	Universitas Negeri Surabaya Faculty of Education, Master of Guidance and Counseling Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
QUANTITATIVE DATA ANALYSIS	12oke03026	Compulsory Study Program Subjects	T=3	P=0	ECTS=6.72	2	March 1, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	Prof. Dr. Rusijono, M. Pd.	Prof. Dr. Rusijono, M. Pd.; Dr. Retno Tri Hariastuti. M.Pd., Kons.	Prof. Dr. Najlatun Naqiyah, M.Pd.

Learning model	**Project Based Learning**

Program Learning Outcomes (PLO)

PLO study program that is charged to the course

Program Objectives (PO)

PO - 1	CPMK1: Be devoted to God Almighty and have good morals, ethics and personality in completing his duties.
PO - 2	CPMK2: Have independence in further learning (sustainable development) and are able to think logically and analytically to solve problems faced professionally.
PO - 3	CPMK3: Able to determine research data analysis techniques based on problems and analyze the results of data analysis
PO - 4	CPMK4: Able to solve educational problems with empirical research and self-development and able to think logically and analytically to solve problems faced professionally

PLO-PO Matrix

P.O
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

This course teaches students about various quantitative data analysis techniques. Study materials include: the nature of quantitative data analysis; several basic concepts in quantitative analysis (data, population and sample; parameters; variables, hypotheses); sampling error; normal curve; test assumptions; level and significance test; data presentation techniques; and parametric and non-parametric data analysis techniques (concepts, examples and exercises). Lectures are carried out through online and offline systems using lecture, discussion, homework and case study methods. Student success is based on participation scores, assignment scores, mid-term exam scores (UTS), and final semester exam scores (UAS).

References

Main :

1. Alvin C. Rencher. 2002. Methods Of Multivariate Analysis, Second Edition. USA: A John Wiley & Sons, Inc. Publication.
2. Bluman, A.G. 2007. Elementery Statistics, A Step by Step Approach, Seventh Edition. Boston: McGraw Hill Higher Education
3. Gudono. 2011. Analisis Data Multivariate. Yogyakarta: BPFE
4. Santoso. 2017. Statistik Multivariate dengan SPSS. Jakarta: PT Elex Media Komputindo
5. Supardi. 2017. Statistik Penelitian Pendidikan. Depok: PT Rajagrafindo Persada.
6. Winarsunu, T. 2010. Statistik dalam Penelitian Psikologi dan Pendidikan. Malang: UMM Press
7. Nursalim, Mochamad. 2022. Metode Penelitian Pendidikan. CV Bayu mandiri

Supporters:

Supporting lecturer	Dr. Eko Darminto, M.Si. Dr. Retno Tri Hariastuti, M.Pd., Kons. Prof. Dr. Mochamad Nursalim, 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	Form a positive attitude towards quantitative data analysis courses and lectures. Understand the nature of quantitative data analysis	1. Can actively participate in face-to-face lectures 2. Can carry out active independent learning activities 3. Can complete structured tasks well and on time 4. Can make a learning contract to work hard and achieve the best results 5. Can explain the meaning, varieties and techniques of quantitative data analysis	**Criteria:** - **Form of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment	Lectures, discussions, questions and answers, homework 3 X 50			5%
2	Have knowledge of various basic concepts in quantitative data analysis (measurement scales, parameters and statistics, probability and sampling error, variables, statistical hypotheses, one-sided and two-sided tests, significance levels)	1. Can explain the meaning of a measurement scale, mention its types and examples. 2. Can differentiate the concept/understanding of parameters and statistics. 3. Can explain the meaning of opportunity/probability in statistics. 4. Can explain the meaning of sampling error and its types. 5. Can explain the meaning of variables in relation to statistical analysis and their types. 6. Can explain the meaning of hypothesis, types of statistical hypotheses and make examples, 7. Can explain the meaning of one-sided test and two-sided test and provide examples. 8. Can explain the meaning of significance level and its application.	**Criteria:** - **Form of Assessment** : Project Results Assessment / Product Assessment	Active learning 3 X 50			5%
3	Can analyze and analyze quantitative data descriptively through several descriptive statistical techniques: Descriptive analysis: presentation of tables, graphs, central tendency, variability, standard values	1. After attending the lecture, students are expected to have the ability to: Organize and present rough data in the form of single and group frequency distribution tables. 2. Summarize data in the form of polygon and histogram graphic presentations. 3. Calculate the mean, median, and mode values of a group of data. 4. Calculating data diversity: standard deviation and variation. 5. Sets the standard value for an individual score	**Criteria:** -	Active learning 3 X 50			5%

4	Have an understanding of the concept of the normal curve and its use in statistical analysis	1.Can explain the concept of a normal curve 2.Can explain the characteristics of a normal curve 3.Can use normal curves to make parametric estimates	**Criteria:** - **Form of Assessment** : Project Results Assessment / Product Assessment	Active learning 3 X 50			5%
5	Have the ability to test parametric assumptions	1.Can explain the meaning of parametric assumptions 2.Can mention and explain forms of parametric assumptions 3.Can carry out calculations accurately to test parametric assumptions	**Criteria:** - **Form of Assessment** : Project Results Assessment / Product Assessment	Active learning 3 X 50			5%
6	Able to carry out statistical analysis correctly to determine whether there is a linear relationship between two variables using parametric and non-parametric techniques	1.Can test hypotheses about the linear relationship between two variables using parametric techniques (Pearson formula) 2.Can test hypotheses about the linear relationship between two variables using non-parametric techniques (leveling formula, phi, Contingency Coefficient C)	**Criteria:** - **Form of Assessment** : Project Results Assessment / Product Assessment	Active learning 3 X 50			5%
7	Can carry out statistical calculations to test hypotheses about linear relationships between many variables (bivariate) using parametric and non-parametric techniques:	1.Can explain parametric and non-parametric techniques to determine whether there is a significant relationship between three or more variables. 2.Can carry out statistical calculations to test hypotheses about the relationship between three or more variables using multiple correlation, parametric and non-parametric formulas	**Criteria:** - **Form of Assessment** : Project Results Assessment / Product Assessment	Active learning 3 X 50			5%
8	MIDDLE SEMESTER EXAMINATION (UTS)	MIDDLE SEMESTER EXAMINATION (UTS)	**Criteria:** MIDDLE SEMESTER EXAMINATION (UTS) **Form of Assessment** : Test	MIDDLE SEMESTER EXAMINATION (UTS) 3 X 50			20%
9	Able to carry out statistical analysis to control confounding variables (intervening/confounding)	1.Can explain the need to control confounding variables 2.Can apply statistical formulas to control external variables	**Criteria:** - **Form of Assessment** : Project Results Assessment / Product Assessment	Active learning 3 X 50			5%

10	Can carry out statistical analysis to determine whether there is a causal relationship between two variables (bivariate) using parametric and non-parametric techniques	1. Can perform statistical calculations to test hypotheses about the causal relationship between two variables using the t test formula 2. Can carry out statistical calculations to test hypotheses about the causal relationship between two variables through formulas, sign tests 3. Can carry out statistical calculations to test hypotheses about the causal relationship between two variables using the Mann Whitney test formula, 4. Can perform statistical calculations to test hypotheses about the causal relationship between two variables using the Wilcoxon test formula 5. Can perform statistical calculations to test hypotheses about the causal relationship between two variables using the chi square formula	**Criteria:** - **Form of Assessment** : Project Results Assessment / Product Assessment	Active learning 3 X 50			5%
11	Mastering the concepts, formulas and use of two-way variance analysis formulas	Can perform statistical analysis to test hypotheses about causal relationships between three or more variables	**Criteria:** - **Form of Assessment** : Project Results Assessment / Product Assessment	Active learning 3 X 50			5%
12	Can perform statistical analysis to test hypotheses in redesign studies	1. Can explain the rationale and purpose of using the ANOVA formula for redesign 2. Can perform statistical calculations to test hypotheses using the 1-way redesigned ANOVA formula 3. Can perform statistical calculations to test hypotheses using the 2-way redesigned ANOVA formula	**Criteria:** - **Form of Assessment** : Project Results Assessment / Product Assessment	Active learning 3 X 50			5%
13	Can carry out statistical analysis to test hypotheses about the relationship between two or more variables using non-parametric techniques	1. Can perform statistical calculations to test the causal relationship between two variables using the Kruskall-Wallis Test formula 2. Can perform statistical calculations to test the causal relationship between two variables using the Friedman Test formula	**Criteria:** -	Active learning: 3 X 50			5%
14	Can carry out statistical analysis to determine the amount of contribution of one or more independent variables to one dependent variable	1. Can carry out statistical calculations to determine the amount of contribution from one independent variable to one dependent variable using a single regression formula 2. Can carry out statistical calculations to determine the amount of contribution of two or more independent variables to one dependent variable using the multiple regression formula.	**Criteria:** - **Form of Assessment** : Project Results Assessment / Product Assessment	Active learning: 3 X 50			5%

15	Can carry out statistical analysis to test the relationship of many variables in exploratory studies	Can carry out statistical calculations to test hypotheses about the relationship of many independent variables with one dependent variable through the path analysis formula	**Criteria:** - **Form of Assessment** : Project Results Assessment / Product Assessment	Active learning 3 X 50		**Material:** 5 **Bibliography:**	0%
16	Mastering indicators from meeting 9 to 15	Able to do the final semester exam questions correctly	**Criteria:** Students are said to graduate if they achieve a minimum grade of C **Form of Assessment** : Test	Test (UAS) 3 X 50			25%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	2.5%
2.	Project Results Assessment / Product Assessment	52.5%
3.	Test	45%
		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.