									Document Code

Universitas Negeri Surabaya
Faculty of Sports and Health Sciences
S1 Sports Coaching Education Study Program

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Exercise Physiology I	8520202066		**T=2**	**P=0**	**ECTS=3.18**	0	July 18, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	....	....	Dr. Or. Muhammad, S.Pd., M.Pd.

Learning model	**Case Studies**

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 examines exercise physiology which includes cells, metabolism and cell division, nervous system, muscular system, circulation, respiration, digestion, nutrition, body temperature, energy systems and metabolism in relation to exercise. This lecture is carried out with presentations, discussions, project assignments and reflections.

References	**Main :**

1. Katch VL, McArdle WD, Katch FI, 2011: Essentials of Exercise Physiology 4th Edition, Lippincott Williams & Wilkins;
2. Powers SK, Howley ET, 2009: Exercise Physiology, McGraw Hill;
3. Nining WK, Hartono S, Nasution J, 2011: Dasar-Dasar Fisiologi Olahraga, Unesa Unipress
4. Nining WK, dkk, 2015: Fisiologi olahraga, Unesa Unipress

Supporters:

Supporting lecturer	Prof. Dr. Nining Widyah Kusnanik, S.Pd., M.Appl.Sc. Dr. Kunjung Ashadi, S.Pd., M.Fis., AIFO. Bayu Agung Pramono, S.Pd., M.Kes. Dr. Donny Ardy Kusuma, S.Pd., M.Kes.

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 and master cells including shape, size, function and components of cells, cell metabolism, such as anabolism and catabolism, and cell division	Demonstrate an intelligent and honest attitude in relating various shapes, sizes, functions and components of cells in the human body. Demonstrate perseverance and work together	**Criteria:** Ability to explain the definition above	Lectures, Discussions and Questions and Answers 3 X 50			0%
2	Understand and master cells including shape, size, function and components of cells, cell metabolism, such as anabolism and catabolism, and cell division	Demonstrate an intelligent and honest attitude in relating various shapes, sizes, functions and components of cells in the human body. Demonstrate perseverance and work together	**Criteria:** Ability to explain the definition above	Lectures, Discussions and Questions and Answers 3 X 50			0%
3	Analyze the muscular system, structure and function of skeletal muscles such as myofibrils, filaments, sliding filaments, types of muscle fibers and muscle contraction	Demonstrate an intelligent and honest attitude in formulating the muscular system. Demonstrate a caring and tough attitude in formulating the occurrence of muscle contractions and various types of muscle contractions during exercise	**Criteria:** It is considered correct if it is 80% correct	Lectures, Discussions and Questions and Answers. 3 X 50			0%
4	Analyze the muscular system, structure and function of skeletal muscles such as myofibrils, filaments, sliding filaments, types of muscle fibers and muscle contraction	Demonstrate an intelligent and honest attitude in formulating the muscular system. Demonstrate a caring and tough attitude in formulating the occurrence of muscle contractions and various types of muscle contractions during exercise	**Criteria:** It is considered correct if it is 80% correct	Lectures, Discussions and Questions and Answers. 3 X 50			0%
5	Mastering circulatory systems such as blood, heart and blood vessels	Demonstrate an intelligent and tough attitude in formulating circulation. Demonstrate a caring and honest attitude in analyzing the blood circulation process, heart and blood vessels	**Criteria:** It is considered correct if it can explain 80% correctly	Lectures, Discussions, Analysis and Questions and Answers 3 X 50			0%
6	Understand and master the respiratory system such as expiration, inspiration, pulmonary diffusion, exchange of oxygen and carbon dioxide, gas exchange in muscles, and regulation of lung ventilation	Demonstrate an intelligent and caring attitude in connecting the respiratory system. Demonstrate an honest and caring attitude in analyzing the processes of expiration, inspiration, pulmonary diffusion, exchange of oxygen and carbon dioxide	**Criteria:** Correct if you can explain 80% correctly	Lectures, Discussions, Analysis and Questions and Answers 3 X 50			0%

7	Understand and master the structure and function of the digestive system. Mastering the regulator of metabolism, nutrition and body temperature	Demonstrate an intelligent and honest attitude in linking the digestive system. Demonstrate a tough and caring attitude in simulating the process of the digestive system. Demonstrate an honest and tough attitude in linking the processes that regulate metabolism, nutrition and body temperature. Demonstrate perseverance and cooperation	**Criteria:** It is considered correct if it is able to explain 80% correctly	Lectures, Discussions, Analysis and Questions and Answers 3 X 50				0%
8	Understand and master the structure and function of the digestive system. Mastering the regulator of metabolism, nutrition and body temperature	Demonstrate an intelligent and honest attitude in linking the digestive system. Demonstrate a tough and caring attitude in simulating the process of the digestive system. Demonstrate an honest and tough attitude in linking the processes that regulate metabolism, nutrition and body temperature. Demonstrate perseverance and cooperation	**Criteria:** It is considered correct if it is able to explain 80% correctly	Lectures, Discussions, Analysis and Questions and Answers 3 X 50				0%
9	UTS	UTS	**Criteria:** UTS	UTS 3 X 50				0%
10	Master and understand energy systems such as energy sources, basic energy systems (phosphagen/ATP PC system, glycolysis system, and oxidative system). Understand and master the Kreb's cycle and the electron transport chain	Demonstrate an intelligent and tough attitude in formulating energy sources, basic energy systems (phosphagen/ATP PC system, glycolysis system, and oxidative system. Demonstrate an honest and tough attitude in analyzing how the Kreb's cycle and the electron transport chain occur	**Criteria:** It is considered correct if the answer is 80% correct	Lectures, Analysis Discussions, and Questions and Answers 3 X 50				0%
11	Master and understand hormonal control in the body. Understand the chemical classification of hormones, hormone action, endocrine glands and hormones	Demonstrate a tough and intelligent attitude in analyzing how hormonal control in the body Demonstrates an honest and caring attitude in relating the chemical classification of hormones, hormone action, endocrine glands and hormones	**Criteria:** It is considered correct if the answer is 80% correct	Lectures, Discussions and Questions and Answers 3 X 50				0%

12	Understand the structure and function of the nervous system such as neurons (soma, dendrite, and axon) Understand and master the central nervous system, peripheral nerves Master the autonomic nervous system such as the sympathetic and parasympathetic nervous systems	Demonstrates a tough and caring attitude in formulating neural control. Demonstrate an honest and intelligent attitude in analyzing the structure and function of the nervous system. Demonstrates an intelligent attitude in linking the nervous system and the autonomic nervous system	**Criteria:** It is considered correct if the answer is 80% correct	Lectures, Discussions and Questions and Answers 3 X 50			0%
13	Understand and master energy supply and fatigue Understand energy expenditure during rest and exercise Understand and master metabolism during sub-maximal exercise Master and understand maximum aeobic and maximum anaerobic capacity	Demonstrate an intelligent and honest attitude in analyzing the occurrence of energy supply and fatigue Demonstrate a tough and caring attitude in analyzing the occurrence of energy expenditure during rest and exercise Demonstrate an honest and tough attitude in analyzing the process of metabolism during sub-maximal exercise Demonstrate an intelligent and caring attitude in linking aerobic capacity and maximal anaerobic	**Criteria:** It is considered correct if the answer is 80% correct	Lectures, Analysis Discussions, and Questions and Answers 3 X 50			0%
14	Understand and master energy supply and fatigue Understand energy expenditure during rest and exercise Understand and master metabolism during sub-maximal exercise Master and understand maximum aeobic and maximum anaerobic capacity	Demonstrate an intelligent and honest attitude in analyzing the occurrence of energy supply and fatigue Demonstrate a tough and caring attitude in analyzing the occurrence of energy expenditure during rest and exercise Demonstrate an honest and tough attitude in analyzing the process of metabolism during sub-maximal exercise Demonstrate an intelligent and caring attitude in linking aerobic capacity and maximal anaerobic	**Criteria:** It is considered correct if the answer is 80% correct	Lectures, Analysis Discussions, and Questions and Answers 3 X 50			0%

15	Mastering and understanding the cardiovascular system and cardiovascular responses immediately after exercise such as pulse rate, stroke volume, blood distribution during exercise, cardiovascular drift, as well as respiratory responses to exercise, ventilation and energy metabolism. Mastering the appropriate methods and methods for measuring pulse rate, stroke volume (stroke volume), blood pressure and cardiovascular drift	Demonstrate an intelligent and honest attitude in the cardiovascular system, linking physiological factors that occur immediately after exercise. Demonstrate a tough and caring attitude in measuring pulse rate, stroke volume, blood pressure and cardiovascular drift. Demonstrate a tough attitude in compiling measurement reports measuring pulse. pulse, stroke volume, blood pressure and cardiovascular drift	**Criteria:** It is considered correct if the answer is 80% correct	Lectures, Practical Discussions, Analysis, and Questions and Answers 3 X 50			0%
16							0%

Evaluation Percentage Recap: Case Study

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.