UNIVERSITAS NEGERI YOGYAKARTA

BIOLOGY EDUCATION
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Bachelor of Education in Biology MODULE HANDBOOK

Module name:	**Evolution Practicum**
Module level, if applicable:	Undergraduate
Code:	BIO 6123
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	5th
Module coordinator:	Rio Christy Handziko, S.Pd.Si, M.Pd.
Lecturer(s):	Rio Christy Handziko, S.Pd.Si, M.Pd.
Language:	Bahasa Indonesia
Classification within the curriculum:	University Course
Teaching format / class hours per week during the semester:	100 minutes lectures and 120 minutes structured activities per week.
Workload:	Total workload is 90.67 hours per semester which consists of 100 minutes lectures, 120 minutes structured activities, and 120 minutes individual study per week for 16 weeks.
Credit points:	2 SKS (3 ETCS)
Prerequisites course(s):	-
Targeted learning outcomes:	After taking this course, the students are expected to be able to: CO 1. describe the evolution mechanism in living organism CO 2. describe the process of the universe forming, the primordial earth and sea water and the division of the earth age CO 3. describe the evolutionary patterns of Humans and Primates and the estimation of Paleo ecosystems CO 4. describe the evolutionary patterns of Reptiles and Amphibians and the estimation of the Paleo Ecosystem CO 5. describe the evolutionary patterns of Aves and Pisces and the

<table>
<tr><td></td><td>estimation of the Paleo Ecosystem
CO 6. describe the invertebrate evolution pattern and the estimation of the Paleo Ecosystem
CO 7. analyze the phylogeny of Homo erectus and the migration along with the dispersal
CO 8. analyze rocks based on their type, age and layer
CO 9. analyze the evolutionary patterns in primates and humans
CO 10. analyze the layer / formation of Sangiran soil, the dome formation process and the estimated paleo ecosystem
CO 11. describe the fossilization process and measurement of fossil age</td></tr>
<tr><td>Content:</td><td>This course contains a study of the evolutionary process in living things and their environment. It includes the study of the origin of the universe, the evolution of the earth and the environment, especially about sea water, patterns of evolution of humans and primates, patterns of mammalian evolution, evolutionary patterns of reptiles and amphibians, evolution patterns of Aves and invertebrate evolution patterns. The study of the fossilization process and the method of measuring the age of fossils, a study of Sangiran soil and its premordial formations, a study of the migration and dispersal of Homo erectus in the world. Students also examine the evidence of evolution in the museum. They also observe the evidence of evolution in the field directly.</td></tr>
<tr><td>Study / exam achievements:</td><td>Attitude assessment is carried out at each meeting by observation and/or self-assessment techniques using the assumption that basically every student has a good attitude. The student is marked very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not taken into account in the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude.
The final mark will be weight as follow

<table>
<tr><th>CO</th><th>Assessment Object</th><th>Assessment Technique</th><th>Weight</th></tr>
<tr><td>CO1,
CO2,
CO3,
CO4,
CO5,
CO6,
CO7,
CO8,
CO9,</td><td>a. Attendance
b. Reports on museum visits
c. Final Exam</td><td>Presentation / written test</td><td>20%

40%

40%</td></tr>
</table>
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	CO10, CO11			
			Total	100%
Forms of media:	Board, LCD Projector, Laptop/Computer			
References:	Darwin, Charles. 1859. *The Origin of Species by Means of Natural Selections.* Terjemahan: Ira Tri Onggo, 2015. Teori Evolusi Manusia. Indoliterasi. Yogyakarta. Rose, Michael R., Mueller, Laurence D. 2006. *Evolution and Ecology of the organism*. Pearson Prentice Hall, USA. Muehlenbein, Michael P. 2015. *Basic in Human Evolution*. Elsevier Academic Press. USA. Lewin, Roger., Foley, Robert. 2004. *Second Edition, Principles of Human Evolution*. Blackwell publishing. USA Colbert, Edwin H. 1980. Evolution of the Vertebrates, A History of the Backboned Animals Through Time. A Wiley-Interscience Publication. USA. Nugraha, Suwita., Wulandari. Bimas, Iwan S. 2014. *Lapisan Tanah dan Lingkungan purba Sangiran*. Kemendikbud, Balai Pelestarian Situs Manusia Purba Sangiran. Indonesia. Widianto, Harry. 2011. Jejak Langkah Setelah Sangiran. Kemendikbud, Balai Pelestarian Situs Manusia Purba Sangiran. Indonesia. Wanninger, Andreas. 2015. *Evolutionary Developmental Biology of Invertebrates*. Springer. USA			

PLO dan CO Mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
CO1				√								
CO2				√								
CO3				√								
CO4				√								
CO5				√								
CO6				√								
CO7				√								
CO8							√					
CO9							√					
CO10							√					
CO11							√					