



THE MODULE HANDBOOK

Magister Biology Study Program

FACULTY OF BIOLOGY

MOLECULAR PLANT HORMONES

Course code	BIMB 202226
Course level	Magister
Semester/ term	Even/Odd
Course coordinator(s)	Prof. Dr. Kumala Dewi MSc.St.
Lecture(s)	Prof. Dr. Endang Semiarti M.S. M.Sc.
Language	Indonesia
Classification within the Curriculum	Elected
Teaching format/ class hours per week during the semester	This course is planned to have 14 teaching weeks and 2 weeks of examination.
Workload	Estimated working hour: 2 credits of theory and 1 credit of laboratory work
Credits	2-1 credits
Requirements	-
Program Learning Outcome	<p>AT1. Students are expected to be able to internalize academic values, norms, and ethics as well as demonstrate an independent and responsible attitude in their field of expertise related to molecular plant hormones (Attitude);</p> <p>KN1. The graduates are able to demonstrate knowledge and understanding of biological theories, about plant hormone molecules (Knowledge);</p> <p>KN2. Graduates demonstrate knowledge and understanding of biological systems and biotechnological methods to solve problems related to molecular plant hormones (Knowledge)</p> <p>GS1. Graduates are able to develop logical, critical, systematic, and creative thinking through scientific concepts and research (General Skills)</p>
Course Learning Outcome	<p>CLO1. Students understand various plant hormones, biosynthetic pathways and their mechanism of action</p> <p>CLO2. Students understand the interaction between hormones and their role in the process of growth, development and adaptation to the environment</p> <p>CLO3. Students understand several hormone analysis techniques</p> <p>CLO4. Students understand the application of hormones in various fields of tissue culture, horticulture and agriculture</p> <p>CLO5. Students are able to design research and analyze data related to the effects of hormones on plant growth and development</p>



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Course Description	Molecular hormone is an advanced course of Phytohormones held at the Faculty of Biology for undergraduate students. This course discusses various types of hormones, both well-known hormones, namely auxin, gibberellins, cytokinins, ethylene and abscisic acid, as well as new hormones including brassinosteroids, salicylic acid, jasmonic acid, and strigolactone. This course emphasizes the understanding of biosynthetic mechanisms, hormone receptors, signaling processes and hormone work to the molecular realm. This course will also discuss techniques for hormone analysis and the application of hormones in various fields, especially agriculture, horticulture and tissue culture. Students who take this course are expected to be able to design research related to hormones and their functions in plant growth, development and adaptation to both biotic and abiotic stresses. In addition, in this lecture, students are also trained to make critical reviews and presentations of existing publications related to various types of plant hormones.																																										
Assesments	<table border="1"><thead><tr><th>Component Evaluation</th><th>Percentage</th><th>CPMK 1</th><th>CPMK 2</th><th>CPMK 3</th><th>CPMK 4</th><th>CPMK 5</th></tr></thead><tbody><tr><td>Quiz</td><td>10%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr><tr><td>The task of making a journal review related to learning materials</td><td>15%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr><tr><td>Review presentation</td><td>10%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr><tr><td>Midterm exam</td><td>30%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr><tr><td>Final exams</td><td>35%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr></tbody></table>	Component Evaluation	Percentage	CPMK 1	CPMK 2	CPMK 3	CPMK 4	CPMK 5	Quiz	10%	√	√	√	√	√	The task of making a journal review related to learning materials	15%	√	√	√	√	√	Review presentation	10%	√	√	√	√	√	Midterm exam	30%	√	√	√	√	√	Final exams	35%	√	√	√	√	√
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Study Media	Lecture Slides (PPT) Journal via Internet E-Books																																										
Literature	1.Plant Hormones : Biosynthesis, signal transduction and Actions. P.J. Davies, Springer																																										