



Universitas Negeri Surabaya
Faculty of Mathematics and Natural Sciences
Biology Education Undergraduate Study Program

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight	SEMESTER	Compilation Date
Research methodology	8420503159	Compulsory Study Program Subjects	T=3 P=0 ECTS=4.77	4	January 26, 2024
AUTHORIZATION	SP Developer		Course Cluster Coordinator		Study Program Coordinator
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Learning model **Project Based Learning**

Program Learning Outcomes (PLO) **PLO study program that is charged to the course**

PLO-7 Able to demonstrate knowledge of biology at the molecular, cell and organism levels and their interactions with the environment.

Program Objectives (PO)

PO - 1 Able to recognize and solve problems relevant to biology education.

PO - 2 Acquire methodological competence in biology education research.

PO - 3 Able to conduct research at school independently.

PO - 4 Have work safety knowledge relevant to biology education research.

PO - 5 Able to communicate biology education research ideas in the form of research proposals.

PLO-PO Matrix

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

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																
PO-5																

Short Course Description Study of the nature, objectives, types of research methods that are relevant to educational research as well as equipping students to be able to make decisions in applying research methods to find alternative solutions in solving educational problems which include research paradigms, frameworks of thinking, variables, populations and samples, research design, research instruments, data collection techniques, and data analysis are packaged in Biology education research proposals as course outcomes. This course is presented in project form.

References **Main :**

1. Creswell, J.W. 2008. Educational Research: Planning, Conducting, and Evaluating Quantitative Research . 3rd Edition. New Jersey: Pearson Prentice Hall.
2. Fraenkel, J.R., Wallen, N.E., Hyun, H. H. 2012. How to Design and Evaluate Research in Education . New York: McGraw-Hill Companies, Inc.
3. Tuckman, Bruce W. 2000. Conducting Educational Research Fourth Edition . New York: Harcourt Bace Javanovich, Inc.

Supporters:

Supporting lecturer
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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	Understanding the Nature of Research	1.1. Explain the nature of research 2.2. Compare various research approaches 3.3. Explain the various types of research	Criteria: Actively convey student questions and opinions Form of Assessment : Participatory Activities		Explain the outline of the lecture or RPS. Presentations, discussions and assignments 3x50	Material: The Nature of Research Bibliography: <i>Fraenkel, JR, Wallen, NE, Hyun, HH 2012. How to Design and Evaluate Research in Education. New York: McGraw-Hill Companies, Inc.</i>	10%
2	Understanding Research Problems, research questions, variables	1.1. Identify the characteristics of a good problem formulation 2.2. Compare the problem formulation with the research questions 3.3. Develop a problem formulation with research questions	Criteria: Develop problem formulations and research questions according to the type of research Form of Assessment : Participatory Activities		Implementing PjBL with biology education research proposal products. The stages of PjBL are as follows: 1. Basic questions, determining research problems in biology education that are worth researching 2. Product planning design: Preparing designs for Chapter I, Chapter II, Chapter III of research proposals 3. Activity schedule and deadlines for project submission: schedule Preparing and monitoring Chapter I , Chapter II, Chapter III and deadline for submitting research proposals during UAS. 4. Monitoring the progress of each group's project, presenting the results of group discussions related to determining each student's research problem. 5. Testing the results: providing input on each process of preparing Chapters I, II, III of the research proposal 6. Evaluation: reflection on experience Preparing a research proposal 3 X 50	Material: Research Problem, research questions, variables References: <i>Fraenkel, JR, Wallen, NE, Hyun, HH 2012. How to Design and Evaluate Research in Education. New York: McGraw-Hill Companies, Inc.</i>	10%

3	Preparing an introduction to the proposal (CHAPTER I): background, problem formulation, objectives, benefits, definitions of terms, assumptions, research limitations	1. Skilled in identifying variables 2. Skilled in identifying variables operationally 3. Skilled in formulating research hypotheses 4. Explaining research ethics	Criteria: The description test weighs 25% while the proposal and performance assessment is 75%	4. Monitor the progress of each group's project, present the results of group discussions regarding the research proposal Chapter I 5. Test the results: provide input on each process of preparing the research proposal Chapter I 3 X 50		Material: background, problem formulation, objectives, benefits, definitions of terms, assumptions, research limitations, References: <i>Fraenkel, JR, Wallen, NE, Hyun, HH 2012. How to Design and Evaluate Research in Education. New York: McGraw-Hill Companies, Inc.</i>	20%
4	Preparing an introduction to the proposal (CHAPTER I): background, problem formulation, objectives, benefits, definitions of terms, assumptions, research limitations	1. Skilled in identifying variables 2. Skilled in identifying variables operationally 3. Skilled in formulating research hypotheses 4. Explaining research ethics	Criteria: The description test weighs 25% while the proposal and performance assessment is 75%	4. Monitor the progress of each group's project, present the results of group discussions regarding the research proposal Chapter I 5. Test the results: provide input on each process of preparing the research proposal Chapter I 3 X 50		Material: background, problem formulation, objectives, benefits, definitions of terms, assumptions, research limitations, References: <i>Fraenkel, JR, Wallen, NE, Hyun, HH 2012. How to Design and Evaluate Research in Education. New York: McGraw-Hill Companies, Inc.</i>	0%
5	Skilled in conducting library reviews	explain literature reviews that contain research variables correctly to answer research problems	Criteria: The description test weighs 25% while the proposal and performance assessment is 75% Form of Assessment : Participatory Activities	discussion and information to determine types of library sources, make citations, deduce theories to synthesize a framework of thinking 3 X 50		Material: Theoretical study and framework of thinking Literature: <i>Creswell, JW 2008. Educational Research: Planning, Conducting, and Evaluating Quantitative Research. 3rd Edition. New Jersey: Pearson Prentice Hall.</i>	5%
6	Compiling a literature review (CHAPTER II)	1. Explain the meaning of data 2. Explain the meaning of research instruments 3. Skilled in selecting adequate research instruments 4. Skilled in determining the validity and reliability of research instruments	Criteria: accuracy and systematicity of literature review Form of Assessment : Project Results Assessment / Product Assessment	4. Monitor the progress of each group's project, present the results of group discussions regarding the research proposal for Chapter II 5. Test the results: provide input into each process of preparing the research proposal for Chapter II 3 X 50		Material: Literature Review and Framework for Thinking Literature: <i>Creswell, JW 2008. Educational Research: Planning, Conducting, and Evaluating Quantitative Research. 3rd Edition. New Jersey: Pearson Prentice Hall.</i>	10%

7	Compiling a literature review (CHAPTER II)	<p>1. Explain the meaning of data 2. Explain the meaning of research instruments 3. Skilled in selecting adequate research instruments 4. Skilled in determining the validity and reliability of research instruments</p>	<p>Criteria: accuracy and systematicity of literature review</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	<p>4. Monitor the progress of each group's project, present the results of group discussions regarding the research proposal for Chapter II</p> <p>5. Test the results: provide input into each process of preparing the research proposal for Chapter II 3 X 50</p>		<p>Material: Literature Review and Framework for Thinking Literature: <i>Creswell, JW 2008. Educational Research: Planning, Conducting, and Evaluating Quantitative Research. 3rd Edition. New Jersey: Pearson Prentice Hall.</i></p>	0%
8	UTS		<p>Form of Assessment : Test</p>	3 X 50		<p>Material: The Nature of Research Bibliography: <i>Fraenkel, JR, Wallen, NE, Hyun, HH 2012. How to Design and Evaluate Research in Education. New York: McGraw-Hill Companies, Inc.</i></p> <p>Material: Theoretical study and framework of thinking Literature: <i>Creswell, JW 2008. Educational Research: Planning, Conducting, and Evaluating Quantitative Research. 3rd Edition. New Jersey: Pearson Prentice Hall.</i></p>	20%

9	1.Explain the various research designs 2.Comparing various research designs	1. Explain the various research designs. 2. Compare various research designs	Criteria: The description test weighs 25% while the proposal and performance assessment is 75% Form of Assessment : Project Results Assessment / Product Assessment, Test	Presentations, discussions and assignments 3 X 50		0%
10	1.Explain the various research designs 2.Comparing various research designs	1. Explain the various research designs. 2. Compare various research designs	Criteria: The description test weighs 25% while the proposal and performance assessment is 75% Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment	Presentations, discussions and assignments 3 X 50		0%
11	Understanding qualitative research	1. Explain the meaning of qualitative research. 2. Compare the characteristics of qualitative and quantitative research	Criteria: The description test weighs 25% while the proposal and performance assessment is 75% Form of Assessment : Project Results Assessment / Product Assessment	4. Monitor the progress of each group's project, present the results of group discussions regarding the research proposal Chapter III 5. Test the results: provide input on each process of preparing the research proposal Chapter III 3 X 50	Material: Research Methods Bibliography: <i>Tuckman, Bruce W. 2000. Conducting Educational Research Fourth Edition. New York: Harcourt Bace Javanovich, Inc.</i>	15%
12	Understanding qualitative research	1. Explain the meaning of qualitative research. 2. Compare the characteristics of qualitative and quantitative research	Criteria: The description test weighs 25% while the proposal and performance assessment is 75% Form of Assessment : Project Results Assessment / Product Assessment	4. Monitor the progress of each group's project, present the results of group discussions regarding the research proposal Chapter III 5. Test the results: provide input on each process of preparing the research proposal Chapter III 3 X 50	Material: Research Methods Bibliography: <i>Tuckman, Bruce W. 2000. Conducting Educational Research Fourth Edition. New York: Harcourt Bace Javanovich, Inc.</i>	0%
13	Understand the nature of research instruments	Skilled in writing research proposals to solve science education problems	Criteria: The description test weighs 25% while the proposal and performance assessment is 75%	discussion and information to develop research instruments. 3 X 50		0%
14	Can write research proposals	Skilled in writing research proposals to solve science education problems	Criteria: The description test weighs 25% while the proposal and performance assessment is 75%	Presentations, discussions and workshops on writing 3 X 50 proposals		0%

15	Can write research proposals	Skilled in writing research proposals to solve science education problems	Criteria: The description test weighs 25% while the proposal and performance assessment is 75%	Presentations, discussions and workshops on writing 3 X 50 proposals			0%
16	UAS		Form of Assessment : Project Results Assessment / Product Assessment				30%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	25%
2.	Project Results Assessment / Product Assessment	55%
3.	Test	20%
		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** 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.**