



# THE MODULE HANDBOOK

## FACULTY OF BIOLOGY

### Evolution

<b>Module code</b>	BIO 40008
<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>	Donan Satria Yudha, S.Si., M.Sc.
<b>Lecture(s)</b>	1. Donan Satria Yudha, S.Si., M.Sc. 2. Janatin Hastuti, M.Kes., Ph.D.
<b>Language</b>	Indonesia
<b>Classification within the Curriculum</b>	1. Compulsory 2. This course is an advance course after students took mandatory modules which are Paleontology, Genetics, Animal Systematics and Plant Systematics. The first two modules are required to pass.
<b>Teaching format/ class hours per week during the semester</b>	1. This course is organised into 2 parallel classes and planned to have 13 to 14 teaching weeks and 2- 3 weeks of examination. 2. Schedule: Thursday, 07.15 am – 08.50 am. 3. Room: Biologi Dasar Atas Timur (Building of Basic Biology, 2 <sup>nd</sup> floor eastern wings). 4. Delivery style: teacher and student centered learning, and discussion with assignment.
<b>Workload</b>	Estimated working hour: 6 hours/week.
<b>Credit points</b>	2-0 credits
<b>Requirements</b>	Paleontology (BIO 20003); Genetics (BIO 30401)
<b>Learning goals/ competencies</b>	<b>1. Knowledge and understanding</b> a. Understanding basic concept, principal, theories which connect to the structure, function, diversity, reproduction & evolution of biological systems. b. Understanding facts, concepts, principal and theory of evolution in the field of biological science. c. Knowing and understanding relationship between spatial dan time dimension with natural changes in an area.



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	<p>d. Student understand biological phenomena on each biological level, and able to explain how evolutionary theory connecting with other science.</p> <p>e. Professional responsibility and scientific ethic as biological scientist to the scientific progress.</p> <p><b>2. Ability/intelectual skill</b></p> <p>a. Planning, conducting and reporting a scientific research in the evolutionary biology.</p> <p>b. Analyzing and resolving problems in the evolutionary study.</p> <p>c. Integrating and evaluating information and data from many resources.</p> <p><b>3. Practical skill</b></p> <p>a. Planning and conducting scientific research in the field of paleontology.</p> <p>b. Analyzing experimental results and determines its validity.</p> <p>c. Making and presenting technical report scientifically.</p> <p><b>4. Managerial and transferable skill</b></p> <p>a. Conducting communication effectively, either written, oral or with images.</p> <p>b. Applying and integrating biology into other science branch.</p> <p><b>5. Attitude</b></p> <p>a. Ability to resolve problems and finding resolution which connected to their specialty.</p> <p>b. Respect the originality of an idea, concept and other discoveries.</p> <p>c. Respect the effort of other interdisciplinary field in exploring and conserving any fossil resources.</p>
<b>Content</b>	<p>This course is learning about changes in heritable characters in a biological population. The study of evolution comprises many scientific disciplines, biological discipline such as anatomy and taxonomy, and others discipline such as chemical, geology, astronomy, paleontology and genetics. Evolution course is available after students taking basic biological courses such as genetics, paleontology and animal systematics. In studying evolution, students will understand any information that connects all branches of biological sciences, therefore student will easily understand the process of change and organism diversity from past to present.</p>
<b>Study/ exam achievements</b>	<p>1. Midterm: 40 %</p> <p>2. Final examination: 40 %</p> <p>3. Presentation, quiz, and home works: 10 %</p>



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	<p>4. Activity and attendance: 10 % Score conversion following relative score distribution</p>
<b>Forms of media</b>	<p>Lecture, discussion and assignment presentment using power point presentation.</p> <p>Media which used in the delivery are LCD projector, laptop, eLISA UGM, whiteboard, and worksheet for quizzes.</p>
<b>Literature</b>	<ol style="list-style-type: none"><li>1. Avers, C.J., 1989. <i>Process and Pattern in Evolution</i>. Oxford University Press, New York. Pp. 590.</li><li>2. Colbert, E.H. 1980. <i>Evolution of The Vertebrates</i>. 3rd edition. John Wiley and Sons, Inc. New York, USA. Pp. 230-243.</li><li>3. Gingerich, P.D., 1984. <i>Primate Evolution: Evidence From the Fossil Record, Comparative Morphology, and Molecular Biology</i>. Yearbook of Physical Anthropology 27:57-72.</li><li>4. Gould, S. J., 2002. <i>The Structure of Evolutionary Theory</i>. The Belknap Press of Harvard University Press.</li><li>5. Kardong, Kenneth V. 2002. <i>Vertebrates Comparative Anatomy, Function, Evolution</i>. 3rd edition. Mc.Graw-Hill International edition.</li><li>6. Kidd, K.K., and L.A. Sgaramella-Zonta. 1971. <i>Phylogenetic Analysis: Concepts and Methods</i>. The American Society of Human Genetics. All rights reserved.</li><li>7. Liebal, K., and J. Call. 2012. <i>The origins of non-human primates' manual gestures</i>. Phil. Trans. R. Soc. B (2012) 367, 118–128</li><li>8. Minkoff, E.C., 1983. <i>Evolutionary Biology</i>. Addison-Wesley Publishing Company, London. Pp. 627.</li></ol>