



**Universitas Negeri Surabaya**  
**Faculty of Education,**  
**Bachelor of Primary School Teacher Education Study Program**

Document Code

**SEMESTER LEARNING PLAN**

<b>Courses</b>	<b>CODE</b>	<b>Course Family</b>	<b>Credit Weight</b>	<b>SEMESTER</b>	<b>Compilation Date</b>																																	
Basic Concepts of Science	8620603198		T=3 P=0 ECTS=4.77	3	July 16, 2024																																	
<b>AUTHORIZATION</b>	<b>SP Developer</b>		<b>Course Cluster Coordinator</b>		<b>Study Program Coordinator</b>																																	
	.....		.....		Putri Rachmadyanti, S.Pd., M.Pd.																																	
<b>Learning model</b>	Case Studies																																					
<b>Program Learning Outcomes (PLO)</b>	PLO study program that is charged to the course																																					
	Program Objectives (PO)																																					
	PLO-PO Matrix																																					
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	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="width: 30px; height: 30px;">P.O</td> <td colspan="16" style="text-align: center;">Week</td> </tr> <tr> <td style="width: 20px;">1</td> <td style="width: 20px;">2</td> <td style="width: 20px;">3</td> <td style="width: 20px;">4</td> <td style="width: 20px;">5</td> <td style="width: 20px;">6</td> <td style="width: 20px;">7</td> <td style="width: 20px;">8</td> <td style="width: 20px;">9</td> <td style="width: 20px;">10</td> <td style="width: 20px;">11</td> <td style="width: 20px;">12</td> <td style="width: 20px;">13</td> <td style="width: 20px;">14</td> <td style="width: 20px;">15</td> <td style="width: 20px;">16</td> </tr> </table>					P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
P.O	Week																																					
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<b>Short Course Description</b>	Carrying out observations, experiments and solving problems related to the basic substance and methodology of science related to the concepts of living things, morphology, anatomy of plants, ecosystems, natural resources, quantities, measurements, forces, matter, sound, temperature and heat that support science learning in elementary and MI as a means to develop an attitude of devotion to God Almighty, religious, and scientific behavior, as well as the ability to apply logical, critical, systematic thinking, analyze, make decisions, make reports, present reports, communicate work results, in solving various IPA-related problems																																					
<b>References</b>	<b>Main :</b>																																					
	<ol style="list-style-type: none"> <li>1. Campbell. A., Neil, et.all., 2000. Biologi Jilid I Terjemahan. Jakarta: Erlangga.</li> <li>2. Campbell. A., Neil, et.all., 2000. Biologi Jilid II Terjemahan. Jakarta: Erlangga.</li> <li>3. Fried. George. H. et.all., 2002. Biologi Terjemahan. Jakarta: Erlangga.</li> <li>4. Mulyani, Sri, 2006. Anatomi Tumbuhan. Yogyakarta: Kanisius.</li> <li>5. Giancoli, D.C. 2001. Fisika jilid 1 . New Jersey: Prentice Hall.</li> <li>6. Halliday, D., Resnick, R. 2001. Fisika Universitas jilid 1 , terjemahan: Pantur Silaban dan Edwin Suctpto. Jakarta: Erlangga.</li> <li>7. McLaughlin, Charles W &amp; Thompson, Marilyn. 1997. Physics Science . New York: Glencoe/ McGraw-Hill.</li> <li>8. Suryanti, dkk. 2003. Konsep Dasar IPA 1Fisika SD . Surabaya: Unipress.</li> </ol>																																					
	<b>Supporters:</b>																																					
<b>Supporting lecturer</b>	Prof. Dr. Suryanti, M.Pd. Drs. Mintohari, M.Pd. Dr. Julianto, S.Pd., M.Pd. Farida Istianah, S.Pd., M.Pd. Nadia Lutfi Choirunnisa, S.Pd., M.Pd. Ivo Yuliana, M.Pd.																																					
<b>Week-</b>	<b>Final abilities of each learning stage (Sub-PO)</b>	<b>Evaluation</b>		<b>Help Learning, Learning methods, Student Assignments, [ Estimated time]</b>		<b>Learning materials [ References ]</b>	<b>Assessment Weight (%)</b>																															
		<b>Indicator</b>	<b>Criteria &amp; Form</b>	<b>Offline ( offline )</b>	<b>Online ( online )</b>																																	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)																															

1	<p>Demonstrate increased behavior of being devoted to God Almighty by realizing the diversity and complexity of living things as God's creation. Demonstrate scientific behavior (honesty, thoroughness, and curiosity) in making observations and making reports on the results of observations on cell structure, diversity of living creatures, and structures. Anatomy and morphology of plants. Understand and apply life concepts, theories, cell structure, levels of diversity of living things, classification systems and nomenclature of living things and examples of their applications. Apply logical, critical and systematic thinking in making observations and making reports on the results of observations on cell structure, diversity of living things, and anatomical and morphological structures of plants</p>	<p>1. Demonstrate devout behavior towards God Almighty 2. Demonstrate honest behavior in making observations 3. Demonstrate careful behavior in making observations 4. Explain the theory of the origin of life in terms of biological concepts 5. Identify the characteristics of living things 6. Describe the cell theory 7. Identify the parts that make up animal cells and plant cells 8. Identify the characteristics of the parts that make up plant and animal cells 9. Describe the differences between plant cells and animal cells 10. Can apply logical and systematic thinking in making reports on observation results</p>	<p><b>Criteria:</b> Activeness and mastery of material</p>	<p>CTL, 4 X 50 Discussion</p>		<p>0%</p>
2	<p>Increasing faith in God Almighty as a form of admiration for God's creation in the form of various types of plants and the processes that occur in them. Demonstrating scientific behavior (honesty, thoroughness, and curiosity) in making observations and making reports on the results of observations regarding cell structure and the diversity of creatures. life, and the morphological anatomical structure of plants. Describe the morphological and anatomical structure of plants. Apply logical, critical and systematic thinking in making observations and making reports on the results of observations on cell structure, the diversity of living things, and the morphological anatomical structure of plants.</p>	<p>1. Demonstrate behavior of faith in God Almighty 2. Demonstrate honest and thorough behavior in making observations 3. Identify the morphological characteristics of roots, stems, leaves, plant flowers, fruit and seeds 4. Explain the types of tissues that make up plants 5. Identify characteristics of the tissues that make up plants 6. Identify the tissues that make up the roots, stems and leaves of plants 7. Describe the characteristics of the tissues that make up the roots, stems and leaves 8. State the similarities and differences between the anatomical structures of roots and stems 9. Apply critical thinking and systematic in making reports of observation results</p>	<p><b>Criteria:</b> Activeness and mastery of material</p>	<p>Scientific approach Learning strategy 4 X 50</p>		<p>0%</p>

3	<p>Increasing faith in God Almighty as a form of admiration for God's creation in the form of various types of plants and the processes that occur in them. Demonstrating scientific behavior (honesty, thoroughness, and curiosity) in making observations and making reports on the results of observations regarding cell structure and the diversity of creatures. life, and anatomical structure, morphology and physiology of plants. Describe the physiological processes that occur in plants and give examples of their application in everyday life.</p>	<ol style="list-style-type: none"> <li>1. Demonstrate the behavior of faith in God Almighty</li> <li>2. Demonstrate careful behavior when making observations</li> <li>3. Demonstrate honest behavior when writing down observational data</li> <li>4. Describe the meaning of photosynthesis</li> <li>5. Describe the process by which the light reaction occurs in photosynthesis</li> <li>6. Describe the dark reaction process in photosynthesis</li> <li>7. Conduct experiments to identify the effect of light intensity on the speed of photosynthesis</li> <li>8. Describe the benefits of photosynthesis for plants themselves and other living creatures</li> <li>9. Describe the meaning of respiration</li> <li>10. Identify types of respiration</li> <li>11. Mention the stages of the cellular respiration process</li> <li>12. Explain the process of glycolysis</li> <li>13. Explain the Krebs cycle in respiration</li> <li>14. Explain the mechanism of electron transport</li> <li>15. Explain the benefits of respiration for living things</li> </ol>	<p><b>Criteria:</b> Activeness and mastery of material</p>	<p>Scientific approach Learning strategy 4 X 50</p>			0%
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4	<p>Increasing faith in God Almighty as a form of admiration for God's creation in the form of various types of plants and the processes that occur in them. Demonstrating scientific behavior (honesty, thoroughness, and curiosity) in making observations and making reports on the results of observations regarding cell structure, diversity, living creatures, and anatomical structures, morphology and physiology of plants. Describe the physiological processes that occur in plants and give examples of their application in everyday life. Make observations, experiments, make reports, and communicate about plant physiological processes.</p>	<p>1. Demonstrate behavior of faith in God Almighty 2. Demonstrate honest behavior when making observations 3. Describe the meaning of growth 4. Explain the factors that influence growth 5. State the similarities and differences between primary growth and secondary growth 6. Describe the meaning of adaptation 7. Explain the types of adaptation 8. Describe the characteristics of each type of adaptation 9. Give examples in animals and plants of each type of adaptation 10. Explain the mechanism of the process of transporting substances in plants 11. Identify the factors that influence transport in plants 12. Explain the various types of transport in plants 13. Demonstrate skills in conducting experiments on plant physiology</p>	<p><b>Criteria:</b> Activeness and mastery of material</p>	<p>CTL Cooperative 4 X 50</p>		<p>0%</p>
5	<p>Increased faith in God Almighty after studying the process of inheritance that occurs in living creatures. Demonstrating confident, polite, and respectful behavior for others in presenting reports of observations or experiments regarding inheritance, natural resources, and the environment. Understanding the processes of genetic material and processes. the decline in characteristics that occur in living things and their application to living things</p>	<p>1. Demonstrate behavior of faith in God Almighty 2. Demonstrate respectful behavior for others during discussions 3. Describe the nature of genetic material 4. Explain the ADN replication process 5. Explain the gene expression process 6. Write down the general stages of the process of making recombinant ADN 7. Explain the process of protein synthesis 8. Describe Mendel's laws and pseudo-deviations of Mendel's laws 9. Give examples of inheritance by applying Mendel's laws 10. Describe pseudo-deviations of Mendel's laws 11. Explain the process of inheritance in humans 12. Make a concept map of heredity material 13. Apply critical thinking in examining readings about heredity</p>	<p><b>Criteria:</b> Activeness and mastery of material</p>	<p>Learning strategy 4 X 50</p>		<p>0%</p>

6	<p>Showing grateful behavior towards God Almighty as a form of admiration for various types of ecosystems and natural resources which play an important role in human life. Showing confident, polite and respectful behavior for other people in presenting reports of observations or experiments regarding the decline in nature, natural resources, and the environment. Understand the types of ecosystems, ecosystem components, and various processes that occur in ecosystems carry out problem solving and make reports on the results of problem solving about ecosystems and natural resources</p>	<p>1. Demonstrate grateful behavior to God Almighty 2. Demonstrate confident behavior when presenting report results 3. Identify the components contained in the ecosystem 4. Identify the various types of ecosystems 5. Identify the various interactions that occur in the ecosystem 6. Explain the process of energy and material flow 7. Describe the meaning of the food pyramid 8. Explain the biogeochemical processes that occur in ecosystems 9. Solve problems related to ecosystems</p>	<p><b>Criteria:</b> Activeness and mastery of material</p>	<p>Scientific approach STAD 4 X 50 Cooperative</p>		<p>0%</p>
7	<p>Showing grateful behavior towards God Almighty as a form of admiration for various types of ecosystems and natural resources which play an important role in human life. Showing confident, polite and respectful behavior for other people in presenting reports of observations or experiments regarding the degradation of nature and natural resources, as well as the environment. Understanding various natural resources, their use and conservation efforts</p>	<p>1. Show grateful behavior towards God Almighty 2. Demonstrate respectful behavior for others when making observations and discussing the results of observations 3. Identify different types of natural resources 4. Grouping natural resources based on certain criteria 5. Explain the benefits of natural resources for humans 6. Explain efforts to conserve natural resources 7. Make reports on the results of problem solving regarding natural resources</p>	<p><b>Criteria:</b> Activeness and mastery of material</p>	<p>4 X 50 inductive learning model</p>		<p>0%</p>
8	<p>understand meeting material 1-7 (UTS)</p>	<p>understand and master meeting material 1-7</p>	<p><b>Criteria:</b> according to the answer key</p>	<p>independent work 4 X 50</p>		<p>0%</p>
9	<p>Skilled in doing scientific work. Conclude that the use of measuring instruments in measuring must be adjusted to the condition of the object being measured, for example thickness, thickness, size, size, number of objects being measured. Summarize the meaning of vector quantities and scale quantities.</p>	<p>Students can carry out scientific work. Students can use measurement tools and write down measurement results and units according to the rules for significant figures. Students can explain the meaning of measurement, quantity, units, basic and derived quantities, vector and scalar quantities.</p>	<p><b>Criteria:</b> answer key according to the type of assessment used</p>	<p>discussion, questions and answers, presentation practice, 4 X 50 assignment</p>		<p>0%</p>

10	Relate the relationship between distance, speed, pace, acceleration and time in motion. Identify various Newton's laws in everyday life.	Students can explain distance, speed and acceleration of objects. Students can differentiate between speed, velocity, acceleration and acceleration. Students can explain Newton's Laws I, II, and III. Students can design experiments related to Newton's Laws I, II, and III.	<b>Criteria:</b> according to the type of assessment used	discussion questions and answers practice assignment 4 X 50			0%
11	Examining and applying the 13 concepts of momentum and impulse in everyday life	Students can carry out experiments to find the amount of momentum of an object. Students can carry out experiments on impulse	<b>Criteria:</b> according to the answer key	discussion question and answer lecture presentation presentation assignment 4 X 50			0%
12	Examining and applying the concepts of 13 energy and business concepts in everyday life	Students can describe the energy possessed by objects. Students can determine the amount of energy in objects. Students can describe the efforts that work on an object. Students can study examples related to energy and work.	<b>Criteria:</b> according to the answer key	discussion question and answer presentation assignment 4 X 50			0%
13	Concluded that simple planes make work easier and faster.	Students can describe the energy possessed by objects. Students can determine the amount of energy in objects. Students can describe the efforts that work on an object. Students can study examples related to energy and work.	<b>Criteria:</b> according to the answer key	discussion question and answer presentation assignment lecture 4 X 50			0%
14	Describe, understand heat and apply it in everyday life	explain the meaning of temperature and heat explain the types of heat transfer explain events in life that implement heat transfer explain the factors that influence heat transfer	<b>Criteria:</b> according to the answer key	discussion question and answer demonstration assignment presentation lecture 4 X 50			0%
15	Describe and understand the properties of substances in everyday life Study, understand the characteristics and apply the concepts of vibration in everyday life	explain the meaning of substances explain the meaning of vibrations explain the types of substances explain the characteristics of substances explain the uses of substances explain the quantities in vibrations explain the benefits of vibrations in life explain the factors that influence vibrations	<b>Criteria:</b> according to the answer key	lecture, discussion, answers, assignment, presentation, demonstration, 4 X 50			0%

16	Describe and understand the properties of substances in everyday life Study, understand the characteristics and apply the concepts of vibration in everyday life	explain the meaning of substances explain the meaning of vibrations explain the types of substances explain the characteristics of substances explain the uses of substances explain the quantities in vibrations explain the benefits of vibrations in life explain the factors that influence vibrations	<b>Criteria:</b> according to the answer key  <b>Form of Assessment :</b> Participatory Activities, Practice/Performance	lecture, discussion, answers, assignment, presentation, demonstration, 4 X 50			0%
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**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** abilities in the process and student learning outcomes are specific and measurable statements that identify the abilities 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.**