



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

Document Code

**SEMESTER LEARNING PLAN**

<b>Courses</b>	<b>CODE</b>	<b>Course Family</b>	<b>Credit Weight</b>	<b>SEMESTER</b>	<b>Compilation Date</b>		
Plant Pests and Diseases	4620103201		T=2 P=1 ECTS=4.77	5	July 18, 2024		
<b>AUTHORIZATION</b>		<b>SP Developer</b>	<b>Course Cluster Coordinator</b>	<b>Study Program Coordinator</b>			
		.....	.....	Dr. H. Sunu Kuntjoro, S.Si., M.Si.			
<b>Learning model</b>	<b>Project Based Learning</b>						
<b>Program Learning Outcomes (PLO)</b>	PLO study program that is charged to the course						
	Program Objectives (PO)						
	PLO-PO Matrix						
		P.O					
<b>Short Course Description</b>	Plant Pests and Diseases study material about Pests and Diseases in plants and their control. The study covers the scope of plant pests and diseases, plant diseases which include biotic diseases (bacteria, viruses, fungi and nematodes) and abiotic diseases which include plant diseases due to nutrient deficiencies. Meanwhile, plant pests include the main pests on several productive plants along with their predators. Another study is how to control pests and plant diseases that considers ecosystem balance and is environmentally friendly. The study of plant pests and diseases is accompanied by various process skills that will be used to solve problems in the field of plant physiology and its applications. Learning is delivered through presentations, discussions, practicums and assignments.						
	<b>References</b>						
<b>Supporting lecturer</b>	<b>Main :</b>						
	<ol style="list-style-type: none"> <li>1. Agrios, G. N. 1996. Ilmu Penyakit Tumbuhan. Diterjemahkan oleh Busnia M dan Toekijo M. Yogyakarta. Gadjah Mada University Press</li> <li>2. Pracaya. 2008. Pengendalian Hama &amp; Penyakit Tumbuhan Secara Organik. Yogyakarta : Kanisius.</li> <li>3. Sastrahidayat. I.R. 2011. Fitoptologi (Ilmu Penyakit Tumbuhan). Malang. UB Press</li> <li>4. Semangun, H. 1991. Penyakit-Penyakit Tanaman Hortikultura Di Indonesia. Yogyakarta. Gadjah Mada University Press</li> <li>5. Sembel, T.D. 2010. Pengendalian Hayati Hama-hama Serangga Tropis dan gulma. Yogyakarta: Andi.</li> </ol>						
		<b>Supporters:</b>					
<b>Week-</b>	<b>Final abilities of each learning stage (Sub-PO)</b>	<b>Evaluation</b>		<b>Help Learning, Learning methods, Student Assignments, [ Estimated time]</b>		<b>Learning materials [ References ]</b>	<b>Assessment Weight (%)</b>
		<b>Indicator</b>	<b>Criteria &amp; Form</b>	<b>Offline ( offline )</b>	<b>Online ( online )</b>		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

1	Understand the concepts related to the scope of plant pests and diseases and use the concepts that have been mastered to explain events in everyday life.	a. Explain the scope of the study of plant pests and diseases b. Explain the concepts of plant pests and diseases as applied to cases that occur in society c. Demonstrate an honest and independent attitude during the learning process based on the observation sheet	<b>Criteria:</b> 1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30% 2. USS/UTS weight 20% 3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 4. US weight 30% 5. Essay and multiple choice questions are assessed jointly on USS and US 6. Performance questions are integrated during learning	Presentation, discussion. assignment 2 X 50		0%
2	Understand the basic meaning of plant diseases, symptoms, and mechanisms for the emergence of plant diseases as well as plant defenses against disease	a. Explain the basic meaning of plant diseases, symptoms and mechanisms for the emergence of plant diseases b. Explain the defense mechanisms of plants against disease	<b>Criteria:</b> 1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30% 2. USS/UTS weight 20% 3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 4. US weight 30% 5. Essay and multiple choice questions are assessed jointly on USS and US 6. Performance questions are integrated during learning	Presentation, discussion. assignment 2 X 50		0%
3	Explain plant diseases caused by nematodes, how to prevent and control them	a. Explain plant diseases caused by nematodes b. explain how to prevent and control c. Explain the nematode extraction procedure d. Skilled in observing plant diseases and pests d.	<b>Criteria:</b> 1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30% 2. USS/UTS weight 20% 3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 4. US weight 30% 5. Essay and multiple choice questions are assessed jointly on USS and US 6. Performance questions are integrated during learning	Presentation, discussion. project assignment 2 X 50		0%

4	Understand plant diseases caused by bacteria	<p>a. Explain the mechanism of bacteria in infecting plants</p> <p>b. Explain several representative examples of bacteria that cause plant diseases</p> <p>c. Identify the symptoms that appear on plants infected with bacteria</p> <p>d. Explain how to prevent the spread of pathogenic bacteria and how to control them</p>	<p><b>Criteria:</b></p> <ol style="list-style-type: none"> <li>1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30%</li> <li>2. USS/UTS weight 20%</li> <li>3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20%</li> <li>4. US weight 30%</li> <li>5. Essay and multiple choice questions are assessed jointly on USS and US</li> <li>6. Performance questions are integrated during learning</li> </ol>	Presentation, discussion, project assignment 2 X 50			0%
5	Understand plant diseases caused by viruses	<p>a. Explain the mechanism of viruses in infecting plants</p> <p>b. Explain several representative examples of viruses that cause plant diseases</p> <p>c. Identify the symptoms that appear on plants infected with viruses</p> <p>d. Understand and apply ways to prevent the spread of pathogenic viruses and how to control them</p>	<p><b>Criteria:</b></p> <ol style="list-style-type: none"> <li>1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30%</li> <li>2. USS/UTS weight 20%</li> <li>3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20%</li> <li>4. US weight 30%</li> <li>5. Essay and multiple choice questions are assessed jointly on USS and US</li> <li>6. Performance questions are integrated during learning</li> </ol>	Presentation, discussion, project assignment 2 X 50			0%
6	Understand plant diseases caused by fungi	<p>a. Explain the mechanism of fungi in infecting plants</p> <p>b. Explain several representative examples of fungi that cause plant diseases</p> <p>c. Identify the symptoms that appear on plants infected with fungi</p> <p>d. Understand and apply ways to prevent the spread of pathogenic fungi and how to control them</p>	<p><b>Criteria:</b></p> <ol style="list-style-type: none"> <li>1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30%</li> <li>2. USS/UTS weight 20%</li> <li>3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20%</li> <li>4. US weight 30%</li> <li>5. Essay and multiple choice questions are assessed jointly on USS and US</li> <li>6. Performance questions are integrated during learning</li> </ol>	Presentations, discussions. 2 X 50 project assignment			0%

7	Understanding plant diseases caused by abiotic symptoms (nutrient deficiencies)	a. Explain the meaning and symptoms of plant diseases caused by nutrient deficiencies b. Explain the mechanism of nutrient deficiency in the emergence of disease	<b>Criteria:</b> 1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30% 2. USS/UTS weight 20% 3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 4. US weight 30% 5. Essay and multiple choice questions are assessed jointly on USS and US 6. Performance questions are integrated during learning	Presentations, discussions. 2 X 50 project assignment			0%
8	U.S.S		<b>Criteria:</b> 1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30% 2. USS/UTS weight 20% 3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 4. US weight 30% 5. Essay and multiple choice questions are assessed jointly on USS and US 6. Performance questions are integrated during learning	2 X 50			0%
9	Understand the basic meaning of plant pests, and the various types of pests that attack productive plants	a. Explain the meaning of plant pests b. Explain about natural enemies c. Identify various representative pests that attack productive crops d. Explain the effect of pest attacks on the productivity of economically valuable plants	<b>Criteria:</b> 1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30% 2. USS/UTS weight 20% 3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 4. US weight 30% 5. Essay and multiple choice questions are assessed jointly on USS and US 6. Performance questions are integrated during learning	Presentations, discussions. 2 X 50 project assignment			0%

10	Describe various types of predators/parasitoids that are beneficial to the balance of the agroecosystem environment	a. Explain the meaning of predators and parasitoids b. Provide several representative examples of predators and parasitoid pests of several productive plants c. Explain the influence of predators and parasitoids in ecological balance	<b>Criteria:</b> 1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30% 2. USS/UTS weight 20% 3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 4. US weight 30% 5. Essay and multiple choice questions are assessed jointly on USS and US 6. Performance questions are integrated during learning	Presentations, discussions. 2 X 50			0%
11	Understand the concepts related to integrated pest management	Explain pest control in plants using technical, chemical and biological culture	<b>Criteria:</b> 1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30% 2. USS/UTS weight 20% 3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 4. US weight 30% 5. Essay and multiple choice questions are assessed jointly on USS and US 6. Performance questions are integrated during learning	Presentations, discussions. assignment 2 X 50			0%
12	Understand the concepts related to integrated pest management	a. Explain the meaning of integrated pest management b. Explain the application of integrated pest management	<b>Criteria:</b> 1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30% 2. USS/UTS weight 20% 3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 4. US weight 30% 5. Essay and multiple choice questions are assessed jointly on USS and US 6. Performance questions are integrated during learning	Presentations, discussions. assignment 2 X 50			0%

13	Analyze environmental factors (ecosystem balance) that cause pests and diseases in plants	Analyzing the relationship between plant pests and diseases and environmental factors (ecosystem balance)	<b>Criteria:</b> 1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30% 2. USS/UTS weight 20% 3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 4. US weight 30% 5. Essay and multiple choice questions are assessed jointly on USS and US 6. Performance questions are integrated during learning	Presentations, discussions. assignment 2 X 50			0%
14	Analyzing the influence of pathogens on plant physiological functions	Analyze the influence of pathogens on photosynthesis, nutrient translocation, respiration and genetic expression systems	<b>Criteria:</b> 1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30% 2. USS/UTS weight 20% 3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 4. US weight 30% 5. Essay and multiple choice questions are assessed jointly on USS and US 6. Performance questions are integrated during learning	Presentations, discussions. assignment 2 X 50			0%
15	Understand the mechanisms of plants in defending themselves from pathogen attacks	Explain the mechanisms of structural defense and metabolic defense	<b>Criteria:</b> 1. Practical reports and products are assessed as ASSIGNMENTS with a weight of 30% 2. USS/UTS weight 20% 3. Student activities and responses during learning activities, especially practicums, are assessed as participation, with a weight of 20% 4. US weight 30% 5. Essay and multiple choice questions are assessed jointly on USS and US 6. Performance questions are integrated during learning	Presentations, discussions. assignment 2 X 50			0%
16							0%

### Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
		0%

#### 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.