A. DETAILS OF COURSE

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1. Course Name</td>
<td>Geographic Information System and Spatial Analysis</td>
</tr>
<tr>
<td>2. Course Code</td>
<td>SII314</td>
</tr>
<tr>
<td>3. Credits (SKS)</td>
<td>2 (two) SKS</td>
</tr>
<tr>
<td>4. Semester / Term</td>
<td>VII (seventh)</td>
</tr>
<tr>
<td>5. Study Program</td>
<td>Bachelor of Public Health</td>
</tr>
<tr>
<td>6. Student Learning Achievement</td>
<td>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</td>
</tr>
<tr>
<td>7. Course Learning Achievement</td>
<td>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</td>
</tr>
<tr>
<td>8. Course Description</td>
<td>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.</td>
</tr>
<tr>
<td>9. Course Prerequisites (if any)</td>
<td>Health Information System, Parametric Biostatistics</td>
</tr>
<tr>
<td>10. Instructor</td>
<td>Dr. Diah Indriani, S.Si., M.Si</td>
</tr>
<tr>
<td>11. Teaching Assistants</td>
<td></td>
</tr>
</tbody>
</table>

B. TEACHING PROGRAM
### SEMESTER LEARNING PLAN

**Prepared by**
(Person in Charge)

**Examined by**
(Head of Bachelor Program / Head of Department)

**Approved by**
Vice Dean I

**Faculty of Public Health**

**Document Registration Number**
01/S1Kesmas/RPS/2019

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>January 1st, 2019</th>
</tr>
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<tbody>
<tr>
<td><strong>SLP</strong></td>
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<tr>
<td><strong>Prepared by</strong></td>
<td>Dr. Diah Indriani, S.Si., M.Si</td>
</tr>
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<tr>
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### Faculty of Public Health

**Valid on Semester (odd/even) / Academic Year**
Odd Semester 2019/2020

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<table>
<thead>
<tr>
<th>Week</th>
<th>Skills expected at the end of each learning phase (Sub-Course Achievement) (C, A, P)</th>
<th>Study Materials</th>
<th>Teaching Methods</th>
<th>Additional Materials for Learning</th>
<th>Meeting Time</th>
<th>Course Objectives</th>
<th>Criteria and Indicator of Evaluation / Measurable Learning Outcome (hard and soft skills)</th>
<th>Mark / Grade / Percentage (%)</th>
<th>Reference Number Ref. (number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Students will be able to define the scope of geographic information systems and spatial analysis</td>
<td>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</td>
<td>Lecture, discussion, question and answer</td>
<td>Teaching materials, Hand out, LCD, and whiteboard</td>
<td>2x50 minutes</td>
<td>- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills</td>
<td>1 – 4 7 - 10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SEMESTER LEARNING PLAN

**SLP**

- **Prepared by**: (Person in Charge)
- **Examined by**: (Head of Bachelor Program / Head of Department)
- **Approved by**: Vice Dean I
- **Document Registration Number**: 01/S1Kesmas/RPS/2019

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**Faculty of Public Health**

- **Valid on Semester (odd/even) / Academic Year**: Odd Semester 2019/2020

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**Faculty of Public Health**

- **Skills expected at the end of each learning phase (Sub-Course Achievement)**
  - **(C, A, P)**

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<tr>
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</table>
| 2    | Understanding sub-systems support geographic information systems | - Sub-systems in geographic information systems  
     | 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)  
     | 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  
<pre><code> | 8 - 11 | |
</code></pre>
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<tr>
<td>4</td>
<td>Practicing how to measure spatial data</td>
<td>- How to measure spatial data</td>
<td>Field practice and discussion</td>
<td>Teaching materials, Hand out, LCD, and whiteboard</td>
<td>2x50 minutes</td>
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<td>- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills</td>
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<td>1 – 5 8 - 11</td>
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<tr>
<td>5</td>
<td>Understand the concept of geographical maps and their constituent components and compile geographical maps</td>
<td>- The concept of geographical maps - Method of compiling a geographical map - The practice of compiling a geographical map</td>
<td>Lectures, discussions, questions and answers, exercises, practice assignments</td>
<td>Teaching materials, Hand out, LCD, and whiteboard</td>
<td>2x50 minutes</td>
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<td>(Head of Bachelor Program / Head of Department)</td>
<td>Vice Dean I</td>
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<td>Dr. Diah Indriani, S.Si., M.Si</td>
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**Revision - Date**: January 1st, 2019

**Faculty of Public Health**

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</tbody>
</table>
| 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 |
## SEMESTER LEARNING PLAN

**Prepared by**

(Person in Charge)

**Examined by**

(Head of Bachelor Program / Head of Department)

**Approved by**

Vice Dean I

**Document Registration Number**

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</thead>
<tbody>
<tr>
<td>8</td>
<td>Integrating spatial data and attribute data in geographic map preparation in public health issues</td>
<td>Spatial data integration practices and attributes in public health cases</td>
<td>Lectures, discussions, questions and answers, exercises, practice assignments</td>
<td>Teaching materials, Hand out, LCD, and whiteboard</td>
<td>2x50 minutes</td>
<td>- Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills</td>
<td>1 – 5 8 - 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Summarize the results of the geographical map to identify health problems as well as to assess health problems</td>
<td>Method of analysis on quantitative approaches in public health</td>
<td>Lectures, discussions, questions and answers, exercises, assignments</td>
<td>Teaching materials, Hand out, LCD, and whiteboard</td>
<td>2x50 minutes</td>
<td>- Listening skill - In students developing collaboration and effective communication occurs</td>
<td>1 – 5 8 - 11</td>
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<tr>
<td>Week</td>
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</tr>
</tbody>
</table>
| 10   | Conclude the results of a partial correlation analysis  
  a. The concept of spatial analysis  
  b. The concept of weights in spatial analysis  
  c. The concept and calculation of spatial correlation analysis | Partial correlation:  
 Lectures, discussions, questions and answers, exercises, assignments | 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  
  a. The concept of spatial analysis  
  b. The concept of weights in spatial analysis  
  c. The concept and calculation of spatial correlation analysis | Partial correlation:  
 Lectures, discussions, questions and answers, exercises, assignments | 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 |
### Week 1
#### Skills expected at the end of each learning phase (Sub-Course Achievement) (C, A, P)
- b. The concept of weights in spatial analysis
- c. The concept and calculation of spatial correlation analysis

#### Study Materials
- c. The concept and calculation of spatial correlation analysis

#### Teaching Methods
- Lectures, discussions, questions and answers, exercises, assignments

#### Additional Materials for Learning
- Teaching materials, Hand out, LCD, and whiteboard

#### Meeting Time
- 2x50 minutes

#### Course Objectives
- Communication occurs
- Critical thinking skills

#### Criteria and Indicator of Evaluation / Measurable Learning Outcome (hard and soft skills)
- Mark / Grade / Percentage (%)

#### Reference Number
- 6 - 12

---

### Week 12
#### Skills expected at the end of each learning phase (Sub-Course Achievement) (C, A, P)
- a. The concept of spatial regression
- b. The concept and calculation of spatial regression Lag

#### Study Materials
- Lectures, discussions, questions and answers, exercises, assignments

#### Teaching Methods
- Lectures, discussions, questions and answers, exercises, assignments

#### Additional Materials for Learning
- Teaching materials, Hand out, LCD, and whiteboard

#### Meeting Time
- 2x50 minutes

#### Course Objectives
- Listening skill
- In students developing collaboration and effective communication occurs
- Critical thinking skills

#### Criteria and Indicator of Evaluation / Measurable Learning Outcome (hard and soft skills)
- Mark / Grade / Percentage (%)

#### Reference Number
- 6 - 12

---

### Week 13
#### Skills expected at the end of each learning phase (Sub-Course Achievement) (C, A, P)
- a. The concept of spatial regression

#### Study Materials
- Lectures, discussions

#### Teaching Methods
- Lectures, discussions

#### Additional Materials for Learning
- Teaching materials

#### Meeting Time
- 2x50 minutes

#### Course Objectives
- Listening skill

#### Criteria and Indicator of Evaluation / Measurable Learning Outcome (hard and soft skills)
- Mark / Grade / Percentage (%)

#### Reference Number
- 6 - 12
# SEMESTER LEARNING PLAN

## Prepared by
(Person in Charge)
Dr. Diah Indriani, S.Si., M.Si

## Examined by
(Head of Bachelor Program / Head of Department)
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## Course Objectives

<table>
<thead>
<tr>
<th>Week</th>
<th>Skill(s) or Activity</th>
<th>Study Materials</th>
<th>Teaching Methods</th>
<th>Additional Materials for Learning</th>
<th>Meeting Time</th>
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<th>Mark / Grade / Percentage (%)</th>
<th>Reference Number</th>
</tr>
</thead>
</table>
| 1    | 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**
### Required Texts / References / Essential Readings

1. Aselin, L. Exploring Data with Geoda: A Workbook. Department of Geography, University of Illinois, Urbana

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