

1	Able to describe the nature, occurrence and general function of plant hormones and differentiate the concepts of concentration, sensitivity and transport in plant hormones.	1.a. Describe the nature, occurrence and general function of plant hormones b. Distinguish between the concepts of concentration, sensitivity and transport in plant hormones. 2.b. Distinguish the concepts of concentration, sensitivity, and transport in plant hormones.	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are accessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Form of Assessment : Participatory Activities, Tests</p>	Presentation, discussion 2 X 50	Presentations, discussions, structured assignments 2 x 50	<p>Material: Concept of concentration, sensitivity and transport of hormones. References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	8%
2	Able to describe Auxin biosynthesis and metabolism and identify symptoms of deficiencies and excesses that occur in plants to determine actions that should be taken to overcome them based on the results of the analysis	a. Describe the biosynthesis and metabolism of Auxin b. Providing alternative solutions to problems with plant growth disorders related to the hormone auxin.	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are accessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Form of Assessment : Participatory Activities</p>	Presentation, Discussion, Practicum (Practical work) 2 X 50	presentation, discussion, practicum (practical work) 2 x 50	<p>Material: Auxin biosynthesis and metabolism. References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	5%
3	Discuss the concept of auxin. Underline and elaborate on the main concepts in the article about auxin in groups. Communicate the results of group discussions. Analyze problems related to the auxin hormone and suggest alternative solutions.	a. Analyzing auxin transport using the chemiosmotic model b. Explain the mechanism of action of auxin in plant growth and development c. Skilled in performing apical dominance experiments	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are accessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Form of Assessment : Participatory Activities</p>	Presentation, Discussion, assignment 2 X 50	Presentations, Discussions, assignments 2 x 50	<p>Material: Transport and mechanism of action of Auxin. References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	5%
4	1. Able to describe the biosynthesis and metabolism of cytokinins 2. Able to identify symptoms of deficiencies and excesses that occur in plants to determine the actions that should be taken to overcome them based on the results of the analysis.	Describe the biosynthesis and metabolism of cytokinins and identify symptoms of deficiencies and excesses that occur in plants to determine the actions that should be taken to overcome them based on the results of the analysis.	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are accessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment, Tests</p>	Presentation, Discussion, 2 X 50	Presentations, discussions. 2 x 50	<p>Material: Cytokinin biosynthesis and metabolism. References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	9%

5	Able to explain the stages of gibberellin biosynthesis and metabolism and identify symptoms of deficiencies and excesses that occur in plants to determine the actions that should be taken to overcome them based on the results of the analysis.	Describe the biosynthesis and metabolism of gibberellins and identify symptoms of deficiencies and excesses that occur in plants to determine the actions that should be taken to overcome them based on the results of the analysis.	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are assessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Form of Assessment : Participatory Activities</p>	Presentation, Discussion, 2 X 50	Presentation, Discussion. 2 x 50	<p>Material: Biosynthesis and metabolism of gibberellins.</p> <p>References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	5%
6	Able to describe the biosynthesis and metabolism of ABA and identify deficiency and excess symptoms that occur in the plants analyzed.	Describe the biosynthesis and metabolism of ABA and identify symptoms of deficiency and excess that occur in plants to determine the actions that should be taken to overcome them based on the results of the analysis.	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are assessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment</p>	Presentation, Discussion, 2 X 50	Presentation, Discussion. 2 x 50	<p>Material: Biosynthesis and metabolism of ABA.</p> <p>References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	8%
7	Able to describe the biosynthesis and metabolism of ethylene and identify deficiency and excess symptoms that occur in the plants analyzed.	a. Describe the biosynthesis and metabolism of ethylene b. Skilled in carrying out fruit ripening practical activities	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are assessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment, Tests</p>	Presentation, Discussion. Practical activities, Explanation of the project for making Natural Growth Regulators. 2 X 50	Presentation, Discussion. Practical activities, Explanation of the project for making Natural Growth Regulators. 2 x 50	<p>Material: Ethylene biosynthesis and metabolism.</p> <p>References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	8%
8	U.S.S	1. Presentations are assessed as assignments with a weight of 10% 2. Practical1. USS weight 20% 2. Student activities and responses during learning activities, especially during presentations/practicums/assignments are assessed as participation with a weight 10% 3. US weight 30% 4. Essay questions are accessed together during USS and US 5. USS questions for meeting material 1-7.	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are accessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Form of Assessment : Participatory Activities, Tests</p>	Doing UTS, Material from Meetings 1-7. 2 X 50	Doing UTS, Material from Meetings 1-7. 2 x 50	<p>Material: Meeting material 1-7.</p> <p>References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	8%

9	Able to describe the biosynthesis and metabolism of polyamines, jasmonates, salicylic acid, and brassinolids and identify deficiency and excess symptoms that occur in plants	Describe the biosynthesis and metabolism of polyamines, jasmonates, salicylic acid, and brassinolids and identify deficiency and excess symptoms that occur in plants to determine the actions that should be taken to overcome them based on the results of the analysis.	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are accessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment, Tests</p>	Presentation, Discussion, 2 X 50	Presentation, Discussion, 2 x 50	<p>Material: Biosynthesis and metabolism of polyamines, jasmonates, salicylic acid, and brassinolid.</p> <p>References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	8%
10	Able to communicate the process of apical dominance that occurs in plants	Describe the process of apical dominance that occurs in plants and apply it in everyday life to help overcome related problems based on the results of the analysis.	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are accessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment</p>	Presentation, Discussion 2 X 50	Presentation, Discussion 2 x 50	<p>Material: Apical Dominance</p> <p>References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	5%
11	Able to communicate the flowering process that occurs in plants	Describe the flowering process that occurs in plants and apply it in everyday life to help overcome related problems based on the results of the analysis.	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are accessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment</p>	Presentation, Discussion 2 X 50	Presentation, Discussion 2 x 50	<p>Material: Flowering (Vernalization).</p> <p>References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	5%
12	Be able to explain the process of seed germination and analyze the role of hormones involved in this process	Describe the process of seed germination that occurs in plants and apply it in everyday life to help overcome related problems based on the results of the analysis.	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are accessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment</p>	Presentation, Discussion 2 X 50	Presentation, Discussion 2 x 50	<p>Material: Seed Germination.</p> <p>References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	5%

13	Able to describe the processes of dormancy and senescence that occur in plants and analyze the hormones that play a role in them	Describe the processes of dormancy and senescence that occur in plants and apply them in everyday life to help overcome related problems based on the results of the analysis.	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are accessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment, Tests</p>	Presentation, Discussion, 2 X 50	Presentation, Discussion, 2 x 50	<p>Material: Dormancy and Senescence. References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	8%
14	Able to explain the process of hormonal control of post-harvest fruit and vegetables and apply it in daily life to help overcome related problems based on the results of the analysis.	Describe the process of hormonal control of post-harvest fruit and vegetables and apply it in daily life to help overcome related problems based on the results of the analysis.	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are accessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Form of Assessment : Participatory Activities</p>	Presentation, Discussion, Collection of project products. 2 X 50	Presentation, Discussion, Collection of project products. 2 x 50	<p>Material: Hormones in post-harvest fruit and vegetables Reference: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	1%
15	Able to describe the process of hormonal control in tissue culture techniques and related metabolic processes that occur in plants	Describe the process of hormonal control in tissue culture techniques and related metabolic processes that occur in plants and apply it in everyday life to help overcome related problems based on the results of the analysis.	<p>Criteria:</p> <ol style="list-style-type: none"> 1.1. Presentations are assessed as assignments with a weight of 10% 2.2. Practicum/Report is assessed as an assignment with a weight of 30% 3.3. USS weight 20% 4.4. Student activities and responses during learning activities, especially during presentations/practicum/assignments, are assessed as participation with a weight of 10% 5.5. US weight 30% 6.6. Essay questions are accessed jointly during USS and US 7.7. USS questions for meeting 1 to meeting 7 material 8.8. US questions for material from meetings 9 to meeting 15. Presentations are assessed as assignments with a weight of 20% <p>Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment</p>	Presentation, Discussion, Collection of project products. 2 X 50	Presentation, Discussion, Collection of project products. 2 x 50	<p>Material: Hormones in tissue culture and other metabolic processes. References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	1%
16			<p>Criteria:</p> <ol style="list-style-type: none"> 1. Presentations are assessed as assignments with a weight of 10% 2. Practicum/Reports are assessed as assignments with a weight of 30% 3. USS has a weight of 20% 4. Student activities and responses during learning activities, especially during presentations/practicum/assignments are assessed as participation with weight 10% 5. US weight 30% 6. Essay questions are accessed together during USS and US 7. USS questions for material. <p>Forms of Assessment : Participatory Activities, Practical Assessment, Tests</p>	UAS Write offline/offline 2 x 50	UAS Write Online 2 x 50	<p>Material: Meeting material 9-15. References: <i>Davies, PJ 1995. Plant Hormones (Physiology, Biochemistry and Molecular Biology). London: Kluwer Academic Publishers.</i></p>	10%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	50.34%
2.	Project Results Assessment / Product Assessment	23.01%
3.	Practical Assessment	3.33%
4.	Test	22.34%
		99.02%

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.