THE MODULE HANDBOOK
FACULTY OF BIOLOGY
MASTER PROGRAMME

BIOCHEMICAL ADAPTATION

Module code	BIO-60106
Module level	1st year of Master Program in Biology
Abbreviation, if applicable	-
Courses related	-
Semester	Even
Course coordinator(s)	Dr. Rarastoeti Pratiwi, M.Sc
Lecture(s)	1. Dr. Rarastoeti Pratiwi, M.Sc 2. Dr. Yekti Asih Purwestri, M.Si 3. Dr. Tri Rini Nuringtyas, M.Sc 4. Dr. Woro Anindito Sri Tunjung, M.Sc
Language	Bahasa Indonesia and English
Classification within the Curriculum	Compulsory Courses Specific for Field of Interest
Teaching format/class hours per week during the semester	This course is organized into one class and planned to have 14 teaching weeks and 2 weeks of examination.
Workload	Estimated working hour: 7 hours/week.
Credit	2-0 credits
Requirements	BIO-20101
Course Learning Outcome	1. Able to master the concepts and theories of hierarchial adaptations in organisms. 2. Able to analyze and use biochemical principles and data regarding organism adaptation. 3. Able to effectively browse, use, summarize, and bridge between theories and realities of processes in biochemical adaptation at molecular level.

Syllabus	Biochemical Adaptation is a compulsory subject of genetics and molecular interest learning about molecular approaches in understanding natural phenomena regarding the ability of organisms to adapt to the ever-changing biotic and abiotic environments. Basic strategies, mechanisms and adaptation capacity, Diversity of mechanism pattern and processes in adaptation (adaptations to lack of oxygen, high concentrations of metals and minerals, availability of carbon dioxide, water and nutrients, residue of nitrogen metabolism, fluctuations in changes of pH, temperature, pressure and buoyancy (floatation) on various types of aquatic and pelagic, flying and terrestrial organisms.
Study/exam achievements	a. Midterm: 35% b. Final examination: 40% c. Personal assignments: 15% d. Group assignments: 10%
Forms of media	White board, notebook, LCD
Reference	1. Berg,J.M.; Tymochka, J.L. and L.Stryer, 5th, pdf, W,h. Freeman & Co, 2. Buchanan,B.B.; Gruissem,W. and R.l. Jones, (2001), Biochemistry and Molecular Biology of Plants, 3rd ed. , American Society of Plant Physiologist, Maryland USA 3. Edwards, C ed. (1990), Microbiology of Extreme Environment, Open university Press, Milton Keynes 4. Hochachka, P. and G.N. Somero (1972), Strategies of Biochemical Adaptation, W.B. Saunders, Philadelphia 5. Hochachka, P. and G.N. Somero (1984), Biochemical Adaptation, W.B.Saunders, Princeton University Press, Princeton 6. Hochachka, P. and G.N. Somero (2002), Biochemical adaptation: Mechanism and process in physiological evolution. Oxford University Press. 7. Lehninger,A.L.;Nelson, D.l. & M.M.Cox, (..) Principles of Biochemistry, 4th ed., (pdf) 8. Scheel, D. and Wasternack, C. 2002. Plant Signal Transduction. Oxford University Press