	Universitas Negeri Surabaya Faculty of Mathematics and Natural Sciences Bachelor of Science Education Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Thesis	8420106146		T=6	P=0	ECTS=9.54	7	July 19, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	Prof. Dr. Erman, M.Pd.

Learning model	**Case Studies**	
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**	
	PLO-5	Demonstrate scientific, critical, and innovative attitudes in integrated science learning, laboratory activities, and professional-related tasks
	PLO-7	Communicate ideas and research results effectively both in oral and written form
	PLO-11	Design and conduct research about learning of integrated science, and acquire, analyze, and interpret the research data
	PLO-15	Demonstrate knowledge related to science education research
	Program Objectives (PO)	
	PO - 1	Applying research methodology in the field of science education that combines theoretical and practical studies regarding research design, sampling techniques, instruments, data collection methods, and data analysis techniques
	PO - 2	Make strategic decisions based on data and information collected to determine problem solving in the implementation of science education research
	PO - 3	Present plans and results of science education research
	PO - 4	Responsible for research results based on the research stages determined and implemented in the school
	PLO-PO Matrix	

P.O	PLO-5	PLO-7	PLO-11	PLO-15
PO-1				
PO-2				
PO-3				
PO-4				

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																

Short Course Description		
References	**Main :**	

	Supporters:	
Supporting lecturer	Prof. Dr. Erman, M.Pd.	

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	Develop research proposals based on phenomena/problems found in schools or based on research raised in research methodology courses and seminars	Mastering the concept of research methodology and its application to research in the field of science education (science)	**Criteria:** 1. Score 4 if students can connect concepts and practices and elaborate with examples 2. Score 3 if students can connect concepts and practices without accompanying examples of elaboration 3. Score 2 if the student can only explain the concept 4. Score 1 if the student can mention a relevant concept without explaining it 5. Score 0 if the student does not answer the question **Form of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment	Activities are carried out offline using a discussion (question and answer) method regarding problems or problems found at school. This is explained through the writing in the research proposal. The proposals made include chapters I, II, and III. 3 x 50 minutes	Activities are carried out online via the Zoom or Google Meet application with a discussion method (question and answer) regarding problems or problems found at school. This is explained through the writing in the research proposal. The proposals made include chapters I, II, and III. 2 x 50 minutes	**Material:** Rules for writing a thesis **Library:** *Surabaya State University. (2014). Thesis Writing Guidelines. Surabaya: Surabaya State University.* **Material:** Research methodology in the field of science education **Reference:** *Cohen, L., Manion, L., and Morrison, K. (2018). Research Methods in Education. London: Routledge.* **Material:** Data analysis techniques **References:** *Carlson, KA, and Winquist, JR (2017). An Introduction to Statistics: An Active Learning Approach. London: SAGE.*	5%

2	Develop research proposals based on phenomena/problems found in schools or based on research raised in research methodology courses and seminars	Mastering the concept of research methodology and its application to research in the field of science education (science)	**Criteria:** 1. Score 4 if students can connect concepts and practices and elaborate with examples 2. Score 3 if students can connect concepts and practices without accompanying examples of elaboration 3. Score 2 if the student can only explain the concept 4. Score 1 if the student can mention a relevant concept without explaining it 5. Score 0 if the student does not answer the question **Form of Assessment** : Project Results Assessment / Product Assessment, Test	Activities are carried out offline using a discussion (question and answer) method regarding problems or problems found at school. This is explained through the writing in the research proposal. The proposals made include chapters I, II, and III. 3 x 50 minutes	Activities are carried out online via the Zoom or Google Meet application with a discussion method (question and answer) regarding problems or problems found at school. This is explained through the writing in the research proposal. The proposals made include chapters I, II, and III. 2 x 50 minutes	**Material:** Rules for writing a thesis **Library:** *Surabaya State University. (2014). Thesis Writing Guidelines. Surabaya: Surabaya State University.* **Material:** Research methodology in the field of science education **Reference:** *Cohen, L., Manion, L., and Morrison, K. (2018). Research Methods in Education. London: Routledge.* **Material:** Data analysis techniques **References:** *Carlson, KA, and Winquist, JR (2017). An Introduction to Statistics: An Active Learning Approach. London: SAGE.* **Material:** Research instruments **References:** *Thorndike, R. (2014). Measurement and Evaluation in Education and Psychology. Harlow: Pearson Education Limited.*	5%

3	Develop research proposals based on phenomena/problems found in schools or based on research raised in research methodology courses and seminars	Mastering the concept of research methodology and its application to research in the field of science education (science)	**Criteria:** 1. Score 4 if students can connect concepts and practices and elaborate with examples 2. Score 3 if students can connect concepts and practices without accompanying examples of elaboration 3. Score 2 if the student can only explain the concept 4. Score 1 if the student can mention a relevant concept without explaining it 5. Score 0 if the student does not answer the question **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Tests	Activities are carried out offline using a discussion (question and answer) method regarding problems or problems found at school. This is explained through the writing in the research proposal. The proposals made include chapters I, II, and III. 3 x 50 minutes	Activities are carried out online via the Zoom or Google Meet application with a discussion method (question and answer) regarding problems or problems found at school. This is explained through the writing in the research proposal. The proposals made include chapters I, II, and III. 2 x 50 minutes	**Material:** Rules for writing a thesis **Library:** *Surabaya State University. (2014). Thesis Writing Guidelines. Surabaya: Surabaya State University.* **Material:** Research methodology in the field of science education **Reference:** *Cohen, L., Manion, L., and Morrison, K. (2018). Research Methods in Education. London: Routledge.* **Material:** Data analysis techniques **References:** *Carlson, KA, and Winquist, JR (2017). An Introduction to Statistics: An Active Learning Approach. London: SAGE.* **Material:** Research instruments **References:** *Thorndike, R. (2014). Measurement and Evaluation in Education and Psychology. Harlow: Pearson Education Limited.*	5%

4	Develop research proposals based on phenomena/problems found in schools or based on research raised in research methodology courses and seminars	Mastering the concept of research methodology and its application to research in the field of science education (science)	**Criteria:** 1. Score 4 if students can connect concepts and practices and elaborate with examples 2. Score 3 if students can connect concepts and practices without accompanying examples of elaboration 3. Score 2 if the student can only explain the concept 4. Score 1 if the student can mention a relevant concept without explaining it 5. Score 0 if the student does not answer the question **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Tests	Activities are carried out offline using a discussion (question and answer) method regarding problems or problems found at school. This is explained through the writing in the research proposal. The proposals made include chapters I, II, and III. 3 x 50 minutes	Activities are carried out online via the Zoom or Google Meet application with a discussion method (question and answer) regarding problems or problems found at school. This is explained through the writing in the research proposal. The proposals made include chapters I, II, and III. 2 x 50 minutes	**Material:** Rules for writing a thesis **Library:** *Surabaya State University. (2014). Thesis Writing Guidelines. Surabaya: Surabaya State University.* **Material:** Research methodology in the field of science education **Reference:** *Cohen, L., Manion, L., and Morrison, K. (2018). Research Methods in Education. London: Routledge.* **Material:** Data analysis techniques **References:** *Carlson, KA, and Winquist, JR (2017). An Introduction to Statistics: An Active Learning Approach. London: SAGE.* **Material:** Research instruments **References:** *Thorndike, R. (2014). Measurement and Evaluation in Education and Psychology. Harlow: Pearson Education Limited.*	5%

5	Develop research instruments and learning tools used when implementing research in schools	Mastering the preparation of research instruments and learning tools	**Criteria:** 1. Score 4 if students can prepare valid instruments and devices within 2 weeks 2. Score 3 if students can prepare valid instruments and devices within 3 weeks 3. Score 2 if students can prepare valid instruments and devices within 4 weeks 4. Score 1 if the student can prepare valid instruments and devices in more than 4 weeks **Form of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment	Students determine the research and learning indicators they want to observe. Activities are carried out with discussions and questions and answers. 3 x 50 minutes	Students determine the research and learning indicators they want to observe. Activities are carried out with discussions and questions and answers. The application used is Zoom or Google Meet. 2 x 50 minutes	**Material:** Research instruments **References:** *Mertens, DM (2014). Research and Evaluation in Education and Psychology. London: SAGE.* **Material:** Research instruments (pre-test and post-test) **References:** *Thorndike, R. (2014). Measurement and Evaluation in Education and Psychology. Harlow: Pearson Education Limited.*	5%
6	1. Develop research instruments and learning tools used when implementing research in schools 2. Revise research tools based on reviewers' and validators' suggestions or trial results	Mastering the preparation of research instruments and learning tools	**Criteria:** 1. Score 4 if students can prepare valid instruments and devices within 2 weeks 2. Score 3 if students can prepare valid instruments and devices within 3 weeks 3. Score 2 if students can prepare valid instruments and devices within 4 weeks 4. Score 1 if the student can prepare valid instruments and devices in more than 4 weeks **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	Students determine the research and learning indicators they want to observe. Activities are carried out with discussions and questions and answers. 3 x 50 minutes	Students determine the research and learning indicators they want to observe. Activities are carried out with discussions and questions and answers. The application used is Zoom or Google Meet. 2 x 50 minutes	**Material:** Research instruments **References:** *Mertens, DM (2014). Research and Evaluation in Education and Psychology. London: SAGE.* **Material:** Research instruments (pre-test and post-test) **References:** *Thorndike, R. (2014). Measurement and Evaluation in Education and Psychology. Harlow: Pearson Education Limited.*	5%

7	1. Develop research instruments and learning tools used when implementing research in schools 2. Revise research tools based on reviewers' and validators' suggestions or trial results	Mastering the preparation of research instruments and learning tools	**Criteria:** 1. Score 4 if students can prepare valid instruments and devices within 2 weeks 2. Score 3 if students can prepare valid instruments and devices within 3 weeks 3. Score 2 if students can prepare valid instruments and devices within 4 weeks 4. Score 1 if the student can prepare valid instruments and devices in more than 4 weeks **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	Students determine the research and learning indicators they want to observe. Activities are carried out with discussions and questions and answers, and limited trials. 3 x 50 minutes	Students determine the research and learning indicators they want to observe. Activities are carried out with discussions and questions and answers. The application used is Zoom or Google Meet. Students can carry out limited trials using Google Form. 2 x 50 minutes	**Material:** Research instruments **References:** *Mertens, DM (2014). Research and Evaluation in Education and Psychology. London: SAGE.* **Material:** Research instruments (pre-test and post-test) **References:** *Thorndike, R. (2014). Measurement and Evaluation in Education and Psychology. Harlow: Pearson Education Limited.*	5%
8	1. Develop research instruments and learning tools used when implementing research in schools 2. Revise research tools based on reviewers' and validators' suggestions or trial results	Mastering the preparation of research instruments and learning tools	**Criteria:** 1. Score 4 if students can prepare valid instruments and devices within 2 weeks 2. Score 3 if students can prepare valid instruments and devices within 3 weeks 3. Score 2 if students can prepare valid instruments and devices within 4 weeks 4. Score 1 if the student can prepare valid instruments and devices in more than 4 weeks **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	Students determine the research and learning indicators they want to observe. Activities are carried out with discussions, questions and answers, and limited trials. 3 x 50 minutes	Students determine the research and learning indicators they want to observe. Activities are carried out with discussions and questions and answers. The application used is Zoom or Google Meet. Students can carry out limited trials using the Google Form form. 2 x 50 minutes	**Material:** Research instruments **References:** *Mertens, DM (2014). Research and Evaluation in Education and Psychology. London: SAGE.* **Material:** Research instruments (pre-test and post-test) **References:** *Thorndike, R. (2014). Measurement and Evaluation in Education and Psychology. Harlow: Pearson Education Limited.*	5%

9	1. Shows the relevance of the relationship between the problem formulation and the research data being analyzed 2. Demonstrate oral and written presentation skills 3. Present objective scientific arguments for research results delivered through oral and written presentations	Explain the research design through oral and written presentations (proposal seminar)	**Criteria:** 1. Score 4 if students can explain and defend more than 75% of their research design 2. Score 3 if students can explain and defend more than 65-75% of their research design 3. Score 2 if students can explain and defend more than 50-65% of their research design 4. Score 1 if the student can explain and defend less than 50% of the research design **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practices / Performance	Students present their research proposals in front of three examining lecturers. After presenting their presentation, students note down suggestions for improvements that need to be made to their research. Students also provide scientific arguments regarding the writing in the proposal based on references. In this activity, students are required to defend their research ideas. 3 x 50 minutes	-	**Material:** Guide to preparing research proposals **Library:** *Surabaya State University. (2014). Thesis Writing Guidelines. Surabaya: Surabaya State University.* **Material:** Research methods **References:** *Cohen, L., Manion, L., and Morrison, K. (2018). Research Methods in Education. London: Routledge.*	10%
10	Revise research proposals based on suggestions and criticism at the proposal seminar stage	Revise the proposal according to the examiner's suggestions	**Criteria:** 1. 4 marks if the student revises the proposal based on appropriate references (articles from the last 5 years and books) 2. 3 points if the student revises the proposal based on appropriate references (articles and books) 3. 2 marks if the student revises the proposal based on appropriate references (articles) 4. Score 1 if the student revises the proposal only with logical thinking without basic references **Form of Assessment** : Project Results Assessment / Product Assessment	Students revise their research proposals and show the results of the revisions to the examiners. 3 x 50 minutes	Students revise their research proposals and show the results of the revisions to the examiners. Activities can be carried out using the Zoom or Google Meet applications. 2 x 50 minutes	**Material:** Guide to preparing research proposals **Library:** *Surabaya State University. (2014). Thesis Writing Guidelines. Surabaya: Surabaya State University.* **Material:** Research methods **References:** *Cohen, L., Manion, L., and Morrison, K. (2018). Research Methods in Education. London: Routledge.*	10%

11	1. Determine the time and determine the research stages during the school data collection process 2. Measuring research parameters honestly and objectively	Mastering the application of research instruments and learning tools	**Criteria:** 1. Score 4 if students can implement 80-100% of the research and learning stages 2. Score 3 if students can implement 65-79% of the research and learning stages 3. Score 2 if students can implement 50 - 64% of the research and learning stages 4. Score 1 if the student implements below 50% of the research and learning stages **Form of Assessment** : Practice / Performance	Students implement research, analyze research data. The results are discussed with the supervisor. 3 x 50 minutes	- -	**Material:** Research methods **References:** *Cohen, L., Manion, L., and Morrison, K. (2018). Research Methods in Education. London: Routledge.*	5%
12	1. Determine the time and determine the research stages during the school data collection process 2. Measuring research parameters honestly and objectively 3. Practicing data analysis techniques according to field data collected during research implementation	Mastering the application of research instruments and learning tools	**Criteria:** 1. Score 4 if students can implement 80-100% of the research and learning stages 2. Score 3 if students can implement 65-79% of the research and learning stages 3. Score 2 if students can implement 50 - 64% of the research and learning stages 4. Score 1 if the student implements below 50% of the research and learning stages **Form of Assessment** : Project Results Assessment / Product Assessment	Students implement research, analyze research data. The results are discussed with the supervisor. 3 x 50 minutes	- -	**Material:** Research methods **References:** *Cohen, L., Manion, L., and Morrison, K. (2018). Research Methods in Education. London: Routledge.*	5%

13	1. Determine the time and determine the research stages during the school data collection process 2. Measuring research parameters honestly and objectively 3. Practicing data analysis techniques according to field data collected during research implementation	Mastering the application of research instruments and learning tools	**Criteria:** 1. Score 4 if students can implement 80-100% of the research and learning stages 2. Score 3 if students can implement 65-79% of the research and learning stages 3. Score 2 if students can implement 50 - 64% of the research and learning stages 4. Score 1 if the student implements below 50% of the research and learning stages **Form of Assessment** : Project Results Assessment / Product Assessment	Students implement research, analyze research data. The results are discussed with the supervisor. 3 x 50 minutes	- -	**Material:** Research methods **References:** *Cohen, L., Manion, L., and Morrison, K. (2018). Research Methods in Education. London: Routledge.*	5%
14	1. Determine the time and determine the research stages during the school data collection process 2. Measuring research parameters honestly and objectively 3. Practicing data analysis techniques according to field data collected during research implementation	Mastering the application of research instruments and learning tools	**Criteria:** 1. Score 4 if students can implement 80-100% of the research and learning stages 2. Score 3 if students can implement 65-79% of the research and learning stages 3. Score 2 if students can implement 50 - 64% of the research and learning stages 4. Score 1 if the student implements below 50% of the research and learning stages **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	Students implement research, analyze research data. The results are discussed with the supervisor. Students begin to write the results of their research in research reports and some are written in manuscript form. 3 x 50 minutes	- -	**Material:** Research methods **References:** *Cohen, L., Manion, L., and Morrison, K. (2018). Research Methods in Education. London: Routledge.*	5%

15	Write research results in the form of draft final reports and manuscripts	Apply scientific writing techniques	**Criteria:** 1. 4 points if students write the results of their research in accordance with the rules of scientific writing, with correct rules, analytical techniques, discussion with relevant references in the last 5 years 2. 3 points if students write their research results in accordance with the rules of scientific writing, with correct rules, analytical techniques, discussion with relevant references. 3. Score 2 if students write their research results in accordance with the rules of scientific writing. However, minor errors were still found in the writing. 4. Point 1 if the student writes the results of their research in accordance with the rules of scientific writing. However, major errors were still found in the writing. **Form of Assessment** : Project Results Assessment / Product Assessment	Students write research results in the form of a draft final report and manuscript. This writing is carried out with the guidance of the supervisor. 3 x 50 minutes	Students can provide online guidance using the Zoom and Google Meet applications for 2 x 50 minutes	**Material:** Research methods **References:** *Mertens, DM (2014). Research and Evaluation in Education and Psychology. London: SAGE.* **Material:** Writing the final report **References:** *Surabaya State University. (2014). Thesis Writing Guidelines. Surabaya: Surabaya State University.* **Material:** Data analysis techniques **References:** *Carlson, KA, and Winquist, JR (2017). An Introduction to Statistics: An Active Learning Approach. London: SAGE.*	10%
16	1. Write research results in the form of draft final reports and manuscripts 2. Shows the relevance of the relationship between the problem formulation and the research data being analyzed 3. Present objective scientific arguments for research results delivered through oral and written presentations 4. Demonstrate oral and written presentation skills		**Criteria:** Rubric for assessing presentations and thesis reports **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practices / Performance	Students present the results of their research in the thesis trial. 3 x 50 minutes	-	**Material:** Results presentation techniques **References:** *Cohen, L., Manion, L., and Morrison, K. (2018). Research Methods in Education. London: Routledge.*	10%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage

1.	Participatory Activities	15%
2.	Project Results Assessment / Product Assessment	57.5%
3.	Practice / Performance	21.66%
4.	Test	5.84%
		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.