	Universitas Negeri Surabaya Faculty of Mathematics and Natural Sciences Biology Education Masters Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Science phylosophy	1234502001	Compulsory Study Program Subjects	T=2	P=0	ECTS=4.48	1	May 11, 2023

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	Prof.Dr.Yuni Sri Rahayu	Prof. Dr. Yuni Sri Rahayu, M. Si.	Prof. Dr. Yuliani, M.Si.

Learning model	**Case Studies**	
Program Learning Outcomes (PLO)	**PLO study program which is charged to the course**	
	PLO-5	Able to act as a citizen who is proud and loves the country, has nationalism and a sense of responsibility to the state and nation and respects cultural diversity, opinions or original findings of other people
	PLO-7	Applying the concept of eduecopreneurship based on local wisdom and having a leadership spirit to support community independence in the era of the Industrial Revolution.
	Program Objectives (PO)	
	PO - 1	Improving disingness to God through studying philosophy of knowledge (science)
	PLO-PO Matrix	

P.O	PLO-5	PLO-7
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	Study about the basics of philosophy, the foundation of ontology, epistemology, and accsiology of science as well as the principles and concepts of scientific methodology as a means of thinking to obtain correct knowledge including reasoning, logic, criteria of truth, assumptions, opportunities, limitations of science, scientific methods, deductive-inductive thinking, scientific language, the role of science in culture, interpretation of analytical results, and scientific writing. The material is delivered with a student-centered approach in presentation activities and discussions including reviewing some articles from related journals.
References	**Main :**

1. Surajiyo. 2005. Ilmu Filsafat Suatu Pengantar. Jakarta: PT Bumi Aksara
2. Suriasumantri, JS. 1987. Filsafat Ilmu Sebuah Pengantar Populer. Jakarta. Pustaka Sinar Harapan.

Supporters:

1. Artikel dari berbagai Jurnal yang relevan dengan materi

Supporting lecturer	Prof.Dr. Yuni Sri Rahayu, M.Si. Dr. Sifak Indana, 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	Able to communicate understandings of the direction of philosophical thinking	a. Explaining the field of philosophical studyb. Explaining the branches of philosophyc. Explaining the scope of science philosophy	**Criteria:** Suitable with the keywords get the maximum score Wrong answer get score of 1 No answer get score of 0 **Form of Assessment** : Participatory Activities	Discussion: the meaning of philosophy Presentation Student-centered learning 2 X 50	-	**Material:** the meaning of philosophy **Reader:** *Surajiyo. 2005. Philosophy of Science An Introduction. Jakarta: PT Bumi Aksara* **Material:** the meaning of philosophy **Bibliography:** *Articles from various journals that are relevant to the material*	5%
2	Able to communicate understanding of the basics of knowledge, reasoning, logic and truth criteria	a. Explaining the meaning of reasoning b. Explaining the meaning of logicc. Giving examples of knowledge sources d. Explaining the criteria for truth	**Criteria:** 1.• Suitable with the keywords get the maximum score 2.• Wrong answer gets score of 1 3.• No answer gets score of 0 **Form of Assessment** : Participatory Activities	Discussion: the basics of knowledge Presentation Student-centered learning 2 X 50	-	**Material:** the basics of knowledge **Reader:** *Surajiyo. 2005. Philosophy of Science An Introduction. Jakarta: PT Bumi Aksara* **Material:** the basics of knowledge **References:** *Articles from various journals that are relevant to the material*	5%
3	Able to communicate the assessment or field study ontology in science	a. Explaining the meaning of metaphysicsb. Explaining the meaning of assumptionsc. Explaining the sense of opportunity. Explaining some of science assumptions. Explaining the limitations of science	**Criteria:** 1.• Suitable with the keywords get the maximum score 2.• Wrong answer gets score of 1 3.• No answer gets score of 0 **Form of Assessment** : Participatory Activities	Discussion: Ontology of science Presentation Student centered learning 2 X 50	-	**Material:** Ontology of science **Library:** *Surajiyo. 2005. Philosophy of Science An Introduction. Jakarta: PT Bumi Aksara* **Material:** Ontology of science **Library:** *Articles from various journals that are relevant to the material*	5%
4	Able to communicate an understanding of how to gain the right knowledge (epistemology of science)	a. Explaining how to get the right knowledge b. Explaining the meaning of knowledgec. Explaining the steps of scientific methods d. Explaining the structure of scientific knowledge	**Criteria:** 1.• Suitable with the keywords get the maximum score 2.• Wrong answer gets score of 1 3.• No answer gets score of 0 **Form of Assessment** : Participatory Activities	Discussion: EpistemologyPresentationStudent-centered learning 2 X 50	-	**Material:** Epistemology **Literature:** *Surajiyo. 2005. Philosophy of Science An Introduction. Jakarta: PT Bumi Aksara* **Material:** Epistemology **Literature:** *Articles from various journals that are relevant to the material*	5%
5	Able to communicate an understanding of scientific means of thinking	a. Explaining scientific means of thinking b. Distinguishing scientific means of thinking, which includes language, mathematics, and statistics.	**Criteria:** 1.• Suitable with the keywords get the maximum score 2.• Wrong answer gets score of 1 3.• No answer gets score of 0 **Form of Assessment** : Participatory Activities	Discussion: Scientific thinkingPresentationStudent-centered learning 2 X 50	-	**Material:** Scientific thinking **Library:** *Surajiyo. 2005. Philosophy of Science An Introduction. Jakarta: PT Bumi Aksara* **Material:** Scientific thinking **Library:** *Articles from various journals that are relevant to the material*	5%

6	Understanding the usefulness of science (axiology of science)	a. Explaining the usefulness of science (acsiology of science) b. Analyzing the relationship between science and morals.c. Analyzing the social responsibilities of scientists	**Criteria:** Learning media assessment sheet **Form of Assessment** : Participatory Activities	Discussion: Acsiology of sciencePresentationStudent-centered learning 2 X 50		**Material:** Acsiology of science **Library:** *Surajiyo. 2005. Philosophy of Science An Introduction. Jakarta: PT Bumi Aksara* **Material:** Acsiology of science **Library:** *Articles from various journals that are relevant to the material*	5%
7	Able to communicate an understanding of the relationship between science and culture	a. Analyzing the relationship between science and culture	**Criteria:** 1.• Suitable with the keywords get the maximum score 2.• Wrong answer gets score of 1 3.• No answer gets score of 0 **Form of Assessment** : Participatory Activities	Discussion: Science and human culture Presentation Student-centered learning 2 X 50	-	**Material:** Science and human culture **Reader:** *Surajiyo. 2005. Philosophy of Science An Introduction. Jakarta: PT Bumi Aksara* **Material:** Science and human culture **References:** *Articles from various journals that are relevant to the material*	6%
8	1.Midterm exam 2.UTS	UTS 20%	**Criteria:** 20% **Form of Assessment** : Test	- 2 X 50	-	**Material:** the meaning of philosophy, the basics of knowledge, ontology of science, epistemology, scientific thinking, axiology of science, science and human culture **Library:** *articles from various journals relevant to the material*	10%
9	Explaining and analyzing the role of science in Culture	a. Analyzing the role of science b. Explaining cultural patterns	**Criteria:** 1.• Suitable with the keywords get the maximum score 2.• Wrong answer gets score of 1 3.• No answer gets score of 0 **Form of Assessment** : Participatory Activities, Practice/Performance	Discussion: The role of science Presentation Student-centered learning 2 X 50	-	**Material:** The role of science **Reader:** *Surajiyo. 2005. Philosophy of Science An Introduction. Jakarta: PT Bumi Aksara* **Material:** The role of science **Bibliography:** *Articles from various journals that are relevant to the material* **Material:** Science and language **Library:** *Surajiyo. 2005. Philosophy of Science An Introduction. Jakarta: PT Bumi Aksara*	6%

10	Understanding the relationship between science and language	a. Explaining the relationship between science and language b. Explaining science terminology	**Criteria:** 1.• Suitable with the keywords get the maximum score 2.• Wrong answer gets score of 1 3.• No answer gets score of 0 **Form of Assessment** : Participatory Activities	Discussion: Science and language Presentation Student-centered learning 2 X 50	-	**Material:** Science and language **Library:** *Surajiyo. 2005. Philosophy of Science An Introduction. Jakarta: PT Bumi Aksara* **Material:** Science and language **Library:** *Articles from various journals that are relevant to the material*	5%
11	Understanding the importance of scientific research and academic writing	a. Explaining the structure of research b. Explaining the criteria for a good problemc. Formulating a research problem	**Criteria:** Performance assessment sheet **Form of Assessment** : Participatory Activities	Discussion: Scientific research and academic writing Article review Presentation Student-centered learning 2 X 50		**Material:** scientific research and academic writing **Library:** *Surajiyo. 2005. Philosophy of Science An Introduction. Jakarta: PT Bumi Aksara* **Material:** scientific research and academic writing **Library:** *Articles from various journals that are relevant to the material*	6%
12	Understanding research methodology	a. Explaining the outlining steps of a theoretical frameworkb. Explaining the hypothesis formulationc. Creating a hypothesis based on the problem formulated	**Criteria:** Performance assessment sheet **Form of Assessment** : Participatory Activities	Discussion: Research methodologyPresentationStudent-centered learningArticle review 2 X 50		**Material:** Research methodology **Literature:** *Articles from various journals that are relevant to the material*	6%
13	Able to communicate the research results	a. Explaining the relationship between the variables studied b. Explaining research method preparation techniquesc. Explaining data collection techniques	**Criteria:** Performance assessment sheet **Form of Assessment** : Participatory Activities, Practice/Performance	Discussion: The relationship between the research variables Presentation Student-centered learning Article review 2 X 50		**Material:** The relationship between the research variables **References:** *Articles from various journals that are relevant to the material*	6%
14	Able to apply scientific writing techniques	a. Analyzing how the research data is written b. Analyzing how data analysis is writtenc. Explaining the interpretation of data analysis results	**Criteria:** Performance assessment sheet **Form of Assessment** : Participatory Activities	Discussion: Scientific writing techniquesPresentationStudent-centered learningArticle review 2 X 50		**Material:** Scientific writing techniques **Library:** *Articles from various journals that are relevant to the material*	5%
15	Able to apply scientific writing techniques	Mastering scientific writing techniques	**Criteria:** Performance assessment sheet **Form of Assessment** : Participatory Activities, Practice/Performance	Discussion: Scientific writing techniquesPresentationStudent-centered learningArticle review 2 X 50		**Material:** Scientific writing techniques **Library:** *Articles from various journals that are relevant to the material*	5%

16	Final exams	1.a. Analyzing the relationship between science and religion, 2.b. Analyzing the implementation of science and religion roles in science/biology education cases 3.c. Analyzing the application of ethics, morality, and norms in scientific research 4.d. Analyzing the application of ethics, morality, and norms in academic writing 5.e. Analyzing the importance of scientific/biological education research (trends in biological research) Explaining the structure of research 6.f. Analyzing the role of scientific/biological education research (trend in biological research) 7.g. Synthesizing the outlining steps of a theoretical framework 8.h. Creating the hypothesis formulation 9.i. Creating a hypothesis based on the problem formulated 10.j. Analyzing the relationship between the variables studied 11.k. Analyzing research method preparation techniques 12.l. Analyzing data collection techniques 13.m. Analyzing how the research data is written 14.n. Explaining the interpretation of data analysis results 15.o. Mastering scientific writing techniques	**Criteria:** UAS 30% **Form of Assessment** : Test	- 2 X 50	-	**Material:** Scope of research methods and current research **References:** *Articles from various journals that are relevant to the material*	15%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	66.5%
2.	Practice / Performance	8.5%
3.	Test	25%
		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.