	Universitas Negeri Surabaya Faculty of Economics and Business Bachelor of Business Education Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Economic math	8721103030	Compulsory Study Program Subjects	T=3	P=0	ECTS=4.77	2	July 17, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	Septyan Budy Cahya, S.Pd., M.Pd.	Finisica Dwijayati Patrikha, S.Pd., M.Pd.	Dr. Tri Sudarwanto, S.Pd., MSM.

Learning model	**Project Based Learning**	
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**	
	PLO-10	Able to apply the concepts of Business and Marketing and other allied scientific fields to support the mastery of knowledge relevant to the development of science and technology
	PLO-14	Able to plan, manage and evaluate learning in the educational and scientific fields of Business and Marketing
	PLO-16	Able to apply management functions in managing and evaluating business feasibility
	Program Objectives (PO)	
	PO - 1	Demonstrate a responsible attitude towards work independently and in groups
	PO - 2	Formulate and operate basic mathematical concepts in solving economic problems
	PO - 3	Utilizing information technology in solving economic problems procedurally
	PO - 4	Solving economic problems using a mathematical approach
	PLO-PO Matrix	

P.O	PLO-10	PLO-14	PLO-16
PO-1			
PO-2			
PO-3			
PO-4			

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																
PO-4																

Short Course Description	Understanding the use of mathematics in the field of economics which includes: understanding the function and supply and demand curves of market balance, the effect of taxes and subsidies on market balance, break even points, calculation of national income, single and partial differential functions, elasticity, marginal value, indefinite integrals and certain integrals, as well as consumer and producer surplus. Understanding of the use of mathematics in economics which includes: understanding the function and supply and demand curves of the market balance, the effect of taxes and subsidies on the market balance, break even points, calculation of national income, single and partial differential functions, elasticity, marginal value, indefinite integral and certain integrals, as well as consumer and producer surplus.	
References	**Main :**	

	1. Bumulo, Hussain., Mursito, Djoko. 2011. Matematika untuk Ekonomi dan Aplikasinya. Bayumedia Publishing 2. Dumairy. 2010.Matematika Terapan untuk Bisnis dan Ekonomi.edisi ketiga.Yogyakarta:BPFE 3. Kalangi, Josep Bintang. 2014.Matematika Ekonomi & Bisnis edisi ke-3. Jakarta: Salemba Empat 4. Sarjono, Haryadi. dan Sanny, Lim 2012. Aplikasi Matematika Untuk Bisnis Dan Manajemen. Jakarta: Salemba Empat
Supporters:	
	1. Boediono. 2018. Ekonomi Mikro.No.1.Yogyakarta:BPFE 2. Kalangi, Josep Bintang. 2015.Matematika Ekonomi & Bisnis edisi ke-3. Jakarta: Salemba Empat
Supporting lecturer	Septyan Budy Cahya, S.Pd., M.Pd. Putri Hestiningrum, M.Pd.

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	Analyzing series and their application in economics	1.Identify geometric series 2.Identifying arithmetic series 3.Calculating and analyzing business development 4.Calculate and analyze compound interest and population growth	**Criteria:** Scoring guidelines **Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning 3x50 minutes	**Material:** Bibliography **:** *Kalangi, Josep Bintang. 2015. Economics & Business Mathematics 3rd edition. Jakarta: Salemba Empat*	5%
2	Analyzing series and their application in economics	1.Scoring guidelines 2.Identifying arithmetic series 3.Calculating and analyzing business development 4.Calculate and analyze compound interest and population growth	**Criteria:** Scoring guidelines **Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning 3x50 minutes		3%
3	Identifying the elements and forms of linear functions, compiling linear functions, calculating the values of linear function variables.	1.Identify the types of functions 2.Explain the form of a linear function 3.Compile linear function equations	**Criteria:** Scoring guidelines **Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning 3x50 minutes	**Material:** Linear Functions **Reader:** *Kalangi, Josep Bintang. 2015. Economics & Business Mathematics 3rd edition. Jakarta: Salemba Empat*	3%

4	Applying linear functions in microeconomics	1. Develop demand and supply functions 2. Calculate the market equilibrium price and quantity 3. Calculate and analyze market balance after taxes and subsidies 4. Calculate and analyze cost, revenue, profit, loss and breakeven point functions.	**Criteria:** Scoring guidelines **Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning, Case study 3x50 minutes		3%
5	Applying linear functions in microeconomics	1. Develop demand and supply functions 2. Calculate the market equilibrium price and quantity 3. Calculate and analyze market balance after taxes and subsidies 4. Calculate and analyze cost, revenue, profit, loss and breakeven point functions.	**Criteria:** Scoring guidelines **Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning, Case study 3x50 minutes		4%
6	Applying linear functions in macroeconomics	1. Calculate and analyze the functions of consumption, savings and investment 2. Calculate and analyze transfer, tax and import functions. 3. Calculate and analyze national income	**Criteria:** Scoring guidelines **Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning, Case study 3x50 minutes		4%
7	Applying linear functions in macroeconomics	1. Calculate and analyze the functions of consumption, savings and investment 2. Calculate and analyze transfer, tax and import functions. 3. Calculate and analyze national income	**Criteria:** Scoring guidelines **Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning, Case study 3x50 minutes		4%

8	Midterm exam		**Form of Assessment** : Test				20%
9	Analyze the form of non-linear functions and their application in economics	1. Analyzing non linear functions 2. Analyze non-linear supply and demand functions 3. Calculate and analyze market balance for non-linear functions 4. Calculate and analyze market balance after taxes and subsidies for non-linear functions 5. Calculate and analyze cost, revenue, BEP functions for non-linear functions	**Criteria:** Scoring guidelines **Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning 3x50 minutes	**Material:** Non-Linear Functions **References:** *Kalangi, Josep Bintang. 2015. Economics & Business Mathematics 3rd edition. Jakarta: Salemba Empat*	3%
10	Analyze the form of non-linear functions and their application in economics	1. Analyzing non linear functions 2. Analyze non-linear supply and demand functions 3. Calculate and analyze market balance for non-linear functions 4. Calculate and analyze market balance after taxes and subsidies for non-linear functions 5. Calculate and analyze cost, revenue, BEP functions for non-linear functions	**Criteria:** Scoring guidelines **Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning 3x50 minutes	**Material:** Non-Linear Functions **References:** *Kalangi, Josep Bintang. 2015. Economics & Business Mathematics 3rd edition. Jakarta: Salemba Empat*	3%

11	Analyzing the differential rule and its application in economics	1. Determine the differential rule 2. Calculate and analyze the elasticity of demand, supply and production 3. Calculate marginal cost, marginal revenue and marginal product 4. Calculating optimum value (maximum profit, minimum total cost, maximum revenue)	**Criteria:** Scoring guidelines **Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning 3x50 minutes	**Material:** Differential Rules **References:** *Kalangi, Josep Bintang. 2015. Economics & Business Mathematics 3rd edition. Jakarta: Salemba Empat*	3%
12	Analyzing the differential rule and its application in economics	1. Determine the differential rule 2. Calculate and analyze the elasticity of demand, supply and production 3. Calculate marginal cost, marginal revenue and marginal product 4. Calculating optimum value (maximum profit, minimum total cost, maximum revenue)	**Criteria:** Scoring guidelines **Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning 3x50 minutes	**Material:** Differential Rules **References:** *Kalangi, Josep Bintang. 2015. Economics & Business Mathematics 3rd edition. Jakarta: Salemba Empat*	4%
13	Analyzing the partial differential rule and its application in economics	1. Calculating partial differentials 2. Calculate and analyze maximum and minimum functions 3. Calculating the Lagrange function 4. Calculate and analyze cross elasticity 5. Calculate and analyze the maximum profit of 2 types of goods 6. Calculate and analyze the balance of production and consumption	**Criteria:** Scoring guidelines **Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning 3x50 minutes	**Material:** Partial differential rule **References:** *Kalangi, Josep Bintang. 2015. Economics & Business Mathematics 3rd edition. Jakarta: Salemba Empat*	3%

14	Analyzing the partial differential rule and its application in economics	1. Calculating partial differentials 2. Calculate and analyze maximum and minimum functions 3. Calculating the Lagrange function 4. Calculate and analyze cross elasticity 5. Calculate and analyze the maximum profit of 2 types of goods 6. Calculate and analyze the balance of production and consumption	**Criteria:** Scoring guidelines **Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning 3x50 minutes	**Material:** Partial differential rule **References:** *Kalangi, Josep Bintang. 2015. Economics & Business Mathematics 3rd edition. Jakarta: Salemba Empat*	4%
15	Analyze integral rules and apply them in economics	1. Calculating integrals 2. Calculate and analyze consumer and producer surplus	**Form of Assessment** : Participatory Activities	Lectures, Discussions, Presentations 3x50 minutes	Direct Learning 3x50 minutes	**Material:** Integral Principles **References:** *Kalangi, Josep Bintang. 2015. Economics & Business Mathematics 3rd edition. Jakarta: Salemba Empat*	4%
16	Final exams		**Form of Assessment** : Test				30%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	50%
2.	Test	50%
		100%

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** ability in the process and student learning outcomes are specific and measurable statements that identify the ability 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.