	Universitas Negeri Surabaya Faculty of Sports and Health Sciences, Undergraduate Nutrition Study Program		Document Code

SEMESTER LEARNING PLAN

Courses		CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Food Nutrition Analysis		1321103026	Compulsory Study Program Subjects	T=1	P=0	ECTS=1.59	3	July 17, 2024

AUTHORIZATION		SP Developer		Course Cluster Coordinator	Study Program Coordinator
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Learning model	Case Studies

Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**	
	PLO-6	Able to utilize science and technology in self-development and solving nutritional problems.
	PLO-9	Able to have an attitude of belief in the Almighty God, be ethical, disciplined, aware of the law, have a social and cultural insight, and behave professionally.
	PLO-11	Able to solve problems in the field of nutrition by applying scientific thinking concepts and cutting-edge approaches through research, scientific literacy and publications.
	Program Objectives (PO)	
	PO - 1	Students master knowledge of concepts, examples and procedures for analyzing nutrients in food
	PO - 2	Students practice nutritional analysis of food products
	PO - 3	Students determine and analyze nutrients in food
	PLO-PO Matrix	

P.O	PLO-6	PLO-9	PLO-11
PO-1			
PO-2			
PO-3			

PO Matrix at the end of each learning stage (Sub-PO)

P.O	Week															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PO-1																
PO-2																
PO-3																

Short Course Description	This course contains a discussion of food composition and the scope of nutrient analysis, introduction to laboratory equipment and work safety, water characteristics and various methods of analyzing water content in food, characteristics of ash and methods of analyzing food ash content, characteristics of carbohydrates and methods of analyzing food carbohydrates, fat characteristics and analysis of food fat content, protein characteristics and analysis of food protein, vitamin characteristics and analysis of food vitamin levels, anti-nutritional substances and other food compounds and analysis of anti-nutritional substances and other food compounds. Learning is carried out using the Problem Base-Learning model, discussion method, question and answer, practice solving example problems.

References	**Main :**
	1. Sudarmadji, S., B. Haryono., dan Suhardi.1997. Prosedur Analisis Untuk Bahan Makanan dan Pertanian. Liberty: Yogyakarta. 160 hal. 2. Winarno F.G. 2004. Kimia Pangan dan Gizi. Jakarta: Gramedia Pustaka Utama. 3. Muchtadi, Deddy. 1989. Petunjuk laboratorium evaluasi nilai gizi pangan. Bogor: PAU Pangan dan Gizi IPB 4. Abdul Rohman dan Sumantri. 2007. Analisis Makanan. Yogyakarta: Gadjah Mada University Press.
	Supporters:

Supporting lecturer	Dr. Ir. Asrul Bahar, M.Pd. Prof. Dr. Pirim Setiarso, M.Si. Noor Rohmah Mayasari, Ph.D. Dr. Salma Shafrina Aulia, S.Gz., M.Si.						

Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [Estimated time]		Learning materials [References]	Assessment Weight (%)
		Indicator	Criteria & Form	Offline (*offline*)	Online (*online*)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Understand the description of the Nutrient Analysis course	1. Explain the scope of the Nutrient Analysis course and an introduction to the Nutrient Analysis course	**Criteria:** Activity observation	Discussion Lecture 3 X 50		**Material:** RPS Nutrient Analysis Course **Literature:**	0%
2	Understand the concept of food analysis	1.1. Explain the composition and characteristics of food 2.2. Analyze standards related to food analysis 3.3. Analyze Nutrition Labeling	**Form of Assessment** : Test	Lecture Discussion Assignment 3 X 50			10%
3	Understand the concept of water in food ingredients and water content analysis methods	1.1. Explain water in food 2.2. Explain the water content analysis method 3.3. Analyzing the determination of water content by heating (oven drying method) 4.4. Analyze the determination of water content using physical methods	**Form of Assessment** : Practical Assessment, Test	Lecture Discussion Assignment 3 X 50			10%
4	Understanding minerals in food ingredients and ash content analysis methods	1.1. Identify minerals in food 2.2. Analyze the ash content analysis method 3.3. Methods for analyzing certain mineral substances, Fe, Al, Mg	**Criteria:** Observation of student activities & written test and description (UTS) **Form of Assessment** : Practical Assessment, Test	Lecture Discussion Assignment 3 X 50			7%
5	Understanding minerals in food ingredients and ash content analysis methods	1.1. Identify minerals in food 2.2. Analyze the ash content analysis method 3.3. Methods for analyzing certain mineral substances, Fe, Al, Mg	**Criteria:** Observation of student activities & written test and description (UTS) **Form of Assessment** : Test	Lecture Discussion Assignment 3 X 50			7%
6	Understanding carbohydrates in food and analyzing carbohydrates in food	1.1. Identify the types of carbohydrates in food 2.2. Analyze the reducing sugar analysis method 3.3. analyze the starch analysis method 4.4. analyze the method for determining lactose in milk 5.5. Analyze the carbohydrate analysis method using chromatography 6.6. Analyze the physical method of analyzing carbohydrate levels	**Criteria:** Observation of student activities & written test and description (UTS) **Form of Assessment** : Practical Assessment	Lecture Discussion Assignment 3 X 50			10%

7	Understanding fat in food and analysis of fat in food	1.1. Identify the type of fat in food 2.2. Analyze the fat and oil analysis method using Soxlet 3.3. Analyze the method for determining the acid number 4.4. analyze the method for determining saponification numbers 5.5. analyze the method for determining the level of rancidity 6.6. analyze the method for determining free fatty acids	**Form of Assessment** : Practical Assessment, Test	Lecture Discussion Assignment 3 X 50			5%
8	UTS		**Form of Assessment** : Test	2 X 50			0%
9	Understanding protein in food and analysis of protein in food	1.1. Identify the type of protein in food 2.2. Analyze methods for analyzing proteins in food 3.3. Analyze the method of analyzing proteins in food using the formol titration method 4.4. Analyze protein analysis methods using a spectrophotometer	**Form of Assessment** : Practical Assessment, Test	Lecture Discussion Assignment 3 X 50			10%
10	Understanding vitamins in food and analysis of vitamins in food	1.1. Explain the types of vitamins in food products 2.2. Analyze the vitamin C analysis method using iodine titration 3.3. Analyze the vitamin B12 (riboflavin) analysis method 4.4. Analyze the vitamin B1 (thiamin) analysis method	**Forms of Assessment** : Participatory Activities, Practical Assessment, Tests	Lectures, discussions and practicums 3 X 50			5%
11	Understanding anti-nutritional substances and BTP in foodstuffs	1.1. Explain the types of anti-nutritional substances in food 2.2. analyze the phytic acid analysis method 3.3. Analyze the cyanide acid analysis method	**Form of Assessment** : Participatory Activities, Tests	Lecture Discussion Assignment 3 X 50			5%
12	Determine the nutritional analysis of food according to the ingredients provided	1.1. Determine the type of nutrients in food 2.2. Determine the appropriate nutritional analysis method for food products/ingredients 3.3. Analyze nutrients in products/food ingredients	**Forms of Assessment** : Project Results Assessment / Product Assessment, Portfolio Assessment, Practical Assessment, Tests	CBL 3 X 50			5%

No								
13	Determine the nutritional analysis of food according to the ingredients provided	1.1. Determine the type of nutrients in food 2.2. Determine the appropriate nutritional analysis method for food products/ingredients 3.3. Analyze nutrients in products/food ingredients	**Criteria:** 2. Case-based questions: Under the supervision of the lecturer, students discuss and share assignments to find the necessary information/data **Forms of Assessment**: Project Results Assessment / Product Assessment, Portfolio Assessment, Practical Assessment, Tests	CBL 3 X 50				5%
14	Determine the nutritional analysis of food according to the ingredients provided	1.1. Determine the type of nutrients in food 2.2. Determine the appropriate nutritional analysis method for food products/ingredients 3.3. Analyze nutrients in products/food ingredients	**Criteria:** 2. Case-based questions: Under the supervision of the lecturer, students discuss and share assignments to find the necessary information/data **Forms of Assessment**: Project Results Assessment / Product Assessment, Portfolio Assessment, Practical Assessment, Tests	CBL 3 X 50				5%
15	Able to understand and analyze Food Additives (BTM)	1.1. Determine the type of nutrients in food 2.2. Determine the appropriate nutritional analysis method for food products/ingredients 3.3. Analyze nutrients in products/food ingredients	**Forms of Assessment**: Participatory Activities, Project Results Assessment / Product Assessment, Portfolio Assessment, Tests	CBL 3 X 50				15%
16	UAS		**Forms of Assessment**: Participatory Activities, Practice/Performance, Tests	2 X 50				0%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	7.92%
2.	Project Results Assessment / Product Assessment	7.5%
3.	Portfolio Assessment	7.5%
4.	Practical Assessment	31.42%
5.	Test	44.67%
		99.01%

Notes

1. **Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
2. **The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
3. **Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
4. **Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
5. **Indicators for assessing** abilities in the process and student learning outcomes are specific and measurable statements that identify the abilities or performance of student learning outcomes accompanied by evidence.
6. **Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
7. **Forms of assessment:** test and non-test.
8. **Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.

11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.