



**Universitas Negeri Surabaya**  
**Faculty of Mathematics and Natural Sciences**  
**Science Education Doctoral Study Program**

Document Code

**SEMESTER LEARNING PLAN**

<b>Courses</b>	<b>CODE</b>	<b>Course Family</b>	<b>Credit Weight</b>	<b>SEMESTER</b>	<b>Compilation Date</b>																																																																																				
Advanced Quantitative Research Methodology	8400103053	Compulsory Study Program Subjects	T=3 P=0 ECTS=7.56	1	June 20, 2022																																																																																				
<b>AUTHORIZATION</b>		<b>SP Developer</b>	<b>Course Cluster Coordinator</b>	<b>Study Program Coordinator</b>																																																																																					
		Prof. Dr. Rudiana Agustini, M.Pd.	Prof. Dr. Budi Jadmiko, M.Pd	Prof. Dr. Suyatno, M.Si.																																																																																					
<b>Learning model</b>	Project Based Learning																																																																																								
<b>Program Learning Outcomes (PLO)</b>	<b>PLO study program which is charged to the course</b>																																																																																								
	<b>Program Objectives (PO)</b>																																																																																								
	<b>PO - 1</b>	Mastering the philosophy for developing and updating science education which is used as a basis for preparing quantitative research proposals correctly																																																																																							
	<b>PO - 2</b>	Mastering the latest theories related to scientific knowledge and science education which are used as a basis for preparing quantitative research proposals correctly																																																																																							
	<b>PO - 3</b>	Developing theories or methods in the field of science education and their relationships with theories in other fields comprehensively and contextually, through innovative research with interdisciplinary, multidisciplinary or transdisciplinary approaches that receive national or international recognition																																																																																							
	<b>PLO-PO Matrix</b>																																																																																								
	<table border="1" style="margin-left: 20px;"> <tr><td>P.O</td></tr> <tr><td>PO-1</td></tr> <tr><td>PO-2</td></tr> <tr><td>PO-3</td></tr> </table>					P.O	PO-1	PO-2	PO-3																																																																																
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<b>PO Matrix at the end of each learning stage (Sub-PO)</b>																																																																																									
	<table border="1" style="margin-left: 20px;"> <thead> <tr> <th rowspan="2">P.O</th> <th colspan="16">Week</th> </tr> <tr> <th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th><th>12</th><th>13</th><th>14</th><th>15</th><th>16</th> </tr> </thead> <tbody> <tr><td>PO-1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>PO-2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>PO-3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>					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																
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<b>Short Course Description</b>	Study of the research process and paradigm of quantitative methods, framework of thinking, research hypotheses and variables, population and samples, research instruments, experimental research, survey research, data collection and data analysis.																																																																																								
<b>References</b>	<b>Main :</b>																																																																																								
	<ol style="list-style-type: none"> <li>1. Jan van den Akker, Brenda Bannan, Anthony E. Kelly, Nienke Nieveen, Tjeerd Plomp. (2013). Educational Design Research. Netherlands: Netherlands Institute for Curriculum Development (SLO)</li> <li>2. John W. Creswell.(2003). Research design: Qualitative, quantitative, and mixed method. Approaches. 2nd ed. Sage Publications.</li> <li>3. John W. Creswell. (2012). Educational Research. Planning, Conducting, and Evaluating Quantitative and Qualitative Research. 4th ed. Boston: Pearson Education, Inc.,</li> <li>4. Louis Cohen, Lawrence Manion, and Keith Morrison (2007). Research Methods in Education, Sixth edition. Routledge. USA and Canada.</li> <li>5. Prabhat Pandey, Meenu Mishra Pandey (2015). Research Methodology: Tools And Techniques, First published. Romania: Bridge Center</li> <li>6. Christensen, L.B. (2007). Experimental Methodology. (10th ed). Boston: Allyn and Bacon.</li> <li>7. Fraenkel, J.R. and Wallen, N.E. (2012). How to Design and Evaluate Research in Education New York: McGraw-Hill .</li> <li>8. Krippendorff, K. (2018). Content Analysis. An Introduction to its Methodology. London: Sage Publications</li> <li>9. Vockell, E.L. and Asher, J.W. (1995). Educational Research. New Jersey: Prentice-Hall, Inc</li> </ol>																																																																																								
	<b>Supporters:</b>																																																																																								

Supporting lecturer		Prof. Dr. Hj. Rudiana Agustini, M.Pd. Prof. Dr. Budi Jatmiko, 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	Understanding dissertation philosophy	Distinguish between thesis, thesis and dissertation Describe the quantitative research process	<b>Criteria:</b> Participation with a weight of 20%; Performance assessment is carried out in an integrated manner with learning. Form of Assessment: Participatory Activities  <b>Form of Assessment :</b> Participatory Activities	Lecture, Q&A 3 x 50 minutes		<b>Material:</b> Difference between thesis, thesis and dissertation <b>Reference:</b> <i>John W. Creswell. (2003). Research design: Qualitative, quantitative, and mixed methods. Approaches. 2nd ed. Sage Publications.</i>	5%
2	Prepare the background and problem formulation correctly	Analyzing articles in reputable international journals	<b>Criteria:</b> Participation with a weight of 20%; Assignments with a weight of 30% Performance assessment is carried out in an integrated manner with learning. Form of Assessment: Participatory Activities,  <b>Form of Assessment :</b> Participatory Activities	Presentation/discussion 3x50 minutes	Exploration of Quality and Latest Articles in Reputable International Journals	<b>Material:</b> Quantitative research process Problems and problem formulation Research paradigm <b>Library:</b> <i>John W. Creswell. (2012). Educational Research. Planning, Conducting, and Evaluating Quantitative and Qualitative Research. 4th ed. Boston: Pearson Education, Inc.,</i>	5%
3	Finding and reviewing quality and up-to-date articles in reputable international journals	Analyzing the novelty of doctoral research through studying dissertations and articles in reputable international journals	<b>Criteria:</b> Participation with a weight of 20%; Assignments with a weight of 30% Performance assessment is carried out in an integrated manner with learning. Form of Assessment: Participatory Activities,  <b>Form of Assessment :</b> Participatory Activities	Group presentation/discussion	Exploration of quality and up-to-date articles in reputable international journals 3x50 minutes	<b>Material:</b> Analysis of articles in reputable international journals. <b>Reader:</b> <i>John W. Creswell. (2012). Educational Research. Planning, Conducting, and Evaluating Quantitative and Qualitative Research. 4th ed. Boston: Pearson Education, Inc.,</i>	5%

4	Develop problem formulation, framework of thinking, hypotheses, research variables correctly	<ol style="list-style-type: none"> <li>1. Determine the theory underlying the main research issue</li> <li>2. Describe the basic theory of research</li> <li>3. Describe the framework of thinking and conceptual framework</li> <li>4. Formulate hypotheses and research variables</li> </ol>	<p><b>Criteria:</b> Criteria: Participation with a weight of 20%; Assignments with a weight of 30% Performance assessment is carried out in an integrated manner with learning. Form of Assessment: Participatory Activities,</p> <p><b>Form of Assessment :</b> Participatory Activities</p>	Group presentation/discussion	Exploration of the novelty of articles in international journals 3x50 minutes	<p><b>Material:</b> novelty of doctoral research through dissertation studies and articles in reputable international journals Reader : <i>John W. Creswell. (2012). Educational Research. Planning, Conducting, and Evaluating Quantitative and Qualitative Research. 4th ed. Boston: Pearson Education, Inc.,</i></p>	7%
5	Examining the quantitative research design of a Science Education Doctoral Dissertation that meets KKN level 9	Analyze quantitative research designs	<p><b>Criteria:</b> Participation with a weight of 20%; Performance assessment is carried out in an integrated manner with learning. Form of Assessment: Participatory Activities</p> <p><b>Form of Assessment :</b> Participatory Activities</p>	Group presentation/discussion	Exploration of the theory underlying the main research subject 3x50 minutes	<p><b>Material:</b> Preparation of problem formulation, framework of thinking, hypothesis <b>Reader:</b> <i>John W. Creswell. (2012). Educational Research. Planning, Conducting, and Evaluating Quantitative and Qualitative Research. 4th ed. Boston: Pearson Education, Inc.,</i></p>	7%
6	Examining mixed research (qualitative and quantitative)	Analyze mixed research designs (qualitative and quantitative)	<p><b>Criteria:</b> Participation with a weight of 20%; Performance assessment is carried out in an integrated manner with learning. Form of Assessment: Participatory Activities</p> <p><b>Form of Assessment :</b> Participatory Activities</p>	Presentations, discussions	Exploration of mixed research designs (qualitative and quantitative) 3 x 50 m3nit	<p><b>Material:</b> quantitative research design <b>Reference:</b> <i>John W. Creswell. (2003). Research design: Qualitative, quantitative, and mixed methods. Approaches. 2nd ed. Sage Publications.</i></p>	7%
7	Reviewing research development (R&D) models	Designing development research (R&D)	<p><b>Criteria:</b> Criteria: Participation with a weight of 20%; Assignments with a weight of 30% Performance assessment is carried out in an integrated manner with learning. Form of Assessment: Participatory Activities,</p> <p><b>Form of Assessment :</b> Participatory Activities</p>	Group presentation/discussion	Exploration of development research models 3x50 minutes	<p><b>Material:</b> Development research design <b>References:</b> <i>Fraenkel, JR and Wallen, NE (2012). How to Design and Evaluate Research in Education New York: McGraw-Hill .</i></p>	7%

8	Final Capabilities from TM-1 to TM-7	TM-1 indicators up to TM-7 indicators	<p><b>Criteria:</b> Based on the assessment rubric that has been created by the teaching lecturer</p> <p><b>Form of Assessment :</b> Project Results Assessment / Product Assessment</p>	Written test or giving substitute assignments for UTS 3 x 50 minutes		<p><b>Material:</b> Learning topics from TM-1 to TM-7 <b>Library:</b></p>	5%
9	Prepare chapter 1 of the introduction according to the dissertation topic	Prepare a preliminary draft of the dissertation proposal	<p><b>Criteria:</b> Participation with a weight of 20%; Assignments with a weight of 30% Performance assessment is carried out in an integrated manner with learning. Forms of Assessment: Participatory Activities, Product Assessment.</p> <p><b>Forms of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment</p>	PJBL, Presentation. class discussion	Review articles and related theories as a basis for preparing an introduction to a dissertation proposal 3x50 minutes	<p><b>Material:</b> Introduction: Background of the problem, problem formulation, research objectives, benefits of research, and definitions of terms <b>Library:</b> John W. Creswell. (2012). <i>Educational Research. Planning, Conducting, and Evaluating Quantitative and Qualitative Research. 4th ed.</i> Boston: Pearson Education, Inc.,</p>	7%
10	Compile chapter 2 of the theoretical study of the dissertation proposal	Prepare a theoretical study of a dissertation proposal	<p><b>Criteria:</b> Participation with a weight of 20%; Performance assessment is carried out in an integrated manner with learning. Forms of Assessment: Participatory Activities and product assessment</p> <p><b>Form of Assessment :</b> Project Results Assessment / Product Assessment</p>	PJBL, Presentations, group discussions	Prepare a 3x50 minute dissertation proposal theoretical study	<p><b>Material:</b> Preparation of theoretical studies <b>Bibliography:</b> John W. Creswell. (2012). <i>Educational Research. Planning, Conducting, and Evaluating Quantitative and Qualitative Research. 4th ed.</i> Boston: Pearson Education, Inc.,</p>	7%
11	Compile chapter 3 research methods	Develop a research design (type of research, population, sample, research design, research variables)	<p><b>Criteria:</b> Participation with a weight of 20%; Performance assessment is carried out in an integrated manner with learning. Forms of Assessment: Participatory Activities and product assessment</p> <p><b>Forms of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment</p>	PJBL, Presentations and group discussions	Prepare a research design ((type of research, population, sample, research design, research variables) 3x50 minutes	<p><b>Material:</b> research design according to dissertation <b>Reference:</b> John W. Creswell. (2012). <i>Educational Research. Planning, Conducting, and Evaluating Quantitative and Qualitative Research. 4th ed.</i> Boston: Pearson Education, Inc.,</p>	7%

12	Compile chapter 3 research methods	Develop a research design (type of research, population, sample, research design, research variables)	<p><b>Criteria:</b> Criteria: Participation with a weight of 20%; Assignments with a weight of 30% Performance assessment is carried out in an integrated manner with learning. Forms of Assessment: Participatory Activities, Product Assessment.</p> <p><b>Forms of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment</p>	PJBL, presentations and class discussions	Prepare a research design ((type of research, population, sample, research design, research variables) 3x50 minutes	<p><b>Material:</b> Research design <b>Bibliography:</b> <i>John W. Creswell. (2012). Educational Research. Planning, Conducting, and Evaluating Quantitative and Qualitative Research. 4th ed. Boston: Pearson Education, Inc.,</i></p>	7%
13	Compile chapter 3 research methods: research instruments	Prepare proposals correctly	<p><b>Criteria:</b> Participation with a weight of 20%; Performance assessment is carried out in an integrated manner with learning. Forms of Assessment: Participatory Activities and product assessment</p> <p><b>Forms of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment</p>	PJBL, presentations and class discussions	Prepare research instruments 3 x 50 minutes	<p><b>Material:</b> Preparation of research instruments <b>References:</b> <i>Fraenkel, JR and Wallen, NE (2012). How to Design and Evaluate Research in Education New York: McGraw-Hill .</i></p>	7%
14	Determine and apply data collection and data analysis techniques correctly.	<ol style="list-style-type: none"> <li>1.Explains data collection techniques through interviews, questionnaires and observations</li> <li>2.Determine appropriate data collection techniques for research</li> <li>3.Explains descriptive and statistical analysis</li> <li>4.Determining appropriate data analysis for research</li> </ol>	<p><b>Criteria:</b> Participation with a weight of 20%; Performance assessment is carried out in an integrated manner with learning. Forms of Assessment: Participatory Activities and product assessment</p> <p><b>Forms of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment</p>	PJBL, presentations and class discussions	Prepare data collection techniques and data analysis 3x50 minutes	<p><b>Material:</b> Data collection and data analysis techniques <b>Library:</b> <i>John W. Creswell. (2012). Educational Research. Planning, Conducting, and Evaluating Quantitative and Qualitative Research. 4th ed. Boston: Pearson Education, Inc.,</i></p>	7%
15	Applying parametric and non-parametric statistics to quantitative research proposals	<ol style="list-style-type: none"> <li>1.Determines the type of statistics for data analysis</li> <li>2.Determine statistical test requirements</li> </ol>	<p><b>Criteria:</b> Criteria: Participation with a weight of 20%; Assignments with a weight of 30% Performance assessment is carried out in an integrated manner with learning. Forms of Assessment: Participatory Activities, Product Assessment</p> <p><b>Forms of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment</p>	PJBL, presentations and class discussions	Prepare data analysis techniques 3x50 minutes	<p><b>Material:</b> Parametric and non-parametric statistics <b>Reader:</b> <i>John W. Creswell. (2012). Educational Research. Planning, Conducting, and Evaluating Quantitative and Qualitative Research. 4th ed. Boston: Pearson Education, Inc.,</i></p>	5%

16	Final Capabilities from TM-9 to TM-15	TM-9 indicators up to TM-15 indicators	<b>Criteria:</b> Based on the assessment rubric that has been created by the teaching lecturer  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment		Written test or giving substitute assignments for UAS 2 x 50 minutes	<b>Material:</b> Learning topics from TM-9 to TM-15 <b>Library:</b>	5%
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**Evaluation Percentage Recap: Project Based Learning**

No	Evaluation	Percentage
1.	Participatory Activities	63%
2.	Project Results Assessment / Product Assessment	37%
		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.
- 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.
- Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
- 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%.
- TM=Face to face, PT=Structured assignments, BM=Independent study.