**MODULE PORTFOLIO**
**ODD SEMESTER ACADEMIC YEAR 2019/2020**

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|---|---|---|---|
| MODULE NAME | : | Statistics Method | LECTURER: |
| MODULE CODE | : | 4420103082 | |
| CLASS | : | 2019 | |
| SEMESTER | : | 2 | |
| DATE | : | 27 Januari 2020 | A'yunin Sofro, Ph.D |
| COURSE LEARNING OUTCOMES | : | **Programme Learning Outcomes (PLO)**<br>**Knowledge (KNO-2) :** Be able to Identify and explain the characteristics of mathematical problems<br>CLO-1 : Be able to identify and demonstratate concepts related to basic knowledge of statistics, descriptive statistics which include data presentation, center size, location size, center size, size and distribution, sample space, probability, binomial, normal and t-student probability distribution, sampling distribution, inferential statistics includes hypothesis test, Z test, T test, Anova, correlation, regression and Chi squared.<br><br>**Skill (SKI-2) :** Be able to apply the basic principles of mathematics to solve simple* mathematical problems.<br>CLO-2 : Be able to implement the basic concepts of statistics, descriptive statistics, sampling distribution and inferential statistics and be able to present tasks well and be able to apply them in problem solving through a mathematical approach.<br><br>**Skill (SKI-4) :** Be able to implement simple mathematical procedures in computer programs.<br>CLO-3 : Be able to implement the basic concepts of statistics, descriptive statistics, sampling distribution and inferential statistics and be able to present tasks well and be able to apply them in problem solving through a computer approach.<br><br>**Competence (COM-1) :** Be able to prove mathematical statements by various methods.<br>CLO-4 : Be able to prove a statement decision using several method<br><br>**Attitude and Social (SOC-1) :** Be able to work collaboratively and having social sensitivity (obligations as citizens and towards religion) and being able to bring change to a techno-ecopreneurship community.<br>CLO-5 : Be able to work collaboratively and submit the assignments on time | |

**Correlation Between PLO and CLO Statistics Method**

| Statistics Method | KNO-2 | SKI-2 | SKI-4 | COM-1 | SOC-1 |
|---|---|---|---|---|---|
| CLO-1 | √ | | | | |
| CLO-2 | | √ | | | |
| CLO-3 | | | √ | | |
| CLO-4 | | | | √ | |
| CLO-5 | | | | | √ |

| | | |
|---|---|---|
| LEARNING STRATEGIES | : | Lectures are carried out by activating students with the following strategies: Lectures. Discussions. Practices. Presentations. and Group Assignments |
| ASSESSMENT | : | The assessment carried out during the lecture includes the following three components.<br>1. Assignment (Assignment and final project)<br>2. Midterm Exam (UTS)<br>3. Final Exam (UAS)<br><br>**1. Assignment**<br>• Assignments were given every two weeks in one semester<br>• The assignments and final project was carried out to see the achievements of the PLO and CLO which are in accordance with the characteristics of the statistics method module<br><br>**2. Midterm Exam (UTS)**<br>• UTS was held at the 8th meeting<br>• UTS was carried out in the classroom with an implementation time of 100 minutes according to the module schedule |

- The UTS was carried out to see the achievements of the PLO and CLO which are in accordance with the characteristics of the statistics method module

**3. Final Exam (UAS)**

- UAS was held at the 16th meeting
- UAS was carried out in the classroom with an implementation time of 100 minutes which follows the UAS implementation schedule of the department
- The UAS was carried out to see the achievements of the PLO and CLO which are in accordance with the characteristics of the analytical geometry courses

**Assessmen Plan**

| Statistics Method | KNO-2 | SKI-2 | SKI-4 | COM-1 | SOC-1 |
|---|---|---|---|---|---|
| CLO-1 | Assignments, UTS, UAS | | | | |
| CLO-2 | | Assignments, UTS, UAS | | | |
| CLO-3 | | | Assignments, UTS, UAS | | |
| CLO-4 | | | | Assignments, UTS, UAS | |
| CLO-5 | | | | | Assignments, UTS, UAS |

**Weight of Test Ability**

| Statistics Method | KNO-2 | SKI-2 | SKI-4 | COM-1 | SOC-1 |
|---|---|---|---|---|---|
| Assignments | 20% | 20% | 30% | 20% | 10% |
| UTS | 20% | 20% | 20% | 20% | 20% |
| UAS | 20% | 20% | 30% | 20% | 10% |

**The Calculation of PLO's Weight**

| | A | UTS | UAS | |
|---|---|---|---|---|
| **KNO-2** | 0,2 | 0,2 | 0,2 | **0,6** |
| **SKI-2** | 0,2 | 0,2 | 0,2 | **0,6** |
| **SKI-4** | 0,3 | 0,2 | 0,3 | **0,8** |
| **COM-1** | 0,2 | 0,2 | 0,2 | **0,6** |
| **SOC-1** | 0,1 | 0,2 | 0,1 | **0,4** |
| | **1** | **1** | **1** | **3** |

LEARNING OUTCOMES :

**The Calculation of PLO for each students and the predicate of PLO for each student**

| NO | NIM | SCORE OF PLO | | | | | PREDICATE OF PLO | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | KNO-2 | SKI-2 | SKI-4 | COM-1 | SOC-1 | KNO-2 | SKI-2 | SKI-4 | COM-1 | SOC-1 |
| 1 | 18030214024 | 54,25 | 54,25 | 54,18 | 54,25 | 54,40 | F | F | F | F | F |
| 2 | 19030214001 | 80,63 | 80,63 | 81,14 | 80,63 | 79,50 | E | E | E | E | G |
| 3 | 19030214003 | 71,25 | 71,25 | 70,91 | 71,25 | 72,00 | G | G | G | G | G |
| 4 | 19030214005 | 73,75 | 73,75 | 72,73 | 73,75 | 76,00 | G | G | G | G | G |
| 5 | 19030214007 | 89,63 | 89,63 | 89,59 | 89,63 | 89,70 | E | E | E | E | E |
| 6 | 19030214009 | 94,38 | 94,38 | 95,23 | 94,38 | 92,50 | E | E | E | E | E |
| 7 | 19030214011 | 66,25 | 66,25 | 65,91 | 66,25 | 67,00 | S | S | S | S | S |
| 8 | 19030214013 | 76,88 | 76,88 | 77,05 | 76,88 | 76,50 | G | G | G | G | G |
| 9 | 19030214015 | 75,88 | 75,88 | 76,32 | 75,88 | 74,90 | G | G | G | G | G |
| 10 | 19030214017 | 75,00 | 75,00 | 76,36 | 75,00 | 72,00 | G | G | G | G | G |
| 11 | 19030214019 | 76,88 | 76,88 | 77,05 | 76,88 | 76,50 | G | G | G | G | G |
| 12 | 19030214021 | 90,88 | 90,88 | 91,86 | 90,88 | 88,70 | E | E | E | E | E |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 19030214023 | 79,00 | 79,00 | 78,45 | 79,00 | 80,20 | | G | G | G | G | E |
| 14 | 19030214025 | 70,00 | 70,00 | 68,64 | 70,00 | 73,00 | | G | G | S | G | G |
| 15 | 19030214027 | 80,63 | 80,63 | 81,14 | 80,63 | 79,50 | | E | E | E | E | G |
| 16 | 19030214029 | 88,00 | 88,00 | 88,27 | 88,00 | 87,40 | | E | E | E | E | E |
| 17 | 19030214031 | 85,13 | 85,13 | 86,05 | 85,13 | 83,10 | | E | E | E | E | E |
| 18 | 19030214033 | 81,13 | 81,13 | 81,23 | 81,13 | 80,90 | | E | E | E | E | E |
| 19 | 19030214035 | 79,00 | 79,00 | 79,55 | 79,00 | 77,80 | | G | G | G | G | G |
| 20 | 19030214037 | 67,13 | 67,13 | 66,41 | 67,13 | 68,70 | | S | S | S | S | S |
| 21 | 19030214039 | 76,25 | 76,25 | 77,27 | 76,25 | 74,00 | | G | G | G | G | G |
| 22 | 19030214041 | 85,00 | 85,00 | 85,00 | 85,00 | 85,00 | | E | E | E | E | E |
| 23 | 19030214043 | 83,13 | 83,13 | 84,32 | 83,13 | 80,50 | | E | E | E | E | E |
| 24 | 19030214045 | 75,00 | 75,00 | 75,00 | 75,00 | 75,00 | | G | G | G | G | G |
| 25 | 19030214047 | 87,25 | 87,25 | 88,55 | 87,25 | 84,40 | | E | E | E | E | E |
| 26 | 19030214049 | 73,00 | 73,00 | 71,91 | 73,00 | 75,40 | | G | G | G | G | G |
| 27 | 19030214051 | 80,25 | 80,25 | 80,73 | 80,25 | 79,20 | | E | E | E | E | G |
| 28 | 19030214053 | 83,50 | 83,50 | 83,36 | 83,50 | 83,80 | | E | E | E | E | E |
| 29 | 19030214055 | 79,88 | 79,88 | 80,32 | 79,88 | 78,90 | | G | G | E | G | G |
| 30 | 19030214057 | 74,63 | 74,63 | 74,59 | 74,63 | 74,70 | | G | G | G | G | G |
| 31 | 19030214059 | 64,50 | 64,50 | 64,64 | 64,50 | 64,20 | | S | S | S | S | S |
| 32 | 19030214061 | 74,00 | 74,00 | 73,18 | 74,00 | 75,80 | | G | G | G | G | G |
| 33 | 19030214063 | 57,50 | 57,50 | 56,82 | 57,50 | 59,00 | | S | S | S | S | S |
| 34 | 19030214065 | 67,75 | 67,75 | 66,18 | 67,75 | 71,20 | | S | S | S | S | G |
| 35 | 19030214067 | 74,38 | 74,38 | 73,86 | 74,38 | 75,50 | | G | G | G | G | G |
| 36 | 17030214029 | 86,25 | 86,25 | 86,18 | 86,25 | 86,40 | | E | E | E | E | E |
| 37 | 19030214002 | 81,50 | 81,50 | 81,64 | 81,50 | 81,20 | | E | E | E | E | E |
| 38 | 19030214004 | 84,63 | 84,63 | 84,59 | 84,63 | 84,70 | | E | E | E | E | E |
| 39 | 19030214006 | 83,13 | 83,13 | 83,23 | 83,13 | 82,90 | | E | E | E | E | E |
| 40 | 19030214008 | 86,25 | 86,25 | 86,18 | 86,25 | 86,40 | | E | E | E | E | E |
| 41 | 19030214010 | 86,25 | 86,25 | 86,18 | 86,25 | 86,40 | | E | E | E | E | E |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | 19030214012 | 81,50 | 81,50 | 81,64 | 81,50 | 81,20 | E | E | E | E | E |
| 43 | 19030214014 | 86,25 | 86,25 | 86,18 | 86,25 | 86,40 | E | E | E | E | E |
| 44 | 19030214016 | 81,50 | 81,50 | 81,64 | 81,50 | 81,20 | E | E | E | E | E |
| 45 | 19030214018 | 86,25 | 86,25 | 86,18 | 86,25 | 86,40 | E | E | E | E | E |
| 46 | 19030214020 | 81,50 | 81,50 | 81,64 | 81,50 | 81,20 | E | E | E | E | E |
| 47 | 19030214022 | 86,25 | 86,25 | 86,18 | 86,25 | 86,40 | E | E | E | E | E |
| 48 | 19030214024 | 86,25 | 86,25 | 86,18 | 86,25 | 86,40 | E | E | E | E | E |
| 49 | 19030214028 | 83,88 | 83,88 | 83,77 | 83,88 | 84,10 | E | E | E | E | E |
| 50 | 19030214030 | 81,50 | 81,50 | 81,64 | 81,50 | 81,20 | E | E | E | E | E |
| 51 | 19030214032 | 82,00 | 82,00 | 82,00 | 82,00 | 82,00 | E | E | E | E | E |
| 52 | 19030214034 | 83,88 | 83,88 | 83,77 | 83,88 | 84,10 | E | E | E | E | E |
| 53 | 19030214036 | 84,63 | 84,63 | 84,59 | 84,63 | 84,70 | E | E | E | E | E |
| 54 | 19030214038 | 81,75 | 81,75 | 81,82 | 81,75 | 81,60 | E | E | E | E | E |
| 55 | 19030214040 | 81,50 | 81,50 | 81,64 | 81,50 | 81,20 | E | E | E | E | E |
| 56 | 19030214042 | 86,25 | 86,25 | 86,18 | 86,25 | 86,40 | E | E | E | E | E |
| 57 | 19030214044 | 86,25 | 86,25 | 86,18 | 86,25 | 86,40 | E | E | E | E | E |
| 58 | 19030214046 | 81,50 | 81,50 | 81,64 | 81,50 | 81,20 | E | E | E | E | E |
| 59 | 19030214048 | 82,00 | 82,00 | 82,00 | 82,00 | 82,00 | E | E | E | E | E |
| 60 | 19030214050 | 81,75 | 81,75 | 81,82 | 81,75 | 81,60 | E | E | E | E | E |
| 61 | 19030214052 | 83,13 | 83,13 | 83,23 | 83,13 | 82,90 | E | E | E | E | E |
| 62 | 19030214054 | 86,25 | 86,25 | 86,18 | 86,25 | 86,40 | E | E | E | E | E |
| 63 | 19030214056 | 83,13 | 83,13 | 83,23 | 83,13 | 82,90 | E | E | E | E | E |
| 64 | 19030214058 | 86,25 | 86,25 | 86,18 | 86,25 | 86,40 | E | E | E | E | E |
| 65 | 19030214060 | 84,63 | 84,63 | 84,59 | 84,63 | 84,70 | E | E | E | E | E |
| 66 | 19030214062 | 86,25 | 86,25 | 86,18 | 86,25 | 86,40 | E | E | E | E | E |
| 67 | 19030214064 | 81,75 | 81,75 | 81,82 | 81,75 | 81,60 | E | E | E | E | E |
| 68 | 19030214066 | 82,00 | 82,00 | 82,00 | 82,00 | 82,00 | E | E | E | E | E |

E = Excellent

| | | |
|---|---|---|
| | | G = Good<br>S = Satisfy<br>F = Fail |
| LEARNING OUTCOMES ANALYSIS | : | **PLO Assessment Rubric** |

| PLO | Description | Excellent<br>$x \geq 80$ | Good<br>$70 \leq x < 80$ | Satisfy<br>$55 \leq x < 70$ | Fail<br>$x < 55$ |
|---|---|---|---|---|---|
| **KNO-2** | Be able to Identify and explain the characteristics of mathematical problems. | Student be able to identify and demonstratate concepts related to basic knowledge of statistics, descriptive statistics which include data presentation, center size, location size, center size, size and distribution, sample space, probability, binomial, normal and t-student probability distribution, sampling distribution, inferential statistics includes hypothesis est, Z test, T test, Anova, correlation, regression and Chi squared with score at least 80. | Student be able to identify and demonstratate concepts related to basic knowledge of statistics, descriptive statistics which include data presentation, center size, location size, center size, size and distribution, sample space, probability, binomial, normal and t-student probability distribution, sampling distribution, inferential statistics includes hypothesis est, Z test, T test, Anova, correlation, regression and Chi squared with score at least 70 and less than 80. | Student be able to identify and demonstratate concepts related to basic knowledge of statistics, descriptive statistics which include data presentation, center size, location size, center size, size and distribution, sample space, probability, binomial, normal and t-student probability distribution, sampling distribution, inferential statistics includes hypothesis est, Z test, T test, Anova, correlation, regression and Chi squared with score at least 55 and less than 70. | Student be able to identify and demonstratate concepts related to basic knowledge of statistics, descriptive statistics which include data presentation, center size, location size, center size, size and distribution, sample space, probability, binomial, normal and t-student probability distribution, sampling distribution, inferential statistics includes hypothesis est, Z test, T test, Anova, correlation, regression and Chi squared with score less than 55. |

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|---|---|---|---|---|---|---|---|---|
| | | | **SKI-2** | Be able to implement basic principles of mathematics to solve simple mathematics problems | Student be able to implement the basic concepts of statistics, descriptive statistics, sampling distribution and inferential statistics and be able to present tasks well and be able to apply them in problem solving through a mathematical approach with score at least 80. | Student be able to implement the basic concepts of statistics, descriptive statistics, sampling distribution and inferential statistics and be able to present tasks well and be able to apply them in problem solving through a mathematical approach with score at least 70 and less than 80. | Student be able to implement the basic concepts of statistics, descriptive statistics, sampling distribution and inferential statistics and be able to present tasks well and be able to apply them in problem solving through a mathematical approach with score at least 55 and less than 70 | Student be able to implement the basic concepts of statistics, descriptive statistics, sampling distribution and inferential statistics and be able to present tasks well and be able to apply them in problem solving through a mathematical approach with score less than 55. |
| | | | **SKI-4** | Be able to Implement simple mathematical procedures in computer programs. | Student be able to implement the basic concepts of statistics, descriptive statistics, sampling distribution and inferential statistics and be able to present tasks well and be able to apply them in problem solving through a computer approach with score at least 80. | Student be able to implement the basic concepts of statistics, descriptive statistics, sampling distribution and inferential statistics and be able to present tasks well and be able to apply them in problem solving through a computer approach with score at least 70 and less than 80. | Student be able to implement the basic concepts of statistics, descriptive statistics, sampling distribution and inferential statistics and be able to present tasks well and be able to apply them in problem solving through a computer approach with score at least 55 and less than 70 | Student be able to implement the basic concepts of statistics, descriptive statistics, sampling distribution and inferential statistics and be able to present tasks well and be able to apply them in problem solving through a computer approach with score less than 55. |

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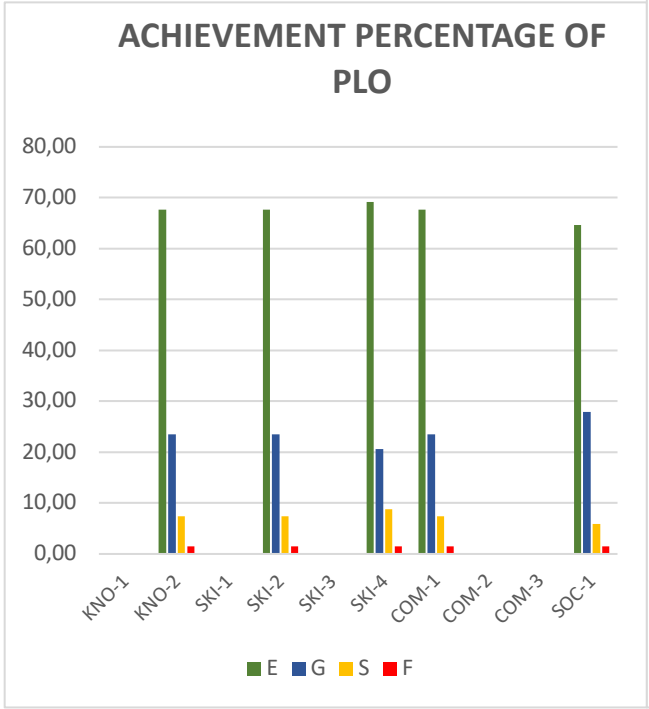
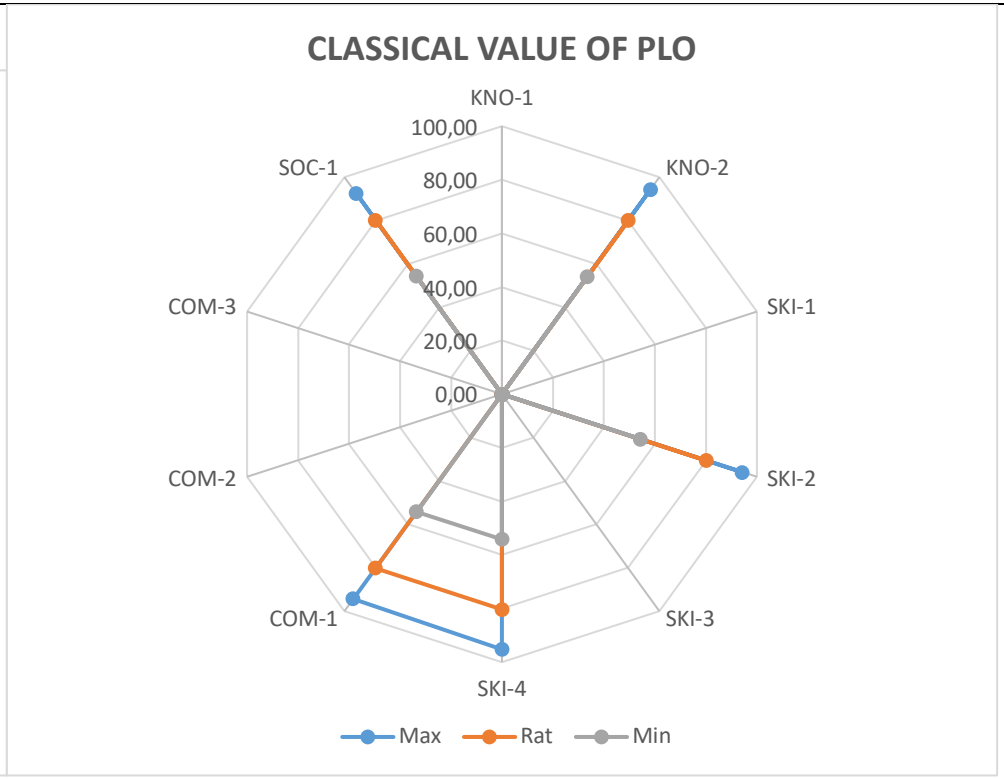
|---|---|---|---|---|---|---|
| **COM-1** | Be able to Prove mathematical statements by various methods. | Student be able to prove a statement decision using several methods with score at least 80. | Student be able to prove a statement decision using several methods with score at least 70 and less than 80. | Student be able to prove a statement decision using several methods with score at least 55 and less than 70 | Student be able to prove a statement decision using several methods with score less than 55. |
| **SOC-1** | Be able to Work collaboratively and having social sensitivity (obligations as citizens and towards religion) and being able to bring change to a techno-ecopreneurship community. | Student be able to work collaboratively and submit the assignments on time with score at least 80. | Student be able to work collaboratively and submit the assignments on time with score at least 70 and less than 80. | Student be able to work collaboratively and submit the assignments on time with score at least 55 and less than 70 | Student be able to work collaboratively and submit the assignments on time with score less than 55. |

| | CLASSICAL VALUE OF PLO | | | | |
|---|---|---|---|---|---|
| | KNO-2 | SKI-2 | SKI-4 | COM-1 | SOC-1 |
| Max | 94,38 | 94,38 | 95,23 | 94,38 | 92,50 |
| Rat | 80,28 | 80,28 | 80,32 | 80,28 | 80,20 |
| Min | 54,25 | 54,25 | 54,18 | 54,25 | 54,40 |
| | ACHIEVEMENT NUMBER OF PLO | | | | |
| E | 46,00 | 46,00 | 47,00 | 46,00 | 44,00 |
| G | 16,00 | 16,00 | 14,00 | 16,00 | 19,00 |
| S | 5,00 | 5,00 | 6,00 | 5,00 | 4,00 |
| F | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| | 68,00 | 68,00 | 68,00 | 68,00 | 68,00 |
| | ACHIEVEMENT PERCENTAGE OF PLO (%) | | | | |
| E | 67,65 | 67,65 | 69,12 | 67,65 | 64,71 |
| G | 23,53 | 23,53 | 20,59 | 23,53 | 27,94 |
| S | 7,35 | 7,35 | 8,82 | 7,35 | 5,88 |
| F | 1,47 | 1,47 | 1,47 | 1,47 | 1,47 |
| | 100,00 | 100,00 | 100,00 | 100,00 | 100,00 |

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| STUDENT'S LEARNING PERFORMANCE ANALYSIS | : | In general, the students in statisctics method course have mastered the concept and skills taught in the course. From 68 students, 67.65% of students achieved excellent criteria in KNO-2, 67.65% of students achieved excellent criteria in SKI-2, 69.12% of students achieved excellent criteria in SKI-4, 67.65% of students achieved excellent criteria in COM-1, and 64.75% of students achieved excellent criteria in SOC-1 . However, there is one students failed in for every criteria given this course. The student took the course two times and had difficult to achieve criterion. |

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| RECOMMENDATION FOR FUTURE LEARNING | : | Several recommendations based on the last course of analytical geometry for better course in the future are as follow:<br>1. Motivate the students more in applying the basic principle of mathematics problem. The students should be asked to share their opinion in class. This should extend the students understanding better and force them to read thoroughly<br>2. Several products by the students can be extended end develop more for students own portfolios |
| RECOMMEDATION FOR INSTITUTION | : | NA |

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
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# DOCUMENT OF ODD SEMESTER MIDDLE EXAMINATION

## ACADEMIC YEAR OF 2021/2022

| | | |
|---|---|---|
| Course | : | Methods of Statistics |
| Lecturer(s) | : | A'yunin Sofro, Ph.D. |
| Program/Class of | : | Mathematics/ 2021 D and E |
| Test Day/Date | : | Friday, 15th October 2021 |
| Duration/Period | : | 100 minutes / 08:00 -09:40 |
| Test Type | : | Open Book |

**Guidlines of the examination:**

- Pray before the test.
- Use the black ink to answer the problems.
- Open account GC jam 08:00 to get the exam script at assignment menu
- Upload the statement of integrity at : https://forms.gle/KZ39eudFHRp6nRLs8
- Answer all the question correctly.
- Write down your details (Name, Nim and Class) for each page of your answer papers.
- Submit all the answer papers before 09:50 on Friday, October 15th 2021 on GC
- If you submit more than the due date, it refers that **you do not do the exam**.
- All of cheating will **reduce** the final score.

**Answer correctly and completely all of the questions**

1. Data : 10,2 14,1 14,4 14,4 14,4 14,5 14,5 14,6 14,7 14,7 14,7 14,9 15,1 15,9 16,4
   (a) Contruct the boxplot (10)
   (b) Calculate the centre of tendency measurement (10)
   (c) Calculate the dispersion measurement (10)

2. One researcher reported that the object the research will stay alive with an average of 40 month by doing a strict diet of vitamins and proteins. It is assumed that the lifetime of the object it follows a normal distribution with a standard the deviation is 6.3 months. Determine the probability of life span of research object
   (a) more than 32 months (10)
   (b) less than 28 months (10)
   (c) between 37 and 49 months (10)

3. There is an assumption about the price of apples in the market free area A is Rp 600K/box with The standard deviation is IDR 25 K. Departing from this assumption, then it is carried out random sampling of 40 stalls fruit and obtained information that the average is IDR 594K/box. Test the assumption of truth above with a alpha 5 percent and with a approach using
   (a) significant level (20)

(b) p value (20)

☺ **Good Luck** ☺

KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET, DAN TEKNOLOGI
UNIVERSITAS NEGERI SURABAYA
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## BLUE PRINT OF ODD SEMESTER MISTERM EXAMINATION

Examination Subjects : Methods of Statistics

Lectures : A'yunin Sofro,Ph.D

Program : Mathematics

| No. | Indicator | Test | Key of the answer | Cognitive Domain | Score |
|---|---|---|---|---|---|
| 1. | Able to apply the principal of descriptive statistics (CLO-2) | Data : 10.2 14.1 14.4 14.4 14.4 14.5 14.5 14.6 14.7 14.7 14.7 14.9 15.1 15.9 16.4<br><br>(a) Contruct the boxplot<br><br>(b) Calculate the centre of tendency measurement<br><br>(c) Calculate the dispersion measurement | • Order the data from the minimum to the maximum<br>• Calculate Q1, Q2 dan Q3<br>• Calculate interquartile Range<br>• Draw the box from Q1, Q2 and Q3<br>• Find the lower and upper threshold<br>• Find the outlier if it is exist<br>• Determine the centre of tendency measurement, such as modus or median<br>• Determine the dispersion measurement, such as interquartile range | SK-2 | 30 |
| 2. | Able to apply the principal of probability under normal curve (CLO-2) | One researcher reported that the object the research will stay alive with an average of 40 month by doing a strict diet of vitamins and proteins. It is assumed that the lifetime of the object it follows a normal distribution with a standard the deviation is 6.3 months. Determine the probability of life span of research object<br><br>(a) more than 32 months<br><br>(b) less than 28 months<br><br>(c) between 37 and 49 months | • Determine new variable Z from 32<br>• Find the value of probability more than 32 months<br>• Determine new variable Z from 28<br>• Find the value of probability less than 28 months<br>• Determine new variable Z from 37 and 49<br>• Find the value of probability between 37 and 49 months | SK-2 | 30 |

| | | | | | |
|---|---|---|---|---|---|
| 3. | Able to identity and apply Z test procedures (CLO-4) | There is an assumption about the price of apples in the market free area A is Rp 600K/box with The standard deviation is IDR 25 K. Departing from this assumption, then it is carried out random sampling of 40 stalls fruit and obtained information that the average is IDR 594K/box. Test the assumption of truth above with a alpha 5 percent and with a approach using<br><br>(a) significant level<br>(b) p value | • Determine null hypothesis and its alternative<br>• Determine the significant alpha<br>• Find the critical value<br>• Calculate the calculated Z test from the data<br>• Compare between critical value and calculated Z test<br>• Determine the decision<br>• Interpretation the results<br>• Determine null hypothesis and its alternative<br>• Determine the significant alpha<br>• Calculate the probability from the value of calculated Z test, it is called Pvalue<br>• Compare Pvalue and significant alpha<br>• Determine the decision<br>• Interpretation the results | KNO-2 | 20 |

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
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# DOCUMENT OF ODD SEMESTER FINAL EXAMINATION ACADEMIC YEAR OF 2021/2022

| | | |
|---|---|---|
| Course | : | Methods of Statistics |
| Lecturer(s) | : | A'yunin Sofro, Ph.D. |
| Program/Class of | : | Mathematics / 2021 D E |
| Test Day/Date | : | Friday, 17th December 2021 |
| Duration/Period | : | 100 minutes / 13:00 -14:40 |
| Test Type | : | Open Book |

**Guidlines of final exam:**

- Pray before the test.
- Use the black ink to answer the problems.
- Open account GC jam 13:00 to get the final exam script at assignment menu
- Upload the statement of integrity at : `https://forms.gle/KZ39eudFHRp6nRLs8`
- Answer all the question correctly.
- Write down your details (Name, Nim and Class) for each page of your answer papers.
- Submit all the answer papers before 14:50 on Friday, December 17th 2021
- If you submit more than the due date, it refers that **you do not do the final exam**.
- All of cheating will **reduce** the final score.

**The problems:**

1. The table shows tensile strengths in 6 machines. (30)

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| 17.5 | 16.4 | 20.3 | 14.6 | 17.5 | 18.3 |
| 16.9 | 19.2 | 15.7 | 16.7 | 19.2 | 16.2 |
| 15.8 | 17.7 | 17.8 | 20.8 | 16.5 | 17.5 |
| 18.6 | 15.4 | 18.9 | 18.9 | 20.5 | 20.1 |

   At the 0.05 level of significance, analyse whether or not the mean tensile strengths differ significantly for the six machines?

2. The following data were obtained in a study of the relationship between the weight and chest size of infants at birth.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Weight (kg) | 2.75 | 2.15 | 4.41 | 5.52 | 3.21 | 4.32 | 2.31 | 4.30 | 3.71 |
| Chest Size (cm) | 29.5 | 26.3 | 32.2 | 36.5 | 27.2 | 27.7 | 28.3 | 30.3 | 28.7 |

   (a) Display the data in a scatter plot (10)

   (b) Calculate the measurement of relationship for both variable and give your interpretation. (10)

(c) Is the measurement in the previous part for the population statistically significant at $\alpha = 0.01$? (10)

(d) Find the model (10)

(e) Evaluate the model (10)

3. The table reported on the reasons that women in China migrate within the country to new places of residence. (30)

| Reason | Intraprovincial migrants (%) | Interprovincial migrants |
|---|---|---|
| Job transfer | 4.8 | 20 |
| Job assignment | 7.2 | 23 |
| Industry/business | 17.8 | 108 |
| Study/training | 16.9 | 47 |
| Help from friends/ relatives | 6.2 | 43 |
| Joining family | 6.8 | 45 |
| Marriage | 36.8 | 205 |
| Other | 3.5 | 9 |

Decide, at the 1% significance level, whether the data provide sufficient evidence to conclude that the distribution of reasons for migration between provinces is different from that for migration within provinces.

**☺ Selamat Mengerjakan ☺**

KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
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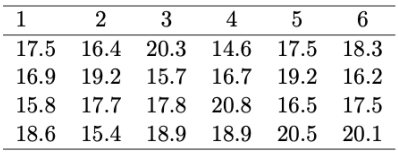
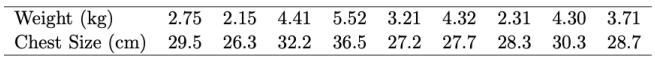
## BLUE PRINT OF ODD SEMESTER MISTERM EXAMINATION

Examination Subjects : Methods of Statistics

Lectures : A'yunin Sofro,Ph.D

Program : Mathematics

| No. | Indicator | Test | Key of the answer | Cognitive Domain | Score |
|---|---|---|---|---|---|
| 1. | Able to identity, explain and apply Anova one way test procedures (CLO-2, CLO-4) |  <br>1 2 3 4 5 6<br>17.5 16.4 20.3 14.6 17.5 18.3<br>16.9 19.2 15.7 16.7 19.2 16.2<br>15.8 17.7 17.8 20.8 16.5 17.5<br>18.6 15.4 18.9 18.9 20.5 20.1<br><br>The table shows tensile strengths in 6 machines. At the 0.05 level of significance, analyse whether or not the mean tensile strengths differ significantly for the six machines? | • Determine null hypothesis and its alternative<br>• Determine the significant alpha<br>• Find the critical value<br>• Calculate the calculated Anova test from the data<br>• Compare between critical value and calculated Anova test<br>• Determine the decision<br>• Interpretation the results | SK-2 and KNO-2 | 30 |
| 2. | Able to identity, explain and apply correlation and regression procedures (CLO-2, CLO-4) | The following data were obtained in a study of the relationship between the weight and chest size of infants at<br>  <br>Weight (kg) 2.75 2.15 4.41 5.52 3.21 4.32 2.31 4.30 3.71<br>Chest Size (cm) 29.5 26.3 32.2 36.5 27.2 27.7 28.3 30.3 28.7<br><br>birth.<br><br>(a)Display the data in a scatter plot<br><br>(b)Calculate the measurement of relationship for both variable and give your interpretation.<br><br>(c) Is the measurement in the previous part for the population statistically significant at α = 0.01? | • Determine the independent and dependent variable<br>• Draw as X and Y axis<br>• Calculate the coefficient correlation<br>• Determine the null hypothesis and its alternative | SK-2 and KNO-2 | 40 |

| | | | | | |
|---|---|---|---|---|---|
| | | (d) Find the model<br><br>(e) Evaluate the model | • Determine the significant alpha<br>• Find the critical value<br>• Calculate the calculated t test from the data<br>• Compare between critical value and calculated t test<br>• Determine the decision<br>• Interpretation the results<br>• Estimate the parameters of regression<br>• Calculate the sum square error | | |
| 3. | Able to identity, explain and apply chi squared for goodness of fit test procedures (CLO-2, CLO-4) | The table reported on the reasons that women in China migrate within the country to new (30) places of residence. Decide, at the 1% significance level, whether the data provide sufficient evidence to conclude that the distribution of reasons for migration between provinces is different from that for migration within provinces.<br><br>**Reason** \| **Intraprovincial migrants (%)** \| **Interprovincial migrants**<br>Job transfer \| 4.8 \| 20<br>Job assignment \| 7.2 \| 23<br>Industry/business \| 17.8 \| 108<br>Study/training \| 16.9 \| 47<br>Help from friends/ relatives \| 6.2 \| 43<br>Joining family \| 6.8 \| 45<br>Marriage \| 36.8 \| 205<br>Other \| 3.5 \| 9 | • Determine null hypothesis and its alternative<br>• Determine the significant alpha<br>• Find the critical value<br>• Calculate the calculated chisquared test (goodness of fit with unequal expectation) from the data<br>• Compare between critical value and calculated chi squared test<br>• Determine the decision | KNO-2 and KNO-2 | 30 |

| | | | | | |
|---|---|---|---|---|---|
| | | | • Interpretation the results | | |