

Module Descriptions

Module designation	Limnology (course code MPB 3272)
Semester(s) in which the module is taught	6 st semester of Bachelor Programme in Biology
Person responsible for the module	1. Dr. Junardi, M. Si
Lecture (s)	1. Riyandi, M. Si
Language	Indonesia
Names of other study programmes with which the module is shared	-
Relation to curriculum	Elective course
Teaching methods	Collaborative learning
Workload (incl. contact hours, self-study)	Total workload: 7.76 ECTS • Lecture: 26.6 hours (0.99 ECTS) • Assignment: 60.1 hours (2.23 ECTS) • Independent study: 56 hours (2.07 ECTS) • Practical sessions: ○ Labwork: 47.8 hours (1.77 ECTS) ○ Fieldwork: 18.99 hours (0.7 ECTS)
Credit points	3 credits
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<i>Intended Learning Outcomes (ILO)</i> Knowledge (ILO-2) Able to integrate and apply biological science and other scientific fields that support the development of biological science. General Skill (ILO-3) Able to collaborate effectively within a team and to communicate actively, both orally and in writing, in the domain of biology. Specialized Skills (ILO-6) Able to apply biological methodology and use instruments by prioritising work safety and able to apply in the management of tropical wetland resource <i>Course learning outcomes (CO)</i> CLO 16. The ability to correlate biological sciences with global issues, including climate change, biodiversity conservation, and environmental sustainability. CLO 17. 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. CLO. 18 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. CLO. 27 The ability to operate biological instruments and methodologies by prioritising work safety in the observation and measurement of biological and environmental objects.

Content	Freshwater environment: understanding of freshwater, freshwater ecosystem (physical & chemical characteristics), mutual relationships and correlations between biological and non-biological elements in the freshwater ecosystem, freshwater organisms (phytoplankton, zooplankton and benthos). Carrying capacity, resilience and purification of freshwater ecosystems. Watersheds, lake waters, reservoirs, ponds. Freshwater productivity. Cases of freshwater ecosystem disturbance (Upwelling, Blooming, water pollution). Economic value of freshwater waters. Management freshwater ecosystem management
Examination forms	1. Theory 70% a. Midterm 15% b. Final Exams 15% c. Case-Based Assignment 40% • Individual/Group Activity 20% • Group Report 20% 2. Practical sessions 30% a. Activity 15% b. Individual Report 15%
Study and examination requirements	75% attendance
Reading list	1. Odum, E.P. 1971. Fundamental of Ecology. W.B. Saunders Company. Philadelphia. 2. Fakioğlu, Ö., & Atamanalp, M. (2025). Investigation of Limnological Characteristics of Glacial Lakes. 3. Jones, I. D., & Smol, J. P. (Eds.). (2023). Wetzel's Limnology: Lake and River Ecosystems (4th ed.). Elsevier. 4. Bains, N., Banyal, H. S., & Sharma, S. (2025). Limnological Analysis with Main Emphasis on the Influence of Physico-Chemical Parameters on Phytoplankton and Fish Faunal Diversity Distributional Pattern in Beru Stream, Mandi District, Himachal Pradesh (India). <i>International Journal on Algae</i>, 27(1). 5. Muhtadi, A., & Leidonald, R. (2022). Limnologi: Praktik dalam Laboratorium dan Lapangan. Merdeka Kreasi.