THE MODULE HANDBOOK
FACULTY OF BIOLOGY

Food Microbiology

Module code	BIO 50504
Module level	3rd year of Undergraduate Program in Biology
Abbreviation, if applicable	-
Sub-heading, if applicable	-
Courses included in the module, if applicable	-
Semester/term	Even
Module coordinator(s)	Dr. Endah Retnaningrum, M.Eng.
Lecture(s)	1. Dr. Endang Retnaningrum, M.Eng. 2. Abdul Rahman Siregar, S.Si., M.Biotech. 3. Sari Darmasiwi, S.Si., M.Biotech.
Language	Indonesia
Classification within the Curriculum	Elective course
Teaching format/class hours per week during the semester	This course is organized into one class and planned to have 14 teaching weeks and 2 weeks of examination.
Workload	Estimated working hour: 10,5 hours/week.
Credit points	2-1 credits
Requirements	Microbiology (BIO 40501)
Learning goals/ competencies	**1. Knowledge and understanding** a. To understand the definition and scopes of food microbiology, as well as the relationship between food and microbiology and factors which affects the growth of microbial in food. b. To understand kinds of preservation methods and the role of microbes in food preservation. c. To understand the food ingredients, microbial enzymes, and the relationship of microbes and diseases. d. To understand the importance of examination methods and quality control in food microbiology. **2. Ability/intellectual skill** a. Analyze the microbial diversity in food ingredients b. Analyze and finding the answer of problems about the utilization of microbes in food ingredients

	c. Mastering the problems to understand and implementing the practical exercise or research in food microbiology. **3. Practical skill** a. Use the laboratory tools to do practical exercise which is related with sample handling and microbiological examinations, include : isolation, incubation, examination and identification of microbes b. Apply the microbiological concepts in research about the utilization and role of microbes which may causing food spoilage *c.* Use the references to make tasks and practical reports **4. Managerial and transferable skill** a. Organize and to conduct the study on marine ecology. b. To manage the time efficiently . c. To manage the marine ecological research-data from the study. d. To write simple marine ecological report on special topic. e. Working together in team to conduct the marine ecology research. f. Sensitive to marine environmental issues and its relation to anthropogenic activities. **5. Attitude** a. Have the curiosity to the concepts and problems in food microbiology. b. Appreciate and have the responsibility to his/her duty. c. Appreciate the ideas, concepts, and findings of other scientist.
Content	Food microbiology gives introduction about the relationship of food and microbiology. This course will talk about the scope of food microbiology, the existence of microbes on food ingredients, factors which affects the growth of microbial in food, kinds of food spoilage, fermented foods and microbial enzymes, microbial examinations of foods, food and its relationship with diseases, kinds of food preservation methods, and control in food microbiology. To increase the knowledge and understanding in food microbiology, this course is supplemented with laboratory work (1 credit) which is compulsory to be followed for each students who are taking this course.

Study/exam achievements	1. Midterm: 20 % 2. Final examination: 40 % 3. Laboratory work: 30 % 4. Attendance, presentation and group discussiion: 10 %
Forms of media	White board, notebook, LCD
Literature	1. Adam, M.R., and M.O.Moss. 1997.Food microbiology. The Royal Society of Chemistry. Thomas Graham House. The Science Park. Cambridge. 2. Frazier, W.C. and D.C. Westhoff. 1998. Food microbiology. 4th ed. McGraw Hill Book Company : Singapore. 3. Jay, J.M. 1998. Modern food microbiology. D van Nostrand Company: New York. 4. Pitt, J.I. and A.D. Hocking.1997. Fungi and food spoilage. 2nd University Press: Cambridge. 5. Refai, M.K. 1979. Manuals of food quality control: microbiology analysis. FAO of the United Nations Rome.