



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

Document  
Code

**SEMESTER LEARNING PLAN**

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Seminar	8420102142	Compulsory Study Program Subjects	T=2	P=0	ECTS=3.18	6	April 27, 2023
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator	
	Muhamad Arif Mahdiannur		Dr. Wahono Widodo, M.Si.			Prof. Dr. Erman, M.Pd.	

Learning model	Case Studies
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Program Learning Outcomes (PLO)	PLO study program that is charged to the course																																																																																				
	Program Objectives (PO)																																																																																				
	PO - 1	Mastering the basics of making research proposals/articles in the field of science education which reflects reasoning abilities in formulating procedural problem solving in the field of science education																																																																																			
	PO - 2	Make strategic decisions based on data and information, including input, ideas, colleagues, references, and provide ideas for selecting various alternative solutions																																																																																			
	PO - 3	Responsible for the task of creating and presenting proposals and/or research articles																																																																																			
	PLO-PO Matrix																																																																																				
		<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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PO Matrix at the end of each learning stage (Sub-PO)																																																																																					
	<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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Short Course Description	Mastering the basics of writing articles in science education that reflects reasoning abilities in formulating procedural problem solving in science education.
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References	Main :
	<ol style="list-style-type: none"> <li>1. Tim Jurnal Unesa. 2012. Template e-journal unesa. www.ejournal.unesa.ac.id</li> <li>2. Tim. 2005. Pedoman Penulisan Skripsi Universitas Negeri Surabaya. Surabaya: Unesa University Press.</li> <li>3. Widodo, W. 2004. Penulisan Karya Ilmiah. Jakarta: Direktorat PSMP.</li> <li>4. Tim Seminar Nasional. 2013. Prosiding Seminar Nasional Pendidikan Sains Tahun 2013. Surabaya: Unesa University Press.</li> <li>5. Tim Seminar Nasional. 2012. Prosiding Seminar Nasional Pendidikan Sains Tahun 2012. Surabaya: Unesa University Press</li> <li>6. Widodo, W. 2004. Penulisan Karya Ilmiah. Jakarta: Direktorat PSMP.</li> </ol>
	Supporters:

Supporting lecturer	Dra. Martini, M.Pd. Prof. Dr. Wahono Widodo, M.Si. Dr. Elok Sudibyo, S.Pd., M.Pd. Prof. Dr. Erman, M.Pd. Dr. Siti Nurul Hidayati, S.Pd., M.Pd. Dr. Mohammad Budiyanto, S.Pd., M.Pd. Dr. Dyah Astriani, S.Pd., M.Pd. Dr. Hasan Subekti, S.Pd., M.Pd. Ahmad Qosyim, S.Si., M.Pd. Beni Setiawan, S.Pd., M.Pd., Ph.D. Tutut Nurita, S.Pd., M.Pd. Laily Rosdiana, S.Pd., M.Pd. An Nuril Maulida Fauziah, S.Pd., M.Pd. Enny Susiyawati, S.Si., M.Sc., M.Pd., Ph.D. Wahyu Budi Sabtiawan, S.Si., M.Pd., M.Sc.
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Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [ <i>Estimated time</i> ]		Learning materials [ <i>References</i> ]	Assessment Weight (%)
		Indicator	Criteria & Form	Offline ( <i>offline</i> )	Online ( <i>online</i> )		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

1	Explain the latest trends in science education research in Indonesia and globally (learning, media, and assessment)	<ol style="list-style-type: none"> <li>1.Explains the latest trends in science education research in Indonesia and globally in the field of learning</li> <li>2.Explains the latest trends in science education research in Indonesia and globally in the media field</li> <li>3.Explains the latest trends in science education research in Indonesia and globally in the field of assessment</li> </ol>	<p><b>Criteria:</b> Accuracy and mastery according to assessment indicators (assessment rubric)</p> <p><b>Form of Assessment :</b> Participatory Activities</p>	Project-based Learning 2 x 50'	Asynchronous with LMS 4 x 60'	<p><b>Material:</b> Current trends in science education research</p> <p><b>References:</b> <i>Akpan, B., Cavas, B., &amp; Kennedy, T. (Eds.). (2023). Contemporary Issues in Science and Technology Education (Vol. 56). Springer Nature Switzerland</i></p> <hr/> <p><b>Material:</b> Research related to science learning</p> <p><b>References:</b> <i>Erman, E., Liliyasi, L., Ramdani, M., &amp; Wakhidah, N. (2020). Addressing Macroscopic Issues: Helping Students Form Associations Between Biochemistry and Sports and Aiding Their Scientific Literacy. International Journal of Science and Mathematics Education, 18(5), 831–853</i></p> <hr/> <p><b>Material:</b> Research related to science learning media</p> <p><b>References:</b> <i>Widodo, W., Sudibyo, E., Suryanti, S., Sari, DAP, Inzannah, I., &amp; Setiawan, B. (2020). The Effectiveness of Gadget-Based Interactive Multimedia in Improving Generation Z's Scientific Literacy. Indonesian Journal of Science Education, 9(2), 248–256</i></p> <hr/> <p><b>Material:</b> Research related to assessment in science learning</p> <p><b>References:</b> <i>Susiyawati, E., Sudibyo, E., &amp; Sari, D. (2021). Development and Validation of an Instrument for Assessing Middle School Students' Critical Thinking Skills. The International Journal of Assessment and Evaluation, 28(2), 1–13</i></p>	5%
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2	Understand the code of ethics for science education research with human subjects	<ol style="list-style-type: none"> <li>1.Developing research subject willingness instruments</li> <li>2.Fill out the research ethics application form</li> </ol>	<p><b>Criteria:</b> Accuracy and mastery according to assessment indicators (assessment rubric)</p> <p><b>Form of Assessment :</b> Participatory Activities, Tests</p>	Project-based Learning 2 x 50'	Asynchronous with LMS 4 x 60'	<p><b>Material:</b> Research ethics with human subjects <b>Reference:</b> <i>Resnik, DB (2018). The Ethics of Research with Human Subjects: Protecting People, Advancing Science, Promoting Trust (Vol. 74). Springer International Publishing</i></p> <p><b>Material:</b> Research ethics in the field of science education <b>References:</b> <i>Bazzul, J. (2016). Ethics and Science Education: How Subjectivity Matters. Springer International Publishing</i></p> <p><b>Material:</b> RCR related to human subjects in research <b>References:</b> <i>Horner, J., &amp; Minifie, FD (2011). Research Ethics I: Responsible Conduct of Research (RCR) —Historical and Contemporary Issues Pertaining to Human and Animal Experimentation. Journal of Speech Language and Hearing Research, 54(1), S303–S329</i></p>	5%
3	<ol style="list-style-type: none"> <li>1.Understand the procedures for writing data and references according to APA 7th ed.</li> <li>2.Implement procedural work to use reference management software to write references</li> </ol>	<ol style="list-style-type: none"> <li>1.Understand the procedures for writing data, quotations, tables and references according to environmental style (APA 7th ed.)</li> <li>2.Utilizing ICT to help write quotations and references with Mendeley software</li> <li>3.Conduct preliminary studies</li> </ol>	<p><b>Criteria:</b> Accuracy and mastery according to assessment indicators (assessment rubric)</p> <p><b>Form of Assessment :</b> Participatory Activities, Tests</p>	Project-based learning 2 x 50'	Asynchronous with LMS 4 x 60'	<p><b>Material:</b> APA style 7th ed. <b>References:</b> <i>Schwartz, BM, Landrum, RE, &amp; Gurung, RAR (2021). An easy guide to APA style (Fourth edition). SAGE</i></p> <p><b>Material:</b> Mendeley <b>Reference:</b> <i>Gerritsen, CM (2018). Getting started with Mendeley. University of Twente</i></p>	5%

4	Apply procedural work to write introductions and background research	<ol style="list-style-type: none"> <li>1. Write an introduction and research background based on urgency, research gaps, solutions offered, and research objectives</li> <li>2. Utilizing ICT to search for supporting references and background research</li> <li>3. Conduct preliminary studies</li> </ol>	<p><b>Criteria:</b> Accuracy and mastery according to assessment indicators (assessment rubric)</p> <p><b>Form of Assessment :</b> Participatory Activities</p>	Project-based learning 2 x 50'	Asynchronous with LMS 4 x 60'	<p><b>Material:</b> Introduction and research background <b>References:</b> <i>Paltridge, B. &amp; Starfield, S. (2007). Thesis and dissertation writing in a second language: a handbook for supervisors. Routledge</i></p> <hr/> <p><b>Material:</b> Introduction and research background <b>References:</b> <i>Murray, R. (2004). Writing for academic journals. Open University Press</i></p> <hr/> <p><b>Material:</b> Introduction and research background <b>References:</b> <i>Murray, R. (2002). How to write a thesis. Open University Press</i></p>	5%
5	Apply procedural work to determine the formulation of research problems	Write a research problem formulation that is appropriate with the introduction and background	<p><b>Criteria:</b> Accuracy and mastery according to assessment indicators (assessment rubric)</p> <p><b>Form of Assessment :</b> Participatory Activities</p>	Project-based learning 2 x 50'	Asynchronous with LMS 4 x 60'	<p><b>Material:</b> Introduction and research background <b>References:</b> <i>Paltridge, B. &amp; Starfield, S. (2007). Thesis and dissertation writing in a second language: a handbook for supervisors. Routledge</i></p> <hr/> <p><b>Material:</b> Introduction and research background <b>References:</b> <i>Murray, R. (2004). Writing for academic journals. Open University Press</i></p> <hr/> <p><b>Material:</b> Introduction and research background <b>References:</b> <i>Murray, R. (2002). How to write a thesis. Open University Press</i></p> <hr/> <p><b>Material:</b> Examples of research methods <b>References:</b> <i>Erman, E., Liliyasi, L., Ramdani, M., &amp; Wakhidah, N. (2020). Addressing Macroscopic Issues: Helping Students Form Associations Between Biochemistry and Sports and Aiding Their Scientific Literacy. International Journal of Science and Mathematics Education,</i></p>	5%

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6	Apply procedural work to determine and write a literature review that is in accordance with the research problem formulation	<ol style="list-style-type: none"> <li>1. Write appropriate literature reviews to answer problems raised in research</li> <li>2. Utilize ICT to search for appropriate literature review references</li> </ol>	<p><b>Criteria:</b> Accuracy and mastery according to assessment indicators (assessment rubric)</p> <p><b>Form of Assessment :</b> Participatory Activities</p>	Project-based learning 2 x 50'	Asynchronous with LMS 4 x 60'	<p><b>Material:</b> Introduction and research background</p> <p><b>References:</b> Paltridge, B. &amp; Starfield, S. (2007). <i>Thesis and dissertation writing in a second language: a handbook for supervisors</i>. Routledge</p> <p><b>Material:</b> Introduction and research background</p> <p><b>References:</b> Murray, R. (2004). <i>Writing for academic journals</i>. Open University Press</p> <p><b>Material:</b> Introduction and research background</p> <p><b>References:</b> Murray, R. (2002). <i>How to write a thesis</i>. Open University Press</p>	10%
7	Apply procedural work to determine and write methods that suit the research problem formulation	<ol style="list-style-type: none"> <li>1. Write appropriate research methods to answer the problems raised in the research</li> <li>2. Utilizing ICT to search for appropriate research method references</li> </ol>	<p><b>Criteria:</b> Accuracy and mastery according to assessment indicators (assessment rubric)</p> <p><b>Form of Assessment :</b> Participatory Activities</p>	Project-based learning 2 x 50'	Asynchronous with LMS 4 x 60'	<p><b>Material:</b> Introduction and research background</p> <p><b>References:</b> Paltridge, B. &amp; Starfield, S. (2007). <i>Thesis and dissertation writing in a second language: a handbook for supervisors</i>. Routledge</p>	10%

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8	-	Sub-CPMK 1 to 7	<b>Criteria:</b> UTS assessment rubric  <b>Form of Assessment :</b> Practice/Performance, Test	Mid-Semester Evaluation/Mid-Semester Examination (UTS) 2 x 50'	-	<b>Material: - Library:</b>	0%
9	Communicate ideas for completing research proposals (seminars) by utilizing information technology	<ol style="list-style-type: none"> <li>1. Compile presentation files</li> <li>2. Present a research proposal</li> <li>3. Respond to presentations/questions</li> <li>4. Make revisions to articles/papers based on suggestions</li> </ol>	<b>Criteria:</b> Accuracy and mastery according to assessment indicators (assessment rubric)  <b>Form of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment	Project-based learning 2 x 50'	Asynchronous with LMS 4 x 60'	<b>Material:</b> Research proposal <b>Bibliography:</b> <i>Paltridge, B. &amp; Starfield, S. (2007). Thesis and dissertation writing in a second language: a handbook for supervisors. Routledge</i>  <b>Material:</b> Systematics of research proposals <b>References:</b> <i>Murray, R. (2002). How to write a thesis. Open University Press</i>  <b>Material:</b> Contemporary issues in science education <b>References:</b> <i>Akpan, B., Cavas, B., &amp; Kennedy, T. (Eds.). (2023). Contemporary Issues in Science and Technology Education (Vol. 56). Springer Nature Switzerland</i>  <b>Material:</b> Presentation of data, tables, figures, quotations and references <b>References</b> : <i>Schwartz, BM, Landrum, RE, &amp; Gurung, RAR (2021). An easy guide to APA style (Fourth edition). SAGE</i>	5%



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12	Communicate ideas for completing research proposals (seminars) by utilizing information technology	<ol style="list-style-type: none"> <li>1.Compile presentation files</li> <li>2.Present a research proposal</li> <li>3.Respond to presentations/questions</li> <li>4.Make revisions to articles/papers based on suggestions</li> </ol>	<p><b>Criteria:</b> Accuracy and mastery according to assessment indicators (assessment rubric)</p> <p><b>Form of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment</p>	Project-based learning 2 x 50'	Asynchronous with LMS 4 x 60'	<p><b>Material:</b> Research proposal</p> <p><b>Bibliography:</b> <i>Paltridge, B. &amp; Starfield, S. (2007). Thesis and dissertation writing in a second language: a handbook for supervisors. Routledge</i></p> <hr/> <p><b>Material:</b> Systematics of research proposals</p> <p><b>References:</b> <i>Murray, R. (2002). How to write a thesis. Open University Press</i></p> <hr/> <p><b>Material:</b> Contemporary issues in science education</p> <p><b>References:</b> <i>Akpan, B., Cavas, B., &amp; Kennedy, T. (Eds.). (2023). Contemporary Issues in Science and Technology Education (Vol. 56). Springer Nature Switzerland</i></p> <hr/> <p><b>Material:</b> Presentation of data, tables, figures, quotations and references</p> <p><b>References :</b> <i>Schwartz, BM, Landrum, RE, &amp; Gurung, RAR (2021). An easy guide to APA style (Fourth edition). SAGE</i></p>	10%
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15	Communicate ideas for completing research proposals (seminars) by utilizing information technology	<ol style="list-style-type: none"> <li>1. Compile presentation files</li> <li>2. Present a research proposal</li> <li>3. Respond to presentations/questions</li> <li>4. Make revisions to articles/papers based on suggestions</li> </ol>	<p><b>Criteria:</b> Accuracy and mastery according to assessment indicators (assessment rubric)</p> <p><b>Form of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment</p>	Project-based learning 2 x 50'	Asynchronous with LMS 4 x 60'	<p><b>Material:</b> Research proposal <b>Bibliography:</b> <i>Paltridge, B. &amp; Starfield, S. (2007). Thesis and dissertation writing in a second language: a handbook for supervisors. Routledge</i></p> <p><b>Material:</b> Systematics of research proposals <b>References:</b> <i>Murray, R. (2002). How to write a thesis. Open University Press</i></p> <p><b>Material:</b> Contemporary issues in science education <b>References:</b> <i>Akpan, B., &amp; Cavas, B., &amp; Kennedy, T. (Eds.). (2023). Contemporary Issues in Science and Technology Education (Vol. 56). Springer Nature Switzerland</i></p> <p><b>Material:</b> Presentation of data, tables, figures, quotations and references <b>References</b> : <i>Schwartz, BM, Landrum, RE, &amp; Gurung, RAR (2021). An easy guide to APA style (Fourth edition). SAGE</i></p>	10%
16	-	Sub-CPMK 9 to 15	<p><b>Criteria:</b> UAS assessment rubric</p> <p><b>Form of Assessment :</b> Test</p>	Final Semester Evaluation/Final Semester Examination (UTS) 2 x 50'	-	<p><b>Material:</b> - <b>Library:</b></p>	0%

#### Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	67.5%
2.	Project Results Assessment / Product Assessment	27.5%
3.	Test	5%
		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.