



THE MODULE HANDBOOK

Magister Biology Study Program

FACULTY OF BIOLOGY

PLANT NUTRITION

Course code	BIMB202225
Course level	Magister
Semester/ term	Odd
Course coordinator(s)	Dr. Diah Rachmawati, S.Si., M.Si.
Lecture(s)	1. Dr. Diah Rachmawati, S.Si., M.Si. 2. Dr. Endah Retnaningrum, S.Si., M.Eng.
Language	Indonesian
Classification within the Curriculum	Elective
Teaching format/ class hours per week during the semester	This course is organised into 4 parallel classes and 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	KN1 The graduates are demonstrating knowledge and comprehend biological theories, includes all aspects of biological studies at various levels in the organization of life GS5: The graduates are able to use information technology in scientific development and implementing it in their area of expertise SK2: The graduates are able to solve problems related to biological resources through an inter- and / or multidisciplinary approaches beneficial to society and scientific community
Course Learning Outcome	CLO1 explain the role and metabolism of nutrients as well as analyze the relationship of nutrients with environmental factors to plant growth CLO 2 communicate effectively and use information technology in overcoming problems related to the role and dynamics of nutrients and their relation to environmental factors on plant growth CLO 3 plan and implement an experiment on plant nutrients and analyze the da experimental data and present them in reports CLO 4 cooperate, appreciate and have a sense of responsibility in solving problems regarding plant nutrients
Course Description	This course studies the role of essential and beneficial nutrients in plant metabolism and the processes of nutrient uptake, transport and metabolism in the plant. It will discuss the relationship between nutrient supply and growth quality (source-



THE MODULE HANDBOOK

Magister Biology Study Program

FACULTY OF BIOLOGY

	sink) as well as resistance to pests and diseases. Nutrient dynamics in soil and in the plant, the role of soil microbes in nutrient dynamics and nutrient availability for plants. It also discuss how to analyze nutrient status and soil fertility, how are environmental stress factors (drought, salinity, heat, pH and pollutants) on nutrient status in soil and plants, plant responses to nutrient supply imbalance, effectiveness and prospect of foliar fertilization on plant growth.
Assesments	<p><i>Theory :</i></p> <ul style="list-style-type: none">• Individual assignment (10%)• Group assignment (10%)• Presentation (10%)• Midterm exam (35%)• Final Exam (35%) <p><i>Laboratory work:</i></p> <ul style="list-style-type: none">• Pre test (30%)• Report (40%)• Final test (30%)
Study Media	Online, Elearning
Literature	<ol style="list-style-type: none">1. Barker A.V. and Pilbeam D.J. 2015. <i>Handbook of Plant Nutrition 2nd edition</i>. CRC Press. Taylor & Francis Group. Boca Raton, London, New York.2. Fageria, N.K., V.C. Baligar & C.A. Jones 2010. <i>Growth and mineral nutrition of field crops</i>. CRC Press. Taylor & Francis Group. Boca Raton, London, New York.3. Marschner, P. 2012. <i>Mineral nutrition of higher plants</i>. Third Edition. Acad Press, London4. Rengel, Z (Ed.) 1999. <i>Mineral nutrition of crops</i>. Fundamental mechanism and implications. Food Product Press-The Haworth Press, Inc., New York