
 Universitas Airlangga	SEMESTER LEARNING PLAN		Prepared by	Examined by	Approved by	Document Registration Number
	SLP		(Person in Charge)	(Head of Bachelor Program / Head of Department)	Vice Dean I	01/S1Kesmas/RPS/2019
	Revision - Date	January 1 st , 2019	Dr. Diah Indriani, S.Si., M.Si	Dr. Diah Indriani, S.Si., M.Si	Dr. Santi Martini, dr., M.Kes	
Valid on Semester (odd/even) / Academic Year	Odd Semester 2019/2020	(sign)	(sign)	(sign)		
Faculty of Public Health						

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A. DETAILS OF COURSE


1. Course Name	Geographic Information System and Spatial Analysis
2. Course Code	SII314
3. Credits (SKS)	2 (two) SKS
4. Semester / Term	VII (seventh)
5. Study Program	Bachelor of Public Health
6. Student Learning Achievement	After actively attending lectures in the teaching and learning process, students are expected to be able to make geographic maps and spatial analysis for data related to public health issues
7. Course Learning Achievement	<ol style="list-style-type: none"> 1. Students will be able to define the scope of geographic information systems and spatial analysis 2. Compile a geographical map for visualization and exploration of health problems 3. Composing a geographical map for interaction and spatial clustering 4. Compile a geographical map for the surveillance of health issues 5. Analyze and conclude the results of spatial correlation 6. Analyze and conclude the results of spatial regression
8. Course Description	This material discusses the concept of geographic information systems, methods of compiling geographic maps to describe health problems with spatial approaches and for surveillance purposes, spatial correlation tests and spatial regression tests.
9. Course Prerequisites (if any)	Health Information System, Parametric Biostatistics
10. Instructor	Dr. Diah Indriani, S.Si., M.Si
11. Teaching Assistants	

B. TEACHING PROGRAM

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Week	Skills expected at the end of each learning phase (Sub-Course Achievement) (C, A, P)	Study Materials	Teaching Methods	Additional Materials for Learning	Meeting Time	Course Objectives	Criteria and Indicator of Evaluation / Measurable Learning Outcome (hard and soft skills)	Mark / Grade / Percentage (%)	Reference Number Ref. (number)
1	2	3	4	5	6	7	8	9	10
1	Students will be able to define the scope of geographic information systems and spatial analysis	College contracts and definition of geographic information systems and spatial analysis: a. College contract b. The concept of geographical information systems c. The concept of spatial analysis d. Introduction to the software used in lectures	Lecture, discussion, question and answer	Teaching materials, Hand out, LCD, and whiteboard	2x50 minutes		- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills		1 – 4 7 - 10

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1	2	3	4	5	6	7	8	9	10
2	Understanding sub-systems support geographic information systems	- Sub-systems in geographic information systems - GIS approach in applications in public health	Lectures, discussions, questions and answers, exercises, assignments	Teaching materials, Hand out, LCD, and whiteboard	2x50 minutes		- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills		1 – 5 8 - 11
3	Understanding integration in geographic information systems	- Position on the surface of the earth (geographic approach) - Spatial data and attribute data - How to measure spatial data	Lectures, discussions, questions and answers, exercises, assignments	Teaching materials, Hand out, LCD, and whiteboard	2x50 minutes		- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills		1 – 5 8 - 11

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4	Practicing how to measure spatial data	- How to measure spatial data	Field practice and discussion	Teaching materials, Hand out, LCD, and whiteboard	2x50 minutes		- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills		1 – 5 8 - 11
5	Understand the concept of geographical maps and their constituent components and compile geographical maps	- The concept of geographical maps - Method of compiling a geographical map - The practice of compiling a geographical map	Lectures, discussions, questions and answers, exercises, practice assignments	Teaching materials, Hand out, LCD, and whiteboard	2x50 minutes		- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills		1 – 5 8 - 11

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1	2	3	4	5	6	7	8	9	10
6	Understand the concept of geographical maps and their constituent components and compile geographical maps	- The concept of geographical maps - Method of compiling a geographical map - The practice of compiling a geographical map	Lectures, discussions, questions and answers, exercises, practice assignments	Teaching materials, Hand out, LCD, and whiteboard	2x50 minutes		- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills		1 – 5 8 - 11
7	Integrating spatial data and attribute data in geographic map preparation in public health issues	Spatial data integration practices and attributes in public health cases	Lectures, discussions, questions and answers, exercises, practice assignments	Teaching materials, Hand out, LCD, and whiteboard	2x50 minutes		- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills		1 – 5 8 - 11

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1	2	3	4	5	6	7	8	9	10
MID TERM EXAMINATION									
8	Integrating spatial data and attribute data in geographic map preparation in public health issues	Spatial data integration practices and attributes in public health cases	Lectures, discussions, questions and answers, exercises, practice assignments	Teaching materials, Hand out, LCD, and whiteboard	2x50 minutes		- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills		1 – 5 8 - 11
9	Summarize the results of the geographical map to identify health problems as well as to assess health problems	Method of analysis on quantitative approaches in public health	Lectures, discussions, questions and answers, exercises, assignments	Teaching materials, Hand out, LCD, and whiteboard	2x50 minutes		- Listening skill - In students developing collaboration and effective communication occurs		1 – 5 8 - 11

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1	2	3	4	5	6	7	8	9	10
							- Critical thinking skills		
10	Conclude the results of a partial correlation analysis	Partial correlation: a. The concept of spatial analysis b. The concept of weights in spatial analysis c. The concept and calculation of spatial correlation analysis	Lectures, discussions, questions and answers, exercises, assignments	Teaching materials, Hand out, LCD, and whiteboard	2x50 minutes		- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills		6 - 12
11	Conclude the results of a partial correlation analysis	Partial correlation: a. The concept of spatial analysis	Lectures, discussions, questions and answers, exercises, assignments	Teaching materials, Hand out, LCD, and whiteboard	2x50 minutes		- Listening skill - In students developing collaboration and effective		6 - 12

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1	2	3	4	5	6	7	8	9	10
		b. The concept of weights in spatial analysis c. The concept and calculation of spatial correlation analysis					communication occurs - Critical thinking skills		
12	Conclude the results of the calculation of Spatial Regression (Spatial Lag Regression)	a. The concept of spatial regression b. The concept and calculation of spatial regression Lag	Lectures, discussions, questions and answers, exercises, assignments	Teaching materials, Hand out, LCD, and whiteboard	2x50 minutes		- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills		6 - 12
13.	Conclude the results of the calculation of Spatial	a. The concept of spatial regression	Lectures, discussions,	Teaching materials,	2x50 minutes		- Listening skill		6 - 12

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1	2	3	4	5	6	7	8	9	10
	Regression (Spatial Lag Regression)	b. The concept and calculation of spatial regression Lag	questions and answers, exercises, assignments	Hand out, LCD, and whiteboard			- In students developing collaboration and effective communication occurs - Critical thinking skills		
14.	Conclude the results of the calculation of Spatial Regression (Spatial Regression Error)	a. The concept of error spatial regression b. The concept and calculation of error spatial regression	Lectures, discussions, questions and answers, exercises, assignments	Teaching materials, Hand out, LCD, and whiteboard	2x50 minutes		- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills		6 - 12
FINAL TERM EXAMINATION									

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C. REQUIRED TEXTS / REFERENCES / ESSENTIAL READINGS

1. Aselin, L. Exploring Data with Geoda: A Workbook. Department of Geography. University of Illinois. Urbana
2. Rosner B. 1990. *Fundamental of Biostatistics 3 rd*. Ed PWS KENT Publishing company, Boston