

## Module Descriptions

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| Module designation                                              | <b>Planktonology</b> (course code MPU 3174)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Semester(s) in which the module is taught                       | 5 <sup>st</sup> semester of Bachelor Programme in Biology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Person responsible for the module                               | Riyandi, S.Si., M.Si.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Lecture (s)                                                     | <ol style="list-style-type: none"> <li>1. Dr. Junardi, <a href="#">S.Si</a>, M.Si.</li> <li>2. Tri Rima Setyawati, S.Si., <a href="#">M.Si</a></li> <li>3. Riyandi, <a href="#">S.Si</a>, M.Si.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                |
| Language                                                        | Indonesia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Names of other study programmes with which the module is shared | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Relation to curriculum                                          | Elective course                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Teaching methods                                                | Collaborative learning, Case - based learning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Workload (incl. contact hours, self-study)                      | <p>Total workload: 7.76 ECTS</p> <ul style="list-style-type: none"> <li>• Lecture: 26.6 hours (0.99 ECTS)</li> <li>• Assignment: 60.1 hours (2.23 ECTS)</li> <li>• Independent study: 56 hours (2.07 ECTS)</li> <li>• Practical sessions: <ul style="list-style-type: none"> <li>○ Labwork: 47.8 hours (1.77 ECTS)</li> <li>○ Fieldwork: 18.99 hours (0.7 ECTS)</li> </ul> </li> </ul>                                                                                                                                                                                                    |
| Credit points                                                   | 3 credits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Required and recommended prerequisites for joining the module   | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Module objectives/intended learning outcomes                    | <p><b>Intended Learning Outcomes (ILO)</b></p> <p><b>Knowledge (ILO-2)</b><br/>Able to integrate and apply biological science and other scientific fields that support the development of biological science.</p> <p><b>General Skill (ILO-3)</b><br/>Able to collaborate effectively within a team and to communicate actively, both orally and in writing, in the domain of biology.</p> <p><b>Specific Skill (ILO-6)</b><br/>Able to apply biological methodology and use instruments by prioritising work safety and able to apply in the management of tropical wetland resource</p> |

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| Module objectives/intended learning outcomes | <p><b>Course learning outcomes (CO)</b></p> <p><b>CLO 13.</b> The ability to integrate the disciplines of ecology, evolution, and genetics is essential for comprehensively understanding the concept of biodiversity, particularly in the context of sustainable natural resource management.</p> <p><b>CLO 14.</b> The ability to apply the principles of microbiology, zoology, and botany to facilitate the utilization of biological resources and the development of biologically-based products.</p> <p><b>CLO 16.</b> The ability to correlate biological sciences with global issues, including climate change, biodiversity conservation, and environmental sustainability.</p> <p><b>CLO 17.</b> The ability to collaborate within a team to successfully complete case studies or projects in the field of biology and to present the findings effectively.</p> <p><b>CLO 18.</b> The ability to systematically compile and communicate biological research findings based on valid data across various scientific communication formats, including scientific reports, articles, posters, and oral presentations.</p> <p><b>CLO 27.</b> The ability to operate biological instruments and methodologies by prioritising work safety in the observation and measurement of biological and environmental objects.</p> |
| Content                                      | Introduction. Plankton sampling and analysis methods. Plankton diversity and systematics (phytoplankton & zooplankton). Plankton chemical properties, flotation and adaptation, vertical distribution, factors causing blooming, plankton bioindicators, geographical and seasonal variations, plankton food, plankton predators, plankton utilization, plankton culture methods.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Examination forms                            | <ol style="list-style-type: none"> <li>1. Theory 70% <ol style="list-style-type: none"> <li>a. Midterm 15%</li> <li>b. Final Exams 15%</li> <li>c. Case-Based Assignment 40% <ul style="list-style-type: none"> <li>• Individual/Group Activity 20%</li> <li>• Group Report 20%</li> </ul> </li> </ol> </li> <li>2. Practical sessions 30% <ol style="list-style-type: none"> <li>a. Activity 15%</li> <li>b. Individual Report 15%</li> </ol> </li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Study and examination requirements           | 75% attendance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Reading list                                 | <ol style="list-style-type: none"> <li>1. Abel, P.D. 1989. <i>Freshwater Biology</i>. John Willey and Sons. New York.</li> <li>2. Edmonson, W.T. 1966. <i>Freshwater of Biology</i>.</li> <li>3. Davies, C.C. 1975. <i>marine Planktonology</i>. Michigan State University Press.</li> <li>4. Suthers, I., Rissik, D., &amp; Richardson, A. (Eds.). (2019). <i>Plankton: A guide to their ecology and monitoring for water quality</i>. CSIRO publishing.</li> <li>5. Sommer, U. (Ed.). (2012). <i>Plankton ecology: succession in plankton communities</i>. Springer Science &amp; Business Media.</li> <li>6. Sardet, C. (2020). <i>Plankton: wonders of the drifting world</i>. University of Chicago Press.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

