



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
Human Anatomy and Physiology*	4620102009		T=2 P=0 ECTS=3.18	6	July 17, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
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Learning model Project Based Learning

Program Learning Outcomes (PLO) PLO study program which is charged to the course

PLO-6	Able to apply logical, critical, systematic and innovative thinking in the context of developing or implementing science and/or technology according to their field of expertise.
PLO-11	Able to apply transferable skills in biology to develop ecopreneurship (eco-innovation, eco-opportunity, eco-commitment)
PLO-13	Able to demonstrate basic knowledge of cell and molecular biology, organismal biology, ecology and evolution to analyze current biological issues

Program Objectives (PO)

PO - 1	Mastering the concepts of Human Anatomy and Physiology.
PO - 2	Able to apply the concepts of Human Anatomy and Physiology in everyday life by producing products to solve problems in the form of practical activity reports.
PO - 3	Able to design/prepare, carry out simple research related to human anatomy and physiology
PO - 4	Able to make decisions based on data/information in order to complete tasks related to learning and practicum related to Human Anatomy and Physiology.
PO - 5	Able to demonstrate a scientific attitude in biology learning and laboratory activities related to Human Anatomy and Physiology.

PLO-PO Matrix

	P.O	PLO-6	PLO-11	PLO-13
	PO-1			
	PO-2			
	PO-3			
	PO-4			
	PO-5			

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
	PO-1																
	PO-2																
	PO-3																
	PO-4																
	PO-5																

Short Course Description In this course, human anatomy and physiology is discussed including the structure and function of the skeletal system, muscular system, nervous and sensory systems, hormonal system, digestive system in humans, respiratory system in humans, cardiovascular system, immune system, excretory system and reproductive system in humans along with disorders. , disorders and diseases associated with each system. This course also equips students to carry out investigations related to the anatomy and physiology of human systems. This activity is followed by the preparation of a written report on the results of the activity which includes data on the results of the activity and discusses and draws up conclusions based on the data obtained and the discussion. Apart from that, students are also asked to develop products to overcome problems related to disorders/disorders/diseases in human anatomy and physiology.

References

Main :

1. Guyton, A. C. 2010. Fisiologi Manusia dan Mekanisme Penyakit. Jakarta: EGC. Diterjemahkan oleh Adrianto P.
2. Guyton, A. C. 2008. Textbook of Medical Physiology. WB Saunders Comp.Toronto.
3. Marrieb and Hoen. 2007. Human Anatomy and Physiology. Pearson ed Inc. San Fransisco.

Supporters:

Supporting lecturer		Dr. Nur Kuswanti, M.Sc.St. Erlin Rakhmad Purnama, S.Si., M.Si. dr. Hanifiya Samha Wardhani, M.Kes. Firas Khaleyla, 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	Mastering the structure, function and disorders, disorders and diseases of the human skeletal system	<ol style="list-style-type: none"> 1.1. Differentiate the organs of the movement system based on their activity 2.2. Determine the types of bones that make up the human skeleton. 3.3. Distinguish between various types of bones based on their shape 4.4. Differentiate bones based on the type of tissue. 5.5. Determine the type of joint based on its movement. 6.6. Explain the process of ossification. 7.7. Explain disorders/diseases of the skeletal system. 8.8. Make a device from simple materials to maintain body posture based on the integrity of the shape/position of the bones/skeleton. 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% <p>Form of Assessment : Project Results Assessment / Product Assessment, Test</p>	Lectures, discussions and assignments to make products from simple materials to maintain body posture based on the integrity of the shape/position of the bones/skeleton. 2 X 50			5%
2	Mastering the structure, function and disorders, abnormalities and diseases of the human muscular system	<ol style="list-style-type: none"> 1.1. Identify skeletal muscles in the human body 2.2. Distinguish between types of muscles (skeletal, smooth and cardiac) based on structures related to the process of contraction and relaxation. 3.3. Explain the energy sources used for contraction. 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment, Tests</p>	Lectures and discussions classically 2 X 50			5%
3	Mastering the structure, function and disorders, abnormalities and diseases of the human muscular system.	<ol style="list-style-type: none"> 1.1. Explain the involvement of nerves in muscle contraction and relaxation. 2.2. Analyze the types of summation and tetanus waves 3.3. Differentiate types of muscle movement 4.4. Explain muscle disorders/abnormalities and diseases 5.5. Carry out and prepare practicum reports. 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% <p>Form of Assessment : Project Results Assessment / Product Assessment, Test</p>	Lectures, questions and answers, classical discussions, practical group discussions. 2 X 50			5%
4	Mastering the structure, function and disorders, disorders and diseases of the nervous and sensory systems in humans.	<ol style="list-style-type: none"> 1.1. Explain the concentration of ions inside and outside nerve cells. 2.2. Distinguish between resting membrane potential and action potential and its conduction 3.3. Explain the types of stimulation intensity 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment, Tests</p>	Lectures, discussions and assignments 2 X 50			5%
5	Mastering the structure, function and disorders, disorders and diseases of the nervous and sensory systems in humans	<ol style="list-style-type: none"> 1.1. Determine the location of sensory and motor centers. 2.2. Explain the various types of neurons. 3.3. Explain the transmission of impulses through nerve cells and synapses. 4.4. Differentiate between reflex movements and coordinated movements 5.5. Explain at least two disorders/disorders/diseases of the nervous system. 6.6. Carry out and prepare practicum reports 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment, Tests</p>	Lectures, discussions, group discussions. 2 X 50			5%

6	Mastering the structure, function as well as disorders, abnormalities and diseases of the hormonal system in humans	<ol style="list-style-type: none"> 1.1. Determine the location of each hormone-producing endocrine gland. 2.2. Explain the function of each hormone secreted by each gland. 3.3. Analyze the secretion control mechanism of each hormone. 4.4. Explain disorders/abnormalities/diseases in the hormonal system 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% <p>Form of Assessment : Participatory Activities, Project Results Assessment / Product Assessment</p>	Lectures, discussions, practicum 2 X 50			15%
7	Mastering the structure, function and disorders, disorders and diseases of the digestive system in humans	<ol style="list-style-type: none"> 1.1. Explain the function of each part and organ that makes up the digestive system. 2.2. Explain the process of movement of the digestive tract in order to move/move digested food. 3.3. Explain the function of substances secreted by various parts of the digestive system 4.4. Explain the role of the hunger center. 5.5. Explain nutrient absorption. 5.5. Explain disorders/diseases of the digestive system 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment, Tests</p>	Lectures, discussions 2 X 50			5%
8	UTS		<p>Form of Assessment : Project Results Assessment / Product Assessment, Test</p>	2 X 50			10%
9	Mastering the structure, function and disorders, disorders and diseases of the human respiratory system	<ol style="list-style-type: none"> 1.1. Identify the function of the respiratory system components. 2.2. Analyze the gas exchange process regulated by the respiratory center. 3.3. Explain the various volumes and capacities of the respiratory system. 4.4. . Explain disorders/abnormalities/diseases of the respiratory system. 5.5. Carry out and compile practical reports on lung volume and capacity. 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Lectures, discussions, assignments 2 X 50			5%
10	Mastering the structure, function and disorders, disorders and diseases of the cardiovascular system in humans.	<ol style="list-style-type: none"> 1.1. Identify the components of the human cardiovascular system 2.2. Explain the work of the organs that make up the cardiovascular system. 3.3. Correlating the occurrence of blood pressure with the way it is measured. 4.4. Explain the control of the cardiovascular system which involves nerves and hormones 5.5. Analyze the composition and function of blood components. 6.6. Analyzing the red blood cell cycle 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% <p>Form of Assessment : Project Results Assessment / Product Assessment, Test</p>	Lectures, discussions, 2 X 50			5%
11	Mastering the structure, function and disorders, disorders and diseases of the cardiovascular system in humans	<ol style="list-style-type: none"> 1.1. Analyze the blood clotting process 2.2. Explain disorders/abnormalities/diseases of the cardiovascular system 3.3. Carry out and prepare cardiovascular system practicum reports 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment, Tests</p>	Lectures, discussions, practicum 2 X 50			5%
12	Mastering the structure, function and disorders, disorders and diseases of the human immune system	<ol style="list-style-type: none"> 1.1. Identify the organs involved in the immune system. 2.2. Explain the components involved in the immune system 3.3. Explain the process by which the immune system functions against antigens. 4.4. Explain immune system disorders/abnormalities. 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment, Tests</p>	Lectures, discussions, assignments 2 X 50			5%

13	Understand the structure and function of the urinary system	<ol style="list-style-type: none"> 1.1. Explain the topography of the urinary system. 2.2. Explain the role of the various organs involved in the Excretory System. 3.3. Explain the process of urine formation and excretion 4.4. Explain at least 2 disorders/disorders/diseases of the kidneys. 5.5. Explain the dialysis process. 6.6. Carry out and compile urine test reports 	Criteria: <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% Form of Assessment : Project Results Assessment / Product Assessment, Test	Lectures, discussions, assignments 2 X 50			5%
14	Mastering the structure, function and disorders, disorders and diseases of the human reproductive system	<ol style="list-style-type: none"> 1.1. Identify the topography of male and female genital organs. 2.2. Differentiate between oogenesis and spermatogenesis 3.3. Explain when each sex hormone has an effect. 	Criteria: <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% Form of Assessment : Project Results Assessment / Product Assessment, Test	Lectures, discussions and assignments 2 X 50			5%
15	Mastering the structure, function and disorders, disorders and diseases of the human reproductive system	<ol style="list-style-type: none"> 1.4. Describe the menstrual cycle. 2.5. Determine when ovulation occurs in the menstrual cycle range. 3.6. Explain the process of sperm ejaculation. 	Criteria: <ol style="list-style-type: none"> 1.Reports and task products weigh 30% 2.USS results weighted 20% 3.US results weighted 30% 4.Participation/activity in learning 20% Form of Assessment : Project Results Assessment / Product Assessment	Lectures, Discussions and assignments 2 X 50			5%
16		Summative exam	Criteria: Summative exam 30% Form of Assessment : Project Results Assessment / Product Assessment, Test	2 X 50 Exam			10%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	17.52%
2.	Project Results Assessment / Product Assessment	50.02%
3.	Test	32.52%
		100%

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.

