



Universitas Negeri Surabaya
Faculty of Mathematics and Natural Sciences
Biology Undergraduate Study Program

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight	SEMESTER	Compilation Date		
Animal Anatomy	4620104010		T=4 P=0 ECTS=6.36	2	July 17, 2024		
AUTHORIZATION	SP Developer		Course Cluster Coordinator	Study Program Coordinator			
	Dr. H. Sunu Kuntjoro, S.Si., M.Si.			
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					
Short Course Description	This lecture examines the shape of organs and the topography of each organ that makes up the body system of invertebrate animals, as well as the organs that make up the body system of vertebrate animals which include the skeletal, muscular, integumentary, digestive, respiratory, circulatory, endocrine, uroepotic, reproductive systems. , nerves and senses. This learning is delivered theoretically and practically using lecture, discussion, question and answer, observation methods.						
	<p>References Main :</p> <ol style="list-style-type: none"> 1. Arey, L.B. 1961. Developmental Anatomy: A Textbook and Laboratory manual of Embriology. 6 th ed. Philadelphia: W.B.Saunders Co. 2. Flore, M. SH., DI. 1976. Atlas of Human Histology. 4 th ed. Philadelphia: Lea & Fibicer. 3. Hildebrand, M. and Goslow, G. 2001. Analysis of Vertebrate Structure. 5 th ed. New York: John Wiley & Sons. Inc. 4. Kardong, V.K. 2006. Vertebrate: Comparative Anatomy, Function, Evolution. New York: McGraw Hill. 5. Kent, G.C. 1987. Comperative Anatomy of the Vertebrata. Toronto: Times Mirror/Mosby. 6. Moment, G.B. 1967. General Zoology. 2 th ed. Boston: Houghton Mifflin Company. 7. Parker, T.J. and Haswell. 1967. A Text Book of Zoology. 6 th ed. London: Macmillan & Co. Ltd. 8. Putz, R. and Pabst, R. 1995. Sobotta Atlas Anatomi Manusia. Bagian 2. Edisi 20. Alih bahasa Indriati. Jakarta: EGC. <p>Supporters:</p>						
Supporting lecturer	Prof. Dr. Ir. Dyah Hariani, M.Si. Dr. Widowati Budijastuti, M.Si. Dr. Nur Duchu, S.Si., M.Si.						
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	Understand the principles of layout and direction of animal bodies, the basics of naming organs and the relationship of anatomy to the principles of other applied sciences.	<ol style="list-style-type: none"> 1. Distinguish the direction and layout of organs based on the principle of direction of movement. 2. Identify the direction and layout of organs. 3. Explain the basics of naming organs based on organ systems. 4. Connecting the role of anatomy in other applied sciences through related article literacy. 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30 	Presentations, discussions, overview of animal anatomy research. 4 X 50			0%
2	Understand the comparative anatomy of the Diploblastic group of invertebrate animal phylum	<ol style="list-style-type: none"> 1. Distinguish the direction and layout of Phylum Porifera, Coelenterata, and Vermes. 2. Identify the organs of Porifera, Coelenterata, and Vermes. 3. Distinguish between organs and organ systems in Porifera, Coelenterata, and Vermes. 4. Concluding the interrelationship of organ systems in Porifera, Coelenterata, and Vermes. 5. Assess the literacy of research articles on invertebrate anatomy. 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30 	Presentation, Discussion, literacy research articles Practical work 4 X 50			0%
3	Understand the comparative anatomy of the Triploblastic group of invertebrate animal phylum	<ol style="list-style-type: none"> 1. Distinguish the direction and layout of Mollusca, and Crustacea 2. Identify the organs of Mollusca and Crustacea 3. Distinguish between organs and organ systems in Mollusca and Crustacea 4. Conclude the relationship between the organ systems of Mollusca and Crustacea 5. Assess the literacy of research articles on invertebrate anatomy 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30 	Presentation, Discussion and literacy of research articles Practical work 4 X 50			0%

4	Understand the comparative anatomy of the Triploblastic group of invertebrate animal phylum	Distinguish the direction and layout of Insects and Echinoderms Identify the organs of Insects and Echinoderms Distinguish between organs and organ systems in Insects and Echinoderms Conclude the relationship between the organ systems of Insects and Echinoderms Present the results of research articles from journals	Criteria: 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30	Presentation, Discussion and reflection Practical work 4 X 50			0%
5	Understand the anatomy of the vertebrate muscular system	Distinguishing the structure of 3 types of muscles Explaining the structure of striated muscles Distinguishing origin and insertion Explaining how to name striated muscles Comparing the structure of skeletal muscles of the body in vertebrate animals (Pisces, Amphibians, Reptiles, Aves and Mammals) Comparing the arrangement of skeletal muscles of the extremities in vertebrate animals (Pisces, Amphibians, Reptiles, Aves and Mammals) Explaining the characteristics of limb muscles in frogs Explaining the characteristics of the arrangement of limb muscles in snakes Explaining the characteristics of the arrangement of limb muscles in aves Assessing the literacy of research articles on the anatomy of the vertebrate muscular system	Criteria: 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30	Discussion, presentation, article literacy Practical work 4 X 50			0%
6	Understand the anatomy of bones and skeletal systems in 5 classes of vertebrate animals	Distinguish the types of cartilage in vertebrates Make a scheme of the types of body skeletons of vertebrate animals Identify the parts of the joints Distinguish the bones of the upper limbs and lower limbs in 5 classes of vertebrates Distinguish the bones of the axial skeleton (cranium) in 5 classes of vertebrates Distinguish the axial bones (chest part) in 5 classes of vertebrates Identifying differences in the axial bones (tail part) in 5 classes of vertebrates Assessing literacy in research articles on the anatomy of the vertebrate skeletal system	Criteria: 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30	Discussion, presentation, article literacy Practical work 4 X 50			0%

7	Understand the anatomy of the digestive tract and digestive glands in 5 classes of vertebrate animals	Connecting the principle of different regions of the digestive tract and glands Identifying the parts of the teeth Identifying the parts of the tongue Distinguishing the organs of the digestive region in 5 classes of vertebrates Differentiating the organs of the ingestive region in the 5 phylum of vertebrates Differentiating the organs of the absorption region in the 5 classes of vertebrates Differentiating the organs of the defecation region in the 5 classes of vertebrates Comparing the digestive anatomy of ruminants/herbivores, carnivores, and omnivores	Criteria: 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30	Discussion, presentation, practice, article literacy 4 X 50			0%
8	UTS	Skilled in applying the concepts and principles of Animal Anatomy responsibly	Criteria: 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30	Test 2 X 50			0%
9	Understand the anatomy of the nervous system	Explain the basic structure of nerve cells Explain the types of nerve cells Make a concept map of the division of the nervous system Identify the parts of the brain Identify the cerebral regions based on their function Distinguish the anatomy of the brain in the class of vertebrate animals Explain the types of brain protection Identify the parts of the spinal cord Explain the composition of peripheral nerves Relate the relationship between impulses -receptors- peripheral nerves - central nerves	Criteria: 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30	Discussion, presentation, practice, research article literacy 4 X 50			0%

10	Understand the anatomy of the senses in vertebrates	Distinguishing the structure of various receptors Identifying the parts of the eye Explaining the structure of the retina Explaining the structure of the pupil Distinguishing the structure of the eye in various vertebrate animals Identifying the parts of the sense of hearing Explaining the regional divisions of the sense of hearing Identifying the areas containing balance control and the auditory nerve Distinguishing the organs of the sense of hearing in various vertebrates Identifying the parts - part of the sense of smell. Distinguish the sense organs of hearing in various vertebrates. Distinguish between various types of papilla. Explain the structure of taste buds. Explain the structure of the sense of touch.	Criteria: 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30	Discussion, reflection presentation, research article literacy 4 X 50			0%
11	Understand the anatomy of the excretory system (urinary and skin)	· Explain the basic shape of the kidney · Identify the parts of the kidney · Explain the types of kidneys in various vertebrate animals · Identify the excretory ducts · Explain the order of the excretory ducts in male or female vertebrate animals · Explain the differences in the characteristics of the excretory ducts in vertebrates · Identify the parts of the skin · Explain the structure of the part of the skin that functions as an excretory system	Criteria: 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30	Discussion, reflection presentation, practice, conducting research article literacy 4 X 50			0%
12	Understand the anatomy of the reproductive system	· Create a concept map of the parts that make up the male reproductive system · Identify the parts of the testicles · Explain the cells that make up the testicles and their functions · Identify the parts of the male reproductive tract · Explain the parts of the penis · Create a system concept map female reproduction · Explain the parts that make up the ovaries · Explain the differences in the characteristics of ovaries in vertebrates · Identify the female reproductive tract · Identify the parts of the uterus · Identify the parts of the vagina	Criteria: 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30	Discussion, reflection presentation, 4 X 50 practice			0%

13	Understand the anatomy of the cardiovascular and respiratory systems	<ul style="list-style-type: none"> Explain the types of chambers and partitions that make up the heart Identify the parts of the heart Compare the differences in heart structure in vertebrates Explain the structural characteristics of arteries, veins, capillaries Identify the types of respiratory tract Explain the parts of the lungs Explain parts of gills Explain the differences in lung structure in vertebrates 	Criteria: 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30	Discussion, reflection presentation, 4 X 50 practice			0%
14	Understand the organs that make up the various body systems of pisces, amphibians, reptiles	<ul style="list-style-type: none"> Identify the organs that make up the pisces body system Identify the organs that make up the amphibian body system Identify the organs that make up the body system of reptiles 	Criteria: 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30	Practice 4 X 50			0%
15	Understand the organs that make up the various body systems of aves, mammals	<ul style="list-style-type: none"> Identify the organs that make up the body system of aves. Identify the organs that make up the body system of mammals 	Criteria: 1.1. Practical report, literacy presentation of research articles 30 2.2. Activeness in discussions and presentations, including participation scores, pre-test scores of 20 3.3. UTS questions are material from the 1st to 7th meeting, UTS value is 20 4.4. UAS questions are material from the 9th to 16th meeting, UAS score is 30	Practice 4 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** 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.