								Document Code

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

SEMESTER LEARNING PLAN

Courses		CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Diversity of Living Creatures		8420103065		**T=3**	**P=0**	**ECTS=4.77**	2	July 18, 2024
AUTHORIZATION		**SP Developer**		**Course Cluster Coordinator**			**Study Program Coordinator**	
		....		....			Prof. Dr. Erman, M.Pd.	

Learning model	**Project Based Learning**
Program Learning Outcomes (PLO)	**PLO study program that 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 life of micro organisms, for example prions, viruses, monera (blue algae and bacteria) and macro organisms, for example fungi, plants and animals, and their diversity, including classification principles and representative examples in Indonesia, presented in theoretical form. and practice.

References	**Main :**

1. Brock, M. 1991. Biology Of Microorganisme . New Jersey : Printice-Hall
2. Campbell, N. A. et al. 2008. Biology; Eighth Edition . San Fransisco: Pearson, Benjamin Cummings.
3. Deacon, Jim W. 2006. Fungal Biology . Printed and bound in the United Kingdom. by Blakwell Science Ltd a Black Well Publising Company.
4. Henry, Robert J. Plant Diversity and Evolution . Printed and bound in the UK by Cromwell Press, Trowbridge. CABI Publishing CAB International Wallingford Oxfordshire OX10 8DE UK
5. Hickman Jr., Cleveland. P., Roberts, Larry S., Larson, Alan. 2001. Integrated Principles Of Zoology, Eleveth Edition . 1221 Avenue of The American, New York. By The McGraw-Hill Companies, Inc.

Supporters:

Supporting lecturer	Dr. Dyah Astriani, S.Pd., M.Pd. Dr. Hasan Subekti, S.Pd., M.Pd. Ahmad Qosyim, S.Si., M.Pd. Enny Susiyawati, S.Si., M.Sc., M.Pd., Ph.D. Dhita Ayu Permata Sari, S.Pd., 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	Describe the mastery of conceptual-theoretical knowledge about the diversity of living things, assisted by science and technology (Cognitive-Product) Apply the steps of the scientific method in an experimental research, in the form of detailed activities consisting of: planning, implementing and reporting practical activities on the diversity of living creatures independently as a group (Cognitive-psychomotor and product performance processes) Carrying out assignments in the form of presenting ideas/thoughts, about the diversity of living things, in the form of LKM/practicum work results in the form of LKM practicum reports (Cognitive performance-processes) Completing other assignments, about the diversity of living things , which will be communicated in lecture forums or seminar results (Cognitive Process-performance, Products and Social-communication Skills)	1. Students can describe their mastery of knowledge of theoretical concepts regarding the Diversity of Living Creatures 2. Students can understand the diversity of living creatures associated with taxonomy 3. Students can explain the scope of Taxonomy 4. Students can explain the taxonomic approach 5. Students can explain the differences between diversity and variation 6. Students can explain the relationship between Taxonomy principles and their objects 7. Students can compare the characteristics of each kingdom 8. Students can explain the causes of changes in the classification system	**Criteria:** Attached to the Assessment Instrument and Assessment Rubric	Student-centered approach student-centered learning Inductive learning strategy by showing specific descriptions to general descriptions of the concepts being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and active. 3 X 50			0%

2	Describe the mastery of conceptual-theoretical knowledge about blue algae (Cognitive Products) Carry out structured practicum activities according to the topics in the practicum guidebook and prepare reports (Cognitive-psychomotor performance-processes and products) Carry out other assignments, regarding presenting ideas/thoughts about blue algae, in the form of results of work on Student Activity Sheets/LKM (Cognitive Process-performance)	1. Students can describe their mastery of theoretical knowledge about Monera: Prokaryotic Algae; Blue Algae (Cyanocloronta) 2. Students can describe the diversity and variation among members of Cyanochloronta 3. Students can explain the characteristics of cyanoc cellular cells which are considered prokaryotic living creatures 4. Students can compare the body structure of unicellular and multicellular cyanoc 5. Students can outline hypotheses that support the causes of Cyanoc body movements 6. Students can explain how Cyanoc reproduces 7. Students can show evidence that the function of heterosis is related to nitrogen fixation 8. Students can explain the boundaries of thylakoids, phycobilisomes, akinet, phycobilins, endospores, exospores. 9. Students can identify specimens that are cyanoc at the genus level 10. Students can describe the main characteristics of the specimen.	**Criteria:** Attached to the Assessment Instrument and Assessment Rubric	Student-centered approach student-centered learning Deductive learning strategy by showing a general overview to a specific overview of the concept being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and actively. 3 X 50			0%

| 3 | Describe the mastery of conceptual-theoretical knowledge about Green Algae (Chlorophyta) (Cognitive Products) Carry out structured practicum activities according to the topic, in the practicum guidebook and prepare reports (Cognitive-psychomotor process-performance and products) Carry out other assignments, about Green Algae (Chlorophyta) pouring out ideas/thoughts about Cell Transport & Metabolism, in the form of LKM work (cognitive process-performance) | 1. Students can describe the diversity and variation among members of Chlorophyta
2. Students can explain that algae is different from eukaryotic plants that contain chlorophyll
3. Students can explain the cellular and body characteristics of algae
4. Students can explain the different characteristics of algae groups
5. Students can explain the cellular and body characteristics of Protozoa
6. Students can explain the reproductive characteristics of protozoa
7. Students can explain the differences in cellular characteristics of slime molds
8. Students can explain the reproduction of slime molds | **Criteria:**
Attached to the Assessment Instrument and Assessment Rubric | Student-centered approach student-centered learning Deductive learning strategy by showing a general overview to a specific overview of the concept being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and actively.
3 X 50 | | | 0% |

4	Describe the mastery of conceptual-theoretical knowledge about Macroscopic Algae (Brown Algae, Golden Algae, Red Algae) (Cognitive Products) Carry out structured practicum activities according to the topic, in the practicum guidebook and prepare reports (Cognitive-psychomotor performance-process and product) Carry out assignments others, regarding the expression of ideas/thoughts about Macroscopic Algae (Brown Algae, Golden Algae, Red Algae), in the form of the results of work on LKM (cognitive process-performance)	1. Students can describe the diversity and variations among members of Macroscopic Algae 2. Students can explain that algae is different from eukaryotic plants that contain chlorophyll 3. Students can explain the cellular and body characteristics of algae 4. Students can explain the different characteristics of algae groups 5. Students can explain the cellular and body characteristics of Protozoa 6. Students can explain the reproductive characteristics of protozoa 7. Students can explain the differences in cellular characteristics of slime molds 8. Students can explain the reproduction of slime molds	**Criteria:** Attached to the Assessment Instrument and Assessment Rubric	Student-centered approach student-centered learning Deductive learning strategy by showing general descriptions to specific descriptions of the concepts being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and active. 3 X 50			0%
5	Describe mastery of conceptual-theoretical knowledge about Mosses (Bryophyta) (Cognitive Products) Carry out structured practicum activities according to the topic, in the practicum guidebook and prepare reports (Cognitive-psychomotor process-performance and products) Carry out other assignments, about Mosses (), pouring ideas/ideas about , in the form of the results of work on LKM (cognitive performance processes) Bryophyta	1. Students can describe the diversity and variation among members of Lumut (Bryophyta). 2. Students can explain the differences in special characteristics and body structure of moss groups. 3. Students can compare the life cycles of moss groups. 4. Students can determine the primitive and advanced status of moss groups. 5. Students can explain the comparison of reproductive methods in moss groups.	**Criteria:** Attached to the Assessment Instrument and Assessment Rubric	Student-centered approach student-centered learning Deductive learning strategy by showing a general overview to a specific overview of the concept being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and actively. 3 X 50			0%

			Criteria:					
6	Describe the mastery of conceptual-theoretical knowledge about Nails (Pterydophyta) (Cognitive Products) Carry out structured practicum activities according to the topic, in the practicum guidebook and prepare reports (Cognitive-psychomotor performance-processes and products) Carry out other assignments, regarding the presentation of ideas/thoughts about Nails (Pterydophyta), in the form of work on LKM (Cognitive Process-performance)	1.Students can describe the diversity and variation among members of Paku (Pterydophyta). 2.Students can explain the differences in special characteristics and body structure in the fern group. 3.Students can compare the life cycles of nail groups. 4.Students can determine primitive and advanced status in the fern group. 5.Students can explain the comparison of reproductive methods in the fern group.	**Criteria:** Attached to the Assessment Instrument and Assessment Rubric	Student-centered approach student-centered learning Deductive learning strategy by showing a general overview to a specific overview of the concept being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and actively. 3 X 50				0%
7	Describe the mastery of conceptual-theoretical knowledge about Seed Plants (Spermatophyta) (Cognitive Products) Carry out structured practicum activities according to the topic, in the practicum guidebook and prepare reports (Cognitive-psychomotor process-performance and products) Carry out other assignments, about Seed Plants (Spermatophyta) the expression of ideas/thoughts about, in the form of the results of work on LKM (cognitive performance-process)	1.Students can understand the diversity of Seed Plants (Spermatophyta) and their role in human life. 2.Students can explain the differences in special characteristics and body structure of the regnum plantae group in the Spermathophyta division (Gymnospermae and Angispermae) 3.Students can compare the life cycle of the plantae group in the Spermathophyta division 4.Students can determine the primitive and advanced status of the plantae group in the Spermathophyta division 5.Students can explain the comparison of reproductive methods in the plantae group in the Spermathophyta division	**Criteria:** Attached to the Assessment Instrument and Assessment Rubric	Student-centered approach student-centered learning Deductive learning strategy by showing a general overview to a specific overview of the concept being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and actively. 3 X 50				0%
8	Sub Summative Exam Final Ability Meeting 1 to meeting 7	Sub Summative Exam Indicators for Meeting 1 to Meeting 7	**Criteria:** Attached to the Assessment Instrument and Assessment Rubric	Sub Summative Exam 3 X 50				0%

9	Describe the mastery of conceptual-theoretical knowledge about viruses (Cognitive Products) Carry out structured practicum activities according to the topic, in the practicum guidebook and prepare reports (Cognitive-psychomotor process-performance and products) Carry out other assignments, about viruses, express ideas/thoughts about, in the form of results of work on LKM (Cognitive Process-performance)	1. Students can understand the characteristics and role of viruses in human life 2. Students can explain the structure of viruses 3. Students can explain one of the classifications of viruses 4. Students can explain the mechanism of virus reproduction 5. Students can give an example of the role of viruses in human life	**Criteria:** Attached to the Assessment Instrument and Assessment Rubric	Student-centered approach student-centered learning Deductive learning strategy by showing a general overview to a specific overview of the concept being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and actively. 3 X 50			0%
10	Describe the mastery of conceptual-theoretical knowledge about bacteria (Cognitive Products) Carry out structured practicum activities according to the topic, in the practicum guidebook and prepare reports (Cognitive-psychomotor process-performance and products) Carry out other assignments, about bacteria, share ideas/thoughts about, in form of work result of LKM (Cognitive process-performance)	1. Students can understand the role of bacteria 2. Students can explain the structure of bacterial cells 3. Students can compare prokaryotes and eukaryotes 4. Students can make bacterial culture media 5. Students can maintain bacteria 6. Students can explain the classification of bacteria 7. Students can determine the group of bacteria they maintain into one group based on their characteristics 8. Students can give examples of the role of bacteria in life	**Criteria:** Attached to the Assessment Instrument and Assessment Rubric	Student-centered approach student-centered learning Deductive learning strategy by showing a general overview to a specific overview of the concept being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and actively. 3 X 50			0%

| 11 | Describe the mastery of conceptual-theoretical knowledge about protists (Cognitive Products) Carry out structured practicum activities according to the topic, in the practicum guidebook and prepare reports (Cognitive-psychomotor and product process-performance) Carry out other assignments, regarding expressing ideas/thoughts about protists, in form of work result of LKM (Cognitive process-performance) | 1. Students can understand the diversity of protists
2. Students can explain that algae is different from eukaryotic plants that contain chlorophyll
3. Students can explain the cellular and body characteristics of algae
4. Students can explain the different characteristics of algae groups
5. Students can explain the cellular and body characteristics of Protozoa
6. Students can explain the reproductive characteristics of protozoa
7. Students can explain the differences in cellular characteristics of slime molds
8. Students can explain the reproduction of slime molds | **Criteria:** Attached to the Assessment Instrument and Assessment Rubric | Student-centered approach student-centered learning Deductive learning strategy by showing general descriptions to specific descriptions of the concepts being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and active.
3 X 50 | | | 0% |
| 12 | Describe the mastery of conceptual-theoretical knowledge about fungi (Cognitive Products) Carry out structured practicum activities according to the topic, in the practicum guidebook and prepare reports (Cognitive-psychomotor process-performance and products) Carry out other assignments, regarding the presentation of ideas/thoughts about mushrooms (fungi), in the form of results of work on LKM (Cognitive Process-performance) | 1. Students can understand the role of fungi.
2. Students can explain the general structure of fungi.
3. Students can explain the representative characteristics of fungi.
4. Students can explain one example of fungal classification.
5. Students can explain how fungi reproduce.
6. Students can give examples of the role of fungi in everyday life.
7. Students can be skilled at cultivating mushrooms. | **Criteria:** Attached to the Assessment Instrument and Assessment Rubric | Student-centered approach student-centered learning Deductive learning strategy by showing a general overview to a specific overview of the concept being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and actively.
3 X 50 | | | 0% |

13	Describe the mastery of conceptual-theoretical knowledge about invertebrates (porifera, coelenterates, anrthropods, and insects) (Cognitive Products) Carry out structured practicum activities according to the topic, in the practicum guidebook and prepare reports (Cognitive-psychomotor performance-process and product) Carry out other assignments , about expressing ideas/thoughts about invertebrates (porifera, coelenterates, anrthropods and insects), in the form of the results of work on LKM (cognitive performance processes)	1. Students can understand the role of invertebrate animalia (porifera, coelenterates, anrthropods, and insects) 2. Students can explain the characteristics of various representative examples of invertebrate animals (porifera, coelenterates, anrthropods, and insects) 3. Students can explain the habitats of various invertebrate animals (porifera, coelenterates, anrthropods, and insects) 4. Students can explain various ways of reproduction of invertebrates (porifera, coelenterates, anrthropods, and insects). 5. Students can explain the principles of classifying animals from invertebrates (porifera, coelenterates, anrthropods, and insects). 6. Students can give examples of the role of animals in the lives of invertebrates (porifera, coelenterates, anrthropods, and insects)	**Criteria:** Attached to the Assessment Instrument and Assessment Rubric	Student-centered approach student-centered learning Deductive learning strategy by showing a general overview to a specific overview of the concept being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and actively. 3 X 50			0%

| 14 | Describe the mastery of theoretical knowledge about Vertebrata-Phylum Chordata; Pisces, Amphibia, Reptilia, Aves, Mammalia (Cognitive Products) Carry out structured practicum activities according to the topic, in the practicum guidebook and prepare the report (Cognitive-psychomotor performance-process and product) Carry out other assignments, regarding Vertebrates-Phylum Chordata; Pisces, Amphibia, Reptilia, Aves, Mammalia express ideas/thoughts about, in the form of LKM work (cognitive process-performance) | 1. Students can understand the role of Animalia Vertebrata-Phylum Chordata; Pisces, Amphibia, Reptiles, Aves, Mammalia 2. Students can explain the characteristics of various representative examples of animals from the Vertebrata-Phylum Chordata; Pisces, Amphibia, Reptiles, Aves, Mammalia 3. Students can explain the habitat of various animals from the Vertebrates-Phylum Chordata; Pisces, Amphibia, Reptiles, Aves, Mammalia 4. Students can explain various ways of reproduction in Vertebrates-Phylum Chordata; Pisces, Amphibia, Reptiles, Aves, Mammalia 5. Students can explain the principles of animal classification from Vertebrata-Phylum Chordata; Pisces, Amphibia, Reptiles, Aves, Mammalia 6. Students can give examples of the role of animals in the lives of Vertebrates-Phylum Chordata; Pisces, Amphibia, Reptiles, Aves, Mammalia | **Criteria:** Attached to the Assessment Instrument and Assessment Rubric | Student-centered approach student-centered learning Deductive learning strategy by showing a general overview to a specific overview of the concept being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and actively. 3 X 50 | | | 0% |

| 15 | Describe the mastery of conceptual-theoretical knowledge about (Cognitive Products) Carry out structured practicum activities according to the topic, in the practicum guidebook and prepare reports (Cognitive-psychomotor process-performance and products) Carry out other assignments, regarding expressing ideas/ ideas about, in the form of results work on LKM (Cognitive process-performance) Complete other assignments, regarding Evolution in the form of LKM work results in the form of paper reports and PPT, which will be communicated in lecture forums (Cognitive process-performance, Products and social-communication skills) | 1. Students can understand the role of Animalia (Vertebrates; Pisces, Amphibia, Reptilia, Aves, Mammalia).
 2. Students can explain the characteristics of various representative examples of Phylum Chordata: (Pisces, Amphibia, Reptilia, Aves, Mammalia)
 3. Students can explain the habitats of various animals from Phylum Chordata: (Pisces, Amphibia, Reptilia, Aves, Mammalia)
 4. Students can explain various ways of reproduction in animals from the Phylum Chordata: (Pisces, Amphibia, Reptilia, Aves, Mammalia)
 5. Students can explain the principles of animal classification from Phylum Chordata: (Pisces, Amphibia, Reptilia, Aves, Mammalia)
 6. Students can give examples of the role of animals from Phylum Chordata: (Pisces, Amphibia, Reptilia, Aves, Mammalia) in life | **Criteria:** Attached to the Assessment Instrument and Assessment Rubric | Student-centered approach student-centered learning Deductive learning strategy by showing a general overview to a specific overview of the concept being studied. The methods used are discussions, practicums, literature searches (library and Google Scholar), working on LKM according to procedures that still require students to think critically and actively. 3 X 50 | | | 0% |
| 16 | | | | | | | 0% |

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
		0%

Notes

1. **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.
2. **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.

3. **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.
4. **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** abilities in the process and student learning outcomes are specific and measurable statements that identify the abilities 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.