

FRM/FMIPA/064-00 5 September 2008

(Theory Class)

- 1. Faculty /Study Program : MIPA/Mathematics Education : Probability Theory, MAA 317
- 2. Subject & Code
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks : IV, Duration : 100 minutes

:1

- 4. Semester and Duration 5. Based Competency
- 6. Achievement Indicator
 - a) Student can use addition principle
 - b) Student can use multiplication principle
- 7. Material

: The basic principles of counting

: To understand the basic principles of counting

8. Lecture Activity

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain the aim of the course and give motivation	20'	Discussion and Exercise	LCD, white/black board	A: 31-39 B: 1-16
Main Activities	 Explain the definition of addition principle Explain the definition of multiplication principle Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

- A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
- B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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(Theory Class)

1. Faculty /Study Program : MIPA/Mathematics Education

:

- 2. Subject & Code : Probability Theory, MAA 317
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks : IV, Duration : 100 minutes
- Semester and Duration
 Based Competency
- 6. Achievement Indicator
 - a) Student can use permutation
 - b) Student can use combination
- 7. Material

: Permutation and Combination : 2

: To understand permutation and combination

8. Lecture Activity

Step	Activity	Duration	Method	Media	References
Component					
Introduction	Explain briefly the principle of	20'	Discussion and	LCD,	A: 31-39
	counting		Exercise	white/black	B: 1-16
				board	
Main	1. Explain permutation and	60'			
Activities	combination				
	2. Do exercise and discuss the				
	Results				
Closing	Conclude the entire materials and	10'			
Activity	give tasks				
-	-				
Further	Invite the students to ask or give an	10'			
Activities	opinion about the materials				
	^				

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

- 10. References
 - A. Bain, Lee J. & Engelhardt, Max. 1992. *Introduction to Probability and Mathematical Statistics*. Belmont: Duxbury Press.
 - B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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(Theory Class)

- 1. Faculty /Study Program : MIPA/Mathematics Education
- 2. Subject & Code
- : Probability Theory, MAA 317 : Theory : 2 sks Practice : 1 sks
- 3. The number of SKS 4. Semester and Duration : IV, Duration : 100 minutes
- : To understand probability
- 5. Based Competency

6. Achievement Indicator

- a) Student can explain probability
- b) Student can solve probability problems 7. Material : Probability
- 8. Lecture Activity

: 3

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (probability)	20'	Discussion a Exercise	nd LCD, white/black board	A: 1-30 B: 25-54
Main Activities	 Explain notation and terminology Explain definition of probability Explain some properties of probability Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

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10. Reference

- A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
- B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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- 2. Subject & Code
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks : IV, Duration : 100 minutes

: To understand conditional probability

- 4. Semester and Duration 5. Based Competency
- 6. Achievement Indicator
 - a) Student can explain conditional probability
 - b) Student can solve conditional probability problems
- 7. Material

8. Lecture Activity

: Conditional probability :4

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (probability)	20'	Discussion and Exercise	LCD, white/black board	A: 1-30 B: 25-54
Main Activities	 Explain conditional probability Do exercise and discuss the Results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. Reference

- A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
- B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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- 2. Subject & Code
- 3. The number of SKS : Theory : 2 sks Practice : 1 sks
- 4. Semester and Duration : IV, Duration : 100 minutes
- : To understand Bayes theorem 5. Based Competency
- 6. Achievement Indicator
 - a) Student can explain Bayes theorem
 - b) Student can solve probability problem related to Bayes theorem

: 5

- : Bayes theorem 7. Material
- 8. Lecture Activity

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the conditional probability	20'	Discussion and Exercise	LCD, white/black board	A: 1-30 B: 25-54
Main Activities	 Explain Bayes theorem Do exercise and discuss the Results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

11. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

- 12. Reference
 - A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
 - B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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- 3. The number of SKS
- 4. Semester and Duration
- : Theory : 2 sks Practice : 1 sks : IV, Duration : 100 minutes

: MIPA/Mathematics Education

: Probability Theory, MAA 317

- 5. Based Competency
- : To understand random variables and discrete random variable
- 6. Achievement Indicator
 - a) Student can explain random variables
 - b) Student can explain discrete random variable
 - c) Student can solve problems related discrete random variable
- : Random variables and their distributions 7. Material :6
- 8. Lecture Activity

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (random variables)	20'	Discussion and Exercise	LCD, white/black board	A: 53-83
Main Activities	 Explain random variables Explain discrete random variables Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.

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FRM/FMIPA/064-00 5 September 2008

(Theory Class)

: Probability Theory, MAA 317

:To understand continuous random variables

- 1. Faculty /Study Program : MIPA/Mathematics Education
- 2. Subject & Code
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks : IV, Duration : 100 minutes
- Semester and Duration
 Based Competency
- 6. Achievement Indicator
 - a) Student can explain the definition of continuous random variable
 - b) Student can solve problem related to continuous random variable
- 7. Material

- : Continuous random variables
- 8. Lecture Activity

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Step	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (random variable)	20'	Discussion and Exercise	LCD, white/black board	A: 53-83
Main Activities	 Explain continuous random variable Do exercise and discuss the results 				
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

- 10. References
 - A. Bain, Lee J. & Engelhardt, Max. 1992. *Introduction to Probability and Mathematical Statistics*. Belmont: Duxbury Press.

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- 1. Faculty /Study Program : MIPA/Mathematics Education : Probability Theory, MAA 317
- 2. Subject & Code
- 3. The number of SKS
- 4. Semester and Duration
- 5. Based Competency
- 6. Achievement Indicator
 - a) Student can find the expectation of discrete and continuous random variables
- 7. Material

- : The expectation of random variables 8. Lecture Activity
 - : 8 36.4 1 1.1

: Theory : 2 sks Practice : 1 sks

: To understand the expectation of random variables

: IV, Duration : 100 minutes

Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (discrete and continuous random variables)	20'	Discussion and Exercise	LCD, white/black board	A: 53-83
Main Activities	 Explain the properties of expected values for discrete random variable Explain the properties of expected values for continuous random variable Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

- A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
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- 2. Subject & Code
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks : IV, Duration : 100 minutes
- 4. Semester and Duration 5. Based Competency
- 6. Achievement Indicator
 - a) Student can explain the properties of expectation
 - b) Student can prove the properties of expectation
- 7. Material

: The properties of expectation :9

: To understand the properties of expectation

8. Lecture Activity

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (discrete random variable and continuous random variable)	20'	Discussion and Exercise	LCD, white/black board	A: 53-83
Main Activities	 Explain the properties of expectation Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

- 10. References
 - A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.

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(Theory Class)

: To understand the moment of generating function

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- 2. Subject & Code : Probability Theory, MAA 317
- 3. The number of SKS : Theory : 2 sks Practice : 1 sks
- 4. Semester and Duration : IV, Duration : 100 minutes
- 5. Based Competency
- 6. Achievement Indicator
 - c) Student can find the moment generating functions
- 7. Material : The moment generating function

:10

8. Lecture Activity

Step Activity Duration Method Media References Component Introduction Explain briefly the material (discrete 20' Discussion and LCD, A: 53-83 random variable and continuous Exercise white/black random variable) board 60' 3. Explain the moment generating Main Activities function 4. Do exercise and discuss the results Closing Conclude the entire materials and give 10' Activity tasks Further Invite the students to ask or give an 10' Activities opinion about the materials

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

A. Bain, Lee J. & Engelhardt, Max. 1992. *Introduction to Probability and Mathematical Statistics*. Belmont: Duxbury Press.

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- 2. Subject & Code
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks 4. Semester and Duration : IV, Duration : 100 minutes
- 5. Based Competency
- 6. Achievement Indicator
 - a) Student can solve problems related to Bernoulli and binomial distributions
 - b) Student can find the expectation, variances and the moment generating function from Bernoulli and binomial distribution
- 7. Material

: Bernoulli and binomial distributions

: To understand special discrete distributions

- 8. Lecture Activity
- :11

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (special discrete distirbutions)	20'	Discussion and Exercise	LCD, white/black board	A: 91-124 B: 126-232
Main Activities	 1.Explain Bernoulli distribution 2.Explain binomial distribution 3.Do exercise and discuss the Results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

- 10. References
 - A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
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- 2. Subject & Code
- 3. The number of SKS
- 4. Semester and Duration
- 5. Based Competency
- : IV, Duration : 100 minutes
- : To understand discrete uniform, Poisson, and Geometric distributions
- 6. Achievement Indicator
 - a) Student can solve problems related to discrete uniform, Poisson, and Geometric distributions

: Theory : 2 sks Practice : 1 sks

- b) Student can find the expectation, variances and the moment generating function from discrete uniform, Poisson, and Geometric distributions
- 7. Material

: Discrete uniform, Poisson, and Geometric distributions

8. Lecture Activity

:12

Step	Activity	Duration	Method	Media	References
Component					
Introduction	Explain briefly the material of	20'	Discussion and	LCD,	A: 91-124
	special discrete distributions		Exercise	white/black	B: 126-232
	*			board	
Main	1. Explain discrete uniform	60'			
Activities	distribution				
	2. Explain Poisson distribution				
	3. Explain geometric distribution				
	4. Do exercise and discuss the				
	results				
Closing	Conclude the entire materials and	10'			
Activity	give tasks				
	-				
Further	Invite the students to ask or give an	10'			
Activities	opinion about the materials				
	*				

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

- 10. References
 - A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
 - B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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- 2. Subject & Code
- 3. The number of SKS
- 4. Semester and Duration
- 5. Based Competency
- : To understand negative binomial and hypergeometric distributions
- 6. Achievement Indicator
 - a) Student can solve problems related to negative binomial and hypergeometric distributions
 - b) Student can find the expectation, variances and the moment generating function from negative binomial and hypergeometric distributions

: Theory : 2 sks Practice : 1 sks

: IV, Duration : 100 minutes

7. Material

- : Negative binomial and hypergeometric distributions
- 8. Lecture Activity
- :13

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the special discrete distributions	20'	Discussion and Exercise	LCD, white/black board	A: 91-124 B: 126-232
Main Activities	 Explain negative binomial distribution Explain hypergeometric distribution Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

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10. References

- A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
- B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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- 2. Subject & Code
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks 4. Semester and Duration : IV, Duration : 100 minutes
- 5. Based Competency
- 6. Achievement Indicator
 - a) Student can find the expectation, variances and the moment generating function from continuous uniform and Gamma distributions
 - b) Student can solve problems related to continuous uniform and gamma distributions
- 7. Material

: Continuous uniform and gamma distributions :14

: To understand continuous uniform and gamma distributions

8. Lecture Activity

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the special continuous distribution	20'	Discussion and Exercise	LCD, white/black board	A: 91-124 B: 126-232
Main Activities	 Explain continuous uniform distribution Explain gamma distribution Explain the Binomial concept Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

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- 2. Subject & Code
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks 4. Semester and Duration : IV, Duration : 100 minutes
- 5. Based Competency
- 6. Achievement Indicator
 - a) Student can find the expectation, variances and the moment generating function from exponential and normal distributions
 - b) Student can solve problems related to exponential and normal distributions
- 7. Material

: Exponential and normal distributions

: To understand exponential and normal distributions

8. Lecture Activity

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Step	Activity	Duration	Method	Media	References
Component		201	D' ' 1	LCD	A 01 104
Introduction	Explain briefly the material (special	20	Discussion and	LCD,	A: 91-124
	continuous distributions)		Exercise	white/black	B: 126-232
				board	
Main	1. Explain exponential distribution	60'			
Activities	2. Explain normal distribution				
	3. Do exercise and discuss the				
	results				
Closing	Conclude the entire materials and	10'			
Activity	give tasks				
5	0				
Further	Invite the students to ask or give an	10'			
Activities	opinion about the materials	-			
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9. Evaluation

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- 10. References
 - A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
 - B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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- 2. Subject & Code
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks 4. Semester and Duration : IV, Duration : 100 minutes
- 5. Based Competency
- 6. Achievement Indicator
 - a) Student can find the expectation, variances and the moment generating function from Weibull, pareto, student's t distributions
 - b) Student can solve problems related to Weibull, pareto, student's t distributions
- 7. Material

: Weibull, pareto, student's t distributions :16

: To understand Weibull, pareto, student's t distributions

8. Lecture Activity

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (special continuous distribution)	20'	Discussion and Exercise	LCD, white/black board	A: 91-124 B: 126-232
Main Activities	 Explain Weibull distribution Explain pareto distribution Explain student's t distribution Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

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- 10. References
 - A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
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- 2. Subject & Code
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks 4. Semester and Duration : IV, Duration : 100 minutes
- 5. Based Competency
- 6. Achievement Indicator
 - a) Student can find the expectation, variances and the moment generating function from F, chisquare, and Beta distributions

: To understand chi-square, F, and Beta distributions

- b) Student can solve problems related to chi-square, F, and Beta distributions
- 7. Material

: Chi-square, F, and Beta distributions :17

8. Lecture Activity

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (special continuous distribution)	20'	Discussion and Exercise	LCD, white/black board	A: 91-124 B: 126-232
Main Activities	 Explain chi-square distribution Explain F distribution Explain Beta distribution Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

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10. References

- A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
- B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

Yogyakarta, Lecturer

Kismiantini, M.Si. NIP. 19790816 200112 2 001

(Theory Class)



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- 1. Faculty /Study Program
- 2. Subject & Code
- : MIPA/Mathematics Education : Probability Theory, MAA 317
- 3. The number of SKS : Theory : 2 sks Practice : 1 sks
- 4. Semester and Duration : 1
 - : IV, Duration : 100 minutes : To understand joint discrete distributions
- 5. Based Competency
 6. Achievement Indicator
- a) Student can solve problems related to joint discrete distributions
- 7. Material

8. Lecture Activity

: Joint discrete distributions : 18

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (joint distributions)	20'	Discussion and Exercise	LCD, white/black board	A: 137-160 B: 244-293
Main Activities	 Explain joint discrete distributions Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

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10. References

- A. Bain, Lee J. & Engelhardt, Max. 1992. *Introduction to Probability and Mathematical Statistics*. Belmont: Duxbury Press.
- B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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- 2. Subject & Code
- 3. The number of SKS
- 4. Semester and Duration : IV, Duration : 100 minutes
- 5. Based Competency
- 6. Achievement Indicator
 - a) Student can solve problems related to joint continuous distributions

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7. Material

: Joint continuous distributions

: Theory : 2 sks Practice : 1 sks

: To understand joint continuous distributions

8. Lecture Activity

Duration Method

Step	Activity	Duration	Method	Media	References
Component					
Introduction	Explain briefly the material (joint	20'	Discussion and	LCD,	A: 137-160
	distributions)		Exercise	white/black	B: 244-293
	,			board	
Main	1 Explain joint continuous	60'			
Activition	distributions	00			
Activities					
	2. Do exercise and discuss the				
	results				
Closing	Conclude the entire materials and	10'			
Activity	give tasks				
Further	Invite the students to ask or give an	10'			
Activities	opinion about the materials	10			
	opinion about the materials				
1					

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

- A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
- B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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- 2. Subject & Code
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks : IV, Duration : 100 minutes

: To understand independent random variables

- 4. Semester and Duration 5. Based Competency
- 6. Achievement Indicator
 - a) Student can explain independent random variables
 - b) Student can solve problems related to independent random variables
- 7. Material

8. Lecture Activity

: Independent random variables :20

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (independent event)	20'	Discussion and Exercise	LCD, white/black board	A: 137-160 B: 244-293
Main Activities	 Explain independent random variables Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

- A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
- B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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- 2. Subject & Code
- 3. The number of SKS : Theory : 2 sks Practice : 1 sks
- 4. Semester and Duration : IV, Duration : 100 minutes
- 5. Based Competency
- : To understand conditional distributions and random samples 6. Achievement Indicator
 - c) Student can explain conditional distributions and random samples
 - d) Student can solve problems related to conditional distributions
- 7. Material
- : Conditional distributions and random samples
- 8. Lecture Activity

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Step	Activity	Duration	Method	Media	References
Component					
Introduction	Explain briefly the material	20'	Discussion and	LCD,	A: 137-160
	(conditional probability)		Exercise	white/black	B: 244-293
				board	
Main	1. Explain conditional distributions	60'			
Activities	2. Explain random samples				
	3. Do exercise and discuss the				
	results				
Closing	Conclude the entire materials and	10'			
Activity	give tasks				
Further	Invite the students to ask or give an	10'			
Activities	opinion about the materials				
	*				

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

- 10. References
 - A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
 - B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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(Theory Class)

- 1. Faculty /Study Program : MIPA/Mathematics Education
- 2. Subject & Code : Probability Theory, MAA 317

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- 3. The number of SKS : Theory : 2 sks Practice : 1 sks
- 4. Semester and Duration : IV, Duration : 100 minutes
- 5. Based Competency
- : To understand the properties of expected values of two or more random variables
- 6. Achievement Indicator
 - a) Student can get the expected values of two or more random variables from probability mass functions
 - b) Student can get the expected values of two or more random variables from probability density functions
- 7. Material

- : The properties of expected values
- 8. Lecture Activity

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (expected values)	20'	Discussion and Exercise	LCD, white/black board	A: 171-188 B: 309-372
Main Activities	 Explain the properties of expected values for two or more random variables Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

- A. Bain, Lee J. & Engelhardt, Max. 1992. *Introduction to Probability and Mathematical Statistics*. Belmont: Duxbury Press.
- B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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(Theory Class)

- 1. Faculty /Study Program : MIPA/Mathematics Education
- 2. Subject & Code
- : Probability Theory, MAA 317
- 3. The number of SKS : Theory : 2 sks Practice : 1 sks : IV, Duration : 100 minutes
- 4. Semester and Duration
- 5. Based Competency : To understand covariance
- 6. Achievement Indicator

a) Student can get covariance from probability mass functions

- b) Student can get covariance from probability density functions : Covariance
- 7. Material
- 8. Lecture Activity

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Step	Activity	Duration	Method	Media	References
Component					
Introduction	Explain briefly the material (probability mass function and probability density function	20'	Discussion and Exercise	LCD, white/black board	A: 171-188 B: 309-372
Main Activities	 Explain covariance Explain correlation Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

- A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
- B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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References

A: 171-188

B: 309-372

(Theory Class)

- 1. Faculty /Study Program : MIPA/Mathematics Education : Probability Theory, MAA 317
- 2. Subject & Code
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks : IV, Duration : 100 minutes
- 4. Semester and Duration : To understand correlation
- 5. Based Competency 6. Achievement Indicator
 - c) Student can get correlation from probability mass functions
 - d) Student can get correlation from probability density functions
- 7. Material

- : Correlation
- 8. Lecture Activity :24 Step Activity Duration Method Media Component Introduction Explain briefly the material (probability 20' Discussion and LCD. mass function and probability density Exercise white/black function board 4. Explain covariance 60' Main Activities 5. Explain correlation 6. Do exercise and discuss the results Closing Conclude the entire materials and give 10' Activity tasks Further Invite the students to ask or give an 10' Activities opinion about the materials

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

- C. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
- D. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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(Theory Class)

- 1. Faculty /Study Program : MIPA/Mathematics Education : Probability Theory, MAA 317
- 2. Subject & Code
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks : IV, Duration : 100 minutes

: To understand conditional expectation

- 4. Semester and Duration 5. Based Competency
- 6. Achievement Indicator
 - a) Student can get conditional expectation from probability mass functions
 - b) Student can get conditional expectation from probability density functions
- 7. Material

8. Lecture Activity

: Conditional expectation : 25

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (conditional probability)	20'	Discussion and Exercise	LCD, white/black board	A: 171-188 B: 309-372
Main Activities	 Explain conditional expectation from probability mass functions Explain conditional expectation from probability density functionc Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

- A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.
- B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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(Theory Class)

: To understand joint moment generating functions

: Joint moment generating functions

- 1. Faculty /Study Program : MIPA/Mathematics Education
- 2. Subject & Code : Probability Theory, MAA 317
- 3. The number of SKS : Theory : 2 sks Practice : 1 sks

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- 4. Semester and Duration : IV, Duration : 100 minutes
- 5. Based Competency
- 6. Achievement Indicator
 - a) Student can get joint moment generating functions
- 7. Material
- 8. Lecture Activity

Step Activity Duration Method Media References Component 20' Introduction Explain briefly the material Discussion and LCD, A: 171-188 (moment generating function) Exercise white/black B: 309-372 board 1. Explain joint moment generating 60' Main Activities functions 2. Do exercise and discuss the results Conclude the entire materials and 10' Closing Activity give tasks 10' Further Invite the students to ask or give an Activities opinion about the materials

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

- A. Bain, Lee J. & Engelhardt, Max. 1992. *Introduction to Probability and Mathematical Statistics*. Belmont: Duxbury Press.
- B. Ross, Sheldon M. 1998. A First Course in Probability. New Jersey: Prentice-Hall.

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(Theory Class)

- 1. Faculty /Study Program : MIPA/Mathematics Education : Probability Theory, MAA 317
- 2. Subject & Code
- 3. The number of SKS : Theory : 2 sks Practice : 1 sks
- 4. Semester and Duration : IV, Duration : 100 minutes
- 5. Based Competency
- : To understand the cumulative density function techniques
- 6. Achievement Indicator

a) Student can explain the cumulative density function techniques

b) Student can solve problem related to the cumulative density function techniques

7. Material

: The cumulative density function techniques

8. Lecture Activity

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Step	Activity	Duration	Method	Media	References
Component					
Introduction	Explain briefly the material (cumulative density function)	20'	Discussion and Exercise	LCD, white/black board	A: 193-214
Main Activities	1. Explain the cumulative density function techniques	60'			
	2. Do exercise and discuss the results				
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

- 10. References
 - A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.

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(Theory Class)

: Probability Theory, MAA 317

: To understand transformation methods

- 1. Faculty /Study Program : MIPA/Mathematics Education
- 2. Subject & Code
- 3. The number of SKS
- : Theory : 2 sks Practice : 1 sks : IV, Duration : 100 minutes
- Semester and Duration
 Based Competency
- 6. Achievement Indicator
 - a) Student can explain transformation 1-1
 - b) Student can explain transformation not 1-1
- 7. Material

8. Lecture Activity

: Transformation methods : 28

Step Component	Activity	Duration	Method	Media	References
Introduction	Explain briefly the material (functions of random variables)	20'	Discussion and Exercise	LCD, white/black board	A: 193-214
Main Activities	 Explain transformation 1-1 Explain transformation not 1-1 Do exercise and discuss the results 	60'			
Closing Activity	Conclude the entire materials and give tasks	10'			
Further Activities	Invite the students to ask or give an opinion about the materials	10'			

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

A. Bain, Lee J. & Engelhardt, Max. 1992. *Introduction to Probability and Mathematical Statistics*. Belmont: Duxbury Press.

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(Theory Class)

- 1. Faculty /Study Program : MIPA/Mathematics Education
- 2. Subject & Code : Probability Theory, MAA 317
- 3. The number of SKS : Theory : 2 sks Practice : 1 sks
- 4. Semester and Duration : IV, Duration : 100 minutes
- 5. Based Competency
- : To understand sums of random variables 6. Achievement Indicator

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- a) Student can solve problem related to sums of random variables
- 7. Material : Sums of random variables
- 8. Lecture Activity

Step Activity Duration Method Media References Component Introduction Explain briefly the material (discrete 20' Discussion and LCD, A: 193-214 random variable and continuous Exercise white/black board random variable) 1. Explain sums of random variables Main 60' 2. Do exercise and discuss the results Activities Conclude the entire materials and give Closing 10' Activity tasks Further Invite the students to ask or give an 10' Activities opinion about the materials

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.

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(Theory Class)

- 1. Faculty /Study Program : MIPA/Mathematics Education
- 2. Subject & Code : Probability Theory, MAA 317
- 3. The number of SKS : Theory : 2 sks Practice : 1 sks
- 4. Semester and Duration : IV, Duration : 100 minutes
- 5. Based Competency
 - : To understand the moment generating function techniques
- 6. Achievement Indicator

a) Student can solve problem related to the moment generating function techniques

- 7. Material 8. Lecture Activity
- : The moment generating function techniques : 30

Step	Activity	Duration	Method	Media	References
Component					
Introduction	Explain briefly the material (moment generating function)	20'	Discussion and Exercise	LCD, white/black board	A: 193-214
Main	1. Explain the moment generating	60'			
Activities	function techniques				
	2. Do exercise and discuss the results				
Closing	Conclude the entire materials and	10'			
Activity	give tasks				
Further	Invite the students to ask or give an	10'			
Activities	opinion about the materials				

9. Evaluation

The evaluation is performed based on the student activities in discussion, doing exercise.

10. References

A. Bain, Lee J. & Engelhardt, Max. 1992. Introduction to Probability and Mathematical Statistics. Belmont: Duxbury Press.

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