



Universitas Negeri Surabaya
Faculty of Education,
Bachelor of Primary School Teacher Education Study Program

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
STATISTICS	8620602173	Compulsory Study Program Subjects	T=2	P=0	ECTS=3.18	3	May 1, 2023
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator	
	Dr. Wiryanto, M.Si.		Dr. Wiryanto, M.Si.			Putri Rachmadyanti, S.Pd., M.Pd.	

Learning model	Case Studies
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Program Learning Outcomes (PLO)	PLO study program that is charged to the course																																																																																																					
	PLO-7	Distinguish the characteristics of research types and apply them in designing, implementing and reporting research results through the publication of articles as the development of science in elementary schools.																																																																																																				
	Program Objectives (PO)																																																																																																					
	PO - 1	CPMK 1: Able to master the concept of descriptive statistics used in processing research data.																																																																																																				
	PO - 2	CPMK 2: Able to apply practical skills in descriptive statistical concepts used in processing research data.																																																																																																				
	PO - 3	CPMK 3: Able to master descriptive statistical theory used in processing research data.																																																																																																				
	PO - 4	CPMK 4: Able to apply descriptive statistical theory in life, especially the world of education, professional duties of teachers, understanding the teacher code of ethics.																																																																																																				
	PLO-PO Matrix																																																																																																					
	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>P.O</th> <th>PLO-7</th> </tr> </thead> <tbody> <tr><td>PO-1</td><td></td></tr> <tr><td>PO-2</td><td></td></tr> <tr><td>PO-3</td><td></td></tr> <tr><td>PO-4</td><td></td></tr> </tbody> </table>		P.O	PLO-7	PO-1		PO-2		PO-3		PO-4																																																																																											
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PO Matrix at the end of each learning stage (Sub-PO)																																																																																																						
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Short Course Description	This course provides knowledge about statistical concepts and various ways of operationalizing statistical techniques, both descriptive and inferential statistics. Lectures emphasize a practical approach, in the sense of directing students to become users of statistics as a tool in educational research activities. This discussion of statistics includes: Understanding inferential statistics and hypotheses, Data and Data Collection, Research Hypotheses, Measurement of Research Instruments (Validity and Reliability) in Research, Data Processing and Analysis, Research Design, Descriptive Statistical Tests (Nominal, Ordinal and Ratio data types / Interval), Statistical Test of Parameter 1 (Comparative Analysis of two samples), Statistical Test of Parameter 2 (Comparative Analysis of more than two samples), Statistical Test of Parameter 3 (One-Way Anova & Two-Way Anova), Correlation Analysis (Pearson Product Moment & Multiple), Regression Analysis (Simple and Multiple), Non-Parametric Statistical Tests, Prepare quantitative research proposals and conduct individual mini research. The learning process includes providing information, group work, presentations, and individual assignments. Evaluation of learning outcomes includes mid-semester exams, final semester exams, independent assignments, group assignments and class activities.
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References	<p>Main :</p> <ol style="list-style-type: none"> Bluman Allan G. 2007. Elementary Statistics seventh edition. Mc Graw Hill Michael Longnecker. 2010. An Introduction Statistical Methods and Data Analysis. Cengage Learning Siregar, S. 2017. Metode Penelitian Kuantitatif: Dilengkapi dengan Perhitungan Manual & SPSS. Kencana: Jakarta. Sugiono. 2017. Statistika untuk Penelitian. Alfabeta: Bandung. Hadi, S. 2017. Statistik. Edisi Revisi. Pustaka Pelajar: Yogyakarta. Richard J. Shavelson. 1998. Statistical Reasoning for Behavioral Science. Massachusetts: Allyn and Bacon.
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		Supporters:					
Supporting lecturer		Drs. H. Budiyono, S.Pd., M.Pd. Dr. Wiryanto, M.Si. Neni Mariana, S.Pd., M.Sc., Ph.D. Ika Rahmawati, S.Si., M.Pd. Delia Indrawati, 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	Able to explain the meaning of basic concepts of statistics and inferential statistics	1.Explain the difference between the meaning of statistics and statistics 2.Explain the relationship between research and Statistics. 3.Explain the role of statistics in research 4.Explains descriptive statistics.	Criteria: Activeness and mastery of material Form of Assessment : Participatory Activities	1. Lecture 2. Question and Answer 3. Discussion 2 X 50		Material: References: [1], [2], [3], [4], [5] References: <i>Bluman Allan G. 2007. Elementary Statistics seventh edition. McGraw Hill</i>	0%
2	Students are able to conceptually interpret the meaning of inferential statistics and hypothesis.	1.1. Understanding analysis and inferential statistical tests 2.2. Definition, concepts and types of hypotheses 3.3. How to formulate and test hypotheses 4.4. Form of Hypothesis Testing	Criteria: Activeness and mastery of material in group presentations Form of Assessment : Participatory Activities, Practice/Performance	Presentation, Questions and Answers 2 X 50			0%
3	1.Students are able to conceptually understand data and data collection in statistics 2.1. Understanding data 3.2. Data grouping 4.3. Data collection methods 5.4. Scale of data collection 6.5. Research instrument measurement scale 7.6. Population and Sample		Criteria: Activeness and mastery of material Form of Assessment : Participatory Activities, Practice/Performance	Presentation, Q&A 2 X 50'	2x50' Assignment		20%

4	<p>1. Students are able to formulate hypotheses in research</p> <p>2.1. Definition of hypothesis</p> <p>3.2. The concept of hypothesis</p> <p>4.3. Type of research hypothesis</p> <p>5.4. How to formulate and test hypotheses</p> <p>6.5. Form of hypothesis testing</p>	<p>1.1. Accuracy in explaining the concept of statistical data</p> <p>2.2. Accuracy of using examples of statistical data in everyday problems</p>	<p>Criteria: Activeness and mastery of material</p> <p>Form of Assessment : Participatory Activities, Practice/Performance</p>	<p>1. Lecture 2. Question and Answer 3. Discussion 2X 50</p>	2x50' Assignment		20%
5	<p>1. Students are able to apply the concept of Research Instrument Measurement (Validity and Reliability) in research.</p> <p>2.1. Understanding research instruments</p> <p>3.2. Validity</p> <p>4.3. How to test construct validity</p> <p>5.4. Reliability test</p> <p>6.5. Reliability measurement techniques</p> <p>7.6. Calculate the reliability of the Cronbach's Alpha technique with SPSS</p>		<p>Criteria: 20% Participation, 30% Assignment, 20% UTS, and 30% UAS</p> <p>Form of Assessment : Participatory Activities, Practice/Performance</p>	<p>1. Lecture 2. Question and Answer 3. Discussion 2X 50</p>	2x50' Assignment		20%
6	<p>1. Students are conceptually capable in Data Processing and Analysis</p> <p>2.1. Understanding data processing and data analysis</p> <p>3.2. Quantitative data processing</p> <p>4.3. Quantitative data analysis</p>		<p>Criteria: Activeness and mastery of material</p> <p>Form of Assessment : Participatory Activities, Practice/Performance</p>	<p>1. Questions and Answers 2. Discussion 3. Assignment 2 X 50</p>	Assignment		0%
7	<p>1. Students are able to Design Quantitative Research</p> <p>2.1. Research Design</p> <p>3.2. Research Proposal (individual)</p>	<p>Can arrange and carry out: 1. research hypothesis, and 2. descriptive statistical test</p>	<p>Criteria: 1. Activeness and mastery of material 2. 20% Participation, 30% Assignment, 20% UTS, and 20% UAS</p> <p>Form of Assessment : Participatory Activities, Practice/Performance</p>	<p>1. Presentation 2. Questions and Answers 2X 50</p>	2x50' Assignment		20%
8	<p>Students are able to achieve half of the required course achievements [meeting materials 1 to 7]</p>		<p>Criteria: Maximum Score 100</p>	<p>Sub Summative Exam 2 X 50'</p>	2x50' Assignment		0%

9	<p>1. Mastering the concept of Descriptive Statistical Tests</p> <p>2.1. Understanding descriptive statistical analysis and tests</p> <p>3.2. Descriptive analysis of nominal data types</p> <p>4.3. Descriptive ordinal data type</p> <p>5.4. Descriptive analysis of interval/ratio data types</p>	<p>Can perform: 1. Comparative analysis of two correlated samples 2. Comparative analysis of more than two samples (one-way and two-way ANOVA) 3. Calculation of two-way ANOVA test without interaction with SPSS</p>	<p>Criteria: Activeness and mastery of material</p> <p>Form of Assessment : Participatory Activities</p>	<p>1. Discussion 2. Assignment 2 X 50'</p>			20%
10	<p>Statistical Test Parameter 1 (Comparative Analysis of two samples)</p>		<p>Criteria: Activeness and mastery of material</p> <p>Form of Assessment : Participatory Activities</p>	<p>1. Presentation 2. Question and answer 2 X 50</p>			20%
11	<p>Students are able to carry out Parameter 2 Statistical Test (Comparative Analysis of more than two samples)</p>		<p>Criteria: Activeness and mastery of material</p> <p>Form of Assessment : Participatory Activities</p>	<p>1. Presentation 2. Question and answer 2 X 50</p>			20302030%
12	<p>Students are able to carry out Parameter 3 Statistical Tests (One-Way Anova & Two-Way Anova)</p>	<p>Minimum learning completeness 85%</p>	<p>Criteria: Activeness and mastery of material in group presentations</p> <p>Form of Assessment : Participatory Activities</p>	<p>1. Presentation 2. Question and answer 2 X 50</p>	<p>assignment 2x50'</p>		20302030%
13	<p>1. Students are conceptually capable in Correlation Analysis (Pearson Product Moment & Multiple)</p> <p>2.1. Understanding Correlation Analysis.</p> <p>3.2. Techniques used in analyzing relationships</p> <p>4.3. Pearson Product Moment Correlation</p> <p>5.4. Multiple Correlation</p>	<p>Minimum learning completeness 85%</p>	<p>Criteria: Activeness and mastery of material in group presentations</p> <p>Form of Assessment : Participatory Activities</p>	<p>1. Presentation of Assignment 4 2. Questions and Answers 3. Discussion 4 X 50</p>			20%
14	<p>Able to present non-parametric statistics and several examples of non-parametric tests</p>	<p>1. Able to present non-parametric statistics 2. Able to present non-parametric examples of manual calculations 3. Able to present non-parametric examples of SPSS calculations</p>	<p>Criteria: Follows UNESA guidelines</p>	<p>Scientific/ lecture-presentation-question and answer/ PBL and mini research 2 X 50</p>			20%

15	<p>1. Able to carry out regression analysis</p> <p>2.1. Simple Linear Regression</p> <p>3.2. Multiple Linear Regression</p>	Minimum learning completeness 85%	<p>Criteria: Follows UNESA guidelines</p> <p>Form of Assessment : Participatory Activities</p>	Scientific/ lecture- presentation- question and answer/ PBL and mini research 2 X 50		<p>Material: 1. Biehler, R., Scholz, R.W., Strässer, R., & Winkelmann, B. (Eds.). (2006). Didactics of mathematics as a scientific discipline (Vol. 13). Springer Science & Business Media. 2. Ellis, M. W., & Berry III, R. Q. (2005). The paradigm shift in mathematics education: Explanations and implications of reforming concepts of teaching and learning. The mathematics educator, 15(1). 3. Ernest, P., Skovsmose, O., Paul van Bendegem, J., Bicudo, M., Miarka, R., Kvasz, L., & Moeller, R. (2016). The philosophy of mathematics education. Springer Nature. 4. Ernest, P. (Ed.). (2003). Mathematics education and philosophy: An international perspective. Routledge. 5. Ernest, P. (1998). Social constructivism as a philosophy of mathematics. Sunny Press. 6. Ernest, P. (1994). The philosophy of mathematics and the didactics of mathematics. Didactics of mathematics as a scientific discipline, 335-350. 7. Gutstein, E. (2006). Reading and writing the world with mathematics: Toward a pedagogy for social justice. Taylor & Francis.</p> <p>References:</p>	20%
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16	Students are able to prepare quantitative research proposals and carry out mini research individually.	Minimum learning completeness 85%	Criteria: According to UNESA guidelines Form of Assessment : Participatory Activities	Questions and answers, group presentations and assignments.		Material: 3. Ernest, P., Skovsmose, O., Paul van Bendegem, J., Bicudo, M., Miarka, R., Kvasz, L., & Moeller, R. (2016). The philosophy of mathematics education. Springer Nature. 4. Ernest, P. (Ed.). (2003). Mathematics education and philosophy: An international perspective. Routledge. 5. Ernest, P. (1998). Social constructivism as a philosophy of mathematics. Sunny Press. 6. Ernest, P. (1994). The philosophy of mathematics and the didactics of mathematics. Didactics of mathematics as a scientific discipline, 335-350. Bibliography: Richard J. Shavelson. 1998. <i>Statistical Reasoning for Behavioral Science</i> . Massachusetts: Allyn and Bacon.	20%
Material: References: [1], [2], [3], [4], [5] References:							

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	40%
2.	Practice / Performance	60%
		100%

Notes

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- Forms of assessment:** test and non-test.
- 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.