

Module Handbook of Physiology of Aquatic Animals

A Module Handbook or collection of module descriptions that are also available for students to consult should contain the following information about the individual modules:

Module designation	Physiology of Aquatic Animals is a compulsory course for students of Aquaculture study program in the third semester. This course studies the physiology of aquatic animals. Aquatic animals are referred to as finfish, especially crustaceans and molluscs. The definition and scope of physiology will be discussed in this course, including physiological comparisons of terrestrial and aquatic animals, osmoregulation, circulation, respiration, digestion, reproduction, nervous and endocrine mechanisms in fish and shrimp and metabolism and bioenergetics. This course provides students with an understanding of various basic processes in the life of aquatic animals. As a result, students will have a strong foundation in understanding the behavior of aquatic animals, understand if there are deviations from normal conditions, and have a basis for engineering for specific purposes.
Module level, if applicable	Undergraduate
Code, if applicable	PIA 20192151
Subtitle, if applicable	Fisiologi Hewan Air
Courses, if applicable	-
Semester(s) in which the module is taught	3 th
Person responsible for the module	Dr. Ir. Murwantoko, M.Si.

Lecturer	<p>Dr. Ir. Murwantoko, M.Si.</p> <p>Dr. Slamet Widiyanto, S.Si., M.Sc.</p> <p>Dr. Senny Helmiati, S.Pi., M.Sc.</p> <p>Rahadian Yudo Hartantyo, S.Si.,M.Sc.</p> <p>Dr. Ir. Triyanto, M.Si.</p> <p>Dr. Nastiti, S.Si., M.Si.</p>
Language	Indonesian
Relation to curriculum	Study Program, Compulsory
Type of teaching, contact hours	<p>Activities:</p> <ol style="list-style-type: none"> 1. Lecture offline and online (lecture, discussion, assignment; 50 min/meeting) 2. Examinations (mid-term and final exam) 3. Independent studies online platform (eLOK, eLISA) (quiz, examination, discussion, and private study) <p>This course uses blended learning and SCL (small group discussion, case-based learning) method.</p>
Workload	<ol style="list-style-type: none"> 1. Lecture $2 \text{ SKS} \times 50 \text{ minutes} \times 16 \text{ meetings} = 1,600 \text{ minutes}$ $= 26.67 \text{ hours}$ $= 26.67 \text{ hours}$ $/30 \text{ hours}$ $= 0.89 \text{ ECTS}$ 2. Structural Assignment $2 \text{ SKS} \times 60 \text{ minutes} \times 16 \text{ meetings} = 1,920 \text{ minutes}$ $= 32.00 \text{ hours}$ $= 32.00 \text{ hours}$ $/30 \text{ hours}$ $= 1.07 \text{ ECTS}$ 3. Self Study $2 \text{ SKS} \times 60 \text{ minutes} \times 16 \text{ meetings} = 1,920 \text{ minutes}$ $= 32.00 \text{ hours}$ $= 32.00 \text{ hours}$ $/30 \text{ hours}$ $= 1.07 \text{ ECTS}$ <p>Total Workload = 3.02 ECTS</p>
Credit points	2 credit points

Requirements according to the examination regulations	Students must attend at least 70% of the total 14 class meetings to be eligible to take the final exams.
Recommended prerequisites	-
Module objectives/intended learning outcomes	<p>Course Learning Outcomes:</p> <p>CO-1: Explain the organ systems and mechanisms of life processes in fish (PLO3-P1).</p> <p>CO-2: Explain the organ systems and mechanisms of life processes in shellfish (PLO3-P1).</p> <p>Program Learning Outcomes:</p> <p>PLO3-P1: To be able to explain sustainable fisheries and marine systems, including management and utilization of aquatic resources, socio-economics, fish culture, and processing of fishery products.</p>

Content	<p>Course Learning Outcome</p> <p>CO1</p> <ol style="list-style-type: none"> 1. Introduction 2. Osmoregulation 3. Fish Respiration system 4. Fish Recirculation system 5. Fish Endocrine 6. Fish Reproduction system 7. Fish nervous system and sensory organ <p>CO2</p> <ol style="list-style-type: none"> 1. Physiology of Crustacea 2. Physiology of Crustacea 3. Physiology of Crustacea 4. Physiology of Mollusca 5. Physiology of Mollusca 6. Bioenergetic 1 7. Bioenergetic 2
Study and examination requirements and forms of examination	<p>Lectures</p> <p>Quizzes, paper, presentation</p> <p>Midterm examination</p> <p>Final examination</p>
Media employed	<p>LCD</p> <p>Zoom</p> <p>Video</p> <p>Textbook</p>

Reading list	<p>Smith, L.S. 1982 Introduction to Fish Physiology. FH Publication, Inc. Seattle: Washington, USA</p> <p>Val, A.L., V.M.F. de Almeida-Val, D.J. Randall 2006 The Physiology of Tropical Fish. Journal of Fish Biology.</p>
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