

	UNIVERSITAS PADJADJARAN FACULTY OF MATHEMATICS AND NATURAL SCIENCES MASTER PROGRAM IN CHEMISTRY		COURSE CODE: 140120-UND202 502026
Module designation	Research Project in Food Biochemistry		
Semester(s) in which the module is taught	2		
Lecturers	Safri Ishmayana, Ph.D.; Dr. Muhammad Fadhilillah; Prof. Dr. Ukun M.S. Soedjanaatmadja		
Medium of instruction	Bahasa Indonesia		
Relation to curriculum	Elective Course		
Teaching methods	Research-Based Projects and Independent Work with mentoring		
Workload	Lecture and Discussion : 24 hours Tutorial : 4 hours Assignment : 5 hours Test and Examination : 4 hours Independent Study : 53 hours Total workload : 90 hours		
Credit points	2 (2-0) 2 credit = $2 \times 1.81 \text{ ECTS} = 3.62 \text{ ECTS}$		
Required and recommended prerequisites for joining the module	-		
Module objectives/intended learning outcomes	L01: Demonstrate the ability to build collaboration and independent learning in designing and conducting biomolecular food research on cocoa, cereals, and fermented foods in a systematic manner. L02: Apply fundamental principles of analytical instruments and supporting software to examine the chemical properties and biological activities of compounds in food products. L03: Carry out laboratory activities in biomolecular food research with attention to occupational safety and hazardous waste management. L04: Manage experimental data from biomolecular food research systematically and ethically using FAIR principles and analytical or computational software.		
Contents	1. Concepts and Ethics in Biomolecular Food Research 2. Laboratory Safety and Waste Management 3. Cocoa Fermentation and Antioxidant Activity Analysis		

	4. Bread Formulation and Evaluation, and Analysis of Food Enzyme Activity 5. Yogurt Fermentation and Functional Property Analysis 6. Production and Analysis of Bioethanol from Starchy Materials 7. Research Data Processing and Documentation 8. Scientific Presentation and Research Project Evaluation
Examination forms	Students are assessed through their laboratory performance (accuracy of methods, cleanliness, quality of results, and professional conduct) as well as through written reports and oral presentations that demonstrate data analysis, interpretation, and scientific communication skills.
Study and examination requirements	A full attendance in laboratory is required. The final grade will be evaluated based on quiz (20%), laboratory performance (40%), and project report (40%)
Reading lists	1. Schlundt, J., Tay, M.Y., Chengcheng, H. and Liwei, C., 2020. Food security: microbiological and chemical risks. In <i>Global Health security: Recognizing vulnerabilities, creating opportunities</i> (pp. 231-274). Cham: Springer International Publishing. 2. De Vuyst, L. & Weckx, S., 2016. The cocoa bean fermentation process: from ecosystem analysis to starter culture development. <i>Journal of Applied Microbiology</i>, 121(1), 5–17. 3. Buchert, J. et al., 2010. Crosslinking Food Proteins for Improved Functionality. <i>Annual Review of Food Science and Technology</i>, 1:113–138. 4. Lauber, S., Henle, T. and Klostermeyer, H., 2000. Relationship between the crosslinking of caseins by transglutaminase and the gel strength of yoghurt. <i>European Food Research and Technology</i>, 210(5), pp.305-309. 5. Kristia, Y.Y., Rosahdi, T.D., Fadhlillah, M., Budiman, H. and Ishmayana, S., 2015. Ethanol Determination of Some Indonesian Medicines, Beverages and Various Tape Products by Enzymatic Assay. <i>e-Journal of Science & Technology</i>, 10(2).