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

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Bacteriology*	4620102022		T=2	P=0	ECTS=3.18	6	July 17, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	Dr. H. Sunu Kuntjoro, S.Si., M.Si.

Learning model	**Project Based Learning**	
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**	
	PLO-6	Able to apply logical, critical, systematic and innovative thinking in the context of developing or implementing science and/or technology according to their field of expertise.
	PLO-10	Able to design and conduct experiments in the field of biology, manage, analyze, interpret, document and store research data, to manage biological natural resources
	PLO-13	Able to demonstrate basic knowledge of cell and molecular biology, organismal biology, ecology and evolution to analyze current biological issues
	Program Objectives (PO)	
	PLO-PO Matrix	

P.O	PLO-6	PLO-10	PLO-13

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

Short Course Description	This course examines the concept of bacteriology which includes diversity, taxonomy, metabolism, molecular, ecology, and the role of bacteria in everyday life. This course is presented in the form of theory and assignments.	
References	**Main :**	

1. El-Sharoud, W.M. 2008. Bacterial Physiology: A Molecular Approach . Berlin: Springer-Verlag.
2. Russel, W. and Herwald, H. 2005. Concepts in Bacterial Virulence . Basel: Karger.
3. Madigan, M.T., Martinko, J.M., Stahl, D.A. and Clark, D.P. 2012. Biology of Microorganism . Boston: Pearson.
4. Tortora, G. J., Funke, B. R. dan C. L. Case. 2007. Microbiology an Introduction . San Fransisco: Addison Wesley Longman, Inc.

Supporters:	
Supporting lecturer	Prof. Dr. Mahanani Tri Asri, M.Si. Guntur Trimulyono, S.Si., M.Sc. Lisa Lisdiana, S.Si., M.Si., Ph.D.

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	Understand the scope of bacteriology	Explain the scope of bacteriology	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Participatory Activities	Lectures and discussions 2 X 50			5%
2	Understanding bacterial diversity	Explain the diversity of Proteobacteria	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Project Results Assessment / Product Assessment	Lectures and discussions 2 X 50			5%
3	Understanding bacterial diversity	Explain the diversity of other groups of bacteria	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Project Results Assessment / Product Assessment	Lectures and discussions 2 X 50			3%
4	Understanding bacterial diversity	Explain the diversity of other groups of bacteria	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Project Results Assessment / Product Assessment	Lectures and discussions 2 X 50			2%
5	Understanding bacterial diversity	Explain the diversity of Archaebacteria	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Project Results Assessment / Product Assessment	Lectures and discussions 2 X 50			5%
6	Understand the structure and physiology of bacteria	Explain the structure and physiology of Proteobacteria	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Project Results Assessment / Product Assessment	Lectures and discussions 2 X 50			0%
7	Understand the structure and physiology of bacteria	Explain the structure and physiology of Proteobacteria	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Project Results Assessment / Product Assessment	Lectures and discussions 2 X 50			5%

8	USS meeting materials 1-7	As per meetings 1-7	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Participatory Activities	Corresponds to meetings 1-7 2 X 50			10%
9	Understand the structure and physiology of bacteria	Explain the structure and physiology of other groups of bacteria	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Project Results Assessment / Product Assessment	Lectures and discussions 2 X 50			0%
10	Understand the structure and physiology of bacteria	Explain the structure and physiology of other groups of bacteria	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Project Results Assessment / Product Assessment	Lectures and discussions 2 X 50			0%
11	Understand the structure and physiology of bacteria	Explain the structure and physiology of Archaebacteria	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Project Results Assessment / Product Assessment	Lectures and discussions 2 X 50			0%
12	Understand the structure and physiology of bacteria	Explain the structure and physiology of Archaebacteria	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Project Results Assessment / Product Assessment	Lectures and discussions 2 X 50			5%
13	Understanding molecular studies of bacteria	Explain the molecular study of bacteria	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Participatory Activities	Lectures and discussions 2 X 50			10%
14	Understanding bacterial ecology	Explain the influence of the environment on bacteria	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Participatory Activities, Practical Assessment	Lectures and discussions 2 X 50			10%

15	Understand the role of bacteria in everyday life	Explain the role of bacteria in everyday life	**Criteria:** PARTICIPATION with a weight of 20% TASK with a weight of 30% USS with a weight of 20% US with a weight of 30% **Form of Assessment** : Participatory Activities	Lectures, discussions and assignments 2 X 50			10%
16			**Form of Assessment** : Participatory Activities				10%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	50%
2.	Project Results Assessment / Product Assessment	25%
3.	Practical Assessment	5%
		80%

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.