	Universitas Negeri Surabaya Faculty of Mathematics and Natural Sciences Doctoral Study Program in Mathematics Education	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Quantitative Research Methodology in Mathematics Education (Methodology of Quantitative Research in Mathematics Education)	8400203039		T=3	P=0	ECTS=7.56	1	July 17, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	Prof. Dr. Tatag Yuli Eko Siswono, S.Pd., M.Pd.

Learning model	**Project Based Learning**
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**
	Program Objectives (PO)
	PLO-PO Matrix

	P.O

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

Short Course Description	Study of quantitative research concepts, including various types of research, quantitative research designs, variables and operational definitions of variables, in-depth concepts regarding population and sampling, instrumentation and calibration, application of path & LISREL analysis, discriminant analysis, Canonical analysis, and Manova, as well as factor analysis, and expansion by integrating qualitative research. Lectures begin with an explanation of concepts and principles, assignments and discussions with students, as well as presentations using ICT with an assessment system including assignments (30%), participation (20%), mid-semester assessment (20%) and final semester assessment (30%) .
References	**Main :**

1. Bowerman, B.L., & OConnell, R.T.. 1994. Linear statistical models: An applied approach . Kentucky: PWS
2. Bozdogan, H., & Gupta, A.K.. 1987. Multivariate statistical modeling and data analysis . Springer.
3. Chapman, D. G.. 1970. Elementary probability models and statistical inference . John Wiley & Sons Inc.
4. Cherkassky, V., & Mulier, F. M.. 2007. Learning from data: concepts, theory, and methods. Wiley-Blackwell.
5. Draper, N. R., & Smit, H.. 2011. Applied regression analysis . Wiley India Pvt Ltd.
6. Hicks, C. R., & Turner Jr, K. V.. 1999. Fundamental concepts in the design of experiments. Oxford: University Press.

	Supporters:
Supporting lecturer	Prof. Drs. I Ketut Budayasa, Ph.D.

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	Sub CPMK-1.1 Able to describe the characteristics of quantitative research.	Describe the characteristics of quantitative research and its general concepts.		Assignments, Lectures, Presentations and Discussions 3 X 50			0%
2	Sub CPMK-2.1 Able to analyze the basic concepts of statistical test analysis.	Analyze the concepts of matrix and vector algebra.		Assignments, Lectures, Presentations and Discussions 3 X 50			0%
3	Sub CPMK-2.1 Able to analyze the basic concepts of statistical test analysis.	Analyze the concept of Mean Vector Estimator and Population Variance-Covariance Matrix & Uni and Multivariate Normal Distribution.		Assignments, Lectures, Presentations and Discussions 3 X 50			0%
4	Sub CPMK-2.1 Able to analyze the basic concepts of statistical test analysis.	Analyzing distribution concepts: Wishart; T-Square; Beta; U.		Assignments, Lectures, Presentations and Discussions 3 X 50			0%
5	Sub CPMK-3.1 Able to carry out statistical testing.	Performing One Population Mean Vector Test.		Independent assignment or group assignment 3 X 50			0%
6	Sub CPMK-3.1 Able to carry out statistical testing.	Analyzing One Population Mean Vector Test.		Independent assignment or group assignment 3 X 50			0%
7	Sub CPMK-3.1 Able to carry out statistical testing.	Analyzing similarity tests between two populations.		Independent assignment or group assignment 3 X 50			0%
8	Sub CPMK-3.1 Able to carry out statistical testing.	Midterm exam		Independent assignment or group assignment 3 X 50			0%
9	Sub CPMK-3.1 Able to carry out statistical testing.	Analyzing similarity tests between two populations.		Independent assignment or group assignment 3 X 50			0%
10	Sub CPMK-3.1 Able to carry out statistical testing.	Analyzing Tests for Similarity of Mean Vectors of Two Populations Case 2: Independent samples and unequal variance-covariance matrices Case 3: Correlated samples or paired data.		Independent assignment or group assignment 3 X 50			0%
11	Sub CPMK-3.1 Able to carry out statistical testing.	Analyze the test of independence of variables and test the equality of variance-covariance matrices.		Independent assignment or group assignment 3 X 50			0%

12	Sub CPMK-3.2 Able to carry out multivariate testing.	Analyzing Multivariate Multiple linear Regression.		Assignments, Lectures, Presentations and Discussions 3 X 50			0%
13	Sub CPMK-3.2 Able to carry out multivariate testing.	Analyzing Multivariate Multiple linear Regression.		Assignments, Lectures, Presentations and Discussions 3 X 50			0%
14	Sub CPMK-3.2 Able to carry out multivariate testing.	Analyzing Multivariate Analysis Of Variance (Single-Factor).		Assignments, Lectures, Presentations and Discussions 3 X 50			0%
15	Final exams			Take Home Test 3 X 50			0%
16							0%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
		0%

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.