

PORTFOLIO
MATHEMATICS STATISTICS I
KS184410
RMK THEORY AND STATISTICAL
MODELING

BACHELOR DEGREE PROGRAM
DEPARTMENT OF STATISTICS
FACULTY OF SCIENCE AND DATA ANALYTICS
INSTITUT TEKNOLOGI SEPULUH NOPEMBER

A. HALAMAN PENGESAHAN
A. *ENDORSEMENT PAGE*



EVALUASI KURIKULUM 2018-2023
CURRICULUM EVALUATION 2018-2023

FAKULTAS SAINS DAN ANALITIKA DATA
FACULTY OF SCIENCE AND DATA ANALYTICS

PRODI SARJANA STATISTIKA
BACHELOR DEGREE PROGRAM

MK STATISTIKA MATEMATIKA I
MK MATHEMATICS STATISTICS I

SLK-09

Sem: ..

Kode: KS184410 Code: KS184410	Bobot sks (T/P): 3 Credit (T/P): 3	Rumpun MK/Course cluster: Statistika Teori dan Pemodelan/ <i>Theory and Statistical Modeling</i>	Semester: IV
OTORISASI AUTHORIZATION	Penyusun Composer Dr. Ir. Setiawan, M.S.	Koordinator RMK Course Cluster Coordinator	Kaprodi Head of Department Dr. Kartika Fithriasari, M.Si
	TTD/Signature	TTD/Signature	TTD/Signature
	Tanggal: 23 November 2019 <i>Date: 23 November 2019</i>	Tanggal: 23 November 2019 <i>Date: 23 November 2019</i>	Tanggal: 23 November 2019 <i>Date: 23 November 2019</i>

B. SILABUS
B. SYLLABUS

MATA KULIAH COURSE	Nama Mata Kuliah/Course Name	: Statistika Matematika I/ <i>Mathematics Statistics I</i>
	Kode MK/Course Code	: KS184410/KS184410
	Kredit/Credit	: 3 sks/3 sks
	Semester/Semester	: 4/4

**DESKRIPSI MATA KULIAH
COURSE DESCRIPTION**

Statistika Matematika I merupakan salah satu mata kuliah dasar yang merupakan bagian dari bidang kajian dalam Teori Statistika. Tujuan mempelajari Statistika Matematika I adalah untuk menguasai konsep Distribusi dari Fungsi Variabel Random Diskrit, Distribusi dari Fungsi Variabel Random Kontinu, Distribusi Sampling, Distribusi Order Statistik, Hukum Bilangan Besar, Teorema Limit Pusat, Distribusi Limit, serta aplikasi dalam metode statistika sehingga mahasiswa akan memiliki pengalaman belajar untuk berfikir secara kritis dan mampu memberikan keputusan yang tepat tentang penggunaan konsep tersebut. Strategi pembelajaran yang digunakan adalah diskusi dan latihan serta tugas.

Mathematical Statistics I is one of the basic courses which is part of the field of study in Statistical Theory. The purpose of studying Mathematics Statistics I is to master the concept of Distribution of Discrete Random Variable Functions, Distribution of Continuous Random Variable Functions, Sampling Distribution, Statistical Order Distribution, Law of Large Numbers, Central Limit Theorem, Limit Distribution, and applications in the statistical method so that students will have learning experience to think critically and to be able to make the right decisions about the use of these concepts. The learning strategy used is discussion and exercises and assignments.

**CAPAIAN PEMBELAJARAN LULUSAN YANG DIBEBANKAN MATA KULIAH
COURSE EXPECTED LEARNING OUTCOME**

CPL-1	Mampu menerapkan pengetahuan teori statistika, matematika, dan komputasi
CPL-4	Mampu mengidentifikasi, memformulasi, dan menyelesaikan masalah statistika di berbagai bidang terapan
CPL-1	<i>Able to apply knowledge of science, statistical theory, mathematics, and computing to solve problems in various applied fields</i>
CPL-4	<i>Able to identify, formulate, and solve statistical problems in various applied fields</i>

**CAPAIAN PEMBELAJARAN MATA KULIAH
COURSE LEARNING OUTCOME**


CPMK.1	Menguasai konsep Distribusi dari fungsi variabel random diskrit, Distribusi dari fungsi variabel random kontinyu, Distribusi sampling, Distribusi order statistik, Hukum bilangan besar, Teorema limit pusat, Distribusi limit
CPMK.2	Dapat memformulasikan permasalahan Distribusi dari fungsi variabel random diskrit, Distribusi dari fungsi variabel random kontinyu, Distribusi sampling, Distribusi order statistik, Hukum bilangan besar, Teorema limit pusat, Distribusi limit
CPMK.3	Dapat menyelesaikan Distribusi dari fungsi variabel random diskrit, Distribusi dari fungsi variabel random kontinyu, Distribusi sampling, Distribusi order statistik, Hukum bilangan besar, Teorema limit pusat, Distribusi limit
CPMK.4	Dapat memilih metode penentuan distribusi dari fungsi variabel random, distribusi sampling
CPMK.5	Dapat beradaptasi terhadap masalah distribusi dari fungsi variabel random, distribusi sampling
CPMK.1	<i>Mastering the concept of distribution of discrete random variable functions, distribution of continuous random variable functions, sampling distribution, statistical order distribution, law of large numbers, central limit theorem, limit distribution</i>
CPMK.2	<i>Can formulate problems Distribution of discrete random variable functions, distribution of continuous random variable functions, sampling distribution, statistical order distribution, large number law, central limit theorem, limit distribution</i>
CPMK.3	<i>Can solve the distribution of the discrete random variable function, the distribution of the continuous random variable function, the sampling distribution, the statistical order distribution, the law of large numbers, the center limit theorem, the limit distribution</i>
CPMK.4	<i>Can choose the method of determining the distribution of the random variable function, sampling distribution</i>
CPMK.5	<i>Can adapt to the distribution problem of the random variable function, sampling distribution</i>

**PETA CPL-CPMK
CPL-CPMK MAP**

	CPL 1	CPL 4	CPL 6	CPL 7	CPL 8	CPL 9
SUB CPMK 1						

SUB CPMK 2							
SUB CPMK 3							
SUB CPMK 4							
SUB CPMK 5							
SUB CPMK 6							
SUB CPMK 7							
POKOK BAHASAN							
TOPICS							
<ol style="list-style-type: none"> 1. Distribusi dari Fungsi Variabel Random Diskrit; 2. Distribusi dari Fungsi Variabel Random Kontinu; 3. Distribusi Sampling; 4. Distribusi Order Statistik; 5. Distribusi Chi Kuadrat, t dan F; 6. Hukum Bilangan Besar; dan 7. Teorema Limit Pusat <ol style="list-style-type: none"> 1. <i>Distribution of Discrete Random Variable Functions;</i> 2. <i>Distribution of Continuous Random Variable Functions;</i> 3. <i>Sampling Distribution;</i> 4. <i>Order Statistics Distributions;</i> 5. <i>Chi Square, t and F Distribution;</i> 6. <i>Law of Large Numbers; and</i> 7. <i>Central Limit Theorem.</i> 							
PRASYARAT							
PREREQUISITE							
Teori Probabilitas <i>Probability Theory</i>							
PUSTAKA							
REFERENCES							
Buku: <i>Books:</i>							
<ol style="list-style-type: none"> 1. Hogg, R.V. and Craig, A.T., 1995. <i>Introduction to Mathematical Statistics</i>, 5th edition. New York: Mac Millon. 2. Lindenganren, B.W., 1976. <i>Statistical Theory</i>. 3th edition. New York: Mac Millon. 3. Mood, A.M., Graybill, F.A. and Boes, D.C., 1974. <i>Introduction of the Theory of Statistics</i>. 4th edition. Tokyo: Mc-Graw Hill. 4. Rice, J.A., 1995. <i>Mathematical Statistics and Data Analysis</i>. 2nd edition. Belmont, California: Duxbury Press. 5. Rohatgi, V.K., 1976. <i>An Introduction to Probability Theory and Mathematical Statistics</i>. New York : Wiley dan Sons. 							

C. RENCANA PEMBELAJARAN SEMESTER (RPS)
C. SEMESTER LEARNING PLAN

	Program Studi <i>Study Course</i>	Sarjana, Departemen Statistika, FMKSD-ITS Bachelor Degree, Department of Statistics, FSAD-ITS
	Mata Kuliah <i>Course</i>	Statistika Matematika I <i>Mathematics Statistics I</i>
	Kode Mata Kuliah <i>Course Code</i>	KS184410 <i>KS184410</i>
	Semester/SKS <i>Semester/Credit</i>	IV/3 <i>IV/3</i>
	MK Prasyarat <i>Prerequisite Course</i>	Teori Peluang <i>Probability Theory</i>
RP-S1	Dosen Pengampu <i>Lecturer</i>	Dr. Ir. Setiawan, M.S. ; Prof. Dr. Drs. I Nyoman Budiantara, M.Si ; Dr. Bambang Widjanarko Otok, M.Si. ; Santi Puteri Rahayu, M.Si., Ph.D

Bahan Kajian <i>Study Material</i>	Dasar Sains, Teori Statistika, dan Pemodelan <i>Basic Science, Statistics Theory, and Modeling</i>
CPL yang dibebankan MK <i>Course Expected Learning Outcome</i>	CPL-1 Mampu menerapkan pengetahuan teori statistika, matematika, dan komputasi <i>CPL-1 Able to apply knowledge of science, statistical theory, mathematics, and computing to solve problems in various applied fields</i> CPL-4 Mampu mengidentifikasi, memformulasi, dan menyelesaikan masalah statistika di berbagai bidang terapan <i>CPL-4 Able to identify, formulate, and solve statistical problems in various applied field</i>
CP-MK <i>Course Learning Outcome</i>	CPMK.1 Menguasai konsep Distribusi dari fungsi variabel random diskrit, Distribusi dari fungsi variabel random kontinyu, Distribusi sampling, Distribusi order statistik, Hukum bilangan besar, Teorema limit pusat, Distribusi limit <i>CPMK.1 Mastering the concept of distribution of discrete random variable functions, distribution of continuous random variable functions, sampling distribution, statistical order distribution, law of large numbers, central limit theorem, limit distribution</i> CPMK.2 Dapat memformulasikan permasalahan Distribusi dari fungsi variabel random diskrit, Distribusi dari fungsi variabel random kontinyu, Distribusi sampling, Distribusi order statistik, Hukum bilangan besar, Teorema limit pusat, Distribusi limit <i>CPMK.2 Can formulate problems Distribution of discrete random variable functions, distribution of continuous random variable functions, sampling distribution, statistical order distribution, large number law, central limit theorem, limit distribution</i> CPMK.3 Dapat menyelesaikan Distribusi dari fungsi variabel random diskrit, Distribusi dari fungsi variabel random kontinyu, Distribusi sampling, Distribusi order statistik, Hukum bilangan besar, Teorema limit pusat, Distribusi limit <i>CPMK.3 Can solve the distribution of the discrete random variable function, the distribution of the continuous random variable function, the sampling distribution, the statistical order distribution, the law of large numbers, the center limit theorem, the limit distribution</i> CPMK.4 Dapat memilih metode penentuan distribusi dari fungsi variabel random, distribusi sampling <i>CPMK.4 Can choose the method of determining the distribution of the random variable function, sampling distribution</i> CPMK.5 Dapat beradaptasi terhadap masalah distribusi dari fungsi variabel random, distribusi sampling <i>CPMK.5 Can adapt to the distribution problem of the random variable function, sampling distribution</i>




	Program Studi <i>Study Course</i>	Sarjana, Departemen Statistika, FMKSD-ITS Bachelor Degree, Department of Statistics, FSAD-ITS
	Mata Kuliah <i>Course</i>	Statistika Matematika I <i>Mathematics Statistics I</i>
	Kode Mata Kuliah <i>Course Code</i>	KS184410 <i>KS184410</i>
	Semester/SKS <i>Semester/Credit</i>	IV/3 <i>IV/3</i>
	MK Prasyarat <i>Prerequisite Course</i>	Teori Peluang <i>Probability Theory</i>
RP-S1	Dosen Pengampu <i>Lecturer</i>	Dr. Ir. Setiawan, M.S. ; Prof. Dr. Drs. I Nyoman Budiantara, M.Si ; Dr. Bambang Widjanarko Otok, M.Si. ; Santi Puteri Rahayu, M.Si., Ph.D

	2. Mampu menentukan distribusi dari variabel random kontinyu	Distribusi dari fungsi variabel random kontinyu	Ceramah, diskusi dan latihan soal	350 menit	Tes tulis Tugas 1 Observasi di kelas	2.1. Mampu menjelaskan tentang distribusi dari variabel random kontinyu. 2.2. Mampu menentukan distribusi dari Variabel random kontinyu. 2.3. Mengetahui kelebihan dan kekurangan dari metode penentuan distribusi fungsi variabel random kontinyu	15%/25%
2-4	2. <i>Able to determine distribution of continuous random variable</i>	<i>Distribution of continuous random variable functions</i>	<i>Lecture, discussion, and practice questions</i>	<i>350 minutes</i>	<i>Writing test Assignment 1 Observation in class</i>	2.1. <i>Able to explain the distribution of continuous variable random.</i> 2.2. <i>Able to determine distribution of continuous random variable.</i> 2.3. <i>Able to know the advantages and the disadvantages of determination methods of distribution of continuous random variable functions</i>	15%/25%
5-6	3. Mampu menentukan distribusi sampling	Distribusi sampling variabel random diskrit	Ceramah, diskusi dan latihan soal	250 menit	Tes tulis Tugas 2 Observasi di kelas	3.1. Mampu menjelaskan tentang konsep distribusi sampling.	10%/35%




	Program Studi <i>Study Course</i>	Sarjana, Departemen Statistika, FMKSD-ITS Bachelor Degree, Department of Statistics, FSAD-ITS
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	Kode Mata Kuliah <i>Course Code</i>	KS184410 <i>KS184410</i>
	Semester/SKS <i>Semester/Credit</i>	IV/3 <i>IV/3</i>
	MK Prasyarat <i>Prerequisite Course</i>	Teori Peluang <i>Probability Theory</i>
RP-S1	Dosen Pengampu <i>Lecturer</i>	Dr. Ir. Setiawan, M.S. ; Prof. Dr. Drs. I Nyoman Budiantara, M.Si ; Dr. Bambang Widjanarko Otok, M.Si. ; Santi Puteri Rahayu, M.Si., Ph.D

	variabel random diskrit					3.2. Mampu menentukan distribusi dari Rata2 , variansi sampel variabel random diskrit 3.3. Dapat menentukan distribusi sampling untuk variabel random diskrit meliputi distribusi Binomial, Geometrik, Poisson, Multinomial.	
	3. Able to determine sampling distribution of discrete random variable	<i>Sampling distribution of discrete random variable</i>	<i>Lecture, discussion, and practice questions</i>	250 minutes	<i>Writing test Assignment 2 Observation in class</i>	3.1. Able to explain the concept of sampling distribution. 3.2. Able to determine the distribution of mean and variance of sample of discrete random variable. 3.3. Able to determine sampling distributions of discrete random variables, that are Binomial, Geometrik, Poisson, Multinomial distributions.	10%/35%
6-7	4. Mampu menentukan distribusi sampling	Distribusi sampling variabel random kontinyu	Ceramah, diskusi dan latihan soal	200 menit	Tes tulis Tugas 2 Observasi di kelas	3.1. Mampu menjelaskan tentang konsep distribusi sampling.	15%/50%

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	Kode Mata Kuliah <i>Course Code</i>	KS184410 <i>KS184410</i>
	Semester/SKS <i>Semester/Credit</i>	IV/3 <i>IV/3</i>
	MK Prasyarat <i>Prerequisite Course</i>	Teori Peluang <i>Probability Theory</i>
RP-S1	Dosen Pengampu <i>Lecturer</i>	Dr. Ir. Setiawan, M.S. ; Prof. Dr. Drs. I Nyoman Budiantara, M.Si ; Dr. Bambang Widjanarko Otok, M.Si. ; Santi Puteri Rahayu, M.Si., Ph.D

	variabel random kontinyu					<p>3.2. Mampu menentukan distribusi dari Rata2 , variansi sampel variabel random kontinyu.</p> <p>3.3. Dapat menentukan distribusi sampling untuk variabel random kontinyu meliputi distribusi Eksponensial, Normal. Gamma, Weibull</p> <p>4.1. Able to explain the concept of sampling distribution.</p> <p>4.2. Able to determine distribution of mean and variance of continuous random variable.</p> <p>4.3. Able to determine the sampling distribution of continuous random variable, such as Exponensial, Normal. Gamma, Weibull distributions.</p>	15%/50%
4.	Able to determine sampling distribution of continuous random variable	Sampling distribution of continuous random variable	Lecture, discussion, and practice questions	200 minutes	Writing test Assignment 2 Observation in class		
8	Midterm Exam						
9-10	5. Mampu menentukan Distribusi order statistik	Distribusi order statistik	Ceramah, diskusi dan latihan soal	200 menit	Tes tulis Tugas 3 Observasi di kelas	5.1. Mampu menjelaskan tentang konsep distribusi order statistik.	15%/65%


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	Mata Kuliah <i>Course</i>	Statistika Matematika I <i>Mathematics Statistics I</i>
	Kode Mata Kuliah <i>Course Code</i>	KS184410 KS184410
	Semester/SKS <i>Semester/Credit</i>	IV/3 IV/3
	MK Prasyarat <i>Prerequisite Course</i>	Teori Peluang <i>Probability Theory</i>
RP-S1	Dosen Pengampu <i>Lecturer</i>	Dr. Ir. Setiawan, M.S. ; Prof. Dr. Drs. I Nyoman Budiantara, M.Si ; Dr. Bambang Widjanarko Otok, M.Si. ; Santi Puteri Rahayu, M.Si., Ph.D

	5. <i>Able to determine order statistic distribution</i>	<i>Order statistic distribution</i>	<i>Lecture, discussion, and practice questions</i>	200 minutes	<i>Writing test Assignment 3 Observation in class</i>	5.2. Mampu menentukan distribusi dari median, maks, min, range dari sampel variabel random 5.1. <i>Able to explain the concept of order statistic distribution.</i> 5.2. <i>Able to determine the distribution of median, maximum, minimum, and range of sample of random variable.</i>	15%/65%
10-12	6. Mampu menentukan distribusi limit 6. <i>Able to determine limit distribution</i>	Distribusi Limit <i>Limit Distribution</i>	Ceramah, diskusi dan latihan soal <i>Lecture, discussion, and practice questions</i>	350 menit 350 minutes	Tes tulis Tugas 3 Observasi di kelas <i>Writing test Assignment 3 Observation in class</i>	6.1 Mampu menjelaskan tentang konsep distribusi limit 6.2 Mampu menentukan distribusi dari Rata2 sampel baik Variabel random diskrit dan kontinyu 6.1. <i>Able to explain the concept of limit distribution.</i> 6.2. <i>Able to determine mean of Mampu menentukan distribusi discrete and continuous random variable</i>	10%/75% 10%/75%



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	Mata Kuliah <i>Course</i>	Statistika Matematika I <i>Mathematics Statistics I</i>
	Kode Mata Kuliah <i>Course Code</i>	KS184410 KS184410
	Semester/SKS <i>Semester/Credit</i>	IV/3 IV/3
	MK Prasyarat <i>Prerequisite Course</i>	Teori Peluang <i>Probability Theory</i>
RP-S1	Dosen Pengampu <i>Lecturer</i>	Dr. Ir. Setiawan, M.S. ; Prof. Dr. Drs. I Nyoman Budiantara, M.Si ; Dr. Bambang Widjanarko Otok, M.Si. ; Santi Puteri Rahayu, M.Si., Ph.D

12-13	7. Mampu menentukan Distribusi khi kuadrat, t, dan F	Distribusi khi kuadrat, t, dan F	Ceramah, diskusi dan latihan soal	200 menit	Tes tulis Tugas 4 Observasi di kelas	7.1 Mampu menentukan distribusi Khi kuadrat 7.2 Mampu menentukan distribusi t, dan F 7.3 Mampu menentukan distribusi F	15%/90%
	7. <i>Able to determine Chi Square, t, and F distribution</i>	<i>Chi Square, t, and F distribution</i>	<i>Lecture, discussion, and practice questions</i>	<i>200 minutes</i>	<i>Writing test Assignment 4 Observation in class</i>	7.1. <i>Able to determine Chi Square distribution</i> 7.2. <i>Able to determine t and F distribution</i> 7.3. <i>Able to determine F distribution</i>	15%/90%
14-15	8. Mampu menerapkan konsep teorema limit pusat dan hukum bilangan besar	Hukum bilangan besar	Ceramah, diskusi dan latihan soal	300 menit	Tes tulis Tugas 4 Observasi di kelas	8.1 Dapat menerangkan tentang konsep teorema limit pusat dan hukum bilangan besar 8.2 Mampu menerapkan konsep teorema limit pusat dan hukum bilangan besar pada berbagai distribusi	10%/100%
	8. <i>Able to apply the concept of central limit theorem and law of large number</i>	<i>Law of large number</i>	<i>Lecture, discussion, and practice questions</i>	<i>300 minutes</i>	<i>Writing test Assignment 4 Observation in class</i>	8.1. <i>Able to explain the concept of central limit theorem and law of large number</i> 8.2. <i>Able to apply the concept of central limit theorem and law</i>	10%/100%

	Program Studi <i>Study Course</i>	Sarjana, Departemen Statistika, FMKSD-ITS Bachelor Degree, Department of Statistics, FSAD-ITS
	Mata Kuliah <i>Course</i>	Statistika Matematika I <i>Mathematics Statistics I</i>
	Kode Mata Kuliah <i>Course Code</i>	KS184410 <i>KS184410</i>
	Semester/SKS <i>Semester/Credit</i>	IV/3 <i>IV/3</i>
	MK Prasyarat <i>Prerequisite Course</i>	Teori Peluang <i>Probability Theory</i>
RP-S1	Dosen Pengampu <i>Lecturer</i>	Dr. Ir. Setiawan, M.S. ; Prof. Dr. Drs. I Nyoman Budiantara, M.Si ; Dr. Bambang Widjanarko Otok, M.Si. ; Santi Puteri Rahayu, M.Si., Ph.D


						<i>of large number to any distribution</i>	
16	EAS <i>Final Exam</i>						

PUSTAKA :

REFERENCES :

1. Hogg, R.V. dan Craig, A.T. (1995). Introduction to Mathematical Statistics, 5th ed. Mac Millon. New York.
2. Mood, A.M., Graybill, F.A. dan Boes, D.C. (1974). Introduction of the Theory of Statistics. 4th ed. Mc-Graw Hill. Tokyo.
3. Rice, J.A. (1995). Mathematical Statistics and Data Analysis. Second Ed. Duxbury Press. Belmont, California.
4. Lindgren, B.W. (1976). Statistical Theory. 3th ed. Mac Millon. New York.
5. Rohatgi, V.K. (1976). An Introduction to Probability Theory and Mathematical Statistics. Wiley & Sons. New York.

D. RENCANA ASESMEN DAN EVALUASI (RAE)
D. ASSESSMENT AND EVALUATION PLAN

	RENCANA ASESMEN & EVALUASI ASSESSMENT AND EVALUATION PLAN Prodi Sarjana Statistika <i>Bachelor Degree Program</i> MK STATISTIKA MATEMATIKA I COURSE MATHEMATICS STATISTICS I		RA&E
			SLK-09
Kode: KS184410 Code: KS184410	Bobot sks (T/P): 3 Credit (T/P): 3	Rumpun MK: Course Cluster: Statistika Teori dan Pemodelan <i>Theory and Statistical Modeling</i>	Semester: 4
OTORISASI AUTHORIZATION	Penyusun Composer Dr. Ir. Setiawan, M.S.	Koordinator RMK Course Cluster Coordinator	Ka PRODI Head of Department Dr. Kartika F, M.Si

Ming gu/ Wee k (1)	Sub CP-MK/Sub CP-MK (2)		Bentuk Asesmen (Penilaian)/Evaluation Form (Assessment) (3)	Bobot (%)/Weight (%) (4)
	No	Kemampuan Akhir/Ability		
1	1			
2	2			
3-4	3			
5,6,7	4			
8		Evaluasi Tengah Semester/ <i>Midterm Exam</i>		
9-10	5			
11-12	6			
13-15	7			
16		Evaluasi Akhir/ <i>Final Exam</i>		
			Total bobot penilaian/Total evaluation weight	100%

Portofolio penilaian & evaluasi proses dan hasil belajar setiap mahasiswa

Portfolio assessment & evaluation of the learning process and learning outcome of each student

Tabel ini contoh untuk salah satu mahasiswa, yaitu

This table is an example for one of the students, namely ...

Minggu Week	CPL/ Course Expected Learning Outcome	CPMK/Course Learning Outcome	Bentuk Penilaian (Bobot%)* / Assessment (Weight%)*		Bobot CPMK (%) / Weight (%) CPMK	Nilai / Score (0-100)	$\Sigma((\text{Nilai}) \times (\text{Sub-} \\ \text{Bobot}\%)) /$ $\Sigma((\text{Score}) \times (\text{Sub-} \\ \text{Weight}\%))$	Ketercapaian CPL pada MK (%) / Proficiency CPL to MK (%)	Diskripsi Evaluasi & Tindak lanjut perbaikan / Description Evaluation & Follow-Up Improvements
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1-2	CPL-1	Sub CPMK 1 Sub CPMK 2 Sub CPMK 3	Tugas/Assignment Kuis/Quiz Kuis 2/Quiz 2 ETS/Midterm Exam EAS/Final Exam	5 5 10	20	84 73 70 95 68		79	Lulus/Pass

			Tugas/Assignment (10)	Kuis/Quiz (20)	Kuis 2/Quiz 2 (15)	ETS/Midterm Exam (30)	EAS/Final Exam (25)
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E. CONTOH EVALUASI (ETS DAN EAS)

E. SAMPLE OF EVALUATION (MIDTERM DAN FINAL EXAM)

EVALUASI TENGAH SEMESTER - MID TERM EXAM



Prodi SI STATISTIKA FMKSD ITS - SEMESTER GANJIL 2019/2020

Undergraduate Program Department Of Statistic FMKSD ITS- Odd Semester 2019/2020

Mata kuliah / Kelas (Course/Class) : Statistika Matematika 1
 Hari, Tanggal / Day, date : Selasa, 15 Oktober 2019
 Sifat, Waktu / Kind of Test, Duration : Buka Tabel, 120 Menit
 Dosen / Lecturer : Purhadi/Achmad Choiruddin



Page 1 of 4	Intensitas nilai di antara dua titik, tingkat keberhasilan, dan the assessment reflect the expected learning achievement(s) and the content of the programme and the assessment management over the objectives of the curriculum	6-FT
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ITS will measure 6 and 7 Capaian Pembelajaran yang harus dicapai dalam mata kuliah ini, yaitu -This will assess 6 of 7 Learning Outcomes to be achieved in this course, as :

No	Capaian Pembelajaran Mata Kuliah – Course Expected Learning outcome (C-ECO)	Soal Nomor
CPMK 1	Menguasai konsep Distribusi dari fungsi variabel random diskrit, Distribusi dari fungsi variabel random kontinu, Distribusi sampling, Distribusi order statistik, Hukum bilangan besar, Teorema limit pusat, Distribusi limit.	1,1,1,1,1,1
CPMK 2	Dapat memformulasikan permasalahan Distribusi dari fungsi variabel random diskrit, Distribusi dari fungsi variabel random kontinu, Distribusi sampling, Distribusi order statistik, Hukum bilangan besar, Teorema limit pusat, Distribusi limit.	1,2,1,1,1,1
CPMK 3	Dapat menyelesaikan Distribusi dari fungsi variabel random diskrit, Distribusi dari fungsi variabel random kontinu, Distribusi sampling, Distribusi order statistik, Hukum bilangan besar, Teorema limit pusat, Distribusi limit.	1,3,1,1,1,1
CPMK 4	Dapat memilih metode penentuan distribusi dari fungsi variabel random, distribusi sampling.	1,4,1,1,1,1
CPMK 5	Identifikasi tanggung jawab dan etika profesi	1,1,1,1,1,1
CPMK 6	Mampu memformulasikan nilai untuk besaran kuantitatif dan besaran sepanjang hayat	1,1,1,1,1,1

Kerjakan 5 soal

1. Diketahui X_1, X_2, \dots, X_n adalah n sampel acak variable random dari distribusi Normal dengan mean μ dan

$$\text{varians } \sigma^2. \text{ Jika didefinisikan statistik } S^2 = \frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n-1},$$

a) Tentukan $E(S^2)$ dan $\text{Var}(S^2)$.

b) Tentukan distribusi dari $\frac{(n-1)S^2}{\sigma^2}$

2. Misalkan X_1, X_2, X_3 adalah variabel random yang independen dan identik masing-masing dengan p.d.f $f(x) = e^{-x}, x > 0$. Tunjukkan bahwa variabel random Y_1, Y_2 dan Y_3 saling bebas jika

$$Y_1 = \frac{X_1}{X_1 + X_2}, \quad Y_2 = \frac{X_1 + X_2}{X_2 + X_2 + X_3}, \quad Y_3 = X_1 + X_2 + X_3.$$

3. Diketahui X dan Y adalah variabel random independen masing-masing dengan pdf $f(x) = 2x, 0 < x < 1$ dan $g(y) = 2y^2, 0 < y < 1$. Jika didefinisikan $U = \min(X, Y)$ dan $V = \max(X, Y)$. Tentukan fungsi peluang bersama (joint p.d.f) dari variabel random U dan V .

ITS will measure 6 and 7 Capaian Pembelajaran yang harus dicapai dalam mata kuliah ini, yaitu -This will assess 6 of 7 Learning Outcomes to be achieved in this course, as :										
Intensity of values between two points, success rate, and the assessment reflect the expected learning achievement(s) and the content of the programme and the assessment management over the objectives of the curriculum										
No	1	2	3	4	5	6-FT	7	8	9	10

*10-Course Group, 01-030 - Statistics Team - Department of Statistics - Ganesha Street - ...02100171040100

Soal Statistika Besaran CP The content of the test has been confirmed with BCP	
No/IDNo/..... COMMISSION CHAIRMAN (DEPARTMENT) Department - 03	
Nama (Nama/Course/CP) : 01 - 030 [.....]	TANGGA
NIP.....	

EVALUASI TENGAH SEMESTER - MID TERM EXAM



Prodi SI STATISTIKA FMKSD ITS - SEMESTER. JANUARI 2019/2020

Undergraduate Program Department Of Statistics FMKSD ITS - Odd Semester 2019/2020

Mata kuliah / Kelas (Course/Class) : Statistika Matematika 1
 Hari, Tanggal / Day, date : Selasa, 15 Oktober 2019
 Sifat, Waktu / Kind of Test, Duration : Buka Tabel, 120 Menit
 Dosen / Lecturer : Pujiadi/Achmad Choiruddin



Page 2 of 4	<small>Printed on 10/15/2019 10:41:04 AM. All the information on this page is for the purpose of the examination only. It is not to be used for any other purpose. All the information on this page is for the purpose of the examination only. It is not to be used for any other purpose.</small>	6-FT
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- Diketahui X_1, X_2, \dots, X_n adalah n sampel acak variable random dari distribusi Gamma dengan masing-masing parameter $\alpha = \alpha_i$ dan $\beta = 1, i = 1, 2, \dots, n$. Jika $Y_1 = X_1 + \dots + X_n$, tentukan distribusi dari Y_1 .
- Beri contoh percobaan random yang menghasilkan distribusi Poisson.

Jika $Y \sim \text{Poisson}(\mu)$ dengan distribusi probabilitas $P(Y = y) = \frac{e^{-\mu} \mu^y}{y!}, y = 0, 1, 2, \dots, \mu > 0$

- Tunjukkan distribusi Poisson termasuk keluarga Eksponensial, dan tulis model yang terbentuk, jika variabel bebas X_1, X_2, \dots, X_k .
 - Jika $W = aY + b, a > 0, b > 0$, tentukan distribusi probabilitas dari $W, E(W), \text{Var}(W)$.
- Diketahui distribusi probabilitas dari variabel random vektor diskrit (Y_1, Y_2)

$$P(Y_1 = y_1, Y_2 = y_2) = \binom{R}{y_1, y_2} p_1^{y_1} p_2^{y_2} (1 - p_1 - p_2)^{R - y_1 - y_2}, y_1, y_2 = 0, 1, 2, 3, \dots$$

Tentukan $P(Y_1 = y_1)$. Jika $W = 2Y_1 + 4$, tentukan distribusi probabilitas dari W .

Soal No	1	2	3	4	5	6	Skor total
Skor	20	20	30	30	20	20	100

<small>Nilai-nilai terdistribusi di bawah ini adalah nilai-nilai yang akan digunakan untuk menjawab soal-soal di atas. Nilai-nilai tersebut adalah sebagai berikut: $\mu = 1, \sigma = 2$</small>										
<small>Nilai-nilai terdistribusi di bawah ini adalah nilai-nilai yang akan digunakan untuk menjawab soal-soal di atas. Nilai-nilai tersebut adalah sebagai berikut: $\mu = 1, \sigma = 2$</small>										
?	0.05	0.10	0.25	0.50	1.00	6-FT	?	0.50	0.75	0.95

*100-Course Group: SI-ISC - Statistics Year: - Year of Statistics Course Group: -03/2017-2018

Soal Statistika Branch CP	
The content of the test has been confirmed with BLP	
The content of the test has been confirmed with BLP COMMISSION COMMITTEE OF STATISTICS Department - SI	
Nama (Name)/Course/CP : SI - ISC (_____) NRP: _____	TUGAS



EVALUASI AKHIR SEMESTER - FINAL EXAM
Prodi SI STATISTIKA FMKSD ITS - SEMESTER GASAL 2019/2020
Undergraduate Program Department of Statistics FMKSD ITS - Odd Semester 2019/2020



Mata kuliah / Kelas (Course/Class) : Statistika Matematika 1
 Hari, Tanggal / Day, date : Selasa, 10 Desember 2019
 Sifat, Waktu / Kind of Test, Duration : Buka Tabel, 120 Menit
 Dosen / Lecturer : Parhadi, Achmad Choiruddin

Page 1 of 1

Enter word of 11 letters with CA. Student Name(s) : 14 The statements reflect the Expected Learning Outcomes (ELO) for the content of the program. 14 The assessment instrument cover the objectives of the Course(s)

6-FT

143 tercapai 4 dari 6 Capaian Pembelajaran yang harus dicapai dalam mata kuliah ini. (The ELOs/ ELOs/ outcomes 4 of 6 Learning Outcomes have achieved in this course.)

No	Capaian Pembelajaran Mata kuliah = Course Expected Learning outcome (C-ELO)	Soal Nomor
CMK.1.	Mengapali konsep distribusi dan fungsi variabel random diskrit, Distribusi dari fungsi variabel random kontinu, Distribusi sampling, Distribusi order statistik, Hukum bilangan besar, Teorema limit pusat, Distribusi limit.	1,2,3,4,5
CMK.2.	Bapat memformulasikan permasalahan Distribusi dari fungsi variabel random diskrit, Distribusi dari fungsi variabel random kontinu, Distribusi sampling, Distribusi order statistik, Hukum bilangan besar, Teorema limit pusat, Distribusi limit.	1,2,3,4,5
CMK.3.	Bapat memformulasikan permasalahan Distribusi dari fungsi variabel random diskrit, Distribusi dari fungsi variabel random kontinu, Distribusi sampling, Distribusi order statistik, Hukum bilangan besar, Teorema limit pusat, Distribusi limit.	1,2,3,4,5
CMK.4.	Bapat memformulasikan permasalahan Distribusi dari fungsi variabel random, distribusi sampling.	1,2,3,4,5
CMK.5.	Miliki tanggung jawab dan etika profesi	1,2,3,4,5
CMK.6.	Mampu memotivasi diri untuk bekerja kreatif dan belajar secepatnya/hayat	1,2,3,4,5

1. Jika Y adalah statistik orde ke w dari sampel random berdistribusi Uniform dengan interval $(0, \theta)$, maka Y memiliki pdf $f(y) = n \theta^{-n} y^{n-1}$, $0 < y < \theta, \theta > 0$.

Tentukan $E(Y), E(Y^2), Var(Y)$. Dan apakah Y konvergen dalam probabilitas ke θ .

2. Diketahui X dan Y adalah variabel random yang saling bebas. Jika $X \sim N(0,1)$ dan $Y \sim \chi^2_2$.

Misalkan didefinisikan $T = X / \sqrt{\frac{Y}{n}}$ dan $U = Y$.

a. Tentukan distribusi peluang bersama dari T dan U .

b. Tentukan distribusi dari T .

3. Jika X variabel random berdistribusi Poisson dengan parameter μ , dan X_1, X_2, \dots, X_n adalah sampel random. Tentukan distribusi limit dari $\frac{\sqrt{n}(\bar{X} - \mu)}{\sqrt{\bar{X}}}$. Serta hitung $P(\frac{\sqrt{n}(\bar{X} - \mu)}{\sqrt{\bar{X}}} < 2)$. Jika $\mu = 1\Delta$ dimana Δ bilangan terakhir dari NRP anda, $n=40$.

4. Jika Y variabel random dengan f.d.p $f(y) = \frac{1}{\beta} e^{-\frac{1}{\beta}y - \alpha}$, $y > \alpha, \beta > 0, \alpha > 0$

misalkan $Y_{(1)}, Y_{(2)}, \dots, Y_{(n)}$ adalah order statistik dari n sampel random. Tentukan $E(Y_{(1)}), Var(Y_{(1)})$. Tentukan penaksir tak bias asyptotik untuk α .

5. Diketahui variabel random $X \sim N(\mu_x, \sigma_x^2)$ dan $Y \sim N(\mu_y, \sigma_y^2)$ yang saling bebas. Jika X_1, X_2, \dots, X_n dan Y_1, Y_2, \dots, Y_m adalah sampel random. Jika didefinisikan statistik

$$S_x^2 = \frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n-1}, \text{ dan } S_y^2 = \frac{\sum_{j=1}^m (Y_j - \bar{Y})^2}{m-1}$$

Tentukan distribusi dari $\frac{S_x^2}{\sigma_x^2} / \frac{S_y^2}{\sigma_y^2}$

Soal No	1	2	3	4	5	Jumlah
Skor	25	25	20	15	25	110

143 tercapai 4 dari 6 Capaian Pembelajaran yang harus dicapai dalam mata kuliah ini. (The ELOs/ ELOs/ outcomes 4 of 6 Learning Outcomes have achieved in this course.) The content of the test has been confirmed with ELO										
The content of the test has been confirmed with ELO										
No. of questions: 5. Total questions: 110. Student name(s): _____										
1	100	100	100	100	100	100	100	100	100	100

Soal Sudah Sesuai CP The content of the test has been confirmed with ELO	
No. of questions: _____ Total questions: 110. Student name(s): _____	No. of questions: _____ Total questions: 110. Student name(s): _____
{ _____ } NRP: _____	{ _____ } NRP: _____

