

## Animal Anatomy and Physiology Project

Module name		Animal Anatomy & Physiology Project				
Module level		2 <sup>nd</sup> year of Bachelor program				
Abbreviation, if applicable						
Sub-heading, if applicable						
Courses included in the module, if applicable		BI-2103 Animal Anatomy & Physiology Project				
Semester/term		3rd Semester				
Module coordinator(s)		Dr. Anggraini Barlian				
Lecturer(s)		Dr. Ahmad Ridwan Dr. Lulu Lusianti Fitri Dr. Ayda T. Yusuf Dr. Indra Wibowo				
Language		Indonesian				
Classification within the Curriculum		Compulsory courses for Bachelor Program in Biology				
Teaching format/ class hours per week during the semester		<p><i>2 parallel laboratory and project classes consists of 40 students / class:</i>  <i>Laboratory and project classes (laboratory/practical, mini project &amp; student presentation): 66%</i></p> <ul style="list-style-type: none"> <li>• Laboratory/practical class : 2 classes x 4 hours x 7 weeks = 28 hours/class Including Laboratory reports : 2 classes x 1 hour x 5 days x 7 weeks = 35 hours/class</li> <li>• Mini project : 2 x 1 hours x 5 days x 4 weeks =20 hours/class Total laboratory class 11 weeks</li> <li>• Assignments on mini project :               <ol style="list-style-type: none"> <li>(1) Proposal discussion/group (4-5 students/group) : 2 classes x 180 minutes x 2 weeks (3 hours x 2 = 6 hours) + Project design class presentation/group (4-5 students/group) : 2 classes x 1 hour x 2 weeks (1 hour x 2 = 2 hours)</li> <li>(2) Project preliminary result class presentation/group (4-5 students/group) : 2 classes x 2 hours x 1 week (2 hours x 1 = 2 hours) +</li> <li>(3) Project final result class presentation/group (4-5 students/group) : 2 classes x 2 hours x 1 week (2 hours x 1 = 2 hours)</li> <li>(4) Project laboratory reports : 2 classes x 1 hours x 5 days x 1 weeks (1 hours x 5 x 1 = 5 hours)</li> </ol>               Total mini project class 5 weeks                Total class duration 16 weeks             </li> </ul>				
Workload	Total Workload	For each class = 115 hours; 2 CU				
		Face to face teaching	Assignment/ homework	Independent study	Exam	Total
	Laboratory/practical class	28	25	25	5	83
	Mini project class	20	8		4	32
	Total					115
Credit points		<i>Animal Anatomy &amp; Physiology Project (2 CU)</i>				
Requirements		<i>Fundamental Biology; Basic sciences (Math, Physics, Chemistry), Animal Anatomy &amp; Physiology</i>				
Content	<ol style="list-style-type: none"> <li>1. Orientation of Animal Morphology and Anatomy</li> <li>2. Material properties, mechanical support, comparative vertebrate skeletons</li> <li>3. Protocols in animal treatments</li> <li>4. Nutrition and digestion: comparative review of different life forms</li> <li>5. Gaseous exchange and respiratory surfaces</li> <li>6. Circulation: the biomechanics of circulatory systems</li> <li>7. Reproduction</li> </ol>					

Learning goals/ competencies	<p><i>After completion of this module students are expected to be able to:</i></p> <p>Knowledge :</p> <ul style="list-style-type: none"> <li>describe and compare animal morphology, structure and function</li> <li>describe and use laboratory commonly used protocols in animal anatomy and physiology research</li> <li>describe and compare animal function which adapt to specific stimuli or treatment with particular reference to feeding and digestion, metabolims and energy, respiration, haematology, circulation of body fluids,</li> <li>identify, analyze and describe the fundamental of physical constraint within which animal form is related to function (with special reference to the body functions already known and identified)</li> </ul> <p>Skill:</p> <ul style="list-style-type: none"> <li>distinguish animal morphology, structure and its function in a tissue, organ and system (cognitive skill)</li> <li>handle animal and know-how in using commonly used methodes in laboratory and research (practical skill)</li> <li>through the undertaking the mini-project, formulate a set of experimentally testable hypotheses, undertake a literature review of the theme to be investigated, develop an appropriate experimental design in order to test the identified hypotheses, undertake the investigation with minimal supervision and within the constraints of time and availability of resources, record all results in the most appropriate manner, critically analyze the results obtained, discuss such results and reach appropriate conclusions, work in a group in order to achieve the above, participate and record group discussions, communicate the findings of the group's investigation both in writing and verbally, in the most appropriate manner (aptitude skill)</li> </ul> <p>Competences :</p> <ul style="list-style-type: none"> <li>Interpret and apply critical thinking in evaluating and explaining</li> </ul>																						
Study/exam achievements	<p><i>Practical class (45%); Mini-projects (55%)</i></p> <table border="1" data-bbox="282 957 1508 1121"> <thead> <tr> <th></th> <th><i>Midterm exam</i></th> <th><i>Final exam</i></th> <th><i>Quizzes</i></th> <th><i>Reports</i></th> <th><i>Student class presentations</i></th> <th><i>Total</i></th> </tr> </thead> <tbody> <tr> <td><i>Laboratory/Practical class</i></td> <td>25%</td> <td>-</td> <td>5%</td> <td>15%</td> <td>-</td> <td>100%</td> </tr> <tr> <td><i>Mini project</i></td> <td>-</td> <td>20%</td> <td>5%</td> <td>15%</td> <td>15%</td> <td>100%</td> </tr> </tbody> </table>			<i>Midterm exam</i>	<i>Final exam</i>	<i>Quizzes</i>	<i>Reports</i>	<i>Student class presentations</i>	<i>Total</i>	<i>Laboratory/Practical class</i>	25%	-	5%	15%	-	100%	<i>Mini project</i>	-	20%	5%	15%	15%	100%
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Forms of media	<p><i>Classical laboratory teaching tools:</i></p> <p><i>Integrated teaching tools:</i></p> <p><i>Digital teaching tools:</i></p> <p><i>Problem based teaching tools:</i></p>	<p><i>white board/ chalk and talk, animation, flashcard, dissection, movie, power point</i></p> <p>-</p> <p>-</p> <p>-</p>																					
Literature	<ol style="list-style-type: none"> <li>Randall D, Burggren W and French K. 2002. <u>Eckert's Animal Physiology: Mechanisms and Adaptations</u>, 5<sup>th</sup> ed. New York: WH Freeman &amp; Co</li> <li>Norris, B., Kristan D. 2006. <u>Comparative Animal Physiology Lab Manual</u>. San Diego: Aztec Shops Custom Materials.</li> <li>Wyse, G.A. and M. Anderson (2012). <u>Animal Physiology (3rd Ed)</u> by R.W. Hill, Published by Sinauer Associates, Inc.,</li> </ol>																						