

Module Handbook: Functional Properties of Aquatic Product

Module designation	This course provides students with theory regarding functional properties of chemical components (proteins, fats, carbohydrates) in fishery products that affect the physical and functional properties of fishery products. This course consists of theory, discussion, and assignments, with a larger proportion of independent assignments. Students who have completed the Functional Properties of Fishery Products course are expected to understand the functional properties of fishery products. In addition, students are also expected to gain knowledge about the functional properties of each macro compound and its derivatives and understand regarding research themes related to the functional properties of fishery products
Semester(s) in which the module is taught	Second Semester
Person responsible for the module	1. Prof. Dr. Amir Husni, S.Pi., M.P. 2. Prof. Dr. Ir. Ustadi, M.P. 3. Dr. Prihati Sih Nugraheni, S.Pi., M.P.
Language	Indonesian
Relation to curriculum	<i>Compulsory Course</i>
Teaching methods	Activities: a) Lecture (lecture and discussion) b) Examinations c) Take home assignments d) Quiz e) Student presentation
Workload (incl. contact hours, self-study hours)	Working hours: 2 credits of theory. Total Workload: 2 SCU (Semester Credit Unit) = 2 x 45 hours within 1 semester = 3.34 ECTS.
Credit points	2 Credit points

Required and recommended prerequisites for joining the module	<i>None</i>
Module objectives/intended learning outcomes	<p>Program Learning Outcomes: PLO3: Applying logical, critical, systematic, and innovative thinking by utilizing information technology for fish farming, fishery resource management, or fishery product processing PLO9: Assess and enhance managerial skills in the fishery business.</p> <p>Course Learning Outcomes: CLO1: Able to explain the functional properties of marine food products. (PLO3) CLO2: Able to analyze how different macromolecules and their derivatives affect the physical and functional properties of marine-based foods. (PLO3) CLO3: Able to analyze existing research studies concerning the functional properties of marine-based foods. (PLO3) & (PLO9)</p>
Content	<ol style="list-style-type: none"> 1. Introduction of functional properties of aquatic product 2. Concept functional properties of aquatic product 3. Omega-3: Sources, Applications, and Health 4. Omega-3 and Its Effects on Brain Health 5. Microencapsulation I 6. Microencapsulation II 7. Chitin and Chitosan 8. Glucosamine Production and Its Health Benefits 9. Bioactive Peptides from Fish Hydrolyzed Proteins 10. Constituents of Marine Algae I 11. Constituents of Marine Algae II 12. Nutraceuticals and Functional Foods from Marine Microbes 13. Shark Cartilage: Potential Application for Cancer Treatment 14. Marine Foods and Immune System

Examination forms	<table border="1"> <thead> <tr> <th><i>Evaluation Basis</i></th> <th><i>Evaluation Components</i></th> <th><i>Percentages</i></th> <th><i>CLO 1</i></th> <th><i>CLO 2</i></th> <th><i>CLO 3</i></th> </tr> </thead> <tbody> <tr> <td rowspan="2"><i>Participatory Activity</i></td> <td><i>Group presentation</i></td> <td>10%</td> <td></td> <td>√</td> <td></td> </tr> <tr> <td><i>Quiz</i></td> <td>10%</td> <td>√</td> <td></td> <td></td> </tr> <tr> <td><i>Project results/case study results</i></td> <td><i>Individual/ Group Assignment</i></td> <td>30%</td> <td></td> <td>√</td> <td></td> </tr> <tr> <td rowspan="2"><i>Cognitive</i></td> <td><i>Mid Exam</i></td> <td>25%</td> <td></td> <td>√</td> <td></td> </tr> <tr> <td><i>Final Exam</i></td> <td>25%</td> <td></td> <td></td> <td>√</td> </tr> <tr> <td></td> <td><i>Total</i></td> <td>100%</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	<i>Evaluation Basis</i>	<i>Evaluation Components</i>	<i>Percentages</i>	<i>CLO 1</i>	<i>CLO 2</i>	<i>CLO 3</i>	<i>Participatory Activity</i>	<i>Group presentation</i>	10%		√		<i>Quiz</i>	10%	√			<i>Project results/case study results</i>	<i>Individual/ Group Assignment</i>	30%		√		<i>Cognitive</i>	<i>Mid Exam</i>	25%		√		<i>Final Exam</i>	25%			√		<i>Total</i>	100%			
	<i>Evaluation Basis</i>	<i>Evaluation Components</i>	<i>Percentages</i>	<i>CLO 1</i>	<i>CLO 2</i>	<i>CLO 3</i>																																			
	<i>Participatory Activity</i>	<i>Group presentation</i>	10%		√																																				
		<i>Quiz</i>	10%	√																																					
	<i>Project results/case study results</i>	<i>Individual/ Group Assignment</i>	30%		√																																				
	<i>Cognitive</i>	<i>Mid Exam</i>	25%		√																																				
		<i>Final Exam</i>	25%			√																																			
	<i>Total</i>	100%																																							
<i>The total percentage of participatory activities and project results/case studies/PBL results is at least 50%.</i>																																									
Study and examination requirements	The minimum of student attendance is 70% from total 14 meetings to be eligible to take the final exams																																								
Reading list	<ol style="list-style-type: none"> Halver, J.E. & R.W. Hardy. 2002. Fish Nutrition. Third Edition. Academic Press. Amsterdam. 824 p. Hardy, R.W. and Kaushik, S.J. (eds.) (2021) Fish Nutrition. 4th edn. London: Academic Press. Ahmed, I. and Ahmad, I. (eds.) (2025) Aquaculture: Enhancing Food Security and Nutrition. Cham: Springer Nature Switzerland. Williams, P. A., & Phillips, G. O. (2021). Introduction to food hydrocolloids. In <i>Handbook of hydrocolloids</i> (pp. 3-26). Woodhead publishing. Galanakis, C. M. (2021). Functionality of food components and emerging technologies. <i>Foods</i>, 10(1), 128. 																																								