Modul Description

Module name	Course Module of Advanced Physiology
Module level, if applicable	Magister of Biology Education
Code, if applicable	34363072
Subtitle, if applicable	-
Course, if applicable	Structure, Development and Physiology of Plant and Animal
Semester(s) in which the module istaught	I
Person responsible for the module	Lecturer of Courses
Lecturer	Dr. Adisyahputra, Dr. Rusdi, M.Biomed, Dr. Supriyatin, M.Si,
Language	Indonesian Language [Bahasa Indonesia]
Relation to Curriculum	This course is a mandatory course for Magister of Biology Education and offered in the 1st semester.
Type of teaching, contact hours	Teaching methods used in this course are: - Lecture (i.e., group investigation, small group discussion, case study, and video-based learning) - Structured assignments (i.e., essays and case study The class size for lecture is 30 students. Contact hours for lecture is 23 hours, assignments are 28 hours
Workload	For this course, students required to meet a minimum of 234 hours in one semester, which consist of: - 32 hours (1.1 ECTS) for lecture, - 32 hours (1.1 ECTS) for structured assignments, - 92 hours (3.0 ECTS) for private study
Credit points	2 credit points (equivalent with 5.2 ECTS)
Requirements according to the examination regulations	Students must have attended all classes and submitted all class assignments that are scheduled before the final tests.
Recommended prerequisites	Students must have attended all classes and submitted all class assignments that are scheduled before the final tests.

Module objectives/intended learning outcomes	After completing the course and given with this case: **Learning Outcomes** **Social Competences:** 1. Have integrity and professional ethics, self-development, and make innovations to improve the quality of education and lifelong learning for the community (PLO1) 2. Able to apply analytical, critical, innovative, and abstraction thinking skills in the field of biology education (PLO2) **Specific Competences:** 1. Able to improve mastery of biological material in the fields of plant and animal structure, environment, bioconservation, biomolecular, and biotechnology (PLO9). 2. Able to analyze and synthesize problem solutions in biology learning through interdisciplinary, transdisciplinary and multidisciplinary approaches (PLO10)

Content	**Students will learn about:** The Structure of Plants and animals, Plants and animals Development, Physiology of Plants and animals
Forms of Assessment	Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Project 20%; Structured tasks: 20%; Mid Test: 30%; Final Test: 30%
Study and examination requirements and forms of examination	**Study and examination requirements:** - Students must attend 15 minutes before the class starts. - Students must switch off all electronic devices. - Students must inform the lecturer if they will not attend the class due to sickness, etc. - Students must submit all class assignments before the deadline. - Students must attend the exam to get final grade. **Form of examination:** Written exam: Essay
Media employed	Direct Whiteboard, Power Point Presentation, online conference platform
Reading List	1. Becana, M., Wienkoop, S., and Matamoros, M. A. 2018. Sulfur Transport and Metabolism in Legume Root Nodules. Frontiers in Plant Science. 9. doi:10.3389/fpls.2018.01434. 2. Bhatla, S. C., and Lal, M. A. 2018. Plant Physiology, Development and Metabolism. Delhi: Springer Nature Pte Ltd.

	3. Duca, M. 2015. Plant Physiology. Heidelberg: Springer International Publishing. 4. Hill, R.W., Wyse, G.A., Anderson, M., 2012., Animal Physiology. 3rd Ed., Massachusetts: Sinauer Associates Inc. 5. Lamoureux, V.S., 2012, Current Research in Animal Physiology, Toronto: Apple Academic Press. 6. Martini, F.H., Nath, J,L., Bartholowmew, 2012, Anatomy and Physiology, 9th Ed., San Francesco: Pearson. 7. Randal, D., Burggren, W., French, K., 1978. Eckert Animal Physiology: Mechanism and Adaptation. 4th Ed. New York: W.H. Freeman and Company. 8. Barret, K.E., Boitano, S., Barman, S.M., Brooks, H.L., 2010, *Ganong's Review of Medical Physiology* 23th Ed., New York: Mc Graw Hill. 9. Guyton, A.C. Hall, J.E. 2006. Textbook of Medical Physiology. 11th Ed., Philadelphia: Elsevier Saunders. 10. Johnson, L.R., 2003, Essential Medical Physiology. 3th Ed. New York: Elsevier Academic Press. 11. Sherwood, L, 2010, Human Physiology: from cell to systems. 7th Ed., Belmont: Brooks 12. Taiz, L. & Zeiger, E. 2010. Plat Physiology 4th Sinaur Associate