COURSE PORTFOLIO

Master Degree of Biology Education

Philosophy of Science Course
Academic Year – 2020/2021

PLO1	Have integrity and professional ethics, self-development, and make innovations to improve the quality of education and community lifelong learning..
PLO2	Able to apply analytical, critical thinking skills, and innovative in the field of biology education.
PLO3	Able to work together in multicultural groups and collaborate with various parties/stakeholders in solving a problem in the field of education.
PLO4	able to analyse the basic philosophy and theory in the study of biology and biology learning
PLO5	Able to design and manage classical, laboratory, natural and digital/virtual-based biology learning in education units.
PLO6	Able to design and publish a research through various approaches/methods to solve problems in the field of biology education (PLO6).
PLO7	Able to manage and develop digital technology-based biology learning tools according to the characteristics of students.
PLO8	Able to design and conduct evaluations and assessments of learning in educational units.
PLO9	Able to improve mastery of biological material in the fields of plant and animal structure, environment, bio-conservation, biomolecular, and biotechnology.
PLO10	Able to analyse and synthesize problem solutions in biology learning through interdisciplinary, transdisciplinary and multidisciplinary approaches

Course Outcome (CO):

CO 1.	Students are able to understand the concepts of philosophy, science, knowledge and philosophy of science
CO 2.	Students are able to understand history, philosophical tendencies of science, sources of knowledge, rationalism and intuition, modern and postmodern science
CO 3.	Students are able to understand logic, deduction, induction, interpretation, analysis, synthesis, comparison, heuristics, analogy, description. Scientific methods in Biology Education
CO 4.	Students are able to understand and explain the basics of science (ontology, epistemology, and axiology)
CO 5.	Students are able to explain science paradigms (positivism, postpositivism, constructivism, and critical theory paradigm)
CO 6.	Students are able to understand the position of humans among other creatures Humans with their bodies, souls, Animal Symbolicum, and Mind and Body Problems
CO 7.	Students are able to understand the relationship between biology education and technology, ethics and religion
CO 8	Students are able to make a critical reflection regarding the existence/substance, methods and ethical foundations of biological education.

Lecturers :

1. Dr. Hanum Isfaeni, M.Si

2. Dr. Rusdi., M.Biomed

Mapping Course Learning Outcome (CO) and Program Learning Outcome (PLO)

Program Learning Outcome / **Course Outcome**	PLO 1. Have integrity and professional ethics, self-development, and make innovations to improve the quality of education and lifelong learning for the community	PLO 2. Able to apply analytical, critical, innovative, and abstraction thinking skills in the field of biology education	PLO 4. able to analyze the basic philosophy and theory in the study of biology and biology learning philosophical concepts in compiling scientific knowledge	PLO 10. Able to analyze and synthesize problem solutions in biology learning through interdisciplinary, transdisciplinary and multidisciplinary approaches
CO 1. Students are able to understand the concepts of philosophy, science, knowledge and philosophy of science	● (Assignment, Midterm Exam)			
CO 2. Students are able to understand history, philosophical tendencies of science, sources of knowledge, rationalism and intuition, modern and postmodern science	● (Assignment, Midterm Exam)			
CO 3. Students are able to understand logic, deduction, induction, interpretation, analysis, synthesis, comparison, heuristics, analogy, description. Scientific methods in Biology Education	● (Assignment)			
CO 4. Students are able to			● (Assignment,	

understand and explain the basics of science (ontology, epistemology, and axiology)			Final Exam)	
CO 5. Students are able to explain science paradigms (positivism, post-positivism, constructivism, and critical theory paradigm)		● (Midterm Exam)		
CO 6. Students are able to understand the position of humans among other creatures Humans with their bodies, souls, Animal Symbolicum, and Mind and Body Problems		● (Assignment)		
CO 7. Students are able to understand the relationship between biology education and technology, ethics and religion				● (Project)
CO . Students are able to make a critical reflection regarding the existence/substance, methods and ethical foundations of biological education.			● (Final Exam)	

Forms of Assessment

Group/Individuals Assignment	= 20%
Midterm examination	= 30%
Final examination	= 30%
Research project	= 20%
Total	= 100%

	PLO 3 Critical Thinking	PLO 5 Problem Solving	PLO 7 Decision Making	PLO 8 Decision Making
Group/Individuals Assignment	50%	50%	0%	0%
Midterm examination	60%	40%	0%	0%
Final examination	60%	40%	0%	0%
Research project	0%	0%	50%	50%

PLO Assessment Rubric

PLO	Performance Criteria	Excellent (E)	Good (G)	Satisfy (S)	Fail (F)
1	Analyze fundamental concepts of philosophy, science, knowledge and philosophy of science	Students are ability to analyse the fundamental concepts of philosophy, science, knowledge and philosophy **with a score of at least 80.**	Students are ability to analyse the fundamental concepts of philosophy, science, knowledge and philosophy; **with a score of at least 70 and less than 80.**	Students are ability to analyse the fundamental concepts of philosophy, science, knowledge and philosophy; **with a score of at least 60 and less than 70.**	Students are ability to analyse the fundamental concepts of philosophy, science, knowledge and philosophy; **with a score of less than 60.**
2	Students are able to analyse history, philosophical tendencies of science, sources of knowledge, rationalism and intuition, modern and postmodern science	Students are able to analyse history, philosophical tendencies of science, sources of knowledge, rationalism and intuition, modern and postmodern science **with a score of at least 80.**	Students are able to analyse the understand history, philosophical tendencies of science, sources of knowledge, rationalism and intuition, modern and postmodern science with a score of at least 70 and less than 80.	Students are able to analyse understand history, philosophical tendencies of science, sources of knowledge, rationalism and intuition, modern and postmodern science with a score of at least 60 and less than 70.	Students are able to analyse understand history, philosophical tendencies of science, sources of knowledge, rationalism and intuition, modern and postmodern science with a score of less than 60.
4	Students are able to understand and explain the basics of science (ontology, epistemology, and axiology)	Students are able to Ability to design and analyse the basics of science (ontology, epistemology, and axiology)with a score of at least 80.	Students are able to Ability to design and analyse the basics of science (ontology, epistemology, and axiology)with a score of at least 70 and less than 80.	Students are able to Ability to design and analyse the basics of science (ontology, epistemology, and axiology)issues with a score of at least 60 and less than 70.	Students are able to Ability to design and analyse the basics of science (ontology, epistemology, and axiology) with a score of less than 60.
10	Students are able to make a critical reflection regarding the existence/substance, methods and ethical foundations of biological education.	Students are able to Ability to make a critical reflection regarding the existence/substance, methods and ethical foundations with a score of at least 80.	Students are able to Ability to design make a critical reflection regarding the existence/substance, methods and ethical foundations with a score of at least 70 and less than 80.	Students are able to Ability to design make a critical reflection regarding the existence/substance, methods and ethical foundations with a score of at least 60 and less than 70.	Students are able to Ability to design make a critical reflection regarding the existence/substance, methods and ethical foundations with a score of less than 60.

Forms of Assessment

Assessment Components	Weight	Bobot terhadap PLO				Total	Total Weight			
		PLO 1	PLO 2	PLO 4	PLO 10		PLO 1	PLO 2	PLO 4	PLO 10
Participant/Tasks	0,20	0,50	0,50	0,00	0,00	1,00	0,10	0,10	0,00	0,00
Mid Test	0,30	0,60	0,40	0,00	0,00	1,00	0,18	0,12	0,00	0,00
Final Exam	0,30	0,60	0,40	0,00	0,00	1,00	0,18	0,12	0,00	0,00
Project	0,20	0,00	0,00	0,50	0,50	1,00	0,00	0,00	0,10	0,10
Total	1,00	1,70	1,30	0,50	0,50	1,00	0,46	0,34	0,10	0,10

Assignment
Outcomes Assessment

No	Name	Tasks	Mid test	Final Exam	Project	Grades	
1	A	87,5	**87**	**83**	**88**	86,10	A
2	B	85,5	**86**	**78**	**85**	83,30	A-
3	C	85,5	**88**	**80**	**80**	83,50	A-
4	D	87,5	**86**	**84**	**84**	85,30	A-
5	E	86,5	**86**	**84**	**80**	84,30	A-
6	F	85,5	**83**	**78**	**80**	81,40	A-
7	G	87,5	**88**	**84**	**80**	85,10	A-
8	H	88	**86**	**82**	**88**	85,60	A-
9	I	85,5	**80**	**83**	**85**	83,00	A-

10	J	87,5	**84**	**82**	**88**	84,90	A-
11	K	87,5	**88**	**84**	**88**	86,70	A

Calculation of Weight per PLO

Name	PLO 1	PLO 2	PLO 4	PLO 10
A	85,54	85,74	88,00	88,00
B	82,76	83,03	85,00	85,00
C	84,33	84,44	80,00	80,00
D	85,54	85,74	84,00	84,00
E	85,33	85,44	80,00	80,00
F	81,59	81,97	80,00	80,00
G	86,33	86,44	80,00	80,00
H	84,87	85,18	88,00	88,00
I	82,37	82,68	85,00	85,00
J	83,98	84,32	88,00	88,00
K	86,33	86,44	88,00	88,00

PLO Achievement for All Students

No	Name	PLO 1	PLO 2	PLO 4	PLO 10
1	A	E	E	E	E
2	B	E	E	E	E
3	C	E	E	E	E
4	D	E	E	E	E
5	E	E	E	E	E
6	F	E	E	E	E
7	G	E	E	E	E
8	H	E	E	E	E
9	I	E	E	E	E
10	J	E	E	E	E
11	J	E	E	E	E

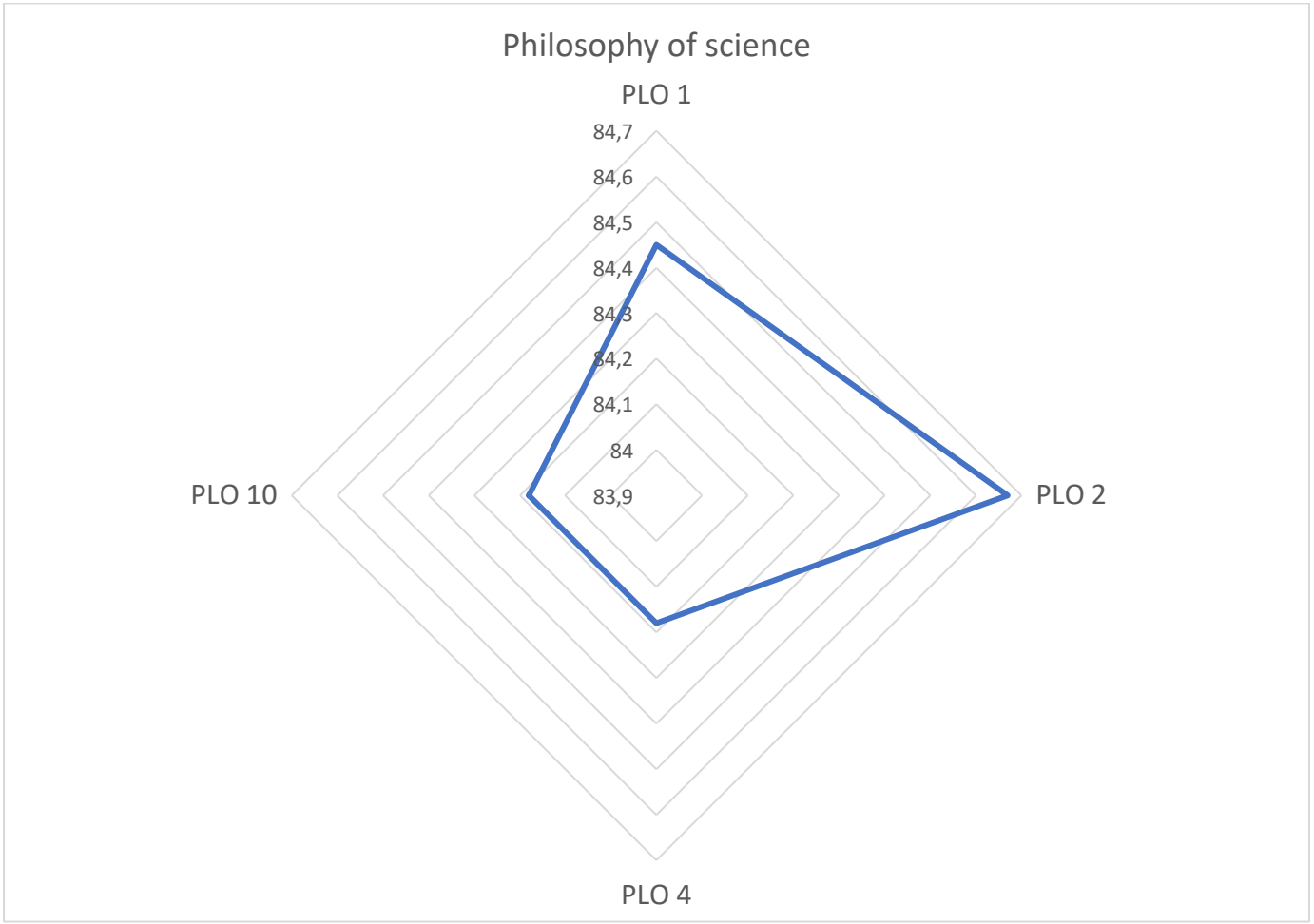
Distribution of PLO Achievements

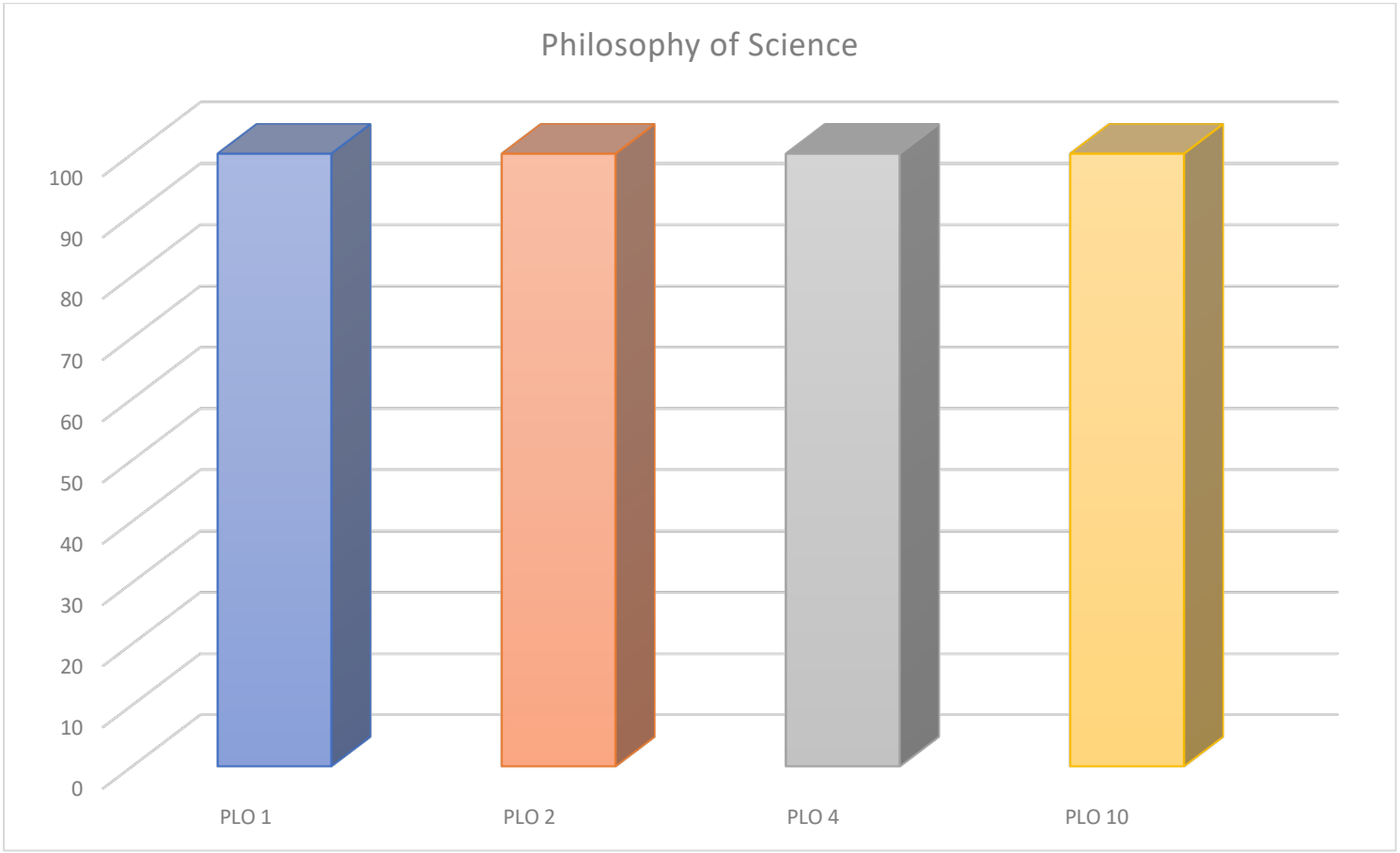
GRADE	PLO 2	PLO 3	PLO 9	PLO 10
E	11	11	11	11
G				
S				
F				
Total	11	11	11	11

DISTRIBUSI CAPAIAN PLO (%)

GRADE	PLO 2	PLO 3	PLO 9	PLO 10
E	100	100	100	100
G	0	0	0	0
S	0	0	0	0
F	0	0	0	0

Distribution of Achievement Percentage of PLO




Philosophy of Science
100
90
80
70
60
50
40
30
20
10
0
PLO 1
PLO 2
PLO 4
PLO 10