Diponegoro University
Faculty of Science and Mathematics
Undergraduate Program Of Chemistry

Module designation	**Food Biochemistry (BP)**
Semester(s) in which the module is taught	4
Person responsible for the module	Dra. Nies Suci Mulyani, MS., Dr. Agustina LN Aminin, M.Si
Language	Indonesian
Relation to curriculum	~~Compulsory~~/elective/~~specialisation~~
Teaching methods	Lecture
Workload (incl. contact hours, self-study hours)	Face to face = 1x(2 x50") Structured tasks + Self Study = 1x(2 x60"+ 2 x60")
Credit points	2
Required and recommended prerequisites for joining the module	Organic Chemistry 2 (KO2)
Module objectives/intended learning outcomes	(S9) The field of attitude to be responsible for work in the area of expertise independently (KU1) Able to apply logistical, critical, systematic, and innovative thinking in the context of the development or application of science and technology that pays attention to and uses humanities values by their field of expertise (KK2) Able to solve science and technology problems in general and straightforward chemical fields such as analysis, transformation, and synthesis of micro-molecules through the application of structure, properties, kinetics, and molecular energy and chemical systems, with analysis and synthesis methods in the chemical field-specific, as well as the application of relevant technologies (KK3) Able to analyze several alternative solutions in the field, analysis, isolation, transformation, and synthesis of available chemicals, and present analysis conclusions for appropriate decision making (PP1) Mastering theoretical concepts, properties, changes, kinetics, and molecular energy and chemical systems, knowing, separating, characterizing, transforming, synthesizing micromolecular chemicals and their applications

Content	1. Food needs: problems and solutions, Presence of water in food a. water activity (Aw) and water content b. type of water in food 2. Biomolecules in Foodstuffs a. Food Carbohydrates b. Food Protein c. Food Lipids 3. Food Microbiology a. Beneficial microbes b. Harmful microbes 4. Food Additives a. Dye b. Artificial sweetener c. Preservatives d. Antioxidant e. Anti-caking f. Flavoring and aroma, flavor enhancer g. Acidity regulator (acidifying, neutralizing) h. Bleach and curing flour i. Emulsifier, stabilizer, and thickener Hardener j. Sequestrant (metal binder) 5. Food Preservation a. Ways of preserving food b. Effect of preservation on the properties of food 6. Food Processing a. Types of Food Processing b. Effect of processing on the properties of foodstuffs c. Food Enzymes d. Milk and Dairy Products e. Meat and Processed Meat Products f. Soybeans and Processed Products g. Fruits/vegetables and their processed products 7. Functional Food a. Indigenous functional food (originally Indonesia) b. Modern functional food (Development of modern functional food products) c. Nutraceuticals (Supplements) 8. Special topics Discussing the latest technological developments related to food such as modern food (new recipes), halal food
Exams and assessment formats	Mid-Semester Exam and Final Exam

Study and examination requirements	Participatory Activities -5% Project Results -30% Task -20% Quiz -5% Mid-semester -20% Final exams -20%
Reading list	1. Belitz, H.D., and Grosch, W., 1987, Food Chemistry, second edition, springer verlag, Berlin, Germany 2. Buckle, K.A., Edwards, R.A., Fleet, G.H., dan Wooton, M., 1987, Ilmu Pangan, UI Press (penterjemah: Hari Purnomo dan Adiono) 3. Frazier, W.C, and Westhoff, D.C., 1998, Food Microbiology, McGraw Hill Book Co., Singapore 4. Prawirokusuma, S., 1991, Biokimia Nutrisi, edisi satu, BPFE, Yogyakarta