



Universitas Negeri Surabaya
Faculty of Sports and Health Sciences
Bachelor of Sports Science Study Program

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight	SEMESTER	Compilation Date																																										
Exercise Physiology	8920104059		T=4 P=0 ECTS=6.36	3	July 17, 2024																																										
AUTHORIZATION		SP Developer	Course Cluster Coordinator	Study Program Coordinator																																											
		Dr. Heri Wahyudi, S.Or., 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																																														
		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td style="padding: 5px;">P.O</td></tr> </table>				P.O																																									
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Short Course Description	PO Matrix at the end of each learning stage (Sub-PO)																																														
		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td rowspan="2" style="padding: 5px;">P.O</td> <td colspan="16" style="text-align: center;">Week</td> </tr> <tr> <td style="padding: 5px;">1</td><td style="padding: 5px;">2</td><td style="padding: 5px;">3</td><td style="padding: 5px;">4</td><td style="padding: 5px;">5</td><td style="padding: 5px;">6</td><td style="padding: 5px;">7</td><td style="padding: 5px;">8</td><td style="padding: 5px;">9</td><td style="padding: 5px;">10</td><td style="padding: 5px;">11</td><td style="padding: 5px;">12</td><td style="padding: 5px;">13</td><td style="padding: 5px;">14</td><td style="padding: 5px;">15</td><td style="padding: 5px;">16</td> </tr> </table>														P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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References	Main : 1. Hartono,S., Rosyida,E., Bakti, AP. 2017. Fisiologi Olahraga. Surabaya: UNESA University Press 2. Mc.Ardle, William D. 2010. Exercise physiology: nutrition, energy, and human performance. Wolter Kluwer. Lippincot Williams & Wilkins 3. Foss, Merle L. 1998. Foxs Physiological Basis for Exercise and Sport. WCB/ McGraw-Hill Supporters:																																														
Supporting lecturer	Dr. Dita Yuliastrid, S.Si., M.Kes. Anna Noordia, S.TP., M.Kes. Ratna Candra Dewi, S.KM., M.Kes. Dr. Roy Januardi Irawan, S.Or., M.Kes. dr. Ananda Perwira Bakti, 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 the structure and function of skeletal muscle	<ol style="list-style-type: none"> 1.Explain muscle structure 2.Explain muscle contractions 3.Explain the relationship between skeletal muscle and exercise 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: <ol style="list-style-type: none"> 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade") (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	Lectures, discussions and questions and answers 4 X 50			0%
2	Understand energy and hormonal systems	<ol style="list-style-type: none"> 1.Explain metabolism and bioenergy 2.Explain energy sources 3.Explain basic energy systems 4.Explain hormonal control 5.Explain the regulation of metabolism during exercise 6.Explain hormonal regulation during exercise 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: <ol style="list-style-type: none"> 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade") (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	Lectures, discussions and questions and answers 4 X 50			0%

3	Understand the structure and function of the nervous system	<ol style="list-style-type: none"> 1.Name and explain the structure and function of nerves 2.Explain the central nervous system 3.Explain the peripheral nervous system 4.Explain motor control 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: <ol style="list-style-type: none"> 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade") (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	Lectures, discussions and questions and answers 4 X 50			0%
4	Understanding about energy supply and fatigue	<ol style="list-style-type: none"> 1.Explain energy expenditure during rest and exercise 2.Explain fatigue and its causes 3.Explain the energy system and fatigue 4.Explain neuromuscular fatigue 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: <ol style="list-style-type: none"> 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade") (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	Lectures, discussions and questions and answers 4 X 50			0%

5	Understanding the cardiovascular system Understanding the immediate cardiovascular response to exercise	<ol style="list-style-type: none"> 1.Explain the structure and function of the heart 2.Explain the vascular system 3.Explain the function of blood 4.Explain the response of components of the cardiovascular system to exercise 5.Explain the response of the respiratory system to exercise 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: <ol style="list-style-type: none"> 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade") (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	Lectures, discussions and questions and answers 4 X 50		0%
6	Understand the respiratory system	<ol style="list-style-type: none"> 1.Explain pulmonary ventilation 2.Explain the exchange of oxygen and carbon dioxide 3.Explain the transport of oxygen and carbon dioxide 4.Explain gas exchange in muscles 5.Explain the regulation of pulmonary ventilation 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: <ol style="list-style-type: none"> 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade") (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	Lectures, discussions and questions and answers 4 X 50		0%

7	Understand the principles of exercise	<ol style="list-style-type: none"> 1.Explain the terms in the principles of practice 2.State and explain the principles of exercise 3.Describe a resistance training program 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: <ol style="list-style-type: none"> 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade") (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	Lectures, discussions and practice questions on 4 X 50		0%
8	MIDTERM EXAM	<p>Explain the structure and function of skeletal muscle Explain the energy and hormonal systems Explain the structure and function of the nervous system Explain energy supply and fatigue Explain the cardiovascular system & the immediate Cardiovascular response to exercise Explain the transportation system Explain the principles of exercise</p>	<p>Criteria:</p> <p>The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2)</p>	Work on written questions 4 X 50		0%

9	Understand aerobic and anaerobic exercise adaptations	<ol style="list-style-type: none"> 1.Explain adaptations to aerobic exercise: muscular and cardiovascular adaptations 2.Explain respiratory adaptations to exercise 3.Explain metabolic adaptations to exercise 4.Explain anaerobic adaptation 5.Explain cardiorespiratory endurance and performance 6.Explain the adaptation of energy systems 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: <ol style="list-style-type: none"> 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade") (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	Lectures, discussions and practice questions on 4 X 50		0%
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10	<p>Understanding exercise in hot and cold environments Understanding exercise at high altitudes</p>	<ol style="list-style-type: none"> 1.Explain the regulation of body temperature, metabolic heat production, transfer of body heat to the environment, control of heat regulation, physiological responses to exercise in hot environments, health risks when exercising in hot environments, disorders related to hot environments, and acclimation to environmental temperatures 2.Explain exercise in cold weather environments, factors that influence body heat loss, physiological responses to exercise in cold environments, health risks when exercising in cold environments 3.Describe conditions at altitude 4.Explain the physiological response to height 5.Explain the cardiovascular response to altitude 6.Explain the metabolic response to height 7.Explains sports performance at altitude 8.Explain acclimatization to altitude 9.Mention and explain the health risks of acute exposure at high altitudes 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: <ol style="list-style-type: none"> 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade" (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	<p>Lectures, discussions and practice questions on 4 X 50</p>		<p>0%</p>
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11	Understand sports training	<ol style="list-style-type: none"> 1.Explains training model optimization: excessivetraining, overreaching, overtraining 2.Explain the estimates of overtraining syndrome 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade") (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	Lectures, discussions and practice questions on 4 X 50		0%
12	Understand body composition and nutrition for sports	<ol style="list-style-type: none"> 1.Explaining body composition in sports: densitometry, laboratory techniques, field techniques 2.Mention and explain the risks of losing weight 3.Explaining dehydration and exercise performance 4.Explain electrolyte balance during exercise 5.Explain the athlete's diet 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade") (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	Lectures, discussions and practice questions on 4 X 50		0%

13	Understand ergogenics and exercise	<ol style="list-style-type: none"> 1.Explain ergogenics in sports 2.Name and explain pharmacological agents 3.Name and explain physiological agents 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: <ol style="list-style-type: none"> 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade") (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	Lectures, discussions and practice questions on 4 X 50		0%
14	Understanding about children, teenagers and sports	<ol style="list-style-type: none"> 1.Explain the terms growth, development and maturation 2.Explains body composition: height and weight, bones, muscles, fat, and nerves 3.Explain the physiological response to exercise 4.Explain metabolic function: aerobic and anaerobic capacity 5.Explain physiological adaptations to exercise 	<p>Criteria:</p> <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: <ol style="list-style-type: none"> 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade") (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	Lectures, discussions and practice questions on 4 X 50		0%

15	Understanding the aging process and exercise	<ol style="list-style-type: none"> 1.Describes height, weight, and body composition 2.Describe the physiological response to acute exercise 3.Explain aerobic and anaerobic functions 4.Explain physiological adaptations to exercise 5.Explains sports performance 	Criteria: <ol style="list-style-type: none"> 1.The assessment is carried out on the following aspects: <ol style="list-style-type: none"> 2.1. Participation during lectures and peer teaching, carried out through observation (weight 2) 3.2. The subsummative test (UTS) is carried out once with indicators 1-7 via a written exam and is given a weighting of (2) 4.3. Assessment of written tests in peer teaching and practicum is considered an assignment, the scores are averaged, then weighted (3) 5.4. UAS scores are carried out in writing with indicators 9-16 given a weight (3) 6.5. The final NA is (participation grade") (assignment grade%2 3) (UTS grade%2 2) UAS grade (3) divided by 10 	Lectures, discussions and practice questions on 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.

