UNESA	**Universitas Negeri Surabaya** **Faculty of Educational Sciences** **Bachelor of Education Management Study Program**	**Document Code**

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
STATISTICS	8620402139	Compulsory Study Program Subjects	**T=2**	**P=0**	**ECTS=3.18**	3	December 4, 2023

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	Windasari, S.Pd., M.Pd dan Dr. Ayu Wulandari,M.Pd	Dr. Erny Roesminingsih, M.Si	Syunu Trihantoyo, S.Pd., M.Pd.

Learning model	**Project Based Learning**

Program Learning Outcomes (PLO)

PLO study program that is charged to the course

PLO-8	Able to apply and utilize research in the field of education management independently or in groups to provide alternative solutions to problems in the field of education management
PLO-9	Able to utilize technology and information in problem solving efforts according to area of expertise

Program Objectives (PO)

PO - 1	Utilize learning resources and information technology to apply statistical expertise to solve educational management problems
PO - 2	Master comprehensive and in-depth statistical theory and practice so that you are able to apply it according to needs in educational organizations
PO - 3	Able to make the right decisions and solve statistical management problems in educational organizations by providing various alternative solutions from the results of analysis and review of existing data
PO - 4	Responsible for self-learning performance, agreement with group colleagues, and organizational learning by applying statistical theory relevant to thesis writing.

PLO-PO Matrix

P.O	PLO-8	PLO-9
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 contains descriptive and inferential statistics which contains statistical tests and is able to formulate procedural solutions to statistical problems in the field of educational management. In this course, we examine centralized measurements (mean, median, mode), measurements of quartiles, percentiles, deciles, standard deviation and average, chi square test, one sample difference test, two independent sample difference test, two related difference test. one-way & two-way anova test funds. The use of spps software is also applied to study simple and multiple correlations as well as simple and multiple linear regression. Able to make strategic decisions in the field of Statistics II (Inductive statistics) based on analysis of information and data, and provide guidance in selecting various alternative solutions. The learning method is through lectures by facilitators (lecturers), discussions and presentations both synchronously and asynchronously.

References

Main :

	1. Siregar, S. 2017. Metode Penelitian Kuantitatif: Dilengkapi dengan Perhitungan Manual & SPSS. Kencana: Jakarta Bluman Allan G. 2007. Elementary Statistics seventh edition. Mc Graw Hill Michael Longnecker. 2010. An Introduction Statistical Methods and Data Analysis. Cengage Learning Sugiono. 2017. Statistika untuk Penelitian. Alfabeta: Bandung
Supporters:	
	1. Michael Longnecker. 2010. An Introduction Statistical Methods and Data Analysis. Cengage Learning 2. Joseph F. Hair, William C. Black, Barry J. Babin. 2010. Multivariate Data Analysis: A Global Perspective Global Edition. Pearson Education 3. Douglas C. Montgomery, Elizabeth A. Peck G. Geoffrey Vining. 2021. Introduction to Linear Regression Analysis (Wiley Series in Probability and Statistics. Wiley 4. Holmes Finch ,Jocelyn E. Bolin, Ken Kelley. 2019. Multilevel Modeling Using R (Chapman & Hall/CRC Statistics in the Social and Behavioral Sciences). Chapman and Hal 5. Jenine K. Harris. 2020. Statistics With R: Solving Problems Using Real-World Data. Sage Publicatio 6. Nicoleta Gaciu. 2021. Understanding Quantitative Data in Educational Research. Sage Publication 7. Sen, Rituparna & Das, Sourish. 2023. Inferential Statistics. 10.1007/978-981-19-2008-0_13.
Supporting lecturer	Windasari, S.Pd., M.Pd. Dr. Ayu Wulandari, S.Pd., 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	1. Understand the basic concepts of descriptive statistics, types of data, measurement scales and data presentation. 2. Apply data presentation in the form of data tables and graphs manually and with the SPSS application	1. Able to explain the basic concepts of descriptive statistics, types of data, measurement scales and data presentation. 2. Can apply data presentation in the form of data tables and graphs manually and with the SPSS application.	**Criteria:** 1. Relevance: The opinions expressed are relevant to the learning objective (LObj) found 2. Communication: Convey opinions clearly and easily understood 3. Critical Thinking: Providing scientific and logical response knowledge 4. Attitude Ability to defend and respond to questions or objections **Form of Assessment** : Participatory Activities	Presentations, discussions and questions and answers 2 X 50	- -	**Material:** Statistical concepts **Reader:** *Michael Longnecker. 2010. An Introduction to Statistical Methods and Data Analysis. Cengage Learning*	4%

2	1. Understand the concept and calculation of averages for single and group data 2. Able to calculate single and group data media	1. Able to explain centralized measurements of single and group data averages manually and SPSS 2. Able to calculate single and group data average centered measurements manually and SPSS 3. Able to explain median centered measurements of single and group data manually and SPSS 4. Able to calculate median centered measurements of single and group data manually and SPSS	**Criteria:** 1. Background: The phenomenon and urgency of the paper being prepared 2. Theory Depth of theoretical study used 3. Discussion Depth of analysis and presentation of data using appropriate statistical tests 4. Conclusion Preparation of conclusions that are coherent with the results of the analysis 5. Relevance: The opinions expressed are relevant to the learning objective (LObj) found 6. Communication: Convey opinions clearly and easily understood 7. Critical Thinking: Providing scientific and logical response knowledge 8. Attitude: Ability to defend and respond to questions or objections 9. Preparation: Complete laptop and SPSS software for statistical tests 10. Process: Accuracy of statistical test analysis using SPPS 11. Results :Ability to interpret statistical test results **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practices / Performance	Presentations, discussions, questions and answers and practice analyzing 2 X 50 data	- -	**Material:** Calculating the Mean, Median and Mode **Reader:** *Sugiono. 2017. Statistics for Research. Alphabet: Bandung*	6%

3	1. Understand the concept and calculation of single and group data modes 2. Understand the concept and calculation of single and group data quartiles	1. Able to calculate and interpret centralized measurements in single and group data modes 2. Able to calculate and interpret centralized measurements of single and group data quartiles	**Criteria:** 1. Bring a laptop and have SPSS software (4) 2. Very precise and efficient in using SPSS for statistical tests (4) 3. Very capable of interpreting statistical test results comprehensively and in depth (4) 4. Very strong in explaining the urgency and problem phenomena of the paper prepared (4) 5. The theory is explained in depth and comprehensively (4) 6. The discussion is described in great depth and is accompanied by statistical analysis test results that are in accordance with the problem formulation. (4) 7. The paper already has a conclusion but is very coherent with the content of the article and the results of the analysis (4) **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	Presentations, discussions, questions and answers and practice of 2 X 50 data analysis	- -	**Material:** Single and group data modes **Reader:** *Michael Longnecker. 2010. An Introduction to Statistical Methods and Data Analysis. Cengage Learning*	4%

4	1. Understand the concept and perform single data decile calculations 2. Understand the concept and calculate group data percentiles	1. Able to calculate and interpret single data decile measurements 2. Able to calculate and interpret group data decile measurements	**Criteria:** 1. Very strong in explaining the urgency and problem phenomena of the paper prepared 2. The theory is explained in depth and comprehensively 3. The discussion is described in great depth and is accompanied by statistical analysis test results that are in accordance with the problem formulation. 4. The paper already has a conclusion but is very coherent with the content of the article and the results of the analysis 5. Bring a laptop and have SPSS software 6. Very precise and efficient in using SPSS for statistical tests 7. Very capable of interpreting statistical test results comprehensively and in depth. **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	Presentation, discussion, practice of data analysis 2 X 50	- -	**Material:** Single and group data deciles **Reader:** *Michael Longnecker. 2010. An Introduction to Statistical Methods and Data Analysis. Cengage Learning*	5%
5	1. Understand the concept and calculate the average deviation of single and group data 2. Understand the concept and calculate the standard deviation of single and group data	1. Able to calculate and interpret the average deviation of single and group data 2. Able to calculate and interpret the standard deviation of single and group data	**Criteria:** 1. Background: The phenomenon and urgency of the paper being prepared 2. Theory Depth of theoretical study used 3. Discussion Depth of analysis and presentation of data using appropriate statistical tests 4. Conclusion Preparation of conclusions that are coherent with the results of the analysis 5. Preparation Complete laptop and SPSS software for statistical tests 6. Process Accuracy of statistical test analysis using SPPS 7. Results Ability to interpret statistical test results **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	Presentations, discussions, questions and answers, data analysis practice 2 X 50	- -	**Material:** Single and group data deviations **Reader:** *Nicoleta Gaciu. 2021. Understanding Quantitative Data in Educational Research. Sage Publications*	5%

6	1. Understand the concept and calculate the coefficient of variance 2. Understand concepts and perform standard number calculations	1. Able to calculate and interpret variance coefficient measurements 2. Able to calculate and interpret standard numerical measurements	**Criteria:** 1. Relevance: The opinions expressed are relevant to the learning objective (LObj) found 2. Communication: Convey opinions clearly and easily understood 3. Critical Thinking: Providing scientific and logical response knowledge 4. Attitude Ability to defend and respond to questions or objections 5. Preparation Complete laptop and SPSS software for statistical tests 6. Process Accuracy of statistical test analysis using SPPS 7. Results Ability to interpret statistical test results 8. Background: The phenomenon and urgency of the paper being prepared 9. Theory Depth of theoretical study used 10. Discussion Depth of analysis and presentation of data using appropriate statistical tests 11. Conclusion Preparation of conclusions that are coherent with the results of the analysis **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practices / Performance	Presentations, discussions, questions and answers and practice of 2 X 50 data analysis		**Material:** Standard coefficient and covariance **References:** *Joseph F. Hair, William C. Black, Barry J. Babin. 2010. Multivariate Data Analysis: A Global Perspective Global Edition. Pearson Education*	6%

7	1. Understand the concept and calculate the skewness of data distribution 2. Understand the concept and calculate the sharpness of data distribution	1. Able to calculate and interpret the skewness of data distribution. 2. Able to calculate and interpret the sharpness of data distribution	**Criteria:** 1. Preparation Complete laptop and SPSS software for statistical tests 2. Process Accuracy of statistical test analysis using SPPS 3. Results Ability to interpret statistical test results 4. Background: The phenomenon and urgency of the paper being prepared 5. Theory Depth of theoretical study used 6. Discussion Depth of analysis and presentation of data using appropriate statistical tests 7. Conclusion Preparation of conclusions that are coherent with the results of the analysis **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	Presentations, discussions, questions and answers and practice of 2 X 50 data analysis	- -	**Material:** Sharpness and skewness of data distribution **Reference:** *Michael Longnecker. 2010. An Introduction to Statistical Methods and Data Analysis. Cengage Learning*	5%
8	Understand meeting material 1-7	Able to understand and carry out calculations with descriptive statistics	**Criteria:** 1. Preparation Complete laptop and SPSS software for statistical tests 2. Process Accuracy of statistical test analysis using SPPS 3. Results Ability to interpret statistical test results **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	analyze material questions 1-7 2 X 50	- -	**Material:** Statistical Material **Library:** *Sugiono. 2017. Statistics for Research. Alphabet: Bandung*	10%

9	1. Understand the concept of inferential statistics and research hypotheses	Able to explain the meaning and carry out inferential statistical tests and types of research hypotheses	**Criteria:** 1. Preparation Complete laptop and SPSS software for statistical tests 2. Process Accuracy of statistical test analysis using SPPS 3. Results Ability to interpret statistical test results 4. Background: The phenomenon and urgency of the paper being prepared 5. Theory Depth of theoretical study used 6. Discussion Depth of analysis and presentation of data using appropriate statistical tests 7. Conclusion Preparation of conclusions that are coherent with the results of the analysis **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	Presentation, discussion, questions and answers and practice of the 2 X 50 inferential test	- -	**Material:** Inferential Statistics **Bibliography:** *Jenine K. Harris. 2020. Statistics With R: Solving Problems Using Real-World Data. Sage Publication*	5%

10	1. Understand the concept of the chi square test and data normality test and master the SPSS software application 2. Understand the concept of the one sample Komogorov Sminrov test, one sample difference test and master the SPSS software application	1. Able to apply SPSS software to solve research problems of the relationship between two variables using the chi square test and normality test	**Criteria:** 1. Background: The phenomenon and urgency of the paper being prepared 2. Theory Depth of theoretical study used 3. Discussion Depth of analysis and presentation of data using appropriate statistical tests 4. Conclusion Preparation of conclusions that are coherent with the results of the analysis 5. Assignment collection Accurate submission of assignments according to deadlines 6. Preparation Complete laptop and SPSS software for statistical tests 7. Process Accuracy of statistical test analysis using SPPS 8. Results Ability to interpret statistical test results 9. Relevance: The opinions expressed are relevant to the learning objective (LObj) found 10. Communication: Convey opinions clearly and easily understood 11. Critical Thinking: Providing scientific and logical response knowledge 12. Attitude Ability to defend and respond to questions or objections **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practices / Performance	Presentations, discussions, questions and answers and practice of 2 X 50 data analysis	- -	**Material:** chi square test and data normality test **References:** *Joseph F. Hair, William C. Black, Barry J. Babin. 2010. Multivariate Data Analysis: A Global Perspective Global Edition. Pearson Education*	5%

11	Understand the concept of one sample difference test and master SPSS software	Able to apply SPSS software to solve single sample difference test problems	**Criteria:** 1. Background: The phenomenon and urgency of the paper being prepared 2. Theory Depth of theoretical study used 3. Discussion Depth of analysis and presentation of data using appropriate statistical tests 4. Conclusion Preparation of conclusions that are coherent with the results of the analysis 5. Assignment collection Accurate submission of assignments according to deadlines 6. Preparation Complete laptop and SPSS software for statistical tests 7. Process Accuracy of statistical test analysis using SPPS 8. Results Ability to interpret statistical test results **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	Presentations, discussions, questions and answers and solving 2 X 50 questions	- -	**Material:** One sample difference test **References:** **Material:** One sample difference test **Reader:** *Nicoleta Gaciu. 2021. Understanding Quantitative Data in Educational Research. Sage Publications*	8%

12	1. Understand and carry out difference tests between two independent samples with SPSS 2. Understand and carry out difference tests between two related samples	1. Able to apply SPSS software to solve research problems of testing the difference between two independent samples 2. 2. Able to apply SPSS software to solve the problem of testing the difference between two related samples	**Criteria:** 1. Background: The phenomenon and urgency of the paper being prepared 2. Theory Depth of theoretical study used 3. Discussion Depth of analysis and presentation of data using appropriate statistical tests 4. Conclusion Preparation of conclusions that are coherent with the results of the analysis 5. Assignment collection Accurate submission of assignments according to deadlines 6. Relevance: The opinions expressed are relevant to the learning objective (LObj) found 7. Communication: Convey opinions clearly and easily understood 8. Critical Thinking: Providing scientific and logical response knowledge 9. Attitude Ability to defend and respond to questions or objections **Form of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment	Presentation, discussion, question and answer 2 X 50	- -	**Material:** difference test between two samples **References:** *Holmes Finch, Jocelyn E. Bolin, Ken Kelley. 2019. Multilevel Modeling Using R (Chapman & Hall/CRC Statistics in the Social and Behavioral Sciences). Chapman and Hal*	5%

13	1. Understand and carry out one-way ANOVA tests with SPSS 2. Understand and carry out two-way ANOVA tests with SPSS	1. Able to apply SPSS software to solve one-way ANOVA test research problems 2. Able to apply SPSS software to solve two-way ANOVA test problems	**Criteria:** 1. Preparation Complete laptop and SPSS software for statistical tests 2. Process Accuracy of statistical test analysis using SPPS 3. Results Ability to interpret statistical test results 4. Background: The phenomenon and urgency of the paper being prepared 5. Theory Depth of theoretical study used 6. Discussion Depth of analysis and presentation of data using appropriate statistical tests 7. Conclusion Preparation of conclusions that are coherent with the results of the analysis 8. Assignment collection Accurate submission of assignments according to deadlines **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	Presentation, discussion, question and answer 2 X 50	-	**Material:** one-way anova test **Bibliography:** *Holmes Finch, Jocelyn E. Bolin, Ken Kelley. 2019. Multilevel Modeling Using R (Chapman & Hall/CRC Statistics in the Social and Behavioral Sciences). Chapman and Hal*	8%
14	1. Understand and perform simple linear correlation tests with SPSS 2. Understand and carry out multiple linear correlation tests with SPSS	1. Able to apply SPSS software to solve simple linear correlation test research problems 2. Able to apply SPSS software to solve simple linear correlation test problems	**Criteria:** 1. Background: The phenomenon and urgency of the paper being prepared 2. Theory Depth of theoretical study 3. Discussion Depth of analysis and presentation of data using appropriate statistical tests 4. Conclusion Preparation of conclusions that are coherent with the results of the analysis 5. Assignment collection Accurate submission of assignments 6. Preparation Complete laptop and SPSS software for statistical tests 7. Process Accuracy of statistical test analysis using SPPS 8. Results Ability to interpret statistical test results **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	Presentation, discussion, question and answer 2 X 50		**Material:** simple linear correlation test **Reader:** *Michael Longnecker. 2010. An Introduction to Statistical Methods and Data Analysis. Cengage Learning*	6%

15	1. Understand and perform simple linear regression tests with SPSS 2. Understand and carry out multiple linear regression tests with SPSS	1. Able to apply SPSS software to solve simple linear regression test research problems 2. Able to apply SPSS software to solve multiple linear regression test problems	**Criteria:** 1. Preparation Complete laptop and SPSS software for statistical tests 2. Process Accuracy of statistical test analysis using SPPS 3. Results Ability to interpret statistical test results 4. Relevance: The opinions expressed are relevant to the learning objective (LObj) found 5. Communication: Convey opinions clearly and easily understood 6. Critical Thinking: Providing scientific and logical response knowledge 7. Attitude Ability to defend and respond to questions or objections 8. Background: The phenomenon and urgency of the paper being 9. Theory Depth of theoretical study 10. Discussion Depth of analysis and presentation of data using appropriate statistical tests 11. Conclusion Preparation of conclusions that are coherent with the results of the analysis 12. Assignment collection Accurate submission of assignments **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practices / Performance	Presentations, discussions, questions and answers and practice of 2 X 50 data analysis		**Material:** simple linear regression test **Reference:** *Jenine K. Harris. 2020. Statistics With R: Solving Problems Using Real-World Data. Sage Publication*	4%

16	Able to carry out analysis and testing of inferential statistical data	Mamu carried out inferential statistical analysis and tests	**Criteria:** 1. Preparation Complete laptop and SPSS software for statistical tests 2. Process Accuracy of statistical test analysis using SPPS 3. Results Ability to interpret statistical test results **Form of Assessment** : Practice / Performance	Practice 2 X 50 inferential test analysis	-	**Material:** Inferential statistical tests **References:** *Siregar, S. 2017. Quantitative Research Methods: Equipped with Manual Calculations & SPSS. Kencana: Jakarta* *Bluman Allan G. 2007. Elementary Statistics seventh edition. McGraw Hill* *Michael Longnecker. 2010. An Introduction to Statistical Methods and Data Analysis. Cengage Learning* *Sugiono. 2017. Statistics for Research. Alphabet: Bandung*	14%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	13.5%
2.	Project Results Assessment / Product Assessment	37.5%
3.	Practice / Performance	49%
		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** 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.