



USK
UNIVERSITAS
SYIAH KUALA

FACULTY OF AGRICULTURE
DEPARTMENT OF SOIL SCIENCE

UNDERGRADUATE PROGRAM

MODULE HANDBOOK

Module designation	Practicum of Plant physiology (SSOL1061)
Semester(s) in which the module is taught	1 st semester
Person responsible for the module	Dr. Ir. Mardhiah Hayati, M.S.
Language	Indonesian, English
Relation to curriculum	Compulsory module for Soil Science Department
Teaching methods	Practice, lecture, presentation
Workload (incl. contact hours, self-study hours)	✓ 170 minutes of practice per week (field/laboratory 50 minutes; structured learning 60 minutes; 60 minutes self-study)
Credit points	1 SKS = 1.6 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	✓ Students are skilled in measuring physiological processes in plants, investigating plant growth rates from the embryonic stage within seeds, through the vegetative stage, until the plants reach the generative stage.
Content	This course provides an explanation of the definition of plant physiology, its importance, and the benefits of studying it. It covers the role of water and nutrients in plant metabolism, photosynthesis in C3, C4, and CAM plants, and respiratory metabolism including glycolysis, the Krebs cycle, and the electron transport chain. Students also gain an understanding of the properties, structure, and mechanisms of enzyme action, as well as the effects of plant growth regulators on plant growth and development.
Exams and assessment formats	Quiz, assignment, mid-term exam, and final exam
Study and examination requirements	✓ Quiz: 10% ✓ Participatory: 15% ✓ Assignment: 20% ✓ Mid-term exam: 25% ✓ Final Exam: 30%

Reading list	<ol style="list-style-type: none">1. Bhatla, S. C., & Lal, M. A. (2023). <i>Plant physiology, development and metabolism</i>. Springer Nature.2. Heldt, H. W., & Piechulla, B. (2021). <i>Plant biochemistry</i>. Academic Press.3. Taiz, L. (2025). <i>Plant physiology and development</i>.4. Heldt, H. W., & Piechulla, B. (2021). <i>Plant biochemistry</i>. Academic Press.5. Jain, V. K. (2018). <i>Fundamentals of plant physiology</i>. S. Chand Publishing.6. Hess, D. (2012). <i>Plant physiology: molecular, biochemical, and physiological fundamentals of metabolism and development</i>. Springer Science & Business Media.7. Mohr, H., & Schopfer, P. (Eds.). (2012). <i>Plant physiology</i>. Springer Science & Business Media.
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