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

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Exercise physiology ***	8520203062	Compulsory Study Program Subjects	T=3	P=0	ECTS=4.77	3	January 1, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
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Learning model: Case Studies

Program Learning Outcomes (PLO)

PLO study program that is charged to the course

Program Objectives (PO)

PO - 1	CPMK 1

PLO-PO Matrix

P.O
PO-1

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																

Short Course Description: This course examines the physiology of sport and exercise, including immediate cardiovascular responses to exercise such as pulse rate, stroke volume, blood distribution during exercise, cardiovascular drift, as well as respiratory responses to exercise, ventilation and energy metabolism, understanding the principles of exercise, understanding how the body adapts to aerobic and anaerobic exercise, as well as understanding exercise in hot and cold environments, exercise at high altitudes, sports training, realizing the importance of body composition and nutrition for sports, ergogenics and sports, understanding how the physiological response of children and adolescents to exercise including the aging process and exercise. This lecture is carried out with presentations, discussions, project assignments, and reflection.

References

Main :

1. Katch VL, McArdle WD, Katch FI. 2011. Essentials of Exercise Physiology 4th Edition. USA: 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.
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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	Able to master the concept of Cardio respiratory vascular response to exercise	1. Explain the meaning of cardio respiratory vascular 2. Identify the characteristics of the cardio respiratory vascular response to exercise and exercise 3. Evaluate the characteristics of cardio respiratory vascular response and integration into sports training	**Criteria:** Full marks will be given if explained correctly **Form of Assessment** : Participatory Activities, Tests	Comprehensive scientific scientific recollectionrememorizationhumanistic performance 3 X 50		**Material:** Cardiorespiratory **References:** *Powers SK, Howley ET. 2009. Exercise Physiology. McGraw Hill.*	5%
2	Able to master the concept of Cardio respiratory vascular response to exercise	1. Explain the meaning of cardio respiratory vascular 2. Identify the characteristics of the cardio respiratory vascular response to exercise and exercise 3. Evaluate the characteristics of cardio respiratory vascular response and integration into sports training	**Criteria:** Full marks will be given if explained correctly **Form of Assessment** : Participatory Activities	Comprehensive scientific scientific recollectionrememorizationhumanistic performance 3 X 50		**Material:** Cardio vascular **References:** *Katch VL, McArdle WD, Katch FI. 2011. Essentials of Exercise Physiology 4th Edition. USA: Lippincott Williams & Wilkins*	5%
3	Able to master the principles of exercise	1. Explain the meaning of training principles 2. Give examples of training principles 3. Identify characteristics of exercise principles 4. Evaluate the form of an exercise program based on exercise principles	**Criteria:** Full marks will be given if explained correctly **Form of Assessment** : Participatory Activities	Scientific Comprehension Humanistic Generalization Humanistic Performance 3 X 50		**Material:** Principles of Exercise **References:** *Nining WK, Hartono S, Nasution J. 2011. Basics of Sports Physiology. Unesa Unipress.*	5%
4	Able to master the concept of muscle strength training, muscle power and muscle endurance	1. Explain the meaning of strength, power and endurance training 2. Explain the role of strength, power and endurance training on muscles 3. Mention examples of muscle strength, muscle power and muscle endurance training	**Criteria:** Full marks will be given if explained correctly **Form of Assessment** : Participatory Activities	Scientific Comprehensive Humanistic Generalization 3 X 50		**Material:** Muscular endurance **References:** *Katch VL, McArdle WD, Katch FI. 2011. Essentials of Exercise Physiology 4th Edition. USA: Lippincott Williams & Wilkins*	5%

5	Able to master the concept of muscle strength training, muscle power and muscle endurance	1. Explain the meaning of strength, power and endurance training 2. Explain the role of strength, power and endurance training on muscles 3. Mention examples of muscle strength, muscle power and muscle endurance training	**Criteria:** Full marks will be given if explained correctly **Form of Assessment** : Participatory Activities	Scientific Comprehensive Humanistic Generalization 3 X 50		**Material:** Muscular endurance **References:** *Powers SK, Howley ET. 2009. Exercise Physiology. McGraw Hill.*	5%
6	Able to master the analysis of aerobic and anaerobic exercise	1. Explain the meaning of aerobic and anaerobic 2. Explain the role of aerobic and anaerobic exercise 3. Explains aerobic and anaerobic measurements in exercise 4. Evaluate the aerobic and anaerobic aspects of training	**Criteria:** Give full marks if you explain correctly Give full marks if you can practice correctly according to aerobic and anaerobic measurement techniques **Form of Assessment** : Participatory Activities, Portfolio Assessment	Collaborative cognitiveScientific associative Humanistic automatic 3 X 50		**Material:** Aerobic Exercise **References:** *Powers SK, Howley ET. 2009. Exercise Physiology. McGraw Hill.*	5%
7	Able to master the analysis of aerobic and anaerobic exercise	1. Explain the meaning of aerobic and anaerobic 2. Explain the role of aerobic and anaerobic exercise 3. Explains aerobic and anaerobic measurements in exercise 4. Evaluate the aerobic and anaerobic aspects of training	**Criteria:** Give full marks if you explain correctly Give full marks if you can practice correctly according to aerobic and anaerobic measurement techniques **Form of Assessment** : Participatory Activities	Collaborative cognitiveScientific associative Humanistic automatic 3 X 50		**Material:** Aerobic Exercise **References:** *Powers SK, Howley ET. 2009. Exercise Physiology. McGraw Hill.*	5%
8	UTS	answer the question correctly	**Criteria:** Maximum score if the answer is correct **Forms of Assessment** : Participatory Activities, Portfolio Assessment, Tests	3 X 50		**Material:** UTS **Library:** *Katch VL, McArdle WD, Katch FI. 2011. Essentials of Exercise Physiology 4th Edition. USA: Lippincott Williams & Wilkins*	15%
9	Able to master the concept of training in hot and cold environments	1. Explain the meaning of exercise in hot and cold environments 2. Understand the concept of body adaptation when exercising in hot and cold environments 3. Understand the health risks of exercising in hot and cold environments	**Criteria:** Full marks will be given if explained correctly **Form of Assessment** : Participatory Activities, Tests	Scientific Comprehension Humanistic Generalization 3 X 50		**Material:** Hot and cold environments **References:** *Powers SK, Howley ET. 2009. Exercise Physiology. McGraw Hill.*	5%

10	Able to master the concept of training at high altitudes (training altitude)	1. Explains the concept of training at high altitudes 2. Understanding the physiological processes of high altitude exercise 3. Understand the health risks of exercising at high altitudes	**Criteria:** Full marks will be given if explained correctly **Form of Assessment** : Participatory Activities, Tests	Scientific Comprehensive Humanistic Generalization 3 X 50		**Material:** Hot and cold environments **References:** *Katch VL, McArdle WD, Katch FI. 2011. Essentials of Exercise Physiology 4th Edition. USA: Lippincott Williams & Wilkins*	5%
11	Able to master sports training model optimization	1. Explains the concept of sports training including various forms and models. 2. Analyzing the hormonal response to overtraining 3. Understanding tapering with peak performance	**Criteria:** Explain the concept of sports training **Form of Assessment** : Participatory Activities, Tests	Scientific Comprehension Humanistic Generalization 3 X 50		**Material:** overtraining **References:** *Katch VL, McArdle WD, Katch FI. 2011. Essentials of Exercise Physiology 4th Edition. USA: Lippincott Williams & Wilkins*	5%
12	Able to master sports training model optimization	1. Explains the concept of sports training including various forms and models. 2. Analyzing the hormonal response to overtraining 3. Understanding tapering with peak performance	**Criteria:** Explain the concept of sports training **Form of Assessment** : Participatory Activities, Tests	Scientific Comprehension Humanistic Generalization 3 X 50		**Material:** overtraining **References:** *Katch VL, McArdle WD, Katch FI. 2011. Essentials of Exercise Physiology 4th Edition. USA: Lippincott Williams & Wilkins*	5%
13	Able to master the concepts of body composition and nutrition for sports	1. Explain the concept of body composition 2. Take body composition measurements including skin fat thickness 3. Understanding nutrition in sports	**Criteria:** Give full marks if you explain correctly. Give full marks if you can practice correctly according to the body composition measurement technique **Form of Assessment** : Participatory Activities, Practice/Performance	Collaborative cognitiveScientific associative Humanistic automatic 3 X 50		**Material:** fat measurement **References:** *Powers SK, Howley ET. 2009. Exercise Physiology. McGraw Hill.*	5%
14	Understand the concept of ergogenic substances and exercise	1. Explain the concept of ergogenic substances 2. Understand the concept of doping and sport 3. Analyze the use of ergogenics and exercise	**Criteria:** Full marks will be given if explained correctly **Form of Assessment** : Participatory Activities, Practice/Performance	Collaborative Motivation Scientific Comprehension 3 X 50		**Material:** doping concept **References:** *Katch VL, McArdle WD, Katch FI. 2011. Essentials of Exercise Physiology 4th Edition. USA: Lippincott Williams & Wilkins*	5%
15	Understand the concept of the influence of sport on children's growth and development and aging due to sport	1. Explain the concept of growth and development 2. Explains the concept of the effects of exercise on acute physiological aspects after exercise 3. Explains the concept of sports performance to parents	**Criteria:** Full marks will be given if explained correctly **Form of Assessment** : Participatory Activities, Tests	Collaborative Motivation Scientific Comprehension 3 X 50		**Material:** sports for parents **References:** *Katch VL, McArdle WD, Katch FI. 2011. Essentials of Exercise Physiology 4th Edition. USA: Lippincott Williams & Wilkins*	5%
16	UAS	overall understanding of the material	**Criteria:** Maximum score if the answer is correct **Form of Assessment** : Participatory Activities, Tests	3 X 50		**Material:** UAS **Literature:** *Nining WK, et al. 2015. Exercise physiology. Unesa Unipress.*	15%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage

1.	Participatory Activities	60%
2.	Portfolio Assessment	7.5%
3.	Practice / Performance	5%
4.	Test	27.5%
		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.