



# THE MODULE HANDBOOK

## FACULTY OF BIOLOGY

### Nutritional Biochemistry

<b>Module code</b>	BIO 40104
<b>Module level</b>	Undergraduate
<b>Abbreviation, if applicable</b>	-
<b>Sub-heading, if applicable</b>	-
<b>Courses included in the module, if applicable</b>	-
<b>Semester/term</b>	Even
<b>Module coordinator(s)</b>	Dr. Yekti Asih Purwestri, M.Sc.
<b>Lecture(s)</b>	1. Dr. Rarastoeti Pratiwi, M.Sc. 2. Dr. Tri Rini Nuringtyas, M.Sc. 3. Woro Anindito Sri Tunjung, S.Si., M.Sc., Ph.D.
<b>Language</b>	Indonesia
<b>Classification within the Curriculum</b>	Elective
<b>Teaching format/class hours per week during the semester</b>	This course is given in the fourth semester to S1 regular students in Faculty of Biology, 1 meeting per week with time allocation of 100 minutes. Learning method delivery such as Student Centered Learning combined with Collaborative Learning, Cooperative Learning, Case and Problem Based Learning.
<b>Workload</b>	This course consists of 2 credits of theory
<b>Credit points</b>	2-0 credits
<b>Requirements</b>	Plant Physiology (BIO 40901) and Animal Physiology (BIO 40801)
<b>Learning goals/competencies</b>	<b>1. Knowledge and understanding</b> <ol style="list-style-type: none"><li>The basic principles of mathematics, physics and chemistry are related to the field of nutritional biochemistry.</li><li>The basic concepts, principles and theories related to the body's use of nutrients by both humans and plants.</li><li>The facts, concepts, principles and theories that apply to nutritional biochemistry.</li><li>The role of nutrition in the community generally and the scientific world in particularly.</li></ol>



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	<p><b>2. Ability/intellectual skill</b></p> <ol style="list-style-type: none"><li>Formulate and prove a hypothesis</li><li>Integrate and evaluate information and data from various sources related to nutrition</li></ol> <p><b>3. Practical skill</b></p> <ol style="list-style-type: none"><li>To use scientific references and to make lecture note effectively.</li><li>Analyze the results of experiments in nutrition and determine the validity and correctness of those results.</li></ol> <p><b>4. Managerial and transferable skill</b></p> <ol style="list-style-type: none"><li>Applying the principles of mathematics, chemistry, biochemistry and physics in the field of nutrition.</li><li>Implement and integrate nutrition into other branches of science.</li></ol> <p><b>5. Attitude</b></p> <ol style="list-style-type: none"><li>Being able to anticipate problems in the field of nutrition and looking for a way to resolve them.</li><li>Have a curiosity.</li><li>Appreciate the originality of ideas, concepts and other inventions.</li><li>Pay attention to and be able to appreciate the views and opinions of others.</li></ol>
<b>Content</b>	<p>This course explains the importance of nutrients for life (especially humans and plants) and the factors that influence them. Human/animal nutritional biochemistry discuss about the use of nutrients by the body and its functions (roles of water and energy of the metabolism of carbohydrates, lipids, proteins, vitamins and minerals; digestion and absorption of nutrients associated with health problems, especially in cases of malnutrition) as well as the development of nutrigenetic and nutrigenomics also functional food. Plant nutritional biochemistry discuss about plants nutrition include essentiality element (ionomict), mineral transport in plants, plant adaptation to stress biochemical nutrients, poisoning ( toxicity) and the properties of plant toxicity.</p>
<b>Study/exam achievements</b>	<ol style="list-style-type: none"><li>Homework: 5 %</li><li>Quiz: 5 %</li><li>Presentation (group): 10 %</li><li>Paper (individual): 10 %</li><li>Midterm: 35 %</li><li>Final exam: 35 %</li></ol>
<b>Forms of media</b>	White board, LCD



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### Literature

1. Lea P.J. and Leegood, R.C. 1999. *Plant Biochemistry and Molecular Biology*. Second Edition. John Wiley & Sons Ltd.
2. Whitney E and Rolfes S.R. 2008. *Understanding Nutrition*. Eleventh Edition (International Student Edition). Thomson, Wadsworth.

Other references in the form of journal (e-journal) or e-book will be announced in each topic of the lecture.

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