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|  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 1st, 2019 | Dr. Rachmah Indawati, SKM. MKM. | Dr. Diah Indriani, S.Si., M.Si | Dr. Santi Martini, dr., M.Kes | |
| Valid on Semester (odd/even) / Academic Year | Even Semester | (sign) | (sign) | (sign) | | |
| Faculty of Public Health | | | | | | |

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A. DETAILS OF COURSE


| | |
|---|--|
| 1. Course Name | Elementary Biostatistics |
| 2. Course Code | MAS111 |
| 3. Credits (SKS) | 2 (two) SKS |
| 4. Semester / Term | II (second) |
| 5. Study Program | Bachelor of Public Health |
| 6. Student Learning Achievement | At the end of the course students will be able to understand the scope of biostatistics and biostatistics, data and variables, descriptive biostatistics, calculating probabilities, probability distributions, estimates and hypotheses |
| 7. Course Learning Achievement | <ol style="list-style-type: none"> 1. Students will be able to explain the meaning, scope, and role of biostatistics, data collection, and data 2. Students will be able to explain the meaning, scope, and role of biostatistics, data collection, and data 3. Explain descriptive statistics - Calculate the central size 4. Calculating the size of diversity and calculating the size of the position 5. Making the presentation of data in several forms 6. Calculating the probability distribution 7. Calculating the probability distribution |
| 8. Course Description | This course discusses the meaning, scope, and role of statistics; data and data scale; descriptive statistical concepts, population and sample, and descriptive statistical functions; central size, diversity, and position; data presentation; inferential statistical concepts, error concepts and descriptive and inferential statistical links, probability concepts and the principle of calculating probabilities; discrete and continuous probability distribution; sample distribution; concepts, steps and hypothesis testing; estimation |
| 9. Course Prerequisites (if any) | None |
| 10. Instructor | Dr. Rachmah Indawati, SKM. MKM. |
| 11. Teaching Assistants | |

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B. TEACHING PROGRAM

| 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 explain the meaning, scope, and role of biostatistics, data collection, and data | Course contract: a. Explain lectures b. Explain Evaluation c. Explain attendance Biotatistics and biostatistics: a. Definition of biostatistics and biostatistics b. Biostatistics scope c. The role of biostatistics | 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 - Social skills in the discussion process | | Book 1 chapter 1, book 3 chapter 1 |

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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 |
| 2 | Students will be able to explain the meaning, scope, and role of biostatistics, data collection, and data | Data and variables: a. Data concept and measurement scale b. Data type c. Data Classification d. Amount of data (univariate and bivariate data) e. Variable | 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 - Social skills in the discussion process | | Book 1 chapter 1, book 3 chapter 1 |
| 3 | Explain descriptive statistics - Calculate central size | Descriptive statistics - Central size: a. Descriptive statistical function | Lecture, discussion, question and answer, exercise | Teaching materials, Hand out, LCD, and whiteboard | 2x50 minutes | | - Listening skill - In students developing collaboration and effective communication occurs | | Book 1 chapter 1, book 3 chapter 2, book 4 |

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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 / Percent age (%) | Reference Number Ref. (number) |
|------|--|---|--|---|--------------|-------------------|---|--------------------------------|--------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | b. Mean, median, population mode and sample c. Mean, median, mode for population and sample group data | | | | | - Critical thinking skills - Social skills in the discussion process | | |
| 4 | Calculate size of diversity and Calculate position size | Size diversity: a. Range, standard deviation, population variance and sample b. Standard deviation, variance for population and sample group data Position Size: | Lecture, discussion, question and answer, exercise | Teaching materials, Hand out, LCD, and whiteboard | 2x50 minutes | | - Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills - Social skills in the discussion process | | 4, 3 |

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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 / Percent age (%) | Reference Number Ref. (number) |
|-------------|---|--|--|---|---------------------|--------------------------|---|---------------------------------------|---------------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | a. Percentile b. Quartil c. Form / distribution of data | | | | | | | |
| 5 | Make the presentation of data in several forms | Presentation of data in several forms: - table - Diagrams (sticks, pie, pareto) - Graphs (histograms, frequency polygons, steam and leaf, box plot, dot plot, ogive, scatterplot) | Lecture, discussion, question and answer, exercise | Teaching materials, Hand out, LCD, and whiteboard | 2x50 minutes | | - Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills - Social skills in the discussion process | | 1 - 10 |

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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 / Percent age (%) | Reference Number Ref. (number) |
|------|--|--|--|---|--------------|-------------------|---|--------------------------------|--------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 6 | Calculate the probability distribution | Probability: a. The concept of probability b. The principle of calculating probabilities (summation, transition, permutation, combination) c. The basic role of finding probability | Lecture, discussion, question and answer, exercise | Teaching materials, Hand out, LCD, and whiteboard | 2x50 minutes | | - Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills - Social skills in the discussion process | | 4, 3 |
| 7 | Calculate the probability distribution | Probability and sampling distribution: a. The concept of probability distribution | Lecture, discussion, question and answer, exercise | Teaching materials, Hand out, LCD, and whiteboard | 2x50 minutes | | - Listening skill - In students developing collaboration and effective | | 4, 3 |

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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 (<i>hard and soft skills</i>) | Mark / Grade / Percentage (%) | Reference Number Ref. (number) |
|-----------------------------|--|---|--|---|--------------|-------------------|--|-------------------------------|--------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | b. The concept of sampling distribution | | | | | communication occurs - Critical thinking skills - Social skills in the discussion process | | |
| MID TERM EXAMINATION | | | | | | | | | |
| 8 | Calculate the probability distribution | Discrete and continuous probability distribution: a. The concept of discrete and continuous probability distribution | Lecture, discussion, question and answer, exercise | Teaching materials, Hand out, LCD, and whiteboard | 2x50 minutes | | - Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills | | 4, 3 |

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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 |
| | | b. Difference in discrete and continuous probability distribution c. Normal probability distribution d. Binomial distribution, poisson | | | | | - Social skills in the discussion process | | |
| 9 | Calculate the probability distribution | Discrete and continuous probability distribution: a. The concept of discrete and continuous | Lecture, discussion, question and answer, exercise | Teaching materials, Hand out, LCD, and whiteboard | 2x50 minutes | | - Listening skill - In students developing collaboration and effective communication occurs | | 4, 3 |

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|------|--|--|--|---|--------------|-------------------|---|--------------------------------|--------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | probability distribution b. Difference in discrete and continuous probability distribution c. Normal probability distribution d. Binomial distribution, poisson | | | | | - Critical thinking skills - Social skills in the discussion process | | |
| 10 | Explain inferential statistics | Inferential Statistics: a. The concept of inferential statistics | Lecture, discussion, question and answer, exercise | Teaching materials, Hand out, LCD, and whiteboard | 2x50 minutes | | - Listening skill - In students developing collaboration and effective | | 2, 3, 5, 6 |

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|------|--|--|--|---|--------------|-------------------|---|--------------------------------|--------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | b. Association of descriptive & inferential statistics | | | | | communication occurs - Critical thinking skills - Social skills in the discussion process | | |
| 11 | Calculate the hypothesis | Hypothesis: a. Hypothesis concept b. Hypothetical steps c. Type I and II errors d. Real level e. One and two way test | Lecture, discussion, question and answer, exercise | Teaching materials, Hand out, LCD, and whiteboard | 2x50 minutes | | - Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills - Social skills in the discussion process | | 2, 3, 5, 6 |

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|------|--|--|--|---|--------------|-------------------|---|-------------------------------|--------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 12 | Calculate estimates | Estimated: a. Concept of estimation (point and interval estimation) b. The concept of maximum error, level of confidence, level of significance c. Confidence interval (mean, standard deviation, proportion) | Lecture, discussion, question and answer, exercise | Teaching materials, Hand out, LCD, and whiteboard | 2x50 minutes | | - Listening skill - In students developing collaboration and effective communication occurs - Critical thinking skills - Social skills in the discussion process | | 2, 3, 5, 6 |
| 13. | Calculate estimates | Estimated: a. Concept of estimation (point | Lecture, discussion, question and answer, exercise | Teaching materials, Hand out, | 2x50 minutes | | - Listening skill - In students developing collaboration | | 2, 3, 5, 6 |

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|------------------------|--|--|------------------|-----------------------------------|--------------|-------------------|---|-------------------------------|--------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | and interval estimation) b. The concept of maximum error, level of confidence, level of significance c. Confidence interval (mean, standard deviation, proportion) | | LCD, and whiteboard | | | and effective communication occurs - Critical thinking skills - Social skills in the discussion process | | |
| FINAL TERM EXAMINATION | | | | | | | | | |

C. REQUIRED TEXTS / REFERENCES / ESSENTIAL READINGS

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