday life	a. Explain the concept of ecosystem b. Identifying misconceptions about ecosystems c. Carrying out practical work on the influence of abiotic factors from the resulting worksheet.	Form of Assessment : Participatory Activities	Reference studies, assignments, discussions and presentations 2 X 50	Learning activities are carried out online with case study discussions about ecosystems and several misconceptions that exist in the 2 x 50 ecosystem material	Material: Ecosystem References: Biggs, A. 2004. <i>Biology The Dynamics of Life</i> . New York : Glencoe McGraw-Hill Mc. Lennan A. Andy Bates. Phil Turner. Mike White. 2012. <i>Molecular Biology ed. 3</i> . New York : Taylor n Francis. Subowo. 2015. <i>Cell Biology ed. 7</i> . Indonesia Tropp BE 2012. <i>Molecular Biology</i> . New York : Quen College City Univ.	5%
3	Communicate concepts related to survival, develop these concepts and use concepts to explain events in everyday life	a. Compare various types of adaptation. b. Identifying misconceptions about survival c. Teach the concept of natural selection from the resulting worksheet	Form of Assessment : Participatory Activities	Reference studies, assignments, discussions and presentations 2 X 50			5%
4	Communicate concepts related to the structure and function of plant organs, develop these concepts and use the concepts to explain events in everyday life	a. Explain the relationship between the structure and function of plant organs b. Identifying misconceptions about plant structures and organs c. Observing the structure of roots, stems and leaves using a microscope	Form of Assessment : Participatory Activities	Reference studies, assignments, discussions and presentations 2 X 50			5%
5	Present concepts related to plant responses, develop these concepts and use concepts to explain events in everyday life.	a. Explain and give examples of various plant responses b. Identifying misconceptions about plant responses c. Determine the type of plant response from photos/images of various plant responses	Form of Assessment : Participatory Activities	Reference studies, assignments, discussions and presentations 2 X 50			5%
6	Communicate concepts related to photosynthesis, develop these concepts and use the concepts to explain events in everyday life.	a. Explain the concept of photosynthesis b. Identify errors in the concept of photosynthesis c. Apply the steps of the scientific method related to the Engelman experiment	Form of Assessment : Participatory Activities	Reference studies, assignments, discussions and presentations 2 X 50			0%
7	Communicate concepts related to locomotion, develop these concepts and use concepts to explain events in everyday life.	a. Comparing active and passive locomotion tools b. Identifying errors in the concept of locomotion. c. Observe active and passive locomotion.	Form of Assessment : Participatory Activities	Reference studies, assignments, discussions and presentations 2 X 50			5%

8	UTS		Form of Assessment : Participatory Activities	2 X 50			10%
9	Communicate concepts related to the digestive system, develop these concepts and use concepts to explain events in everyday life	a. Explain the concept of the digestive system b. Identify misconceptions about the digestive system c. Testing food ingredients	Criteria: 20% Form of Assessment : Project Results Assessment / Product Assessment, Portfolio Assessment	Reference studies, assignments, discussions and presentations 2 X 50	Learning activities are carried out online with case study discussions about the digestive system and several misconceptions that exist in the digestive system material.	Material: Carbohydrates References: Biggs, A. 2004. <i>Biology The Dynamic of Life</i> . New York : Glencoe McGraw-Hill Mc. Lennan A. Andy Bates. Phil Turner. Mike White. 2012. <i>Molecular Biology ed. 3</i> . New York : Taylor n Francis. Subowo. 2015. <i>Cell Biology ed. 7</i> . Indonesia Tropp BE 2012. <i>Molecular Biology</i> . New York : Quen College City Univ.	5%
10	Communicate concepts related to the respiratory system, develop these concepts and use concepts to explain events in daily life. Communicate concepts related to the circulatory system, develop these concepts and use concepts to explain events in everyday life	a. Explain the concept of the respiratory system b. Identifying misconceptions about the respiratory system c. Carrying out lung volume capacity practicum d. Comparing the large and small circulatory systems e. Identify misconceptions about the circulatory system f. Simulate large and small blood circulation	Form of Assessment : Portfolio Assessment	Reference studies, assignments, discussions and presentations 2 X 50	Analyze the respiratory system and identify misconceptions about the respiratory system	Material: Respiratory system References: Biggs, A. 2004. <i>Biology The Dynamics of Life</i> . New York : Glencoe McGraw-Hill Mc. Lennan A. Andy Bates. Phil Turner. Mike White. 2012. <i>Molecular Biology ed. 3</i> . New York : Taylor n Francis. Subowo. 2015. <i>Cell Biology ed. 7</i> . Indonesia Tropp BE 2012. <i>Molecular Biology</i> . New York : Quen College City Univ.	5%
11	Communicate concepts related to the excretory system	a. Explain the excretory system b. Identifying misconceptions about the excretory system c. Carry out excretion system practicum from the resulting worksheet	Form of Assessment : Practical Assessment	Reference studies, assignments, discussions and presentations 2 X 50			5%
12	Communicating the nervous system in humans, developing these concepts and using concepts to explain events in everyday life	a. Explain the nervous system in humans b. Identifying misconceptions about the nervous system in humans c. Carrying out nervous system practicum in humans from the resulting worksheet	Form of Assessment : Practice / Performance	Reference studies, assignments, discussions and presentations 2 X 50			5%

13	Communicate concepts related to the reproductive system, develop these concepts and use them to explain events in everyday life	a. Explain the reproductive system b. Identifying misconceptions about the reproductive system c. Teaches how to care for reproductive organs	Form of Assessment : Participatory Activities	Reference study Assignments, discussions and presentations 2 X 50			0%
14	Communicate concepts related to inheritance, develop these concepts and use them to explain and present events in everyday life	a. Explain the term inheritance, Mendel's laws I, II, how to write genes, genotype b. Identifying misconceptions about inheritance of traits c. Carrying out monohybrid and dihybrid cross practicums from the resulting LKS	Form of Assessment : Project Results Assessment / Product Assessment	Assignment reference study, discussion and presentation 2 X 50			5%
15	Communicate concepts related to biotechnology, develop these concepts and use concepts to explain events in everyday life	a. Explain the concept of biotechnology b. Give examples of conventional and modern biotechnology results c. Carrying out conventional biotechnology practicums/visiting modern biotechnology industries, for example chorella	Form of Assessment : Project Results Assessment / Product Assessment, Portfolio Assessment	Assignment reference study, discussion and presentation 2 X 50	Analyze biotechnology and create worksheets about biotechnology. 2 x 50	Material: Biotechnology Reference: Biggs, A. 2004. <i>Biology The Dynamic of Life</i> . New York : Glencoe McGraw-Hill Mc. Lennan A. Andy Bates. Phil Turner. Mike White. 2012. <i>Molecular Biology ed. 3</i> . New York : Taylor n Francis. Subowo. 2015. <i>Cell Biology ed. 7</i> . Indonesia Tropp BE 2012. <i>Molecular Biology</i> . New York : Quen College City Univ.	10%
16	UAS		Form of Assessment : Participatory Activities	2 X 50			10%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	55%
2.	Project Results Assessment / Product Assessment	12.5%
3.	Portfolio Assessment	12.5%
4.	Practical Assessment	5%
5.	Practice / Performance	5%
		90%

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.

5. **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.
6. **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.
7. **Forms of assessment:** test and non-test.
8. **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.
9. **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.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **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%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.