

SEMESTER LEARNING PLAN

**MATHEMATICAL STATISTICS COURSES
(23H01121303)**



TEACHING TEAM

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STUDI PROGRAM OF MATHEMATICS - S1
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
HASANUDDIN UNIVERSITY
MAKASSAR
2025

**STUDY PROGRAM OF MATEMATIKA - S1
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
HASANUDDIN UNIVERSITY**

Vision

The scientific vision is to become a study program with an international reputation in the development of mathematics based on the Indonesian maritime continent by 2030

Vision Strategy

Mission

To fulfill the above vision, the Undergraduate Mathematics Study Program has four missions, namely:

- Organizing innovative and effective mathematics learning to improve the quality and creativity of students in order to compete nationally and internationally.
- Improving a research culture that produces internationally reputable publications.
- Playing an active role in community service activities and collaborating with other academic institutions, government, business, media and society.
- Carry out governance in the Mathematics Study Program that is effective, efficient and transparent based on IT and ISO 9001:2015 standards to achieve the tridharma goals.

Graduate Profiles

Gagal diterjemahkan

PLO charged to courses

CPL-1 (ILO 1) - Students are able to demonstrate an advanced understanding of basic pure and simple applied mathematics.

CPL-3 (KU1) - The students are able to analyse a mathematical problem with logic, analytic, and systematic structure

CPL-4 (KU2) - The students are able to use their sufficiently mathematical critical thinking for abstraction and generalization of a mathematical problem

CPL-7 (KK3) - The students are able to demonstrate mathematical skills which include interpretation, connecting problems, solving problems, and communicating individually or teamwork

Course Learning Outcomes (CLO)

CPMK-1: Students can understand the basic principles of inferential statistics (estimation and hypothesis testing) (CPL1 dan CPL4)

CPMK-2: Students can analyze mathematical problems in a logical, analytical and systematically structured way (CPL3 dan CPL7)

CPMK-3: Students can demonstrate knowledge of estimation and testing for large sample sizes (CPL3 dan CPL4)

Sub-CLO

Sub CPMK-1: Able to calculate limit distributions (CPMK-1)

Sub CPMK-2: Able to solve parameter problems that are estimated using several methods (CPMK-1 dan CPMK-2)

Sub CPMK-3: Able to get sufficient statistics for a certain parameter (CPMK-1 dan CPMK-2)

Sub CPMK-4: Able to get quite complete statistics for a certain parameter (CPMK-1 dan CPMK-2)

Sub CPMK-5: Be able to obtain confidence intervals (CPMK-1 dan CPMK-2)

Sub CPMK-6: Able to explain the concept of hypothesis testing (CPMK-1 dan CPMK-3)

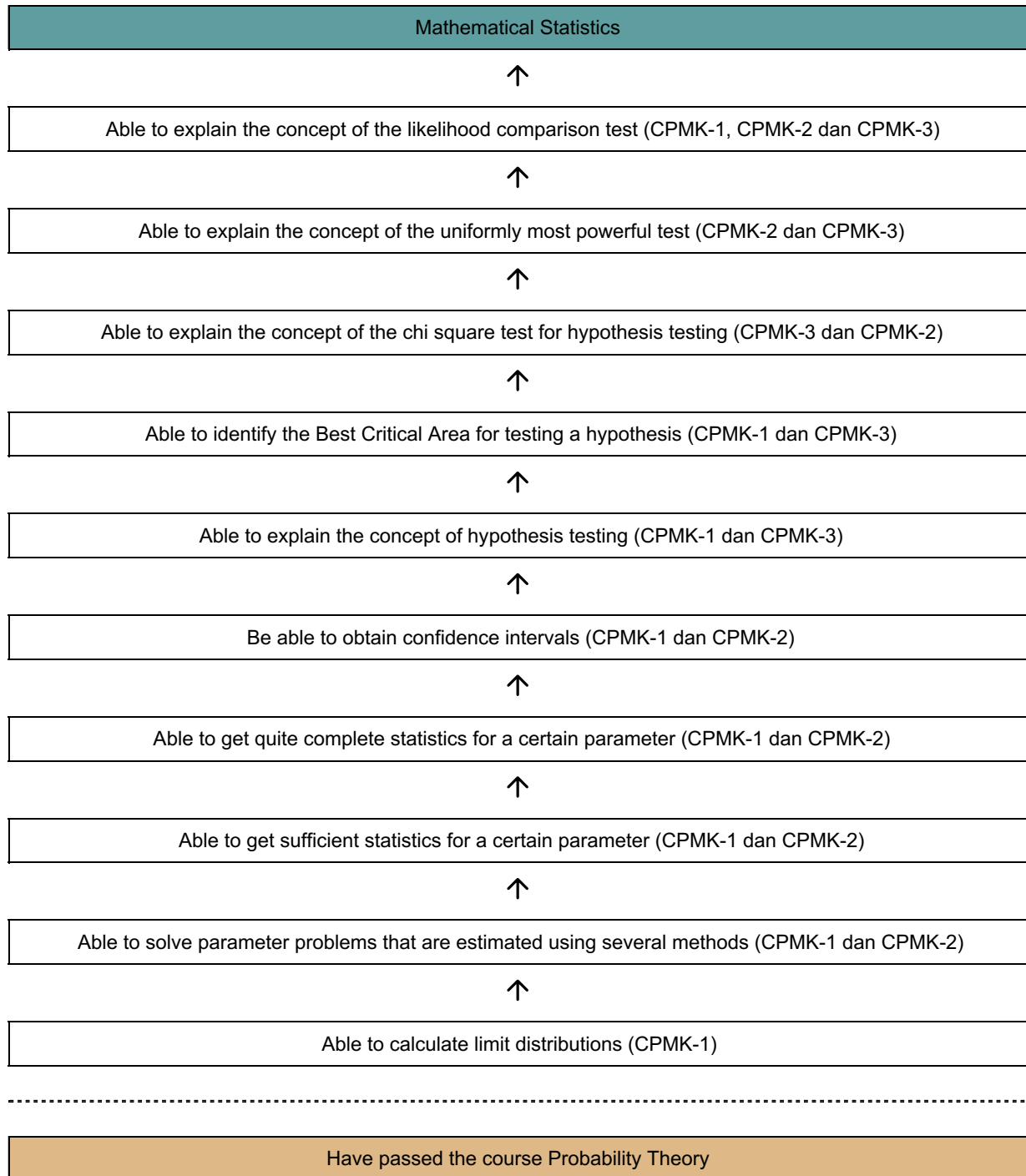
Sub CPMK-7: Able to identify the Best Critical Area for testing a hypothesis (CPMK-1 dan CPMK-3)

Sub CPMK-8: Able to explain the concept of the chi square test for hypothesis testing (CPMK-2 dan CPMK-3)

Sub CPMK-9: Able to explain the concept of the uniformly most powerful test (CPMK-2 dan CPMK-3)

Sub CPMK-10: Able to explain the concept of the likelihood comparison test (CPMK-1, CPMK-2 dan CPMK-3)

Learning Analytics





HASANUDDIN UNIVERSITY

FAKULTY OF MATHEMATICS AND NATURAL SCIENCES

STUDY PROGRAM OF MATHEMATICS - S1

SEMESTER LEARNING PLAN

Course		Code	Course Group	Credits	SEMESTER	Compilation Date
Mathematical Statistics		23H01121303		3	4	10 Agustus 2025
AUTHORITY		SLP Developer Lecturer	Coordinator		Head of Study Program	
		Jusmawati Massalesse, S.Si.,M.Si., Dr. Firman, S.Si.,M.Si.	Dr. Firman, S.Si.,M.Si.		Dr. Firman, S.Si.,M.Si.	
	SLOs that are imposed on the course					
	SLO-1:	Mahasiwa memiliki pemahaman yang relatif mendalam dalam matematika murni dan matematika terapan sederhana.				
	SLO-3:	Mahasiswa mampu menganalisis suatu masalah matematika dengan logika, analitik, dan struktur sistematis				
	SLO-4:	Mahasiswa dapat menggunakan pemikiran kritis matematis mereka yang cukup untuk abstraksi dan generalisasi masalah matematika berdasarkan hasil analisis informasi dan data				
	SLO-7:	Mahasiswa dapat menunjukkan keterampilan matematika termasuk menghubungkan masalah, menyelesaikan masalah, interpretasi, dan berkomunikasi secara individu atau dengan kerja tim				
	SLO ⇒ Course Learning Outcomes					
	After completing this course, it is expected:					
	SLO-1	CLO-1: Students can understand the basic principles of inferential statistics (estimation and hypothesis testing)				
	SLO-4	CLO-1: Students can understand the basic principles of inferential statistics (estimation and hypothesis testing)				
		CLO-3: Students can demonstrate knowledge of estimation and testing for large sample sizes				
	SLO-3	CLO-2: Students can analyze mathematical problems in a logical, analytical and systematically structured way				
		CLO-3: Students can demonstrate knowledge of estimation and testing for large sample sizes				
	SLO-7	CLO-2: Students can analyze mathematical problems in a logical, analytical and systematically structured way				
	CLO ⇒ Sub-CLO					
		Sub-CLO-1:Able to calculate limit distributions				
		Sub-CLO-2:Able to solve parameter problems that are estimated using several methods				

Learning Outcomes Course	CLO-1	Sub-CLO-3:Able to get sufficient statistics for a certain parameter								
		Sub-CLO-4:Able to get quite complete statistics for a certain parameter								
		Sub-CLO-5:Be able to obtain confidence intervals								
		Sub-CLO-6:Able to explain the concept of hypothesis testing								
		Sub-CLO-7:Able to identify the Best Critical Area for testing a hypothesis								
		Sub-CLO-10:Able to explain the concept of the likelihood comparison test								
	CLO-2	Sub-CLO-2:Able to solve parameter problems that are estimated using several methods								
		Sub-CLO-3:Able to get sufficient statistics for a certain parameter								
		Sub-CLO-4:Able to get quite complete statistics for a certain parameter								
		Sub-CLO-5:Be able to obtain confidence intervals								
		Sub-CLO-8:Able to explain the concept of the chi square test for hypothesis testing								
		Sub-CLO-9:Able to explain the concept of the uniformly most powerful test								
		Sub-CLO-10:Able to explain the concept of the likelihood comparison test								
	CLO-3	Sub-CLO-6:Able to explain the concept of hypothesis testing								
		Sub-CLO-7:Able to identify the Best Critical Area for testing a hypothesis								
		Sub-CLO-8:Able to explain the concept of the chi square test for hypothesis testing								
		Sub-CLO-9:Able to explain the concept of the uniformly most powerful test								
		Sub-CLO-10:Able to explain the concept of the likelihood comparison test								
	Correlation between SLOs/CLOs to Sub-CLOs									

SLOs that are charged on the Course	CPMK	SUB CPMK	Form of Assessment*						Weight	Value	Student Score
			Formative	Sumative							
				Independent Assignment	Case Studies	Short Q&A	Written Exam	Written Exam			
SLO-4	CLO-1	SUB-CLO-1	fill in the correct answer	5	0	0	0	0	5		
SLO-7	CLO-2	SUB-CLO-2	discipline, perseverance, activeness	0	15	0	0	0	15		

SLOs that are charged on the Course	CPMK	SUB CPMK	Form of Assessment*						Weight	Value	Student Score
			Formative	Sumative							
				Independent Assignment	Case Studies	Short Q&A	Written Exam	Written Exam			
SLO-7	CLO-2	SUB-CLO-3	discipline, perseverance, activeness	0	10	0	0	0	10		
SLO-7	CLO-2	SUB-CLO-4	discipline, perseverance, activeness	0	0	5	15	0	20		
SLO-7	CLO-2	SUB-CLO-5	discipline, perseverance, activeness	5	0	0	0	0	5		
SLO-4	CLO-3	SUB-CLO-6	discipline, perseverance, activeness	0	10	0	0	0	10		
SLO-4	CLO-3	SUB-CLO-7	discipline, perseverance, activeness	0	5	0	0	0	5		
SLO-7	CLO-2	SUB-CLO-8	discipline, perseverance, activeness	0	5	0	0	0	5		
SLO-4	CLO-3	SUB-CLO-9	discipline, perseverance, activeness	0	10	0	0	0	10		
SLO-4	CLO-3	SUB-CLO-10	discipline, perseverance, activeness	0	0	0	0	15	15		
				10	55	5	15	15	100		
Course Description		In this course, the concept of inference in statistics is studied if a sample of size n is taken. For this reason, the material studied is Point estimation, interval estimation, Adequacy, Completeness, Unbiased estimator , hypothesis testing.									
Learning Materials/Subjects		1. Introduction to Statistical Inference (Introduction to Statistical Inference) 2. Sufficient Statistics 3. Point Estimation and Interval Estimation (Point Estimation and Confidence Interval) 4. Hypothesis Testing Theory									
		Main References									

Reference		1. Introduction to Mathematical Statistics. 7th edition, Chapters V to IX, Robert V Hogg et al, 2007 2. Statistical Inference, George Casella and Roger L Berger, Duxbury & Thomas Learning, 2001					
		Additional References					
		-					
Teaching Team		Jusmawati Massalesse, S.Si.,M.Si., Dr. Firman, S.Si.,M.Si.					
Course requirement		Probability Theory					
Week	Sub CPMK (End-of-stage learning ability)	Penilaian (Assesment)		Learning Forms and Methods [time estimate]		Content	Weight of Assessment (%)
		Indicator	Techniques & Criteria	Offline	Online		
1	2	3	4	5	6	7	8
1-2	Able to calculate limit distributions (CPMK-1)	Formative: Accuracy of understanding Sumative: Accuracy of explanation concepts with examples; Clarity of Description; Material the latest innovative library	Formative Criteria: fill in the correct answer dinilai dengan rubrik 01 Sumative Criteria: Independent Assignment (5) dinilai dengan rubrik 01 Assessment Technique: Test and Non-Test	Studying: Cooperative learning (Cooperative learning), other methods 2X3X50		Lecture Contract Convergence in distributions, convergence in probability, Limits of moment generating functions, Central limit theorem, Several theorems on limit distributions.	5

3-4	Able to solve parameter problems that are estimated using several methods (CPMK-1, CPMK-2)	Formative: accuracy of understanding Sumative: The accuracy of the parameter estimator obtained	Formative Criteria: discipline, perseverance, activeness dinilai dengan rubrik 01 Sumative Criteria: Case Studies (15) dinilai dengan rubrik 01 Assessment Technique: Test and Non-Test	Studying: Self-Directed Learning, Case Study 2X3X50		Point estimation : assessment possibility maximum, Information Fisher and RaoCramer's Inequality	15
5-6	Able to get sufficient statistics for a certain parameter (CPMK-1, CPMK-2)	Formative: accuracy of understanding Sumative: The statistical accuracy is sufficient for that parameter estimated	Formative Criteria: discipline, perseverance, activeness dinilai dengan rubrik 04 Sumative Criteria: Case Studies (5) dinilai dengan rubrik 01 Case Studies (5) dinilai dengan rubrik 02 Assessment Technique: Gagal diterjemahkan	Studying: Case Study, Collaborative Learning 2X3X50		Enough statistics, Several traits Enough statistics	10

7-8	Able to get quite complete statistics for a certain parameter (CPMK-1, CPMK-2)	Formative: accuracy of understanding Sumative: The statistical accuracy is sufficient complete for parameters which is estimated	Formative Criteria: discipline, perseverance, activeness dinilai dengan rubrik 04 Sumative Criteria: Short Q&A (5) dinilai dengan rubrik 04 Written Exam (15) dinilai dengan rubrik 01 Assessment Technique: Test and Non-Test	Studying: Collaborative learning (Collaborative Learning) 1X3X50		Completeness and Singularity	20
9	Be able to obtain confidence intervals (CPMK-1, CPMK-2)	Formative: accuracy of understanding Sumative: Step accuracy get a hose trust.	Formative Criteria: discipline, perseverance, activeness dinilai dengan rubrik 01 Sumative Criteria: Independent Assignment (5) dinilai dengan rubrik 01 Assessment Technique: Test and Non-Test	Studying: Other methods 1X3X50		confidence interval for one average normal and a difference of two normal mean	5

10-11	Able to explain the concept of hypothesis testing (CPMK-1, CPMK-3)	Formative: accuracy of understanding Sumative: Precision in manufacturing hypothesis and carry out tests hypothesis	Formative Criteria: discipline, perseverance, activeness dinilai dengan rubrik 01 Sumative Criteria: Case Studies (10) dinilai dengan rubrik 01 Assessment Technique: Gagal diterjemahkan	Studying: Case Study, Collaborative Learning 2X3X50		Introduction to the test hypothesis, Theory Hypothesis Testing, Hypothesis Testing	10
12	Able to identify the Best Critical Area for testing a hypothesis (CPMK-1, CPMK-3)	Formative: accuracy of understanding Sumative: Regional Identification Accuracy Best Critical for test	Formative Criteria: discipline, perseverance, activeness dinilai dengan rubrik 04 Sumative Criteria: Case Studies (5) dinilai dengan rubrik 04 Assessment Technique: Gagal diterjemahkan	Studying: Case Study (Case Study), other methods 1X3X50		NeymanPearson and Area Theorem	5
13	Able to explain the concept of the chi square test for hypothesis testing (CPMK-3, CPMK-2)	Formative: Gagal diterjemahkan Sumative: The accuracy of the chi square test obtained from the data observations for hypothesis testing	Formative Criteria: discipline, perseverance, activeness dinilai dengan rubrik 04 Sumative Criteria: Case Studies (5) dinilai dengan rubrik 01 Assessment Technique: Test and Non-Test	Studying: Case Study (Case Study), other methods 1X3X50		Chi Square Test	5

14	Able to explain the concept of the uniformly most powerful test (CPMK-2, CPMK-3)	Formative: Gagal diterjemahkan Sumative: Test accuracy uniformly most powerful obtained from observation data for testing hypothesis	Formative Criteria: discipline, perseverance, activeness dinilai dengan rubrik 04 Sumative Criteria: Case Studies (10) dinilai dengan rubrik 01 Assessment Technique: Gagal diterjemahkan	Studying: Case Study (Case Study), other methods 1X3X50		Test Uniformly Most Powerful	10
15-16	Able to explain the concept of the likelihood comparison test (CPMK-1, CPMK-2, CPMK-3)	Formative: Gagal diterjemahkan Sumative: Comparison test accuracy likelihood obtained	Formative Criteria: discipline, perseverance, activeness dinilai dengan rubrik 01 Sumative Criteria: Written Exam (15) dinilai dengan rubrik 01 Assessment Technique: Test and Non-Test	Studying: Collaborative learning (Collaborative Learning), other methods 2		Comparative Test Likelihood	15
							100

Matrix of SLO, CLO, and Assessment Method

SLO / CLO	CLO-1	CLO-2	CLO-3
CPL-1 (ILO 1)	Independent Assignment (Weight 5%) Case Studies (Weight 15%) Case Studies (Weight 10%) Short Q&A (Weight 5%) Written Exam (Weight 15%) Independent Assignment (Weight 5%) Case Studies (Weight 10%) Case Studies (Weight 5%) Written Exam (Weight 15%)		
CPL-3 (KU1)		Case Studies (Weight 15%) Case Studies (Weight 10%) Short Q&A (Weight 5%) Written Exam (Weight 15%) Independent Assignment (Weight 5%) Case Studies (Weight 5%) Case Studies (Weight 10%) Written Exam (Weight 15%)	Case Studies (Weight 10%) Case Studies (Weight 5%) Case Studies (Weight 5%) Case Studies (Weight 10%) Written Exam (Weight 15%)

SLO / CLO	CLO-1	CLO-2	CLO-3
CPL-4 (KU2)	Independent Assignment (Weight 5%) Case Studies (Weight 15%) Case Studies (Weight 10%) Short Q&A (Weight 5%) Written Exam (Weight 15%) Independent Assignment (Weight 5%) Case Studies (Weight 10%) Case Studies (Weight 5%) Written Exam (Weight 15%)		Case Studies (Weight 10%) Case Studies (Weight 5%) Case Studies (Weight 5%) Case Studies (Weight 10%) Written Exam (Weight 15%)
CPL-7 (KK3)		Case Studies (Weight 15%) Case Studies (Weight 10%) Short Q&A (Weight 5%) Written Exam (Weight 15%) Independent Assignment (Weight 5%) Case Studies (Weight 5%) Case Studies (Weight 10%) Written Exam (Weight 15%)	

Evaluation Type and Assessment Weight

Type	Assessment Weight
Independent Assignment	10
Case Studies	55
Short Q&A	5
Written Exam	15
Written Exam	15
Total	100

Assessment and Evaluation of Student Achievement of CLOs

SLOs that are charged on the Course	CLO	SUB CLO	Form of Assessment*						Weight	Value	Student Score
			Formative	Sumative							
				Independent Assignment	Case Studies	Short Q&A	Written Exam	Written Exam			
SLO-4	CLO-1	SUB-CLO-1	fill in the correct answer	5	0	0	0	0	5		
SLO-7	CLO-2	SUB-CLO-2	discipline, perseverance, activeness	0	15	0	0	0	15		
SLO-7	CLO-2	SUB-CLO-3	discipline, perseverance, activeness	0	10	0	0	0	10		
SLO-7	CLO-2	SUB-CLO-4	discipline, perseverance, activeness	0	0	5	15	0	20		
SLO-7	CLO-2	SUB-CLO-5	discipline, perseverance, activeness	5	0	0	0	0	5		
SLO-4	CLO-3	SUB-CLO-6	discipline, perseverance, activeness	0	10	0	0	0	10		
SLO-4	CLO-3	SUB-CLO-7	discipline, perseverance, activeness	0	5	0	0	0	5		
SLO-7	CLO-2	SUB-CLO-8	discipline, perseverance, activeness	0	5	0	0	0	5		
SLO-4	CLO-3	SUB-CLO-9	discipline, perseverance, activeness	0	10	0	0	0	10		
SLO-4	CLO-3	SUB-CLO-10	discipline, perseverance, activeness	0	0	0	0	15	15		
				10	55	5	15	15	100		

Lampiran Rubrik 01 | ASSESMENT TERTULIS

Kriteria Penilaian	Bobot/Skor Penilaian				
	5	4	3	2	1/0
Konsep/ metode yang digunakan	Penjelasan konsep /metode (*) sangat lengkap dan akurat	Penjelasan konsep/metode (*) cukup jelas tetapi beberapa informasi tidak dituliskan secara lengkap.	Penjelasan konsep/metode (*) kurang jelas dan banyak informasi yang tidak dituliskan	Penjelasan yang dituliskan hampir tidak berkaitan dengan konsep/ metode (*)	Tidak memberikan konsep yang dibutuhkan
Sistematika penulisan/ pembuktian	Sistematika penulisan/ pembuktian sangat jelas dan terstruktur	Sistematika penulisan/ pembuktian cukup jelas namun ada langkah yang hilang	Sistematika penulisan/ pembuktian kurang jelas	Sistematika penulisan/ pembuktian tidak jelas	Jawaban tidak benar/ tidak ada
Interpretasi geometri/ kualitatif/ kuantitatif.	Interpretasi geometri/ kualitatif/ kuantitatif (*) tepat dan lengkap	Interpretasi geometri/ kualitatif/ kuantitatif (*) cukup lengkap/ tepat	Interpretasi geometri/ kualitatif/ kuantitatif (*) kurang lengkap/ tepat	Interpretasi geometri/ kualitatif/ kuantitatif (*) tidak lengkap/ tepat	Interpretasi geometri/ kualitatif/kuantitatif(*) tidak benar
Perhitungan/kesimpulan	Perhitungan/ kesimpulan sangat akurat/tepat dan disertai alasan yang mendasarinya	Perhitungan/ kesimpulan cukup akurat/tepat dan disertai alasan yang mendasarinya	Kesimpulan cukup tepat, namun tidak disertai alasan yang jelas	Perhitungan/ kesimpulan kurang akurat/tepat dan tidak disertai alasan yang mendasarinya	Perhitungan/kesimpulan salah

Lampiran Rubrik 02 | ASSESMENT PRESENTASI

Kriteria Penilaian	Bobot/Skor Penilaian				
	5	4	3	2	1
Penguasaan Materi	Mahasiswa sangat menguasai materi	Mahasiswa menguasai materi	Mahasiswa cukup menguasai materi	Mahasiswa kurang menguasai materi	Mahasiswa tidak menguasai materi
Sistematika Penyajian	Mahasiswa menyajikan materi presentasi dengan sangat sistematis	Mahasiswa menyajikan materi presentasi dengan sistematis	Mahasiswa menyajikan materi presentasi dengan cukup sistematis	Mahasiswa menyajikan materi presentasi dengan kurang sistematis	Mahasiswa menyajikan materi presentasi dengan tidak sistematis
Suara dan Ekspresi	Mahasiswa menjelaskan dengan suara yang sangat jelas, volume yang sangat sesuai, pengucapan istilah sangat tepat	Mahasiswa menjelaskan dengan suara yang jelas, volume yang sesuai, pengucapan istilah tepat	Mahasiswa menjelaskan dengan suara yang cukup jelas, volume yang cukup sesuai, pengucapan istilah cukup tepat	Mahasiswa menjelaskan dengan suara yang kurang jelas, volume yang kurang sesuai, pengucapan istilah kurang tepat	Mahasiswa menjelaskan dengan suara yang tidak jelas, volume yang tidak sesuai, pengucapan istilah tidak tepat
Kepercayaan Diri	Mahasiswa berbicara dengan sangat semangat, menularkan semangat dan antusiasme pada pendengar, eye contact ke semua peserta (audience)	Mahasiswa berbicara dengan semangat, menularkan semangat dan antusiasme pada pendengar, eye contact ke semua peserta (audience)	Mahasiswa berbicara dengan cukup semangat, cukup menularkan semangat dan antusiasme pada pendengar, eye contact ke semua peserta (audience)	Mahasiswa berbicara dengan kurang semangat, kurang menularkan semangat dan antusiasme pada pendengar, eye contact yang kurang ke semua peserta (audience)	Mahasiswa berbicara dengan tidak semangat, tidak dapat menularkan semangat dan antusiasme pada pendengar, tidak ada eye contact ke semua peserta (audience)
Kemampuan menjawab pertanyaan	Mahasiswa mampu menjawab semua pertanyaan dengan sangat tepat, sangat mendalam (lebih dari yang dibutuhkan), dan sangat tajam	Mahasiswa mampu menjawab semua pertanyaan dengan tepat, mendalam (lebih dari yang dibutuhkan), dan tajam	Mahasiswa mampu menjawab semua pertanyaan dengan cukup tepat, cukup mendalam, dan cukup tajam	Mahasiswa mampu menjawab semua pertanyaan dengan kurang tepat, kurang mendalam, dan kurang tajam	Mahasiswa mampu menjawab semua pertanyaan dengan tidak tepat, tidak mendalam, dan tidak tajam
Kepemimpinan (diskusi kelompok)	Mahasiswa sangat mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya presentasi	Mahasiswa mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya presentasi	Mahasiswa cukup mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya presentasi	Mahasiswa kurang mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya presentasi	Mahasiswa tidak mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya presentasi

Lampiran Rubrik 04 | ASSESMENT DISKUSI

Kriteria Penilaian	Bobot/Skor Penilaian				
	5	4	3	2	1
Kelugasan argumen	Mahasiswa menyampaikan pendapat menggunakan bahasa yang sangat baik, sangat mudah dimengerti, intonasi suara yang sangat jelas	Mahasiswa menyampaikan pendapat menggunakan bahasa yang baik, mudah dimengerti, intonasi suara yang jelas	Mahasiswa menyampaikan pendapat menggunakan bahasa yang cukup baik, cukup mudah dimengerti, intonasi suara yang cukup jelas	Mahasiswa menyampaikan pendapat menggunakan bahasa yang kurang baik, kurang mudah dimengerti, intonasi suara yang kurang jelas	Mahasiswa menyampaikan pendapat menggunakan bahasa yang tidak baik, tidak mudah dimengerti, intonasi suara yang tidak jelas
Parsipitasi aktif	Mahasiswa sangat aktif menyampaikan pendapat/masukannya, sangat aktif memberi jawaban, dan sangat berinisiatif mencari solusi	Mahasiswa aktif menyampaikan pendapat/masukannya, aktif memberi jawaban, dan berinisiatif mencari solusi	Mahasiswa cukup aktif menyampaikan pendapat/masukannya, cukup aktif memberi jawaban, dan cukup berinisiatif mencari solusi	Mahasiswa kurang aktif menyampaikan pendapat/masukannya, kurang aktif memberi jawaban, dan kurang berinisiatif mencari solusi	Mahasiswa tidak aktif menyampaikan pendapat/masukannya, tidak aktif memberi jawaban, dan tidak berinisiatif mencari solusi
Etika dan sikap tata nilai	Mahasiswa sangat mengindahkan etika diskusi akademik secara umum	Mahasiswa mengindahkan etika diskusi akademik secara umum	Mahasiswa cukup mengindahkan etika diskusi akademik secara umum	Mahasiswa kurang mengindahkan etika diskusi akademik secara umum	Mahasiswa tidak mengindahkan etika diskusi akademik secara umum
Kepemimpinan (diskusi kelompok)	Mahasiswa sangat mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya diskusi	Mahasiswa mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya diskusi	Mahasiswa cukup mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya diskusi	Mahasiswa kurang mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya diskusi	Mahasiswa tidak mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya diskusi