

Module Descriptions

Module designation	Aquaculture <i>Akuakultur</i>
Course Code	8420502063
Semester/Term	6 th Semester
Person responsible for the module	Prof. Dr. Tarzan Purnomo, M.Si. Dr. Sunu Kuntjoro, M.Si. Prof. Dr. Ir. Dyah Hariani, M.Si.
Language	Bahasa Indonesia (Indonesian language)
Relation to curriculum	Elective course
Teaching method	Lectures
Workload	<p>a. Lecture: 1 x 50 minutes lectures, 1 x 60 minutes structured activity, 1x170 minutes lab activity, 14 weeks per semester, 39.67 total hours of lecture per semester ~ 1.59 ECTS</p> <p>b. Lab activity: 1 x 60 minutes individual activity, 14 weeks per semester, 39.67 total hours of lab activity per semester ~ 1.59 ECTS</p> <p>Total of lecture and lab activity= 79.33 total hours per semester ~ 3.18 ECTS**</p>
Credit Point	2 Credit unit (3.18 ECTS)
Required and recommended prerequisites for joining the module	Ecology
Module Objectives/intended learning outcomes	<p>After taking this course, students will be:</p> <ol style="list-style-type: none"> 1. Able to demonstrate basic knowledge of cell and molecular biology, organism biology, ecology and evolution to analyze current aquatic biota cultivation issues. (<i>Knowledge</i>) 2. Able to apply knowledge and technology of aquaculture biota to solve problems of natural resources and the environment both in laboratories and in real practices that support the profession and or entrepreneurship. (<i>Knowledge</i>) 3. Able to design and conduct experiments in the field of aquaculture, manage, analyze, interpret, document and store research data, to manage living natural resources. (<i>Specific Competence</i>)

	<ol style="list-style-type: none"> 4. Able to apply transferable skills in aquaculture to develop ecopreneurship (eco-innovation, eco-opportunity, eco-commitment). (<i>Specific Competence</i>) 5. Able to apply logical, critical, systematic, and innovative thinking in the context of the development or implementation of science and / or aquaculture technology in accordance with their field of expertise. (<i>General Competence</i>) 6. Able to work independently, responsibly, both as individuals and in groups, and able to work together. (<i>Attitude and Social</i>) 								
Content	<p>This course discusses 1). The scope of aquaculture technology includes: freshwater biota cultivation, brackish water biota cultivation, and sea water biota cultivation; 2). The prospects for the development of aquatic biota cultivation include: Facilities for developing the application of Science and Technology, Facilities for economic development, Manifestation of civilization, Fulfilling food needs; 3). The types of aquatic biota that are cultivated include: algae and seaweed, fish and mollusks, crustaceans and bivalves; 4). Water biota with economic value includes: Shrimp, milkfish, tilapia, snapper, grouper, crab, lobster, pearl oyster, green clams, and seaweed; 5). The prospect of aquatic biota as bioindicator includes: Water biota as bioindicator of environmental conditions, Aquatic biota as disease control; 6). Water biota as raw material for medicines and cosmetics includes: algae and seaweed; 7). Water biota as pollution control includes seaweed and mollusks; 8). Water biota to fulfill recreational needs includes: ornamental fish, coral reefs and lotus; 9). The development prospects for algae cultivation include: raw materials for antibiotics, fertilizers, energy and food sources; 10). Algae cultures in the laboratory include: culture methods, culture steps; 11). Cultivation system and business management applied by cultivation business actors; 12) Freshwater biota cultivation technology includes: consumption fish, ornamental fish, and freshwater lobster; 13). Brackish water biota cultivation technology includes: milkfish, shrimp, and crab; 14). Marine biota cultivation technology includes: grouper, snapper and lobster.</p> <p>Lecture activities are carried out in student-centered learning with discussions, observations, project assignments, and presentations by developing ecopreneurship characteristics.</p>								
Examination forms	Written exam								
Study and examination requirements	<p>Students are eligible for the final semester test if they have at least 75% attendance in class.</p> <p>The final grade (NA) is calculated based on the following ratio:</p> <table border="1" data-bbox="576 1765 1461 2074"> <thead> <tr> <th>Assessment Components</th> <th>Percentage of contribution</th> </tr> </thead> <tbody> <tr> <td>Participation</td> <td>20%</td> </tr> <tr> <td>Assignment</td> <td>30%</td> </tr> <tr> <td>Mid-semester test</td> <td>20%</td> </tr> </tbody> </table>	Assessment Components	Percentage of contribution	Participation	20%	Assignment	30%	Mid-semester test	20%
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	Final semester test	30%																														
Grade Conversion of 0-100 scale into 0-4 scale is set as below:																																
<table border="1"> <thead> <tr> <th data-bbox="566 394 815 465">Letter</th> <th data-bbox="815 394 1142 465">Number</th> <th data-bbox="1142 394 1466 465">Grade interval</th> </tr> </thead> <tbody> <tr> <td data-bbox="566 465 815 539">A</td> <td data-bbox="815 465 1142 539">4.00</td> <td data-bbox="1142 465 1466 539">85 ≤ A ≤ 100</td> </tr> <tr> <td data-bbox="566 539 815 613">A-</td> <td data-bbox="815 539 1142 613">3.75</td> <td data-bbox="1142 539 1466 613">80 ≤ A- < 85</td> </tr> <tr> <td data-bbox="566 613 815 687">B+</td> <td data-bbox="815 613 1142 687">3.50</td> <td data-bbox="1142 613 1466 687">75 ≤ B+ < 80</td> </tr> <tr> <td data-bbox="566 687 815 761">B</td> <td data-bbox="815 687 1142 761">3.00</td> <td data-bbox="1142 687 1466 761">70 ≤ B < 75</td> </tr> <tr> <td data-bbox="566 761 815 835">B-</td> <td data-bbox="815 761 1142 835">2.75</td> <td data-bbox="1142 761 1466 835">65 ≤ B- < 70</td> </tr> <tr> <td data-bbox="566 835 815 909">C+</td> <td data-bbox="815 835 1142 909">2.50</td> <td data-bbox="1142 835 1466 909">60 ≤ C+ < 65</td> </tr> <tr> <td data-bbox="566 909 815 983">C</td> <td data-bbox="815 909 1142 983">2.00</td> <td data-bbox="1142 909 1466 983">55 ≤ C < 60</td> </tr> <tr> <td data-bbox="566 983 815 1057">D</td> <td data-bbox="815 983 1142 1057">1.00</td> <td data-bbox="1142 983 1466 1057">40 ≤ D < 55</td> </tr> <tr> <td data-bbox="566 1057 815 1131">E</td> <td data-bbox="815 1057 1142 1131">0.00</td> <td data-bbox="1142 1057 1466 1131">0 ≤ E < 40</td> </tr> </tbody> </table>			Letter	Number	Grade interval	A	4.00	85 ≤ A ≤ 100	A-	3.75	80 ≤ A- < 85	B+	3.50	75 ≤ B+ < 80	B	3.00	70 ≤ B < 75	B-	2.75	65 ≤ B- < 70	C+	2.50	60 ≤ C+ < 65	C	2.00	55 ≤ C < 60	D	1.00	40 ≤ D < 55	E	0.00	0 ≤ E < 40
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Reading List	<ol style="list-style-type: none"> 1. Fuad Cholikh., Ateng G. Jagatraya., Poernama, & Ahmad Jauzi. 2005. <i>Akuakultur : Tumpuan Harapan Masa Depan Bangsa</i>. Jakarta: Masyarakat Perikanan Nusantara (MPN) . 2. Fogg, G.E. & Thake, B. <i>Algal Cultures and Phytoplankton Ecology</i>. United Kingdom. Publisher: University of Wisconsin Press. 3. Santhanam Perumal ., Thirunavukkarasu A.R.& .Perumal Pachiappan . Editors. 2015. <i>Advances in Marine and Brackish water Aquaculture</i>. New Delhi. .Springer India. Pvt. Ltd. 4. Buck , B.H & Langan., R. Editors. 2017. <i>Aquaculture Perspective of Multi-Use Sites in the Open Ocean: The Untapped Potential for Marine Resources in the Anthropocene</i>. Switzerland. Springer Nature. 5. Bell, J.D, John, J.E. & Hobda, A.J. 2011. <i>Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change</i>. New Caledonia. Secretariat of the Pacific Community 6. Santhanam Perumal, Thirunavukkarasu A.R. & .Perumal Pachiappan. Editors. 2015. <i>Advances in Marine and Brackish water Aquaculture</i>. New Delhi. Springer India. Pvt. Ltd. 7. Stickney, R.R. 2009. <i>Aquaculture: An Introductory Text</i>. Cambridge: Cambridge University Press. 																															